

PROPOSAL FORM
BALTIMORE COUNTY
DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
TOWSON, MARYLAND

Division of Construction Contracts Administration



Contract Number 25121 PO0
Property Management Project
Baltimore County Historic Courthouse Handicap Lift –
400 Washington Avenue, Towson, Maryland 21204
Towson – District 9c6
Workday Number
PROJ-10000974

CONTRACT BASED ON SEPTEMBER 2023
STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS
AND STANDARD DETAILS FOR CONSTRUCTION

Bidders Information

A pre-bid meeting will be held on Wednesday, November 5, 2025 at 10:00 a.m. EST via WebEx. *Phone-In* (Audio Only) 1-415-655-0001, Meeting Number 2314 559 1941##. *Video Conference* go to <https://signin.webex.com/join> Meeting Number 2314 559 1941, **Password: mnJXmZV8E27**, for WebEx link go to: www.baltimorecountymd.gov/departments/public-works/engineering/contracts/current-solicitations.

Baltimore County Prevailing Wage & Local Hiring Affidavit, Requirements & Wage Rates **see pages 466-473**.

(Contract Disclosure): “Wage rates that are in effect as of the contract solicitation date will be the wage rates through the duration of the project”

MBE/WBE Requirements & Forms **see pages 474-488**

THIS PROPOSAL FORM INCLUDES AND INCORPORATES ALL DOCUMENTS AND INFORMATION REFLECTED, LISTED, AND/OR REFERENCED IN THIS TABLE OF CONTENTS, AND ALL SUCH DOCUMENTS AND INFORMATION ARE PART OF AND INCORPORATED INTO THE CONTRACT DOCUMENTS.

TABLE OF CONTENTS

<u>Section Number</u>	<u>SECTION NAME</u>	<u>Page Number</u>
	Title Page (cover)	1
	Table of Contents	2
I.	INFORMATION FOR BIDDERS	3-6
II.	SPECIAL PROVISIONS	7-454
	(General Provisions)	(11-12)
	(General Conditions)	(13-42)
III.	PERMITS.....	455
IV.	PROPOSAL (This section to be completed at time of bid)	456
	Description of Work	457
	Description of Items & Schedule of Prices	458
	Proposal Affidavit	459-464
	Bid Bond	465
	Baltimore County Prevailing Wage and Local Hiring Affidavit, Requirements & Wage Rates	466-473
	MBE/WBE Requirements and Forms	474-488
V.	POST AWARD DOCUMENTS (This Section to be completed by successful bidder after award)	489
	Contract Agreement	490-492
	Performance Bond	493
	Payment Bond	494
	Insurance Documents	495

SECTION I

INFORMATION FOR BIDDERS

ELECTRONIC SUBMITTAL PROCESS

To be considered, Bids (Section IV – Proposal) shall be received by the bid closing date and time to the following email address dpwbid@baltimorecountymd.gov. The contract number and company name should be referenced in the Subject Line of the email. Bids may not be submitted by any other means. Bids that are mailed or otherwise delivered to the Purchasing Division (including emails which indicate links to locations where the bid may be downloaded) and/or emails sent to any other Baltimore County email address will not be accepted.

Late Bids will not be considered. Bidders are strongly encouraged not to wait until the last minute to submit bids. The time stated on the auto-receipt (described below) will be definitive of the time of receipt. Bids received after the deadline will not be accepted. Bidders are advised that the County cannot receive email attachments greater in size than twenty-five (25) megabytes and this size limitation may be further reduced by requirements of the Bidder's email provider which are beyond the control of the County. Bidder should consider separating any large bid attachment into multiple parts and emailing each part separately. In such case, Bidder will note that each email is *1 of 2, 2 of 2*, etc. Multiple part bids will not be considered unless all parts are received by the bid closing date and time.

After submitting a Bid to dpwbid@baltimorecountymd.gov, and upon successful receipt by the County thereof, Bidder will receive an auto-receipt email. This receipt is proof that the bid has been received by the Division of Construction Contracts Administration and should be retained for Bidder's records. In the case of a bid submitted in multiple parts as described above, an auto-receipt email will be generated for each part. The County has no obligation to consider any Bid for which an auto-receipt was not generated.

As with any system, power outages or technology problems may arise that are outside of the County's control and could affect your submission. The County will not be held accountable for such issues that may delay the transmission of any Bid.

NOTE: Electronic copy of the Bid Bond will be accepted at bid opening. The apparent low bidder is required to submit the original Bid Bond within ten (10) days after the bid opening to the Division of Construction Contracts Administration, 111 West Chesapeake Avenue, Room 300B, Towson, Maryland 21204.

INSTRUCTIONS AND SPECIFICATIONS

Refer to the enclosed proposal sheets for quantities to be bid upon. All proposals submitted on the attached form must give the price in clear figures for each item of the proposed work and be signed by the bidder with his name and address. Bidders must not change any item in the proposal for which a price has been stipulated by the County. Any change will cause rejection of the proposal.

NOTE: STATEMENT UNDER OATH FORM TO ACCOMPANY BID as per Baltimore County Purchasing Act 65-98, Section 15-94 and 15-95 which requires that the enclosed affidavit (see Proposal Affidavit pages in Section IV) be completed and submitted as part of the sealed bid.

Proposals made on any other than the attached form will not be considered. All papers included in, bound thereto, or attached to the Proposal Form are necessary parts thereof and shall not be detached, separated, or altered in their intent.

Changes in the phraseology of the proposal, additions, or limiting provisions will render the proposal informal or void and may cause its rejection.

All right is hereby reserved by the Purchasing Agent to reject any or all proposals and to waive formalities and technicalities as the interest of the County may require.

No successful bidder may withdraw his bid within NINETY (90) days after the opening thereof.

The successful bidder will be required to be bonded to Baltimore County, Maryland to the sum of One Hundred per Cent (100%) of the amount of his proposal or proposals according to the form of bond hereto attached for projects in excess of \$25,000.00.

This Proposal must be accompanied by a Bid Bond in an amount of 5% of the bid, the exact amount to be determined by the difference between the low bid and the next lowest bid if two or more bids are received, or 5% of the bid if one bid is received. This guarantees payment of the amount thus determined in case of a default in any matter specified as required before award or in any matter resulting in failure to execute and deliver an Agreement, together with Payment and Performance Bonds, after award. The Bid Bond must be in the form accompanying the Proposal executed by a Surety licensed in the State of Maryland. The Surety must be currently rated "B" or better by the A. M. Best Company, and the bid must be in an amount less than, or equal to, the underwriting limitation contained in Department of Treasury Circular 570 as amended at the time of the underwriting.

All work to be performed under this contract shall be done under strict compliance with Baltimore County Department of Public Works and Transportation September 2023 Standard Specifications for Construction and Materials and Standard Details for Construction and any and all proposed revisions thereto as of the date of advertisement and copies of which are available on the County's website at www.baltimorecountymd.gov/departments/public-works/standards, and all of which are made a part hereof and incorporated herein (collectively, the "Specifications").

If the bidder to whom an award is made shall fail to execute the contract and bond hereto attached and as herein provided, the award may be annulled and the contract awarded to the lowest responsible bidder who has consented to a time extension, and such bidder shall fulfill every stipulation embraced herein as if he were the original party to whom the award was made, or the Purchasing Agent may reject all of the bids as the interest of the County may require.

The Bid Bond of the three lowest bidders is deemed to be effective until the execution and delivery of the Contract Agreement, together with Payment and Performance Bonds for projects in excess of \$25,000.00 or until rejection of all bids, whereupon Surety is deemed relieved of all further obligations under the bid bonds provided.

Bidders must examine the drawings and specifications carefully and must make a personal examination of the location and nature of the proposed work. In case doubt shall arise as to the meaning or intent of anything shown on the drawings or comprised in the specification, inquiry shall be made of the Director of Public Works and Transportation at least five (5) days prior to the date of

bid opening. The submission of the Proposal shall indicate that the bidder thoroughly understands the drawings and the terms of the Specifications.

To better ensure fair competition and to permit a determination of the lowest bidder, unresponsive bids or bids obviously unbalanced may be rejected by the Purchasing Agent.

Bidders are required to fill out the total price column and total their proposals so that the result of the bidding, barring possible arithmetical errors, will be known at once. Any errors in computations will be corrected by the Engineer when the proposals are canvassed. Where the unit price and the total price are at variance, the unit price will prevail.

Bidders must be prepared to complete the work within the time stated in the proposal.

NOTE: ONLY CONTRACTORS FORMALLY PRE-QUALIFIED WITHIN THE ADVERTISED WORK CLASSIFICATION BY THE DIRECTOR OF PUBLIC WORKS AND TRANSPORTATION OF BALTIMORE COUNTY 10 CALENDAR DAYS PRIOR TO BID OPENING WILL BE ELIGIBLE TO SUBMIT BIDS.

Contracts for work under this proposal will obligate the contractors and subcontractors not to discriminate in employment practices. Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract. Successful bidders must be prepared to comply in all respects with the Contract Provisions regarding nondiscrimination.

Baltimore County has adopted a Minority Business Enterprise (MBE) program and Women's Business Enterprise (WBE) Program. The percentage of participation applies to the contract amount awarded to the Contractor. Qualified minority subcontractors are those certified as being a Minority Business Enterprise by the following:

1. Maryland Department of Transportation Certification Committee (MDOT)
2. City of Baltimore, Minority Business Certification Council

Projects funded by the Federal Highway Administration are limited to the certification listed under #1 (MDOT).

More detailed information regarding the County's MBE/WBE Program can be obtained from the County MBE Office, telephone (410) 887-3407. See Executive Order dated December 6, 2022. MBE/WBE Participation Summary and Forms A, B, C, D and E enclosed in this proposal booklet.

NOTE: If you do not complete and submit the enclosed forms with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer **NON-RESPONSIVE** and accordingly the **COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.**

The County reserves the right to require the low bidder to produce evidence indicating that the company's financial condition is equal to, or better than, that enjoyed by the company at the time of prequalification. This additional information may be in the form of a financial statement or other evidence satisfactory to the Office of Budget and Finance.

Bidders' attention is directed to the requirement that a permit must be obtained from the Baltimore County Bureau of Highways and Bureau of Traffic Engineering prior to cutting any County

road for the purpose of obtaining sub-surface soils information, and permission must be obtained from the State Highways Administration prior to making any openings in a State road.

Under no circumstances shall a bidder enter upon any property outside a County or State road for the purpose of securing sub-surface soils information until permission is received from the property owner. The fact that the County has obtained a utility easement does not give the bidder the right to enter upon the property.

Prevailing index price of asphalt cement/ton \$640.00.

INCLEMENT WEATHER POLICY: If Baltimore County General Government Offices are open or open with liberal leave the day the bids are due, the bids are due as stated in the bid documents (date and time). **ONLY** when the Baltimore County General Government Offices are **OFFICIALLY CLOSED** the day the bids are due, the bid date will be postponed and an Addendum will be issued the next business (or next day buildings are officially open) day the county offices are open with the new bid date and time.

BID TABULATIONS: All bid tabulations will be confidential until after final award, at which time the total bid amounts for all bidders, as well as the complete bid tabulations for the top three (3) bidders, can be inspected by others when requested in writing pursuant to the Maryland Public Information Act.

ALTERNATIVE SOURCES OF CONTRACT BONDS: In the event your company is unable to qualify for bonding through a traditional commercial surety company, you may qualify for the required bonds through the State of Maryland, Department of Commerce (DOC). The **Maryland Small Business Development Financing Authority (MSBDFA, pronounced Mis-Bid-Fa)**, an agency of DOC, operates a Surety Bond Program designed to assist small businesses, based in Maryland, that are unable to obtain adequate bonding on reasonable terms in the commercial marketplace. MSBDFA provides bid, payment and performance bonds for contracts funded by government agencies, regulated utilities and private entities. The penal sums of the bonds are limited to the aggregate amount of \$2,500,000 and companies may pre-qualify for multiple bonds within pre-approved terms and conditions. MSBDFA also provides lines of credit, term loans and loan guarantees to help qualified businesses purchase equipment and real property, make improvements to leased property, refinance existing debt and assist them with their working capital needs. For more information on how to apply, you may contact: Meridian Management Group, Inc. (MMG), (the Program's Manager), 826 E. Baltimore Street, Baltimore, Maryland 21202, Telephone: (410) 333-4270. Or visit their website at www.mmcapitalgroup.com for information, applications and a checklist of required documents and reports that must accompany the application.

S E C T I O N I I

SPECIAL PROVISIONS

MAINTENANCE BOND

Per the Baltimore County Department of Public Works and Transportation September 2023 Standard Specifications for Construction and Materials, Section GP – 4.10 (C) states, the contractor is required to post a maintenance bond in the amount of five (5) percent of the total cost of the contract or withhold five (5) percent retainage for two (2) years from the date of Final Acceptance.

BALTIMORE COUNTY, MARYLAND

BOND NO. _____

CONTRACT NO. _____

MAINTENANCE BOND

THIS MAINTENANCE BOND is entered into on this _____ day of _____, 20____, by and between _____, as principal ("Principal") and _____, a business entity that is authorized to transact business in the State of Maryland and is organized and existing under the laws of the State of _____, as surety ("Surety"), are held and firmly bound unto Baltimore County, Maryland, a body corporate and politic of the State of Maryland ("County"), as Obligee.

WHEREAS, the above-named Principal has entered into a written contract known as Contract Number _____ dated _____, 20____ with Obligee for _____ (the "Agreement"), the terms of which are hereby incorporated by reference; and

WHEREAS, Principal has completed construction under the Agreement; and

WHEREAS, the Agreement includes a warranty on the quality of the Work performed that runs for a period of two (2) years from the date of the County's final acceptance and that runs for two (2) additional years beyond the repair date if any repair is done during the warranty period; and

WHEREAS, Principal is required to cause this instrument to be executed and delivered to Obligee as security for maintenance during the warranty period in an amount equal to 5% of the total value of the Contract.

NOW, THEREFORE, the Principal and Surety are held and firmly bound unto the Obligee in the sum of \$ _____ Dollars (\$ _____), lawful money of the United States of America, for the payment of which sum of money the Principal and Surety do bind themselves and their personal representatives, legal representatives, successors, and assigns, jointly and severally, firmly by this maintenance bond.

The conditions of this bond are as follows:

1. The Principal shall, for a period of two (2) years from and after the date of completion and acceptance of same by Obligee, replace all defects arising in the Work, whether resulting from defective materials, equipment, design furnished or workmanship. After such period, this obligation shall be null and void; otherwise it shall remain in full force and effect.

2. In the event of a default on the part of the Principal that may be the subject of a claim under this bond, Obligee shall mail, by certified mail, to Surety at the address listed below, a written statement that a claim is being made under the bond and, with substantial accuracy, the amount of the claim. Surety shall have no obligation to Obligee under this bond until the notice of claim is mailed.
3. When the Obligee has satisfied the condition of Paragraph 2 that a notice of claim be mailed, the Surety shall promptly and at the Surety's expense send an answer to Obligee within 30 days after the date of the claim. The answer shall state the amounts that are undisputed and the basis for challenging any amounts that are disputed. The answer shall be accompanied by payment (or arrangements for immediate payment) of any undisputed amounts.
4. Surety expressly waives any right to receive notice of extensions of time or alterations or modifications to the Agreement that may be granted by Obligee and agreed upon by Principal, and any such extensions, alterations, or modifications shall not affect the obligation of the Surety under this bond.
5. This bond is a specialty governed by the twelve-year statute of limitations period set forth in the Annotated Code of Maryland Courts and Judicial Proceedings §5-102.

WITNESS OR ATTEST:

(Principal – Contractor Name)

By: _____

Type Name: _____

Type Title: _____

Date: _____

(Surety)

By: _____

Type Name: _____

Type Title: _____

Type Address: _____

Date: _____

The Contract shall be done in strict compliance with the Baltimore County Department of Public Works and Transportation September 2023 "Standard Specifications for Construction and Materials" and "Standard Details for Construction", and any and all revisions thereto as of the date of the fully executed Contract, including but not limited to the General Conditions Building Projects, as applicable, and all of which are made a part hereof and incorporated herein (collectively, the "**Specifications**"). Copies of which are available on the County's website at www.baltimorecountymd.gov/departments/public-works/standards. **IN ADDITION, THE CONTRACTOR UNDERSTANDS AND AGREES THAT THE FOLLOWING SECTIONS OF THE SPECIFICATIONS (GP-1.03 AND GP-5-15) SHALL BE STRICKEN AND THE FOLLOWING SHALL BE INSERTED IN AND INCORPORATED INTO THE CONTRACT IN LIEU THEREOF:**

GP-1.03 ORGANIZATIONAL DEFINITIONS

Administration - Baltimore County.

Administrator - The Director of the Office of Budget and Finance, Baltimore County.

Baltimore County - Baltimore County, Maryland: a body corporate and politic.

Department - The word "Department" shall mean the Office of Budget and Finance of Baltimore County.

Engineer - One of the following engineering executives:

Director of Office of Budget and Finance
Chief, Property Management Division of the Office of Budget and Finance

Any delegation of the Engineer's authority must be authorized in writing by any one of the above listed officials, and such delegation of authority will pertain only to the specific contract and/or contracts shown by the authorization. The title of the specific official will appear in those cases within these specifications where the word "Engineer" as defined herein is not sufficiently specific.

Inspector - The authorized representative of the procurement officer assigned to make detailed inspection of any or all portions of the work, or materials therefor.

Procurement Officer - See Engineer.

GP-5.15 DISPUTES

(a) Except as otherwise may be provided by applicable law or regulation, all disputes arising under or as a result of a breach of this Contract that are not disposed of by mutual agreement shall be resolved in accordance with this General Provision.

(b) As used herein, "claim" means a: written demand or assertion by one of the parties seeking, as a legal right, the payment of money, adjustment or interpretation of Contract terms, or other relief, arising under or relating to this Contract.

A voucher, invoice, or request for payment that is not in dispute when submitted is not a claim under this General Provision. However, if the submission subsequently is not acted upon in a reasonable time, or is disputed either as to liability or amount, it may be converted to a claim for the purpose of this General Provision.

- (c) When a claim cannot be resolved by mutual agreement, the Contractor shall submit a written request for decision to the Department's Chief of the Property Management Division for his decision in consultation with the County Office of Law. The Contractor's written request shall set forth all the facts surrounding the controversy, including, but not limited to, those items listed in GP-5.14(b). Any claim by the County shall be decided in like manner.
- (d) The Contractor, at the discretion of the Engineer, may be afforded an opportunity to be heard and to offer evidence in support of his claim. Pending resolution of a claim, the Contractor shall proceed diligently with the performance of the Contract.
- (e) The Department's Chief of the Property Management Division shall decide any and all claims. The decision by the Department's Chief of the Property Management Division shall be issued within ninety (90) Days on matters of less than fifty thousand dollars (\$50,000) and within one hundred eighty (180) Days on matters of fifty thousand dollars (\$50,000) or more. The written decision of the Department's Chief of the Property Management Division shall be final and binding unless appealed in writing to the Director of the Department within thirty (30) Days of the Chief's written opinion to the parties. If the Chief's decision is timely appealed in writing to the Director of the Department, the Director of the Department, serving as referee, will review the written appeal submitted to assure all reasonable attempts were made to resolve the appeal.
- (f) The Director shall issue his/her decision in writing within ninety (90) Days. The Director's decision shall be final and conclusive unless a written appeal is mailed or otherwise filed with the County Administrative Officer within thirty (30) Days of the Director's written decision.
- (g) When the County Administrative Officer is satisfied all efforts at the Department level were made to resolve the dispute, a claim shall be resolved as follows:

 - (1) Subject to, and without in any way enlarging or limiting the other provisions of the Contract, the parties to any Agreement which adopts or incorporates by reference these Standard Specifications, appoint the County Administrative Officer as an administrative hearing officer pursuant to Article 25A, "Chartered Counties of Maryland", of the Annotated Code of Maryland.
 - (2) The parties further grant the County Administrative Officer the right to delegate this responsibility and authority in writing to a County official who is a registered professional engineer, independent of the Department of Public Works and Transportation's Division of Construction Contracts Administration, or to any other County official.
 - (3) For disputes involving ten thousand dollars (\$10,000) or more the decision of the administrative hearing officer shall be final and binding on both parties, subject only to such appeals on the record as provided by Article 25A. For disputes involving less than ten thousand dollars (\$10,000), the decision of the administrative hearing officer shall be final and binding on both parties.

GENERAL CONDITIONS

BUILDING PROJECTS



**Revised September 1, 2024,
in compliance with September 2023
Standard Specifications for Construction and Materials**

**INDEX GENERAL CONDITIONS
BUILDING PROJECTS**

	Page
I. <u>SPECIFICATIONS</u>	
Article 1 - Applicable Specifications	GC-1
II. <u>DEFINITIONS</u>	
Article 2 - Definitions	GC-1
Article 3 - Time Limits	GC-2
Article 4 - Sunday, Night & Holiday Work	GC-2
III. <u>CONTRACT DOCUMENTS & SHOP DRAWINGS</u>	
Article 5 - Contract Documents	GC-2 & 3
Article 6 - Shop Drawings	GC-4 & 5
Article 7 - Separate Contracts	GC-5 & 6
IV. <u>PAYMENT</u>	
Article 8 - Payments	GC-6
Article 9 - Approval of Payments	GC-6
Article 10 - Payment Withheld	GC-7
Article 11 - Changes in Work	GC-7 & 8
Article 12 - Claims for Extra Cost	GC-9
Article 13 - Deduction for Uncorrected Work	GC-9
Article 14 - Delays and Extension of Time	GC-9
Article 15 - Correction of Work after Final Payment	GC-9
Article 16 - Deleted	GC-9
Article 17 - Assignment	GC-9
Article 18 - Maryland State Sales Tax	GC-9 & 10
V. <u>MATERIALS</u>	
Article 19 - Materials	GC-10 & 11
VI. <u>QUALIFICATION, EMPLOYEES, WORKMANSHIP, SUBCONTRACTORS & ADVERTISING</u>	
Article 20 - Qualification of Bidders	GC-12
Article 21 - Employees and Workmanship	GC-12, 13 & 14
Article 22 - Employment Lists	GC-14
Article 23 - Contractor's Supervision	GC-14
Article 24 - The County's Right to Do Work	GC-14
Article 25 - County's Right to Terminate Contract	GC-15
Article 26 - Sanitary Conveniences	GC-16
Article 28 - Relation of Contractor and Subcontractor	GC-16, 17 & 18
Article 29 - Interlocking Contracts	GC-18
Article 30 - Advertising Signs	GC-18

VII. LAWS, PERMITS, LICENSES, INSURANCE & BONDS

Article 31 - Laws, Permits and Regulations	GC-18 & 19
Article 32 - Compensation, Liability and Property Damage Insurance	GC-19
Article 33 - Builder's Risk Insurance	GC-19 & 20
Article 34 - Guaranty Bonds	GC-20
Article 35 - Damages	GC-20

VIII. INSPECTION AND SURVEYS

Article 36 - Inspection	GC-20 & 21
Article 37 - Surveys	GC-21
Article 38 - Unauthorized Work	GC-21

IX. CONSTRUCTION

Article 39 - Construction Schedule	GC-21
Article 40 - Protection of Work and Property	GC-22
Article 41 - Shoring, Bracing and Sheeting	GC-22
Article 42 - Tests	GC-22 & 23
Article 43 - Cleaning Up	GC-23
Article 44 - As-Built Drawings	GC-23
Article 45 - Drainage and Pumping	GC-23
Article 46 - Temporary Water, Electric and Other Services	GC-23 & 24
Article 47 - Connecting to Existing Utilities	GC-24
Article 48 - Existing Utilities Shown on Plans	GC-24

X. MISCELLANEOUS ADDENDA

Article 49 - Holidays	GC-25
Article 50 - Buy American Steel	GC-25
Article 51 - Guarantee	GC-25
Article 52 - Offices and Telephones	GC-25 & 26
Project Sign	GC-27

GENERAL CONDITIONS DESIGN BUILD BUILDING PROJECTS

I. SPECIFICATIONS

Article 1 Applicable Specifications

All work performed under this Contract shall be done under strict compliance with the *Specifications* bound herewith, and with the *Baltimore County Standard Specifications for Construction and Materials* and the *Standard Details for Construction* dated September 2023 and subsequent addenda thereto, so far as the same may be applicable, copies of which are available on the County's website at www.baltimorecountymd.gov/departments/public-works/standards. These General Conditions are in addition to the aforementioned Specifications. Should there be any conflict with the aforementioned manuals, the *General Conditions* take preference.

II. DEFINITIONS

Article 2 Definitions

- A. *Architect and/or Engineer* shall mean the registered Architect and/or Engineer commissioned by the County to prepare the plans and contract documents.
- B. *Engineer* in these General Conditions and in the Construction Specifications in some instances refers to authorized representatives of the Office of Budget and Finance, Property Management.
- C. *Subcontractor*, as employed herein, includes only those having a direct contract with the Contractor. It includes one who furnished material worked to a special design according to the Plans and Specifications for the "work." It excludes one who merely furnished material not so worked.
- D. *Written Notice* shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered to or sent by registered mail to the last business address known to him who gives the notice.
- E. *Repair* means to restore after injury, deterioration, or wear; to mend, to renovate, by such means as appropriate, and to supply such materials and labor as necessary to render the item to be repaired sound, solid, true, plumb, square, even, smooth, and fully serviceable. Upon completion of such repair it must be, unless otherwise stated, rendered to such condition as to present a first-class finished work, or in instances where the repaired item serves as a base for additional finish, the repaired work must be such as to permit a first-class finish, to be applied without extra cost to the County. When the word "repair" is used in connection with machinery or mechanical equipment, it shall mean, in addition to the above, rendering the equipment completely serviceable and efficient, ready for the normal use for which it was originally intended.

- F. Some parts of the "Construction Specifications," bound herewith are of the abbreviated or "streamlined" type and includes incomplete sentences. Omissions of words or phrases such as "the Contractor shall", "in conformity therewith", "shall be", "as noted on the drawings", "according to the plans", "a", "an", "the", and "all" are intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings. Words "shall be" or "shall" will be supplied by inference when colon (:) is used within sentences or phrases.

Article 3 Time Limits

The proposal shall indicate whether the contract limit is based on Working Days or Calendar Days. If this is not indicated in the Proposal, then the time limits will be based on Calendar Days.

Article 4 Sunday, Night and Holiday Work

If Sunday, night or holiday work is necessary due to an emergency or is permitted by the Engineer, the Contractor shall secure and pay for any and all permits required in connection with this work.

III. CONTRACT DOCUMENTS AND SHOP DRAWINGS

Article 5 Contract Documents

A. Clarification

It is assumed that the Contractor has obtained clarification of all questions which may have arisen as to intent of the contract documents, or assumed, or actual conflict between two or more items in the Contract Documents as required in "Instructions to Bidders." Should the Contractor have failed to obtain such clarification as required by the "Instructions to Bidders," then the Engineer may direct the work to proceed by any method indicated, specified or required by the Contract Documents in the interest of maintaining the best construction practice. Such direction by the Engineer shall not constitute a claim for extra by the Contractor.

B. Jargon

Work described in words that have a well-known technical or trade meaning shall be held to refer to such recognized standard use.

C. Drawings

The Contractor shall do no work without proper drawings and instructions. Drawings are, in general, drawn to scale; however, symbols are used to indicate materials and structural and mechanical requirements. When symbols are used, the drawings are, of necessity, diagrammatic, as it is not possible to indicate all connections, fittings, fastenings, etc., which are included as a part of the work. Diagrammatic indication of mechanical piping, ducts, and conduit within the buildings is subject to adjustment in order to obtain proper grading, passage over, under or past obstructions, to avoid exposure in finished rooms and unsightly and obstructing conditions. The Contractor shall coordinate these adjustments.

1. Copies no longer Furnished

The County will no longer furnish the Contractor any copies of the Drawings and Specifications. Additional copies may be obtained by the Contractor downloading drawings and specifications from the Baltimore County Solicitation Web Page.

2. Copies of the Work

The Contractor shall keep in the office on the job a complete set of all drawings, specifications, shop drawings, schedules, etc., in good order and available to the Engineer and representatives of the County.

3. Ownership

All documents as furnished by the County remain the property of the County. They must not be used on other work but shall be returned to the County upon completion of the work.

D. Large Scale Detail Drawings

The Architect shall furnish, when necessary, additional instructions in the form of large scale developments of the drawings used for bidding, or to amplify Construction Specifications for the proper execution of the work. These shall be true developments of the bidding documents and reasonably inferable there from. The work shall be executed in conformity herewith. [See Article 6, Paragraph A.3.(c)]

E. Dimensions

The Contractor shall carefully check all dimensions prior to execution of the particular work affected. Whenever inaccuracies or discrepancies are found, the Contractor shall consult the Engineer prior to any construction or demolition. Should any dimensions be missing, the Engineer will be consulted and supply them prior to execution of the work. Dimensions for items to be fitted into constructed conditions at the job will be taken at the job and will be the responsibility of the Contractor. The obvious intent of the documents or obvious requirements dictated by conditions existing or being constructed supersedes dimensions or notes which may be in conflict herewith.

Whenever a stock size manufactured item or piece of equipment is specified by its nominal size, it is the responsibility of the Contractor to determine the actual space requirements for setting or entrance to the setting space. No extra will be allowed by reason of work requiring adjustment in order to accommodate the particular item of equipment.

Whenever new work, building, addition or portions thereof are not accurately located by plan dimensions, the Engineer will supply exact position prior to execution of the work.

Article 6 Shop Drawings

A. Shop Drawings (those prepared by the Contractor or Vendor of Material)

The Contractor shall submit for the Architect's approval, at such times as agreed (see Article 8), shop drawings (to include setting drawings and schedules) as required for the work of the various trades. These drawings shall be prepared in conformity with the best practice and standards for the trade concerned. Due regard shall be given to speed and economy of fabrication and erection.

1. Items to be Detailed

Shop details shall be supplied for all items which are specially fabricated for the work or when the assembly of several items is required of a working unit. Shop drawings are required for all reinforcing and structural steel, specially made or cut masonry units, miscellaneous metal work, specially made flashings or roofing and sheet metal work, specially made millwork, special rough hardware and all heating, ventilating, plumbing and electrical requiring special fabrication or detailed connections, including ducts.

2. Submissions

Shop drawings, brochures and catalog cut submissions shall consist of sufficient copies to provide for the retention by the Architect and County of five (5) copies total plus such additional copies as the Contractor may require. Drawings shall not exceed 24 in. x 36 in. in size.

3. Examination and Approval

The Contractor shall review all shop drawings, brochures and catalog cuts provided by the subcontractors and vendors prior to submitting them to the Architect. The Architect shall examine shop drawings with reasonable promptness, noting desired corrections, or granting approval.

a. Field Dimensions and Conditions

The Architect is not responsible for the checking of dimensions or existing conditions in the field. This is the sole responsibility of the Contractor.

b. Resubmission

When the Architect's notations or corrections are extensive, then the Contractor shall resubmit the drawings with changes made on the drawings.

c. Contractor's Responsibility

Unless the Contractor has in writing, notified the Architect to the contrary, at the time of submission, it will be assumed that the drawings are in conformity with the Contract Documents and do not involve any change in the Contract price or any change which will alter the space within the structure or alter the manner of operation from that contemplated in the Contract Documents.

d. Architect's Notations

Should the Contractor consider any change or notation received in compliance with paragraph (c) above as increasing the cost of the work from that contemplated in the Contract Documents, then the Contractor shall desist from further action relative to the item he/she questions and shall notify the Engineer, in writing, within five (5) days of the additional cost involved. No work shall be executed until the entire matter is cleared or a Change Order issued, or the Contractor is ordered by the Engineer to proceed under the provisions of the County's Standard Specifications. Failure of the Contractor to serve written notice, as above required, shall constitute a waiver of any claim in relation thereto.

(1) Similarly, should the Architect's notation or change involve less work than is covered by the Contract Documents, the Contractor shall allow the County the credit resulting from the change.

(2) Should the Contractor consider that any notation or change made by the Architect under provisions of this paragraph, paragraph (c), above, as involving a complete change in the subcontractor's relation or the substitution of a material different from that on which the Contract was based, then the Contractor shall act as herein stated or as in paragraph (c) above.

4. Project Completion

At the completion of the project, the Contractor shall submit a list of shop drawings for the entire project. This list shall contain the following information: title, description, specialty (Architectural, Structural, Mechanical, etc.), decision (no exceptions taken, approved, approved as noted, etc.).

Article 7 Separate Contracts

A. The County reserves the right to let other contracts in connection with paving and utilities adjoining this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

- B. If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results. Failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the work, except as to the defects which may develop in the other contractor's work after the execution of the work.
- C. To ensure the proper execution of his/her subsequent work, the Contractor shall verify work already in place and shall at once report to the Engineer any discrepancy between the executed work and the drawings.

IV. PAYMENTS

Article 8 Payments

- A. Under this Contract payments will be made monthly on the valuation of work accomplished and on account of materials delivered on the site, for incorporation in the work, which are suitably stored.
- B. At the first of each month, the Contractor shall submit to the Engineer an application for payment on a form provided by the Engineer. Prior to application for first payment, the Contractor shall submit to the Engineer a schedule of values for the various parts of the work, including quantities, aggregating to the total sum of the Contract. This shall be so divided as to facilitate payment to subcontractors in accordance with Article 28, Paragraph C.1. The form of this submission shall be such as the Contractor or Engineer have agreed upon, and, if required, shall be supported by such evidence as to its correctness as the engineer may direct. This schedule, when approved by the Engineer, shall be used as a basis for approval of payment unless it is found to be in error. In applying for payment, the Contractor shall submit a statement based upon the schedule, itemized in such form and supported by such evidence as the Engineer may require, showing the Contractor's right to the payment claimed. If required, the Contractor shall show receipts and other vouchers for the payments for materials and labor including payments to subcontractors, as required by Article 28.
- C. Materials Purchased Under Allowance

The Engineer will provide schedules for all materials to be purchased from specified allowance.

Article 9 Approval of Payments

If the Contractor has made application, as above, the Engineer shall review and approve such payments as is decided to be properly due in accordance with the approved schedule. In approving such partial payments, there shall be retained no more than 10% of the total amount for the first 50% of the contract, after which only 5% of the total amount of the contract may be withheld unless the need is demonstrated for retaining more to protect the public interest.

Article 10 Payment Withheld

- A. The Engineer may withhold, or on account of subsequently discovered evidence, nullify the whole or a part of any payment to such extent as may be necessary to protect the County from loss on account of:
1. Defective work not remedied.
 2. Claims filed, or reasonable evidence indicating probable filing of claims, by parties other than the Contractor.
 3. Failure of the Contractor to make payments properly to subcontractors or for material or labor.
 4. A reasonable doubt that the Contract can be completed for the balance then unpaid.
 5. Damage to another Contractor.
 6. Failure of the Contractor to submit data required within the time limits stated in the Contract Documents.

Upon removal of the above, payment shall be made for the amounts withheld.

Article 11 Changes in Work

- A. The County, without invalidating the Contract, may order changes in the work by altering, adding to or deduction from the work, the Contract sum being adjusted accordingly. Such change shall be executed under these *General Conditions*. Extension of time made necessary thereby shall be adjusted at the time of such Change Order.
- B. The Engineer shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purpose of the project. Otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless a written order for the Office Budget and Finance, Property Management signed or countersigned by the Director has been received by the Contractor. No claim for addition to the Contract sum shall be valid unless so ordered.
- C. The value of any such extra work or change shall be determined in one or more of the following ways as determined by the Office of Budget and Finance, Property Management.
1. By Estimate and Acceptance of a Lump Sum
 - a. The prime Contractor shall furnish a breakdown of the estimated construction cost. The breakdown shall be of sufficient detail to describe the extra work and related costs for labor, material, overhead and profit.

b. Overhead and Profit

(1) Extra work by Subcontractor:

Subcontractor will be allowed 10% overhead and 10% profit added to the direct labor and material costs. The prime contractor will be allowed to increase the subcontractors total lump sum by 10% to cover his/her administration.

(2) Extra work by Prime Contractor:

The prime contractor will be allowed 10% overhead and 10% profit added to the labor and material costs.

- c. The prime contractor will be allowed 1 % for the bond added to the labor and material costs.
- d. The allowed overhead will include all supervision; no additional allowance will be made for it.

2. By Unit Prices Named in the Contract or Subsequently Agreed Upon

Such unit prices are to include all supervision, overhead, taxes, insurance and profit.

3. By Cost and a Fixed Fee

Added to the cost is a fixed fee portion which is to include supervision, overhead, insurance and profit.

4. By Force Account (Labor and Material Cost plus)

In accordance with the *Baltimore County Specifications for Construction and Materials* Section GP 9.02, the Contractor is allowed to add 65% mark-up.

- D. Should none of the methods stated in Paragraph C. 1, 2, or 3 be determined, the Contractor shall, providing he/she receives an order as defined in Paragraph B, above, proceed with the work on the basis of Paragraph C. 4. Force Account.

The Contractor and Engineer shall keep accurate costs, in such form as the Engineer may direct, for presentation, together with vouchers, to the Office of Budget and Finance Property Management for determination of the value of the work included in each Change Order. Pending determination of the final value, the Engineer may include payments for materials and labor, as stated in Article 8, in monthly vouchers.

Article 12 Claims for Extra Cost

No claim for extra will be granted which includes cost of delays or work stoppage due to strikes, lockouts, fire, avoidable casualties or damage or delay in transportation for which the County or its agents are not responsible. (See also Article 14.)

Article 13 Deductions for Uncorrected Work

If the Engineer and County deem it expedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore.

Article 14 Delays and Extension of Time

If no schedule or agreement stating the dates upon which drawings shall be furnished is made (see Article 8), then no claim for delay shall be allowed on account of failure to furnish drawings until two (2) weeks after demand for such drawings, and then not unless such claim is reasonable.

Article 15 Correction of Work After Final Payment

Neither the final certificate nor payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials and workmanship. Unless otherwise specified, the Contractor shall remedy any defects and pay for any damage to other work resulting there from that appears within the guarantee period. The County shall give notice of observed defects with reasonable promptness. All questions arising under this Article shall be decided by the Director of Budget and Finance, Property Management.

Article 16 (Deleted)

Article 17 Assignment

The Contractor shall not assign the Contract. It shall not be sublet as a whole or sublet by trades or other portions in an amount of more than 75% of the monetary value of the Contract. The remaining 25% shall be executed by the Contractor with labor and materials directly purchased and paid for by the Contractor. Costs for insurance, over-head, supervisions, etc., may not be claimed as a portion of the 25% mentioned above. The execution of work by a subsidiary of the Contractor is not considered direct employment. The Contractor shall not assign any monies due or to become due to him/her hereunder, without the previous written consent of the County.

Article 18 Maryland State Sales Tax

- A. Contractors who are performing work for the State of Maryland or any of its political subdivisions are required to pay tax on materials and supplies which will be incorporated into the work.

- B. The Contractor must pay the tax on all equipment which is purchased, Even though it may be used on a job for the State of any of its political subdivisions.

V. MATERIALS

Article 19 Materials

Materials include all manufactured products and processed and unprocessed natural substances required for completion of the Contract. The Contractor in accepting the Contract is assumed to be thoroughly familiar with the materials required and their limitations as to use and requirements for connections, setting, maintenance and operation.

Whenever an article, material or equipment is specified and a fastening, furring, connection (including utility connections), bed or accessory is normally considered essential to its installation in good quality construction, such shall be included as if fully specified. Nothing in the Construction Specifications shall be interpreted as authorizing any work in any manner contrary to applicable law, codes or regulations (See Article 31).

A. Approval

All materials are subject to the Architect's or Engineer's approval as to conformity with the specifications, quality, design, color, etc. No work for which approval is necessary shall be contracted for, or used, until written approval is given by the Architect or Engineer. Approval of a subcontractor, as such, does not constitute approval of a material which is other than that included in the Construction Specifications.

B. New Materials

Unless otherwise specified, all materials shall be new.

C. Quality

Unless otherwise specified, all material shall be of the best quality of the respective kinds.

D. Samples

The Contractor shall furnish for approval all samples as directed. The work shall be the same as the approved samples.

E. Painting and Color

The Architect and Contractor shall jointly prepare the paint and color schedules. The Architect shall direct the exact color, texture and finish.

F. Proof of Quality

The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials either before or after installation. The Contractor shall pay for any tests as may be deemed necessary in relation to "Substitutions" (Paragraph I. below).

G. Contractor's Option

When several products or manufacturers are named in the Construction Specifications for the same purpose or use, then the Contractor shall select any of those so named. However, all of the units of a thing required for a project must be the same in material and manufacture.

H. "Or Equal", "Equal", "Approved Equal"

The above terms are used as synonyms throughout the Construction Specifications. They are implied in reference to all named manufacturers. Only materials that, in the opinion of the Engineer, are fully equal in all details of construction, methods of assembly, finish and design quality will be considered. (See A, C, E, above, and I. below.)

I. Substitutions

Should the Contractor desire to substitute another material for one or more specified by name, the Contractor shall apply, in writing, for such permission and state the credit or extra involved by the use of such material. The Engineer will not consider the substitution of any material different in type or construction methods unless such substitution effects a benefit to the County. (See A. and D. above.)

The Contractor shall not submit for approval, materials other than those specified without a written statement why such a Substitution is proposed. Approval of a "substitute" material by the Architect or Engineer when the Contractor has not designated such material is a "substitute," shall not be binding on the County nor release the Contractor from any obligations of the Contract, unless the Architect or Engineer approves such "substitutions" in writing.

J. Standard Specifications

Whenever references are made in the Contract Documents to the *Baltimore County Standard Specifications for Construction and Materials* and *Standard Details for Construction*, it shall be understood that the latest standards and/or requirements are intended and shall apply. When no specification is cited and the quality, processing, composition or method of installation of a thing is only generally referred to then:

1. For things not otherwise specified below, the latest edition of the Applicable American Society for Testing Materials Specifications shall apply.

2. For things covered by the applicable portions, the National Bureau of Fire Underwriters Code shall apply.
3. For things generally considered as plumbing and those things requiring plumbing connections, the applicable portions of the latest edition of the American Society of Mechanical Engineers Code and the Baltimore County Plumbing Code shall apply.
4. For things generally considered as heating and ventilating work and not covered by A.S.M.E. Code, the applicable portions of the latest edition of the Heating and Ventilating Guide, published by the American Society of Heating and Ventilating Engineers, and the Baltimore County Building Code shall apply.

K. Storage

The contractor shall confine apparatus and storage of materials to the "off-road" area delineated as the "Limit of Contract." The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger the safety of the structure or any part thereof.

VI. QUALIFICATION, EMPLOYEES, WORKMANSHIP, SUBCONTRACTORS AND ADVERTISING

Article 20 Qualification of Bidders

Bidders are required to be prequalified 10 days prior to bid opening, satisfactorily evidencing that they have the ability, equipment, organization and financial resources sufficient to enable completion of the work satisfactorily within the time specified in the Proposal.

Article 21 Employees and Workmanship

A. Employees

1. Qualification

Only personnel thoroughly trained and skilled in the task assigned them may be employed on any portion of the work, or they shall be removed.

2. Licensed

When County, State or Federal laws require that certain personnel (electricians, plumbers, etc.) be licensed, then all such personnel employed on the work shall be so licensed.

B. Quality of Labor

The Contractor shall employ on the work, at all times, sufficient personnel to complete the work within the time stated in the Proposal.

C. Work Areas

The Contractor shall confine the operations of his/her employees to the limits as provided by law, ordinance, permits or directions of the Office of Budget and Finance Property Management. Generally, the "off-road" area will be the same as the "limit of Contract" line.

D. Methods and Quality

1. All workmanship shall be of good quality. Whenever the method of the work or manner of procedure is not specifically stated or shown in the Contract Documents, then it is intended that the best standard practice shall be adhered to. Recommendations of the manufacturers of approved materials shall be considered as a part of Construction Specifications and all materials shall be applied, installed, connected, erected, used, cleaned and conditioned as so called for thereby. This, however, does not remove any requirement in Construction Specifications to add to the manufacturer's recommendations.
2. All materials shall be accurately assembled, set, etc., and when so required in good construction, shall be true to line, even, square, plumb, level and regularly spaced, coursed, etc. Under no circumstances, either in new or old work, shall any material be applied over another which has not been thoroughly cleaned, sanded or otherwise treated so as not to impair the finish, adhesion, or efficiency of the next applied item.
3. All methods, procedures and results are subject to the Engineer's approval as to finished result to be obtained. However, this is not to be interpreted as placing upon the Engineer any responsibility for the "work" management which is solely the responsibility of the Contractor.

E. Joining of Work

1. The Contractor shall so schedule the work as to ensure efficient and uninterrupted progress and to hold to an absolute minimum the cutting and patching of new work. All cutting, patching and digging necessary to the execution of the work is included.
2. The Contractor shall so schedule (to include subcontracts) the construction performed by each group or trade that each installation or portion of the construction shall member with and join with all other work as required for a complete installation, all according to accepted good construction practice.

F. Superintendent

The Contractor shall keep on the work, at all times during its progress, a competent superintendent and all necessary assistants, all approved by the

Office of Budget and Finance Property Management. Prior to commencement of the work, the Contractor shall submit in writing to the Office of Budget and Finance Property Management the name and qualifications of the person to be employed as Superintendent for the execution of the Contract. A written approval or rejection will be given following review of the data. Persons who have previously proved unsatisfactory on work executed for the County, or who are without proper qualifications, will not be approved. Should the Superintendent be complained of by the Office of Budget and Finance Property Management for cause, he/she shall be removed from the work. Should it be necessary to change the Superintendent, the above procedure shall be repeated. The Superintendent will represent the Contractor. All directions given to the Superintendent shall be as binding as if given to the Contractor. Important directions shall be confirmed on written request in each case.

G. Discipline

The Contractor shall at all times enforce strict discipline and good order among his/her employees and shall not employ or permit to remain on the work any unfit person. The Contractor shall enforce all instructions relative to use of water, heat, power, no smoking, and control any use of fires, as required by law and for the Office of Budget and Finance Property Management. Employees must not be allowed to loiter on the premises before or after job working hours.

Article 22 Employment Lists

The Contractor may contact MARYLAND STATE EMPLOYMENT SERVICE, Towson, MD, 21204, if so desired, for additional labor regarding this project.

Article 23 Contractor's Supervision (Also see Article 21, Paragraph F.)

The Contractor shall constantly maintain efficient supervision of the work, using his/her best skills and coordinating ability. The Contractor shall carefully study and compare all drawings, specifications, and other instructions and check them against conditions existing or being constructed on the project. The Contractor shall report to the Engineer any error inconsistency or omission which may be discovered. (See also Article 5, Paragraph E, and Instructions to Bidders.) The Contractor shall not be held responsible for the existence or discovery of such errors or conflicts and neither shall the adjustment of such errors or conflicts be grounds for claim for extra on the art of the Contractor unless such adjustment involves work not obviously contemplated by the Contract Documents or necessary to progress of the work. The Contractor shall be responsible for the coordination of the work of all subcontractors.

Article 24 The County's Right to do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the County after three days' written notice to the Contractor may, without prejudice to any other remedy, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

Article 25 County's Right to Terminate Contract

A. Terminate Contract

The Office of Budget and Finance, Property Management, upon proof that sufficient cause exists to satisfy such action, may without prejudice to any other right or remedy, and after giving the Contractor seven (7) days' written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method may be deemed expedient, if any of the following conditions exists:

1. If the contractor should
 - a. Be adjudged a bankrupt or make a general assignment for the benefit of creditors,
 - b. Has a receiver appointed on account of insolvency.
 - c. Fails to or repeatedly and persistently refuses to supply properly skilled workers or proper materials, except in cases for which extension of time is provided,
 - d. Fails to make payment to subcontractors, or for materials and labor,
 - e. Persistently disregards laws, ordinances or the instructions of the Engineer, or
 - f. Is otherwise guilty of a substantial violation of any provision of the Contract.

2. Payment Status

In cases such as identified above, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expenses of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the contractor shall pay the difference to the County. The expense incurred by the County as herein provided, and the damage incurred through the Contractor's default, shall be itemized by the Engineer and a certified copy supplied to the Contractor.

Article 26 Sanitary Conveniences

- A. The Contractor shall arrange for the erection and Maintenance of temporary toilets equipped with running water and drain connection for use of employees. These conveniences shall be erected and kept clean and in good condition, as required by law, until ordered removed by the Engineer.
- B. In lieu of A. above, the Contractor may install a portable approved chemical toilet at an approved location.
- C. The permanent plumbing fixtures to be constructed under this Contract shall not be used during construction, under any circumstances.

Article 27 Subcontracts Deleted

Article 28 Relation of Contractor and Subcontractor

- A. **The Contractor agrees** to bind every subcontractor and every subcontractor agrees to be bound by the terms of the Agreement, *Baltimore County's Standard Specifications for Construction and Materials* and *Standard Details for Construction the General Conditions*, the Drawings and Construction Specifications, as far as applicable, to his/her work, including the following provisions of this Article, unless specifically noted to the contrary in the subcontract approved in writing as adequate by the Office of Budget and Finance, Property Management.
- B. **The Subcontractor agrees** to be bound to the Contractor by the terms of the Agreement, *Baltimore County's Standard Specifications for Construction and Materials* and *Standard Details for Construction, General Conditions*, Special Provisions, Construction Specifications, and to assume towards him/her all obligations and responsibilities that he/she, by those documents, assumes towards the County.
 - 1. To submit to the Contractor applications for payment in such reasonable times as to enable the Contractor to apply for payment under Article 8 of these *General Conditions*.
 - 2. To make all claims for extras, for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in *Baltimore County's Standard Specifications for Construction and Materials* or those *General Conditions* for like claims by the Contractor upon the County, except that the time for making claims for extra cost is one (1) week.

C. **The Contractor agrees** to be bound to the Subcontractor by all the obligations the County assumes to the Contractor under Agreement, *Baltimore County's Standard Specifications for Construction and Materials, General Conditions*, Drawings and Construction Specifications, and by all the provisions thereof affording remedies and redress to the Contractor from the County.

1. To pay the Subcontractors:

- a. Upon receipt of payment, if issued under the schedule of values described in *Baltimore County's Standard Specifications for Construction and Materials, G.P.- 9.03* or Article 8 of these *General Conditions*, the amount allowed to the Contractor on account of the Subcontractor's work, to the extent of the Subcontractor's interest herein.
 - b. Upon the receipt of payment, if issued otherwise than as in Paragraph C.1., above, so that at all times the total payments shall be as large in proportion to the value of the work done by him as the total amount certified to the Contractor is to the value of the work done by him/her.
 - c. To such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for earlier or larger payments than the above.
 - d. On demand for his/her work or materials as far as executed and fixed in place, less the retained percentage, at the time the payment is requested, even though the Engineer fails to approve it for any cause not the fault of the Subcontractor.
 - e. A just share of any fire insurance money received by him/her, the Contractor, under Article 35 of these *General Conditions*.
2. To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specified in the subcontract.
3. That no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten (10) days of the calendar month following that in which the claim was originated.
4. To give the Subcontractor an opportunity to be present and to submit evidence in any manner involving his/her rights.

5. The Contractor and the Subcontractor agree that nothing in this Article shall create any obligation on the part of the County to pay to or to see to the payment of any sums to any Subcontractor.

Article 29 Interlocking Contracts

The attention of the Contractor and all Subcontractors is specifically called to the necessity of reading the Specifications covering items of the work which connect with or are dependent upon the work specified under each heading, and each Contractor executing the work called for there under shall be responsible for arranging for proper provision for connecting and coordinating his/her work with such other items.

Article 30 Advertising Signs

- A. The Contractor will furnish, erect and maintain a project sign for the duration of the project. The sign shall be placed on the site where and as directed by the Engineer. The sign shall be fastened to three posts spaced 4' apart. The posts shall be 4" x4", seven feet above ground and three feet below ground.
- B. The project sign is shown on page GC-27 in this book.

VII. LAWS, PERMITS, LICENSES, INSURANCE, AND BONDS

Article 31 Laws, Permits and Regulations

- A. Permit and Service Connections:
 1. **BUILDING PERMIT** - The County will obtain the building permit at no cost to the Contractor.
 2. **PERMANENT WATER SERVICE** - The County will apply for the water service and pay all related charges; i.e., water meter, water systems connection charge, water distribution charge and sewer systems connection charge. Total installation of the permanent water service is part of this Contract. Water service shall be installed by a County Prequalified Utility Contractor.
 3. **PLUMBING PERMIT** - The Contractor shall apply for the Permit; however, the County will pay all related charges and fees.
 4. **PERMANENT ELECTRIC SERVICE** - The Contractor shall apply for and pay for the electrical permit. The County shall obtain BGE permanent gas and electric service to the site at no cost to the Contractor.

The Contractor shall coordinate the installation of permanent gas and electric service with Baltimore Gas & Electric

Company. Both the gas and electric services shall be activated at the same time under one account number showing Baltimore County as owner. The Contractor shall be responsible for payment of consumption charges for the use of gas and electric energy obtained through the permanent service until the building is accepted by the County or until agreed upon by the County in direct coordination with the Building Services Division of Baltimore County. Charges from BGE for removal of existing electric service will be paid by the County.

5. **PERMANENT TELEPHONE SERVICE** - The County shall pay for the telephone service and systems to and in the building. The Contractor is responsible for supplying and installing all conduit, cables and junction boxes as shown on the drawings or called out in the Specifications.
 6. **CABLE** - The County shall pay for any cable television service into the building. The contractor is responsible for supplying and installing the remaining work as shown on the drawings and called out in the Specifications.
 7. **TEMPORARY SERVICES** -All temporary services, such as water, electric, telephone, etc., shall be the Contractor's entire responsibility. (Also see Article 46.)
 8. **MISCELLANEOUS PERMITS** - The Contractor shall procure any and all necessary permits not previously mentioned and pay any and all related charges and fees required and incidental to the due and lawful prosecution of the work.
- B. The Contractor shall give all notices and comply with all State and Federal laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Drawing and Contract Specifications are at variance therewith, he/she shall promptly notify the Engineer, in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, he/she shall bear all costs arising there from.

Article 32 Compensation, Liability, and Property Damage Insurance

(See Insurance Provision in Part VI of this Contract.)

Article 33 Builder's Risk Insurance

- A. The Contractor shall, at his/her own cost, insure the work and keep it insured at all times during the period of construction, and until final acceptance of it by the County, against loss or damage covered by

an "All Risk" Builders Risk type of policy. The amount of insurance shall be the 100% estimated replacement cost of the work.

- B. The policies shall be made payable to the County and the Contractor, as their interest may appear, and the policies shall be left in the possession of the Engineer, prior to the start of construction.

Article 34 Guaranty Bonds

- A. Prior to signing of the Contract, the Contractor will be required to furnish bond covering the faithful performance of the Contract and the payment of all obligations arising there under, in such form as the County may prescribe with such sureties as the County may approve. The premiums shall be paid by the Contractor.
- B. The Bond to be in the amount of the total Contract price.
- C. At the direction of the Office of Budget and Finance, Property Management, the Contractor may be required to increase the above bond. Such addition will be paid for by the County in the amount of actual cost to the Contractor.

Article 35 Damages

- A. If either party to this Contract should suffer damages in any manner because of the wrongful act or neglect of the other party or of anyone employed by him/her, then reimbursement shall be made by the other party for such damage.
- B. Claims under this clause shall be made in writing to the party liable within a reasonable time at the first observance of such damage and not later than the time of final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and shall be adjusted by agreement.
- C. Should the Contractor cause damage to any separate contractor on the work, the Contractor agrees, upon due notice, to settle with such contractor by agreement or refer the matter to the Office of Budget and Finance, Property Management, who will render a decision after hearing all evidence in the matter. The Contractor shall pay or satisfy such decision.

VIII. INSPECTION AND SURVEYS

Article 36 Inspection

- A. If the Construction Specifications, the Engineer's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection, and if the inspection is by another authority, the date fixed for such inspection. Inspections by

the Engineer shall be made promptly, and where practicable, at the source of supply. Any work covered without approval of the Engineer must, if required, be uncovered for examination at the Contractor's expense.

- B. If initial tests and/or inspections show substandard products, materials, workmanship, etc. and the Contractor elects, with the Engineer's approval, to perform additional tests and/or inspections to prove the acceptability of the substandard products, materials, workmanship etc., he/she shall perform same at his/her expense.

Article 37 Surveys

- A. The General Contractor shall, at his/her own expense, employ a registered surveyor to provide Elevation Bench Mark, and locate corners of the building and the limits of contract.
- B. The General Contractor shall, at his/her own expense, employ a competent field engineer, to give the lines and levels for the building, sidewalks and footings, etc. The Contractor will be responsible for all lines and levels and will guarantee all lines and levels as are shown on drawings.

Article 38 Unauthorized Work

Work done without lines and grades being established, work done beyond the lines and grades shown on the Plans or as established, except as herein provided, or any extra work done without written authority will be considered as unauthorized and at the expense of the Contractor and will not be measured by the Engineer, or paid for by the County. Work so done may be ordered by the Engineer to be removed and replaced at the Contractor's expense.

IX. CONSTRUCTION

Article 39 Construction Schedule

The Contractor shall hold bi-weekly "progress meetings" at the site, at a time suitable to the Engineer, at which the progress of the work shall be reported upon in detail with reference to schedules. Each interested subcontractor shall be required to have present a competent representative to report the condition of his/her branch of the work and to receive instructions. Minutes of these "progress meetings" shall be taken by the Contractor who shall type them for distribution to members of the conference, the Office of Budget and Finance, Property Management, and other interested persons. These minutes shall be received by all parties prior to the next scheduled "progress meeting."

Article 40 Protection of Work and Property

- A. All trees along the way of access shall be boxed, also all trees surrounding the building which are liable to injury by the moving, storing and working up of materials. No permanent tree shall be used for attachment of any ropes or derricks. Every public way, catch basin, conduit, tree, fence or things injured in carrying out this Contract, shall be replaced and put in good condition, unless the same shall be permanently done away with by order of the Engineer.
- B. The Contractor shall erect and properly maintain at all times as required by the conditions and progress of the work, all necessary safeguards for the protection of workers and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hod hoists, well holes, elevator hatchways, scaffolding, window openings, stairways and falling material.
- C. In an emergency affecting the safety of life, or of the work, or of the adjoining property, the contractor, without special instruction or authorization is hereby permitted to act, at his/her discretion, to prevent such threatened loss or injury, and he/she shall so act, without appeal, if so instructed or authorized. Any compensation claimed by the Contractor on account of emergency work shall be determined as outlined in Article 11.

Article 41 Shoring, Bracing and Sheeting

- A. The Contractor shall do all necessary shoring, bracing and sheeting required, or as directed by the Engineer, to carryout the work, install the foundations and other building construction, to protect the street, sidewalks and all adjoining buildings and property. He/she shall thoroughly brace and protect all earth banks sides of pits, trenches, and other excavations to prevent danger to persons or structures, and to prevent injurious cavings or erosion of any sort. Shoring and sheeting shall be removed after, or as, the walls are built and properly set.
- B. Full responsibility for both the design (by an Engineer licensed in Maryland) and the execution of all shoring, bracing, and sheeting work shall rest upon the contractor. While the Engineer shall be fully advised of all details for such work before the work itself is executed, this shall not in any way relieve the Contractor for full responsibility for all damage or expense arising from faulty installation of the said work of shoring, bracing, or sheeting.

Article 42 Tests

- A. Soils testing shall be performed by an independent testing firm arranged and paid for by the County.

- B. Materials testing shall be performed by an independent testing firm, paid for by the Contractor, which has previously been approved by the County and Architect/Engineer. Certified copies of all such test reports shall be submitted to the Engineer for approval.

Article 43 Cleaning Up

- A. The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his/her employees or work, and at the completion of the work, shall remove all his/her rubbish from and about the project site, and all his/her tools, scaffolding and surplus material.

In case of dispute, the County may remove the rubbish and charge the cost to the several contractors as the Engineer shall determine to be just.

- B. All debris shall be kept sprinkled to reduce dust and shall be promptly removed from the building, and no combustible materials shall be stored against perimeter walls.
- C. The Contractor shall clean entirely the building as it is completed, wash all windows, scrub all floors at least once, and leave all floors free from spots and blemishes. The interior of the building and the project area shall be left "broom clean," or its equivalent.

Article 44 As-Built Drawings

The Contractor shall, as the project progresses, neatly record on a set of white prints any changes and all revisions to the work wherever they shall differ from the Contract Drawings. Upon completion of the work, the Contractor shall turn over to the Architect this set of prints.

Article 45 Drainage and Pumping

The Contractor shall remove all water, including rain water, encountered during the entire progress of the work, using pumps, drains or other methods approved by the Engineer. Excavations and the project site shall be kept free from water until all backfilling is completed. The water shall be discharged to catch basins, or other drainage points as directed by the Engineer.

Article 46 Temporary Water, Electric and Other Services

- A. The Contractor shall arrange for and pay for the installation of temporary connection to the County's water mains, including all incidental fees and expenses for water supply during construction of the project, and shall pay for all water used. Wasting of County water will not be permitted.

- B. The Contractor shall arrange for and pay for temporary electric light and power service required during construction of the project, and shall pay for all electricity used. Gasoline or other torches for lighting will not be permitted.
- C. The Contractor shall provide and pay for any other temporary services which may be required for the satisfactory completion of the project.
- D. The Contractor shall provide, at his/her own expense, all cold weather protection, temporary heat and fuel as necessary to carry on the work expeditiously during inclement weather, to protect work and materials against injury from dampness and cold, to dry out the building and provide suitable working conditions. Refer to other sections for temperatures required for work under the various trades

The methods of heating and type of fuel and equipment used shall be subject to approval by Engineer.

With special permission, in writing, permanent heating system may be used to dry out building and provide suitable working conditions in all or various parts thereof as soon as practicable. If used, Contractor shall be responsible for use of permanent heating system for purpose described and all costs of fuel, attendance, etc. in connection therewith shall be borne by him/her. Such use shall not relieve Contractor of his/her responsibility to turn over system to Owner in perfect condition on completion of project, including the removal of all dust of construction from air handling units, etc., the replacing of all filters, etc., nor shall it shorten stipulated guarantee period which will commence upon the date of final acceptance of the work.

Article 47 Connecting to Existing Utilities

The Contractor shall, at his/her own cost and expense and as part of this work under the Contract, furnish all labor, materials, tools, and appliances, and do all work required for making connections to existing storm drains, sanitary sewer, water, gas and electric service connections, as shown on drawings, and the cost of making such connections shall be included in his/her bid.

Article 48 Existing Utilities Shown on Plans

Water mains, gas mains, storm drains, sanitary sewers, and other utilities are shown on the Plans, in accordance with the best information available, for the information of the Contractor. The County assumes no responsibility for accuracy or completeness of the information shown. Existing mains and services shall be carefully protected and any damage to them caused by the work shall be immediately repaired to the satisfaction of the Engineer by the Contractor at his own expense, using materials of the quality and kinds damaged.

X. MISCELLANEOUS ADDENDA

Article 49 Holidays

The word "holidays" used in these Contract Documents shall be taken to mean the below listed holidays, which in Baltimore County, occur as shown below:

January 1	New Year's Day
3rd Monday in January	Martin Luther King's Birthday
3rd Monday in February	President's Day
4th Monday in May	Memorial Day
June 19	Juneteenth Independence
July 4	Independence Day
1st Monday in September	Labor Day
2nd Monday in October	Indigenous Peoples' Day
November 11	Veteran's Day
4th Thursday in November	Thanksgiving Day
December 25	Christmas
All Days of General Elections	

If any holiday occurs on Sunday, the following Monday shall be considered a holiday. If the holiday occurs on Saturday, the Friday immediately preceding shall be considered a holiday.

Article 50 Buy American Steel Act

The State of Maryland has approved House Bill No. 1659 to "Buy American Steel" for all Public Works projects in the State of Maryland, effective July 1, 1978. Compliance with Article 20.17 Metal Pipe (Page 100) and Article 20.18 Metal for Structures (Page 102) in the *S.H.A. Specifications for Materials, Highways, Bridges and Incidental Structures* dated March 1968 will satisfy this condition. Also see *Baltimore County's Standard Specifications for Construction and Materials* Section GP 7.28.

Article 51 Guarantee

- A. The Contractor guarantees all work against faulty or imperfect materials, against all imperfect or careless and/or unskilled workmanship, against all leaks and against all mechanical and electrical failure of equipment for a period of two (2) years from the date of acceptance of the project by the County. See other Sections of this Specification for other guarantees.
- B. The Contractor shall remove, replace or re-execute, without cost to the Owner, any work found to be imperfect during the guarantee period.

Article 52 Offices and Telephones

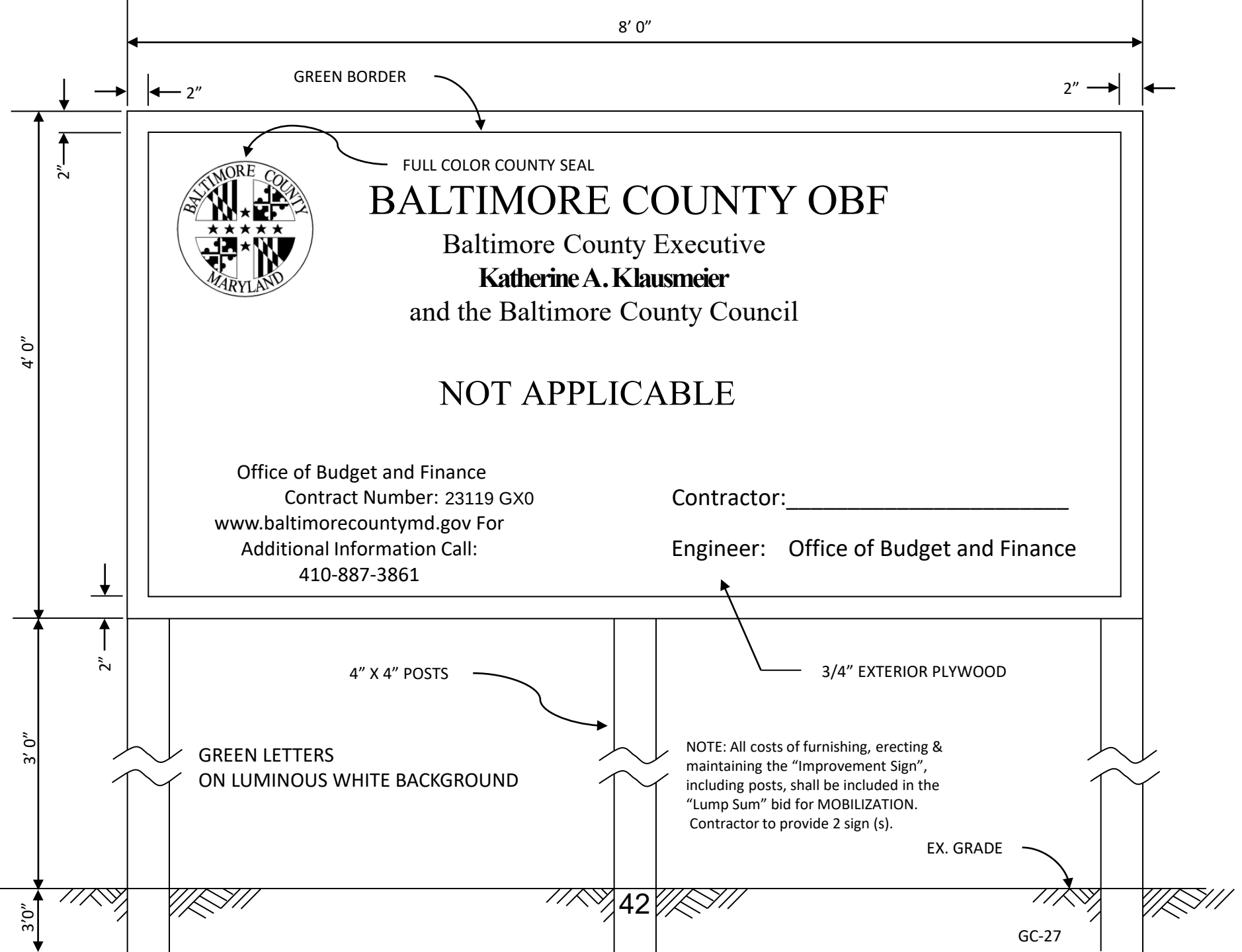
- A. The Contractor shall erect and maintain upon the project site, and where directed by the Engineer, suitable offices for his/her own use and that of the Engineer.

- B. A room of adequate size shall be provided and maintained in the Contractor's office to be used for "Progress Meetings," which frequently involve fifteen (15 or more persons). This space shall be so arranged that they can be held without interference with or from the other office or supervisory work. The room shall be 300 sq. ft. minimum and 10 ft. minimum width.

These offices shall be provided with adequate heating and lighting, all at the expense of the Contractor. In addition to the above requirements, air-conditioning will be required, the cost of which is to be included in the lump sum bid price. The system must be capable of maintaining a temperature of 80 degrees F dry bulb and approximately 50% relative humidity in the conditioned area when outside temperatures are 95 degrees F dry bulb and 78 degrees F wet bulb.

- C. The Engineer's office shall meet or exceed all requirements for a Type 1 office in accordance with *Baltimore County's Standard Specifications for Construction and Materials*, Section 103 Engineer's Office.

The Contractor shall provide telephone and FAX service in the Office of the Engineer. The Contractor shall pay all costs of installation and all charges for local and Baltimore City calls, but will not be expected to pay for long distance calls made from the Engineer's Office.



PROJECT MANUAL
FOR
TOWSON COURTHOUSE ADA
400 WASHINGTON AVENUE
TOWSON, MD 21204

ARCHITECT

Michael Graves
233 East Redwood Street; Suite 1200
Baltimore, MD 21202
410-290-9680

STRUCTURAL ENGINEER

Columbia Engineering
6210 Old Dobbin Lane, Suite 150
Columbia, MD 21045
410-992-9971

MECHANICAL AND ELECTRICAL ENGINEER

MIN Engineering, Inc.
10 Sudbrook Ln.
Pikesville, MD 21208
410-486-4692

August 15, 2025; 100% Construction Documents Edition

THIS PAGE IS INTENTIONALLY BLANK

INTRODUCTORY INFORMATION

THIS PAGE IS INTENTIONALLY BLANK

PROFESSIONAL SEALS

Architect	Structural Engineer	HVAC Engineer
Civil Engineer	Fire Protection Engineer	Plumbing Engineer
Food Service Designer	Interior Designer	Electrical Engineer

THIS PAGE IS INTENTIONALLY BLANK

TABLE OF CONTENTS

Numbers and Titles comply with 2022 Edition of MasterFormat™

INTRODUCTORY INFORMATION

00•01•05 - Certifications Page
00•01•07 - Seals Page
00•01•10 - Table of Contents
00•01•15 - List of Drawing Sheets

SPECIFICATIONS

DIVISION 01 - GENERAL REQUIREMENTS

01•10•00 - Summary
01•21•00 - Allowances
01•23•00 - Alternates
01•25•00 - Substitution Procedures
01•26•00 - Contract Modification Procedures
01•29•00 - Payment Procedures
01•31•00 - Project Management and Coordination
01•32•00 - Construction Progress Documentation
01•33•00 - Submittal Procedures
01•35•13.11 - Occupied Facility Procedures
01•41•00 - Regulatory Requirements
01•42•00 - References
01•43•00 - Quality Assurance
01•45•00 - Quality Control
01•50•00 - Temporary Facilities and Controls
01•60•00 - Product Requirements
01•70•00 - Execution and Closeout Requirements
01•80•00 - Performance Requirements

DIVISION 02 - EXISTING CONDITIONS

02•41•00 - Demolition
02•82•00 - Asbestos Remediation
02•83•00 - Lead Remediation

DIVISION 03 - CONCRETE

03•30•10 - Miscellaneous Cast-In-Place Concrete

DIVISION 04 - MASONRY

04•05•13 - Masonry Mortaring
04•05•19 - Masonry Anchorage and Reinforcing
04•20•00 - Unit Masonry

DIVISION 05 - METALS

05•12•00 - Structural Steel Framing
05•31•00 - Steel Decking
05•51•00 - Metal Stairs

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

Michael Graves
Issued on August 15, 2025; 100% Construction Documents Edition
Printed on October 8, 2025 (10:51am)

00•01•10 -1
Table of Contents
WMD-24016; Towson Courthouse ADA

Not Used

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07•84•00 - Firestopping

07•92•00 - Joint Sealants

DIVISION 08 - OPENINGS

08•11•13 - Steel Doors and Frames

08•14•00 - Wood Doors

DIVISION 09 - FINISHES

09•01•66.71 - Terrazzo Flooring Rehabilitation

09•22•00 - Supports for Plaster and Gypsum Board

09•23•00 - Gypsum Plaster

09•29•00 - Gypsum Board

09•30•00 - Tiling

09•51•00 - Acoustical Ceilings

09•66•23 - Resinous Matrix Terrazzo Flooring

09•67•00 - Fluid-Applied Flooring

09•91•00 - Painting

09•93•00 - Staining and Transparent Finishing

DIVISION 10 - SPECIALTIES

10•14•00 - Signage

10•21•00 - Compartments and Cubicles

DIVISION 11 - EQUIPMENT

Not Used

DIVISION 12 - FURNISHINGS

Not Used

DIVISION 13 - SPECIAL CONSTRUCTION

Not Used

DIVISION 14 - CONVEYING EQUIPMENT

14•40•00 - Lifts

DIVISION 21 - FIRE SUPPRESSION

Not Used

DIVISION 22 - PLUMBING

22•00•00 - Plumbing

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

Not Used

DIVISION 25 - INTEGRATED AUTOMATION

Not Used

DIVISION 26 - ELECTRICAL

Michael Graves

Issued on August 15, 2025; 100% Construction Documents Edition

Printed on October 8, 2025 (10:51am)

00•01•10 -2

Table of Contents

WMD-24016; Towson Courthouse ADA

26•00•10 - Electrical General Provisions
26•00•51 - Common Work Results for Electrical
26•00•60 - Grounding and Bonding
26•00•73 - Hangers and Supports for Electrical Systems
26•00•75 - Electrical Identification
26•01•20 - Conductors and Cables
26•01•30 - Raceways and Boxes
26•01•40 - Wiring Devices
26•04•10 - Enclosed Switches and Circuit Breakers
26•51•19 - LED Interior Lighting

DIVISION 27 - COMMUNICATIONS

Not Used

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

Not Used

DIVISION 31 - EARTHWORK

Not Used

DIVISION 32 - EXTERIOR IMPROVEMENTS

Not Used

DIVISION 33 - UTILITIES

Not Used

DIVISION 34 - TRANSPORTATION

Not Used

DIVISION 35 - WATERWAY AND MARINE

Not Used

DIVISION 40 - PROCESS INTERCONNECTING

Not Used

DIVISION 41 - MATERIAL PROCESSING AND HANDLING EQUIPMENT

Not Used

DIVISION 42 - PROCESS HEATING, COOLING, AND DRYING EQUIPMENT

Not Used

DIVISION 43 - PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE EQUIPMENT

Not Used

DIVISION 44 - POLLUTION AND WASTE CONTROL EQUIPMENT

Not Used

DIVISION 45 - INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT

Not Used

DIVISION 46 - WATER AND WASTEWATER EQUIPMENT

Not Used

DIVISION 48 - ELECTRICAL POWER GENERATION

Not Used

END OF CONTENTS

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\000110 Contents.wpd

SPECIFICATIONS

THIS PAGE IS INTENTIONALLY BLANK

SECTION 01•10•00
SUMMARY

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Provide and pay for labor, materials, equipment, and services for and incidental to execution and completion of Project, whether temporary or permanent and whether or not incorporated or to be incorporated in Project.

1.3 CONTRACTS

- A. Single lump-sum contract, subject to unit prices and changes in work as provided.

1.4 WORK RESTRICTIONS

- A. Construct Work in phases to accommodate Owner's use of premises during construction period; coordinate construction schedule and operations with Owner.
- B. Access to Site:
 - 1. Access to site shall be limited to area designated on Site Plan, unless specifically approved by Architect.
 - 2. Work outside of Project Limits, as designated on Architectural Floor Plan shall be limited to that which is necessary to connect or complete utilities and services; shall be performed in shortest practical time.
- C. Schedule operations for completion of portions of Project for Owner's occupancy prior to Substantial Completion of Project:
 - 1. Owner reserves right to use or occupy Project or parts, or to use equipment installed under this Contract, prior to final acceptance of Project or parts.
 - 2. Should Owner wish to occupy portion of Project prior to completion of entire Project, Owner will notify Contractor. Upon notification, perform Substantial Completion procedures for that portion.
- D. Begin construction immediately upon notice to proceed.
- E. Schedule work to be accomplished in shortest possible time with maximum practicable work force. Maintain public access and emergency egress. Include phasing plan and schedule in Construction Progress Schedule specified in Section 01•32•00.
- F. Construct Project in stages to provide for public convenience.
 - 1. Do not close off public use of facilities until completion of one stage of construction will provide alternative usage.
 - 2. Stages of construction are those indicated on Drawings.
- G. Execute Certificate of Substantial Completion for each specific portion of Project prior to Owner's Occupancy.
 - 1. Allow after Owner occupancy:
 - a. Access for Owner's personnel.
 - b. Access for public.
 - c. Operation of fire suppression, plumbing, HVAC, and electrical systems.
Coordinate with Owner and provide 24 hours advance notice of temporary shutdowns of systems.
 - d. Protected emergency egress.
 - 2. Upon occupancy, Owner will provide:
 - a. Operation of fire suppression, plumbing, HVAC, and electrical systems.
 - b. Janitorial services.
 - c. Security.

- H. Coordination With Occupants:
 - 1. Owner and Tenants will occupy entire premises for normal conduct of their business throughout construction of Project.
 - 2. Public will have full access to Owner and Tenants through temporary pedestrian and vehicular access ways and temporary lobby throughout construction of Project.
 - 3. Cooperate with Owner in construction operations to minimize conflict and to facilitate Owner usage.

1.5 USE OF PREMISES

- A. Limit use of premises for Work and for storage to allow for:
 - 1. Owner Occupancy.
 - 2. Public Use.
- B. Coordinate use of premises under direction of Owner.
- C. Assume full responsibility for protection and safe keeping of Products under this Contract stored on site.
- D. Move stored Products under Contractor's control, which interfere with operations of Owner or separate Contractor.
- E. Obtain and pay for use of additional storage or work areas needed for operations.
- F. Maintain unobstructed pedestrian and automotive traffic lanes on sidewalks and roads adjoining site and as indicated on Drawings.
- G. Take precautions to avoid damaging existing underground services, and assume responsibility for damage.
- H. Use of Adjacent Right-of-Ways:
 - 1. Use of right-of-way, including sidewalks and travel lanes on roadways surrounding Project, is owned by Baltimore County.
 - 2. No work, lane closures, or disruption of traffic, is permitted between hours of 7:00 AM and 9:00 AM and between hours of 4:00 PM and 6:00 PM, unless approved in writing by right-of-way owner.
 - 3. Lane closures may be restricted by right-of-way owner during hours beyond those specified above.
 - 4. Contact right-of-way owner to obtain notifications regarding street closures.

1.6 PROJECT UTILITY SOURCES

- A. Water: Baltimore County Department of Public Works.
- B. Sewer: Baltimore County Department of Public Works..
- C. Electric: BGE.
- D. Telephone: Verizon.
- E. Natural Gas: BGE.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\011000.wpd

SECTION 01•21•00
ALLOWANCES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 COSTS

- A. Include allowances in Contract Sum.
- B. Provide items covered by allowances in amounts and by such persons as Owner may direct, but Contractor will not be required to employ persons against whom Contractor makes reasonable objection.
- C. Allowances cover cost to Contractor less applicable trade discount, of materials and equipment required by allowance delivered at site, and applicable taxes.
- D. Include following cost items in Contract Sum and not in Allowance:
 - 1. Unloading and handling on site.
 - 2. Labor.
 - 3. Installation costs.
 - 4. Overhead.
 - 5. Profit.
 - 6. Other expenses contemplated for original allowance.
- E. Whenever cost is more than or less than monetary allowance, adjust Contract Sum accordingly by Change Order, amount of which will recognize changes, in handling costs on site, labor, installation costs, overhead, profit, and other expenses.
- F. Do not include additional amounts for installation or overhead costs in Contract Sum; Change Orders will include such additional costs, as provided in Conditions of Contract.
- G. Monies in contingency allowance will be used only on issuance of Change Orders.
- H. At closeout of contract, monies remaining in contingency allowance will be credited to Owner by Change Order.

1.3 CONTRACT SCHEDULE

- A. When preparing construction schedule, include decision dates for Owner making selections to avoid delays to Project completion.

1.4 ADJUSTMENT OF COSTS

- A. Quantity Differential: Should actual measured quantity be more or less than specified in allowance, Contract Sum will be adjusted by Price Unit and Change Order in accordance with terms of "Conditions of Contract."
- B. Data and Costs: For work specified under fixed quantity and cost allowance, submit following:
 - 1. Substantiating Data: Invoices, delivery tickets, time records, and other data to substantiate actual quantity of work.
 - 2. Other Costs: Prior to execution of work, requested for other costs, claimed for additional work caused by increase over amount of allowance.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 SCHEDULE OF CASH ALLOWANCES

- A. Include in Contract, following cash allowances:

- B. Section 02•82•00 - Asbestos Remediation and 02•83•00 - Lead Remediation, for removal of hazmat materials in proposed work areas: \$5,000.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\012100.wpd

SECTION 01•23•00
ALTERNATES

1.0 GENERAL

1.1 SUMMARY

- A. Alternates are identified by number.
- B. Basic changes to be incorporated into Work, when specific Alternates are made part of Project by specific provisions in Owner-Contractor Agreement.
- C. Sections of specifications stipulate pertinent requirements for products and methods to achieve work stipulated under each Alternate.
- D. Provide or delete, as specified, labor, materials, tools, implements, tackle, equipment and machinery, delivery and handling costs, applicable taxes, installation, overhead profit, and other expenses contemplated and necessary to accomplish Work.
- E. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Division 01 - General Requirements.
 - 3. Drawings.

1.2 REFERENCES

- A. Definitions:
 - 1. Alternate: Amount proposed by Bidder and stated on Bid Form that will be added to or deducted from Base Bid amount if Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems, or installation methods described in Contract Documents.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Consult Drawings and Specifications for location and extent.
 - 2. Work is subject to stipulations as set forth in individual specification sections for Work involved as fully as if repeated herein.
 - 3. Where descriptions of various Alternate Bids make reference to specification sections affected by Alternate Bid, such references shall not necessarily be considered as being all-inclusive.
 - 4. It is responsibility of each Bidder to determine to Bidder's satisfaction and for bidder's own purposes limits and extent of work affected by Alternate Bid, and to make full and unqualified allowances therefore in submission of Bidder's Alternate Bid Proposal.
 - 5. Coordinate and modify related work as specified to integrate work under each Alternate, and to provide complete construction specified by Contract Documents.
 - 6. Include in each Alternate, miscellaneous devices, appurtenances, and similar items incidental to or necessary for complete installation whether or not mentioned as part of Alternate.

1.4 ACCEPTANCE AND REJECTION OF ALTERNATES

- A. Alternates will be accepted or rejected without regard to sequence listed below.

1.5 COSTS

- A. Enter costs for performing Work outlined for alternates in locations provided in Bid Form.
- B. When Owner elects to delay decision regarding acceptance of alternates to after execution of Contract, adjust Alternate values to include overhead, profit, and other expenses beyond value stated on Bid Form.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 SCHEDULE OF MULTI-SECTION ALTERNATES

- A. Alternate Number 1 — Resinous Matrix Terrazzo Flooring: Alternate to base bid to install resinous matrix terrazzo flooring products where indicated on drawings in lieu of fluid-applied flooring.

3.2 SCHEDULE OF SECTION-SPECIFIC ALTERNATES

- A. Section 01•50•00: Temporary dehumidification.
- B. Section 09•29•00:
 - 1. Alternate 092900—2.
- C. Section 09•91•00: Painting of repairs associated with Alternate 092900—1.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\012300.wpd

SECTION 01•25•00
SUBSTITUTION PROCEDURES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of the Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 REFERENCES

- A. Reference Standards:
1. International Standards Organization (ISO):

1.3 PRODUCT SUBSTITUTION PROCEDURES

- A. Time of Making Substitutions:
1. Up to 10 days prior to date for receipt of bids, Architect will consider formal substitution requests from Contractor only. No requests for substitutions will be accepted after that time without Owner's authorization.
 2. No additional substitutions will be considered after this initial process unless substitution is required due to specified product being removed from or unavailable in market place. Unavailability is construed as being due to:
 - a. Strikes.
 - b. Discontinuance of manufacture.
 - c. Lockouts.
 - d. Bankruptcy.
 - e. Acts of God.
 - f. Delivery dates not compatible with baseline construction progress schedule.
- B. Limit each request to one proposed substitution.
- C. Document each request with supporting data substantiating compliance of proposed substitution with Contract Documents, including:
1. Manufacturer's name and address, product, trade name, model or catalog number, performance and test data, and reference standards.
 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.
 3. Reference to article and paragraph numbers in Specification section.
 4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 5. Certified test data to show compliance with performance characteristics specified.
 6. Samples, when applicable or requested.
 7. Other information to assist Architect's evaluation.
 8. Changes required in other elements of the Project because of the substitution.
 9. Effect on the construction schedule.
 10. Required license fees or royalties.
 11. Availability of maintenance service, and source of replacement products.
 12. Point-by-point comparison of proposed substitution with specified product.
- D. Contractor's Representation:
1. Request for substitution constitutes a representation that Contractor:
 - a. Has investigated proposed Product and determined that it is equal to or superior to that specified in all respects.
 - b. Will provide the same warranties or bonds for the substitution as for Product specified.
 - c. Will coordinate the installation of an accepted substitution into the Project, and make such other changes as may be required to make the Project complete, at no additional cost to Owner.

- d. Waives claims for additional costs, under Contractor's responsibility, which may subsequently become apparent.
 - e. Has provided point-by-point comparison of proposed substitution performance capabilities with specified product performance requirements.
 - 2. Should a proposed or accepted substitution cause modification to the Project or the Contract Documents, or require the Architect to investigate the proposed or accepted substitution's compatibility with the Project's design intent, Contractor shall be responsible for payment of the Architect's additional services.
- E. Architect is sole judge of acceptability of proposed substitution.
- F. Architect's Review:
 - 1. Architect will determine acceptability of proposed substitutions and will review requests with reasonable promptness.
 - 2. Considerations for acceptance will be based on conformance with Contract Documents, including following as applicable:
 - a. Physical dimension and clearance requirements to satisfy space limitations.
 - b. Static and dynamic weight limitations; structural properties.
 - c. Audible noise levels.
 - d. Vibration generation.
 - e. Interchangeableness of parts or components.
 - f. Accessibility for maintenance to allow possible removal or replacement.
 - g. Design.
 - h. Colors, textures, and finishes.
 - i. Compatibility with other products, assemblies, and components.
 - 3. Decision to accept or reject substitution will be indicated on Substitution Request Form.
 - 4. Rejection of proposed substitution requires use of specified product.
- G. Accepted Substitutions:
 - 1. Prepare and execute individual change orders for each accepted substitution.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 SUBSTITUTION REQUEST FORM (See next page)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\012500.wpd

SUBSTITUTION REQUEST FORM

Note: Limit this request to one proposed substitution.

Contractor: _____		Project: WMD-24016; Towson Courthouse ADA	
TO: Michael Graves	Date: _____	Request Number: _____	
From: _____	☐ Contractor	☐ Subcontractor	☐ Supplier ☐ Manufacturer
Specified Item: _____			
Section: _____	Page: _____	Paragraph: _____	
Product Substitution: _____			
Manufacturer: _____	Address: _____	Phone Number: _____	
Trade Name: _____	Model Number: _____		
Manufacturer: _____	Address: _____	Phone Number: _____	
History: _____	☐ New Product	☐ 2 to 5 years old	☐ 5 to 10 years old ☐ More than 10 years old
Differences between proposed substitution and specified product:			

☐ Point by point comparison data attached. Required for review by.			
Reason for Not Giving Priority to Specified Product:			

Similar Installations:			
Project _____	Architect: _____		
Address _____	Owner: _____		
_____	Date Installed: _____		
Project _____	Architect: _____		
Address _____	Owner: _____		
_____	Date Installed: _____		
Proposed Substitution affects other parts of Work: ☐ No ☐ Yes; explain:			

Savings to Owner for accepting substitution: _____ (\$)			
Proposed substitution changes Contract Time? ☐ No ☐ Yes If yes, ☐ Add ☐ Deduct _____ days			
Supporting Data Attached:			
☐ Product Data	☐ Drawings	☐ Tests	☐ Reports ☐ Samples ☐ _____

Undersigned Certifies:

Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.

Same warranty will be furnished for proposed substitution as for specified product.

Same maintenance service and source of replacement parts, as applicable is available.

Proposed substitution will not affect or delay Progress Schedule.

Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.

Proposed substitution does not affect dimensions and functional clearances.

Payment will be made for changes to building design, including architectural or engineering design detailing, and construction costs caused by requested substitution.

Coordination, installation, and changes in the Work as necessary for accepted substitution will be completed in all respects.

Submitted by: _____

Signature: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

ARCHITECT'S REVIEW AND ACTION

☐ Request approved - Make submittals in accordance with Section 01•33•00.

☐ Requested rejected - Use specified product.

☐ Request received too late - Use specified product.

Signed by: _____ Date: _____

OWNER'S REVIEW AND ACTION

☐ Request approved - Make submittals in accordance with Section 01•33•00.

☐ Requested rejected - Use specified product.

Signed by: _____ Date: _____

Additional Comments by

☐ Contractor

☐ Subcontractor

☐ Supplier

☐ Manufacturer

☐ Michael Graves

☐ Owner

END OF FORM

SECTION 01•26•00
CONTRACT MODIFICATION PROCEDURES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 SUBMITTALS

- A. Submit name of individual authorized to receive Contract modification documents, and individual responsible for informing others in Contractor's employ or Subcontractors of changes to Work.
- B. Change Order Form: AIA G701 *Change Order*, or equivalent.

1.3 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME CLAIMS

- A. Submit claims for costs and time associated with:
1. Supplemental Instructions.
 2. Proposal Requests.
 3. Responses to Requests for Interpretation.
 4. Construction Change Directives.
 5. Other changed conditions.
- B. Submit claims within 21 days of:
1. Receipt of:
 - a. Supplemental Instruction.
 - b. Proposal Request.
 - c. Response to Requests for Interpretation.
 - d. Construction Change Directive.
 2. Date of observation of changed condition.
- C. Initiation Date of Claims:
1. Date of Receipt of:
 - a. Supplemental Instruction.
 - b. Proposal Request.
 - c. Response to Requests for Interpretation.
 - d. Construction Change Directive.
 2. Date of observation of changed condition.
- D. Failure to make submission with stipulated 21 days (unless other time period is stated in Conditions of the Contract), may result in denial of claim in whole or in part.
- E. Should it not be possible to provide claim within 21 (unless other time period is stated in Conditions of the Contract) day limit:
1. Notify Owner within 14 days of Initiation Date of Claim.
 2. Provide date when claim will be submitted.
 3. Contractor is responsible for time delays associated with submitting claims more than 21 days after Initiation Date of Claim.
- F. Placement of claim issue on list of potential claims does not constitute submitting claim.
- G. Document prime contact and subcontract addition changes in same manner and level of detail.
- H. Document prime contact and subcontract deletion changes in same manner and level of detail.
- I. Include cost of work deleted, added, or changed.
- J. Include justification for proposed time extension.

- K. Fixed cost proposals without substantiation of material, labor, and equipment costs are not acceptable.
 - 1. Contractor is responsible for time delays associated with making resubmissions in response to Owner's rejection of Contractor's claims submitted without substantiation of material, labor, and equipment costs.
- L. Support Each Fixed Cost or Time Claim, with Following Information:
 - 1. Origin and date of claim.
 - 2. Source of claim.
 - 3. Drawing reference, or Specification Section and paragraph reference.
 - 4. Quantities and unit costs of material, labor, and equipment added and deleted from Project.
 - 5. Taxes, insurance, and bonds; if not included in overhead and profit.
 - 6. Change in overhead cost resulting from net change.
 - 7. Profit derived from net change.
- M. Indeterminate Work Claim for Additional Work Performed on Time and Material Basis:
 - 1. Maintain detailed records of work performed on time and material basis.
 - 2. Provide full information for evaluation of proposed changes, and to substantiate costs of changes in Work performed.
 - 3. Submit on monthly basis for acceptance and subsequent inclusion with monthly Applications for Payment.
 - 4. Failure to submit for monthly period indicates Contractor waives claim for that monthly period.
 - 5. When Claim Occurs:
 - a. Submit hourly labor rates with full substantiation of rate including fringe benefits, prior to commencement of work for Owner's acceptance of labor rates.
 - b. Should work commence without submission to and acceptance by Owner, Claim may be rejected in whole or in part.
 - 6. Support with Following Information:
 - a. Origin and date of claim.
 - b. Source of claim.
 - c. Drawing reference, or Specification Section and paragraph reference.
 - d. Dates and times work was performed, and by whom.
 - e. Time records and wage rates paid.
 - f. Document invoices and receipts for products and equipment.
 - g. Taxes, insurance, and bonds; if not included in overhead and profit.
 - h. Change in overhead cost resulting from net change.
 - i. Profit derived from net change.

1.4 CHANGE PROCEDURES

- A. Supplemental Instructions: Architect will advise of minor changes in Work not involving an adjustment to Contract Sum or Contract Time as authorized by *General Conditions of the Contract* by issuing supplemental instructions. Supplemental instructions may include documentation of issues resolved at on-site meetings or by telephone conversations.
- B. Proposal Request: Architect may issue Proposal Request which includes detailed description of proposed change with supplementary or revised Drawings and Specifications, and change in Contract Time for executing change. Contractor shall prepare and submit cost proposal within 21 days with full documentation and statement describing cost and time effects on completion of Project.
- C. Contractor Proposed Change: Contractor may propose a change by submitting request for change to Architect describing proposed change and its full effect on Work, with statement describing reason for change, and effect on Contract Sum and Contract Time with full documentation and statement describing effect on Work by separate or other contractors. Document requested substitutions in accordance with Section 01•25•00.

- D. Other Sources of Changes Include:
 - 1. Responses to Requests for Interpretation.
 - 2. Submittal markup comments. Submittal markup comments may be accompanied by Supplemental Instructions or Proposal Request.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Architect may issue directive on *Construction Change Directive* form, signed by Owner, instructing Contractor to proceed with change in Work, for subsequent inclusion in Change Order.
- B. Directive will describe changes in Work, and will designate method of determining changes in Contract Sum or Contract Time.
- C. Promptly execute change in Work.

1.6 CHANGE ORDERS

- A. Stipulated Sum Change Order: Based on Proposal Request and Contractor's fixed price quotation with detailed cost and time substantiation data or Contractor's request for Change Order as approved by Architect.
- B. Time and Material Change Order:
 - 1. Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of Contract.
 - 2. Architect will determine change allowable in Contract Sum and Contract Time as provided in Contract Documents.
 - 3. Maintain detailed records of work done on Time and Material basis.
 - 4. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in Work.
- C. Execution of Change Orders: Contractor to issue Change Orders using AIA Document G701, or equivalent, for signatures of parties as provided in Conditions of Contract.

1.7 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of work affected by change, and resubmit.
- C. Promptly enter changes in Project Record Documents.
- D. Architect is not obligated to revise Architect's computerized drawing files, beyond documentation necessary for coordination of work changes resulting from Proposal Requests.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\012600.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 01•29•00
PAYMENT PROCEDURES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 SCHEDULE OF VALUES

- A. Description:
1. Submit Schedule of Values within 5 days after Notice to Proceed. Include:
 - a. Allocation of various portions of Work
 - b. List of subcontractors at each tier to be used.
 2. Upon request of Architect, support values with data which substantiates their correctness.
 3. Include administrative information and services for acceptable evaluation and establishment of values of Work for payment.
 4. Schedule of Values, unless objected to by Architect, shall be used as basis for Contractor's Applications for Payment.
 5. Submit on form as described below.
- B. Format: AIA Form G702 and G703, or equivalent.
- C. Payment Period:
1. Monthly.
 2. Period To: Projected to end of month.
- D. Form of Submittal and Content:
1. Submit itemized applications typed in following format, listing costs of work for Sections under Divisions 01 to 34 on AIA Document G702, *Application and Certificate for Payment* and G702A *Continuation Sheets*, or equivalent.
 2. Provide itemized data on continuation sheets.
 3. Type on 8-1/2-inches by 11-inches white paper; standard form or computer-generated print-out matching AIA G702 and G702A, or equivalent, will be considered for approval by Architect upon Contractor request. Include:
 - a. Project title and location.
 - b. Architect and project number.
 - c. Name and address of Contractor.
 - d. Contract designation.
 - e. Date of submission.
 4. Include Scheduled list of installed component part values of Work in sufficient detail to serve as a basis for computing values for progress payments during construction.
 5. Follow Table of Contents of Project Manual for listing component items.
 - a. Identify each line item with number and title of respective major section of Specifications.
 6. For each major line item, list sub-values of major products or operations.
 7. Include separate lines for Contractor's overhead and profit.
 8. Sum of values listed in schedule shall equal total Contract Sum.
- E. Subschedule of Unit Material Values:
1. Submit a subschedule for each separate phase or section of Work as follows:
 - a. Products on which progress payments will be requested for stored products.
 - b. Products specified under an alternate in Section 01•23•00.
 2. Subschedule form to parallel that of Schedule of Values, with each item identified same as line item in Schedule of Values.
 3. Include an allowance for normal waste in unit quantity for bulk materials.
 4. Subdivide unit cost values for materials into:
 - a. Cost of material, delivered and unloaded at site, with taxes paid.

- b. Installation costs, including Contractor's overhead and profit.
 - c. Total installed value.
- 5. Installed unit value multiplied by quantity listed shall equal cost of that item in Schedule of Values.
- F. Materials Stored Off-Site:
 - 1. At time of request for payment submit documentation for materials to be stored off-site.
 - 2. Documentation to include, but is not limited to:
 - a. Receipt of Payment
 - b. Bills of Lading.
 - c. Storage/Warehouse Insurance Policies in amounts for full value of materials stored.
- G. Review and Re-Submittal:
 - 1. After review by Architect and Owner, revise and resubmit Schedule of Values including subschedules, as required.
 - 2. Resubmit revised schedule(s) in same manner within seven days after Preconstruction Meeting.
 - 3. Do not make submission of first application for payment without Architect's and Owner's acceptance of Schedule of Values.

1.3 APPLICATION FOR PAYMENT

- A. Format and Data Required: Same as Schedule of Values approved by Architect.
- B. Preparation of Application for each Progress Payment:
 - 1. Application Form:
 - a. Fill in required information, including that for Change Orders executed prior to date of submittal for application.
 - b. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 - c. Execute application with signature of responsible officer of Contract firm.
 - d. Notarize application prior to submission to Architect.
 - 2. Continuation Sheets:
 - a. Fill in total list of scheduled component items of Work, with item number and scheduled dollar value for each item.
 - b. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored:
 - 1) Round off values to nearest dollar, or as specified for Schedule of Values.
 - 2) Use data from approved Schedule of Values.
 - 3) Provide dollar value in each column for each line item for portion of work performed and for stored Products. Provide a percentage of completion for each line item.
 - c. List each Change Order executed prior to date of submission, at end of continuation sheets.
 - 1) List by Change Order Number, and description, in same manner for original components of Project.
 - 2) Integrate fully executed Change Orders. Do not include Change Orders not fully executed.
- C. Substantiating Data for Progress Payments:
 - 1. Approval of Initial Application for Payment Is Dependent Upon:
 - a. Previous submission and acceptance of schedule of values.
 - b. Previous submission and acceptance of preliminary construction progress schedule.
 - c. Previous submission and acceptance of construction progress schedule based upon revisions to preliminary construction progress schedule.
 - 2. Include updated construction progress schedule with Application for Payment.
 - 3. When Owner or Architect requires substantiating data, submit following information, with cover letter identifying:
 - a. Project.

- b. Application number and date.
- c. Detailed list of enclosures.
- d. Affidavit using AIA Document G706, or equivalent, that Contractor has paid for all work and materials for which he has been previously paid.
- e. Affidavit using AIA Document G706A, or equivalent, that upon payment Contractor will release liens or lien rights that might have been filed for work and materials in current application for payment.
- f. Affidavits and lien releases using AIA Document G706A, or equivalent, from Contractor's subcontractors and material suppliers that, other than work and materials itemized in current Application for Payment, such subcontracts and suppliers have been fully paid.
- g. Consent of surety is required for release of retainage or final payment.
- h. Items Owner's lender for Project may reasonably request.
- i. For stored products:
 - 1) Request approval for payment of off-site stored material prior to its inclusion in application for payment. Cost of verification of off-site stored materials is to be borne by Contractor.
 - 2) Item number and identification as shown on application.
 - 3) Description of specific material.
- 4. Submit one copy of data and cover letter for each copy of application.
- D. Preparation of Application for Final Payment:
 - 1. Fill in Application form as specified for progress payments.
 - 2. Use continuation sheet for presenting final statement of accounting as specified in Section 01•70•00.
- E. Submittal Procedure:
 - 1. Payment review meeting to coincide with progress meeting which is closest to (before or after) end of each month.
 - 2. Draft Submission:
 - a. Prepare prior to payment review meeting of each month.
 - b. Prepare by filling in amounts and percentages.
 - c. Transmit via email to Architect and Owner to enable review prior to monthly payment review meeting.
 - d. Review with Architect and Owner at payment review meeting of each month.
 - e. Revise as agreed with Architect and Owner at payment review meeting of each month.
 - 3. Submit revised Applications for Payment to Architect at times stipulated in Agreement.
 - 4. Quantity: Three copies of each Application.
 - 5. Submit partial lien waivers.
 - 6. When Architect finds Application properly completed and correct, Architect will transmit a certificate for payment to Owner, with a copy to Contractor.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\012900.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 01•31•00
PROJECT MANAGEMENT AND COORDINATION

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 REFERENCES

- A. Definitions:
1. Drawing/Specification Clarification:
 - a. Answer from Owner or Architect, in response to Contractor's inquiry, intended to make some requirements of Drawings or Specifications clearly understood.
 - b. May be in graphic or written form, and will not change requirements of Drawings or Specifications.
 - c. Will be made as described for responses to Requests for Interpretation.
 2. Project Communications:
 - a. Routine written communication in letter, memorandum, email message, or fax format.
 - b. Do not identify as Request for Interpretation or as other written communication required by Contract Documents.
 3. Requests for Interpretation: Request from Contractor, to Owner or Architect, seeking interpretation or clarification of some requirements of Contract Documents.

1.3 GENERAL COORDINATION PROVISIONS

- A. Contract Documents are divided into related categories of Contract Forms, Contract Conditions, Specifications, Drawings, Addenda, and Contract Modifications, according to accepted and recognized standards of practice.
- B. Specification Sections may or may not coincide with actual division of Work among Subcontractors and trades; Specification Sections may require execution of Work of more than one Subcontractor or trade.
- C. Contractor is solely responsible for actual division and coordination of Work among Subcontractors and trades such that completed unit of Work is as indicated on Drawings, Specifications, Addenda, and Contract Modifications; and will function as intended by Contract Documents.
- D. Provide subcontractors and trades with complete sets of Contract Documents so they are familiar with Project requirements. If not provided, Contractor is responsible for coordination among Subcontractors and trades due to partial sets of Contract Documents used by Subcontractors and trades.
- E. Make plural and complete Work which is indicated singly or partially indicated.
- F. Do not take advantage of errors, omissions, or conflicts within Contract Documents, should they exist. Contact Architect for clarifications.
- G. Coordinate to provide normal progression of construction in timely manner without delays. Determine long-lead items and requirements of those items on which sequences are dependent. Coordinate work sequence with use of premises.
- H. Schedule work to avoid conditions detrimental to Work occurring during construction.
- I. Coordinate and require cooperation of various trades and sections of Work.
 1. Coordinate with adjacent construction trades.
 2. Cooperate to ensure progress.
 3. Afford opportunity for other trades perform installations.
 4. Afford opportunity for other trades store and protect products.
- J. Coordinate scheduling, submittals, and Work of Specification Sections to ensure efficient and orderly sequence of execution of interdependent construction elements.

- K. Coordinate Work of various Specification Sections having interdependent dimensions, information, or other responsibilities for installing, connecting to, and placing in service various types of equipment.
- L. Supply exact layouts, templates, dimensions, and instructions for installation, erection, or anchorage of products to be incorporated into Project.
- M. In addition to meetings specified, hold coordination meetings with personnel and subcontractors to ensure coordination of Work.
- N. Install ceilings as indicated. Immediately notify Architect of conflicts with light fixtures, sprinklers, ductwork, or other ceiling penetrations.
- O. Except as otherwise indicated, conceal pipes, ducts, conduit, and wiring in construction elements. Coordinate location of fixtures and outlets with finish elements.
- P. Coordinate requirements of Drawings and Specifications so that Work shown on Drawings and not mentioned in Specifications, and vice versa, is executed in same manner as though mentioned in Specifications and shown on Drawings.
- Q. Use figured dimensions marked on Drawings and not scaled measurements.
- R. Establish procedures for handling queries and clarifications.
- S. Allot time in construction scheduling for liaison with Architect.
- T. Sequence and coordinate work to accommodate work performed later in construction sequence.
- U. Verify compatibility of characteristics of interconnected and interrelated equipment.
- V. Provide and be responsible for temporary shoring used to complete Work.
- W. Requests for Interpretation:
 - 1. Should discrepancies, omissions, ambiguities, or conflicts, be found in Contract Documents, or doubt regarding their meaning occurs, contact Owner or Architect for direction and interpretation of Contract Documents prior to proceeding with Work in question.
 - 2. Make requests for interpretation on "Request for Interpretation" Form located at end of Section. Remove form for making copies or request original copy from Architect. Computerized version may be used for distribution by email.
 - 3. On "Request for Interpretation" Form, clearly and concisely describe issue which requires clarification and why response is needed. Include Contractor's interpretation or understanding of requirement with reason why such interpretation or understanding was reached.
 - 4. Owner or Architect will review Requests for Interpretation to determine if they are with in defined meaning for Requests for Interpretation.
 - 5. If Owner or Architect determines that submitted document is not Request for Interpretation, it will be returned to Contractor unreviewed for submission in specified form and manner.
 - 6. Response Time:
 - a. After receipt from Contractor, Owner or Architect will respond to Requests for Interpretation within 5 days, excluding Saturdays, Sundays, and Holidays, unless longer time period is deemed necessary by Owner or Architect to provide adequate response.
 - b. If longer time is deemed necessary by Owner or Architect, Owner or Architect will notify Contractor of anticipated response time within 5 days from receipt of Request for Interpretation, excluding Saturdays, Sundays, and Holidays.
 - c. If Contractor submits Request for Interpretation on activities with 5 days or less of float time on current construction progress schedule, Contractor is not entitled to time extension due to time it takes Owner or Architect to respond to request provided that Owner or Architect responds within 5 days, excluding Saturdays, Sundays, and Holidays.
 - 7. Do not use "Request for Interpretation" form for:
 - a. Responding to Non-Conformance Notices.
 - b. Project communications.
 - c. Substitution requests.

- d. Submitting shop drawings, product data, samples, or other submittals described in Contract Documents.
- 8. Responses to Request for Interpretation will not change requirements of Contract Documents.
 - a. If Contractor believes that response to Request for Interpretation may cause change to Contract Documents, within 7 days of receipt give written notice to Owner and Architect stating that Contractor considers response to be Change Order.
 - b. Failure to give such notice immediately, waives Contractor's right to seek additional time or cost under requirements of Contract Documents.

1.4 COORDINATION OF SPACE

- A. Available space in Project is limited and requires coordination for installation of products and systems.
- B. Coordinate use of Project space and sequence of installation of specialties, mechanical, and electrical systems. Follow routes shown for pipes, ducts, and conduits as closely as possible to Drawings, with due allowance for available physical space. Make runs parallel with building lines.
- C. Various products and systems have been indicated schematically or diagrammatically. Documents have been prepared to avoid interference of components. Where conflicts occur, coordinate to prevent interference of components after consultation with Architect.
- D. Fire Suppression, Plumbing, Refrigeration, Heating, Ventilation, Air Conditioning, Electrical, Lightning Protection, Communications, Surveillance, Detection, Alarm, Safety and Security Systems:
 - 1. Indicated locations of apparatus, equipment, and outlets are approximate.
 - 2. Indicated runs of feeders and branch circuits are not intended to show exact routing, location, or termination.
 - 3. Routing, location, and termination locations are governed by architectural conditions, structural conditions, obstructions, and connection locations on equipment.
 - 4. Field verify dimensions and space for installation, prior to installation or fabrication of equipment or components.
 - 5. Submit drawings showing significant deviations to Architect for acceptance prior to executing the deviations. Correct executed significant deviations at no additional cost to Owner if determined to be unacceptable by Architect.
 - 6. Ensure fitting of materials and equipment at indicated locations without substantial deviation.
 - 7. Drawings do not indicate offsets, fittings, or accessories required for complete installation.
 - 8. Use offsets, fittings, or accessories to arrange systems to coordinate with architectural conditions, structural conditions, or obstructions.
 - 9. Shift pipe, duct, and wireway locations at no additional cost to Owner up to the time of rough-in or fabrication.
 - 10. Shift electrical outlet and switch locations at no additional cost to Owner up to the time of rough-in.
 - 11. Install products to give right-of-way priority to systems required to be installed to specified slopes.
- E. Where approved submittals indicate equipment require different arrangement or connections from those shown in Contract Documents, Contractor is responsible for:
 - 1. Installing equipment to operate as specified and in harmony with intent of Contract Documents.
 - 2. Making changes in work required by different arrangement of connections.
 - 3. Making changes for different arrangement at no increase in Contract Sum or at additional cost to other trades, separate contractors, or Owner.
- F. Variations in alignment, elevations, and details required to avoid interferences and satisfy architectural and structural limitations are not necessarily shown.

- G. Coordinate sizing of various components to assure proper fit and location. Verify dimensions of existing conditions
- H. Provide products for preparation, basis, support, or finish of Work which is shown or specified, whether or not same is specifically mentioned in Specifications or shown on Drawings.
- I. Utilize space efficiently to maximize accessibility for installation of other products, for maintenance, and for repairs.
- J. Prior to installation of products, review and coordinate Work to establish exact space conditions. Where space is inadequate or where reasonable modifications are not possible, request interpretation from Architect before proceeding.
- K. Coordinate installation to prevent conflicts and cooperate, without extra charge, to make reasonable modifications in layout as needed.
- L. Provide clear access to control points, valves, strainers, control devices, and specialty items to obtain maximum headroom.
- M. Provide adequate clearances for operation and access for maintenance, service, future connections, repair, and replacement of equipment.
- N. Site Utilities:
 - 1. Contact regional utility location service to determine and mark location of existing utilities prior to excavation or other site construction.
 - 2. Dig test pits to investigate conditions.
 - 3. Exercise extreme care around existing utilities.
 - 4. Perform excavation by hand to prevent damage.
- O. Make arrangements with Owner, public utilities, public services, public carriers, service companies, or corporations which own or control roadways, utilities, rights-of-ways, including incidental structures, so such items are supported, shored, protected, or relocated.

1.5 COORDINATION OF CONTRACT CLOSEOUT

- A. Coordinate completion and clean up of project in preparation for substantial completion and for portions of project designated for partial or beneficial occupancy as described in Section 01•10•00.
- B. To minimize disruption of Owner's activities after occupancy of project, coordinate access by various trades for correction of defective Work and for correction of Work not in accordance with Contract Documents.

1.6 PROJECT MEETINGS

- A. Contractor Responsibilities:
 - 1. Physical arrangements of meetings.
 - 2. Preparation of agenda.
 - 3. Preside at meetings, record minutes, including significant proceedings and decisions.
 - 4. Reproduction and distribution, within three days, of minutes of each meeting to:
 - a. Participants.
 - b. Parties affected by decisions made at meeting.
- B. Representation at Meetings:
 - 1. Representatives of contractors, subcontractors, and suppliers, attending meetings shall be qualified and authorized to act on behalf of entity each represents.
 - 2. Architect and professional consultants may attend meetings to ascertain that Work is consistent with Contract Documents.
 - 3. Owner may be at meetings and may propose agenda items.

4. To avoid disruption of meetings, attendees are to turn off and not use portable telephones, portable radio transceivers, and pagers. Portable telephones, portable radio transceivers, and pagers may be used during individual meetings only with consent of other attendees at particular meeting.
- C. Preconstruction Meetings
1. Refer to requirements specified in succeeding paragraphs for pre-installation meetings held prior to start of trade and subcontractor work.
 2. Owner to schedule after Notice to Proceed has been issued.
 3. Location: At site, in construction field office.
 4. Attendance:
 - a. Mandatory: Contractor, Owner's Representative, Architect, Architect's Consultants, Contractor's Project Manager, Contractor's Superintendent.
 - b. As Mutually Agreed upon by Contractor, Owner, and Architect: Major Subcontractors, major suppliers, and others.
 5. Minimum Agenda:
 - a. Distribution and discussion of:
 - 1) List of major subcontractors and suppliers.
 - 2) Projected construction progress schedules.
 - 3) Organizational arrangement of forces and personnel for:
 - a) Construction.
 - b) Product supply.
 - 4) Channels and procedures for communication.
 - b. Critical work sequencing.
 - c. Major equipment deliveries and priorities.
 - d. Project Coordination: Designation of responsible personnel.
 - e. Procedures and Processing of:
 - 1) Field decisions.
 - 2) Proposal requests.
 - 3) Submittals.
 - 4) Change orders.
 - 5) Applications for payments.
 - f. Adequacy of distribution of Contract Documents.
 - g. Procedures for maintaining Record Documents.
 - h. Use of Premises:
 - 1) Office, work, and storage areas.
 - 2) Owner's requirements.
 - i. Construction facilities, controls, and construction aids.
 - j. Temporary utilities.
 - k. Safety and first-aid procedures.
 - l. Security procedures.
 - m. Housekeeping procedures.
 - n. Clarifications of Contract Documents.
 - o. Testing agency coordination.
 - p. Sustainable design goals.
 - q. Environmental goals and procedures.
 - r. Waste management procedures.
 - s. Other items as appropriate.
 6. At least 24 hours prior to meeting, notify participants attending meeting of added agenda items.
- D. Progress Meetings:
1. Schedule regular meetings at two week intervals, day and time as mutually agreed upon by Contractor, Owner, and Architect.
 2. Schedule called meetings as required by progress of Work.
 3. Location: At Project site, in construction field office.

4. Attendance: Contractor, Owner's Representative, Architect, Architect's Consultants (as needed), Subcontractors as appropriate to agenda, suppliers as appropriate to agenda, and others as necessary.
 5. Minimum Agenda:
 - a. Review and approval of minutes of previous meeting.
 - b. Review of work progress since previous meeting.
 - c. Field observations, problems, conflicts.
 - d. Problems which impede construction progress schedule.
 - e. Review of off-site fabrication and delivery schedules.
 - f. Corrective measures and procedures to regain projected schedule.
 - g. Revisions and changes to construction progress schedule.
 - h. Plan progress and schedule during succeeding work period.
 - i. Coordination of schedules.
 - j. Review submittal schedules; expedite as required.
 - k. Maintenance of quality standards.
 - l. Review proposed changes for: Effect on construction progress schedule and on completion date.
 - 1) Effect on other contracts of Project.
 - m. Adequacy of work forces.
 - n. Clarification decisions of Architect or Owner.
 - o. Testing Agency Coordination.
 - p. Sustainable design goals.
 - q. Environmental Goals.
 - r. Waste Management Procedures.
 - s. Other business.
 6. Meeting Minutes:
 - a. Include a column listing who is required to take action and date when action is to be completed. Items requiring action are to be carried in subsequent minutes of meeting as "old business" until noted as "resolved."
 - b. As minimum, separate information in meeting minutes into following categories:
 - 1) Old business.
 - 2) New business.
 - 3) Status of proposed changes.
 - 4) Status of change orders.
 - 5) Status of submittals.
 - 6) Request for interpretation status.
 - 7) Progress schedule status, including events to be accomplished by next meeting.
- E. Pre-Installation Meetings:
1. Schedule as required in individual Specification Sections.
 2. Location: At Project site, in construction field office.
 3. Attendance:
 - a. Entities directly affecting, or affected by, Section's Work.
 - b. Owner may attend at Owner's discretion.
 - c. Architect may attend at Architect's discretion.
 4. Minimum Agenda:
 - a. Review conditions of Work.
 - b. Execution procedures.
 - c. Coordination with related Work.
 - d. Sustainable design goals.
 - e. Environmental Goals.
 - f. Waste Management Procedures
- F. Project Closeout Meetings:
1. Location: At Project site, in construction field office.

2. Attendance: Contractor, Owner's Representative, Architect, Architect's Consultants (as needed), Subcontractors as appropriate to agenda, suppliers as appropriate to agenda, and others as necessary.
3. Schedule Substantial Completion, Final Completion, and warranty inspection meetings as required by progress of Work.
4. Substantial Completion Meetings:
 - a. Schedule not later than two weeks prior to anticipated date of Substantial Completion of Project, day and time as mutually agreed upon by Contractor, Owner, and Architect.
 - 1) Where Project has phased occupancy, schedule Substantial Completion meetings in relation to dates of phased Substantial Completion of respective phase.
 - b. Minimum Agenda:
 - 1) Review start-up of facilities and systems.
 - 2) Review testing, adjusting, and balancing of systems.
 - 3) Discuss system demonstration and observation procedures.
 - 4) Review scheduling and performance of operation and maintenance instructions for Owner's personnel.
 - 5) Review Contractor's inspection of Work.
 - 6) Review Contractor's preparation of initial "punch list" of items to be corrected.
 - 7) Discuss procedure to request Architect's inspection to determine date of Substantial Completion.
 - 8) Discuss completion time for correcting defective work.
 - 9) Review status of Inspections by authorities having jurisdiction.
 - 10) Review status of Certificate of use or occupancy.
 - 11) Review transfer of insurance responsibilities from Contractor to Owner.
 - 12) Discuss partial release of retainage.
 - 13) Review of Closeout Submittals:
 - a) Record documents.
 - b) Operating and maintenance documents.
 - c) Operating and maintenance materials.
 - d) Warranties and bonds.
 - e) Affidavits required by Contract Documents.
 - f) Sustainability closeout submittals.
 - g) Final application for payment.
 - 14) Review final cleaning procedures.
 - 15) Review Contractor's demobilization of site.
 - 16) Transfer from Contractor to Owner for responsibility for security, maintenance, and payment for utility services.
5. Final Completion:
 - a. Schedule when Work is complete for entire Project and final application for payment has been prepared for entire Project.
 - b. Minimum Agenda:
 - 1) Review of Closeout Submittals, as specified above for Substantial Completion Meetings.
 - 2) Discuss completion time for correcting defective work.
 - 3) Review final application for payment.
6. Warranty Inspection Meetings:
 - a. Schedule 1 year from date of Substantial Completion for Project, including each phased completion.
 - b. Minimum Agenda:
 - 1) Review performance of Project during past year.
 - 2) Discuss warranty repair and correction work performed.

1.7 PROJECT MANAGEMENT SOFTWARE / WEBSITE

A. Contractor to issue documents via email or Owner's file transfer protocol process for the following items:

- a. Change Order Request (Proposed Change Order).
- b. Change Orders.
- c. Potential Change Orders.
- d. Project Record Documents.
- e. Requests for Information.
- f. Requests for Interpretation.
- g. Submittals.
- h. Substitution Requests.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\013100.wpd

Attachment: Request for Interpretation Form.

REQUEST FOR INTERPRETATION

Contractor:		Project: WMD-24016; Towson Courthouse ADA	
Question to:	Michael Graves	From: Contractor	Date:
	☐ Other:	Signed:	RFI Number:
Regarding:			
Specification Section Number	Paragraph	Drawing References	Details

Date Received:	Response from:	Michael Graves	To: Contractor
Date Response Transmitted:		☐ Other:	
.....			
Response:			

Signed:					
Copies:	☐ Owner	☐	☐	☐	☐

END OF FORM

THIS PAGE IS INTENTIONALLY BLANK

SECTION 01•32•00
CONSTRUCTION PROGRESS DOCUMENTATION

1.0 GENERAL

1.1 SUMMARY

A. Related Documents:

1. Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 CONSTRUCTION PROGRESS SCHEDULE

A. Prepare by scheduling person who is thoroughly trained and experienced in:

1. Compiling construction schedule data.
2. Preparing and updating precedence-based network schedules.
3. Preparing and issuing periodic schedule update reports.

B. Prepare construction progress schedule using computer-based scheduling software using algorithms capable of complying with requirements of case law governing construction scheduling.

C. Format:

1. Include entire project for extent required by Contract Documents, and provide for expeditious and practicable execution of Work.
2. Schedule: Critical Path Method, computer generated.
3. Provide separate horizontal breakdown for each trade or operation.
4. Order: Chronological order of beginning of each item of Work.
5. Identify each Work item by each trade identification or major Specification Section name and number and by logically grouped activities.
6. Horizontal Time Scale: Identify first work day of each week.
7. Scale and Spacing: Allow for updating.
8. Minimum Sheet Size: 11 by 17 inches.

D. Content:

1. Provide complete sequence of construction by activity organized by:
 - a. Floor.
 - b. Area.
 - c. Segment.
2. Subdivide each trade or Specification Section into a sufficient quantity of individual activities to present realistic breakdown of Work for scheduling.
3. Individual activities to last not more than 14 days, excluding:
 - a. Submittals.
 - b. Fabrication/manufacturing.
 - c. Shipping and delivery to project site.
 - d. Milestones.
4. Include Following Types of Activities:
 - a. Submittals:
 - 1) Illustrate by separate schedule coordinated with construction activity schedule.
 - 2) Indicate:
 - a) Submittal name.
 - b) Submission dates (refer to Section 01•33•00).
 - c) Submittal preparation.
 - d) Architect's review time.
 - e) Dates when final reviewed copies will be required.
 - 3) Allow time for resubmission of submittals which may be disapproved.
 - 4) Schedule initial submission of major products, systems, and equipment to occur within first 30 days after Notice to Proceed.

- 5) Do not proceed with purchasing, fabrication, or delivery of products until:
 - a) Submittal procedures have been successfully completed.
 - b) Performed in sequence which does not result in accepted submittal being later modified or rescinded by reason of subsequent submittal which should have been processed earlier or concurrently for coordination.
- b. Baseline schedule:
 - 1) Within thirty (30) Days after the Award of the Contract, the Contractor shall submit to Owner a detailed baseline schedule indicating the time allocated by the Contractor for performance of each portion of the Work. The baseline schedule shall show commencement of Work from the date the Notice to Proceed is issued. The baseline schedule shall show Full and Final Completion of the Work within the Contract Time as specified in the Contract or as mutually agreed upon with the County in writing pursuant to a Contract Modification after execution of the Contract.
- c. Project mobilization.
- d. Off-site product fabrication/manufacture.
- e. Approvals from authorities having jurisdiction.
- f. Placing orders.
- g. Product shipment and delivery from fabrication/manufacturing location to project site.
- h. Product installation.
- i. Equipment start-up, commissioning, and testing.
- j. Project cleaning.
- k. Substantial completion inspection, making punchlist corrections, and final inspection.
- l. Owner activities which affect project completion.
 - 1) Include dates provided by Owner for Owner-furnished items.
 - 2) Include milestone dates stated in preliminary construction schedule or dates discussed and agreed upon at Owner-Contractor meeting to review preliminary construction schedule.
 - 3) Dates for making selection of finishes and color selections.
 - 4) Dates for Owner-provided product procurement and delivery.
- m. Utility Service (Gas, Electric, Sewer, Telephone, and Water) Connections; Include:
 - 1) Date of making service connection request.
 - 2) Time for utility service engineering and approvals.
 - 3) Dates for commencing and completing construction of individual utility service connections.
- n. Constraints and sequences stated elsewhere in Contract Documents affecting construction progress scheduling.
- o. Decision dates for Products specified by allowances, selection of finishes, color selections, product procurement, and delivery dates.
5. Identify Work of separate floors, or separate phases, or other logically grouped activities.
6. Show projected percentage of completion for each item of Work on first day of each month.
7. Provide subschedule sorts to define critical portions of entire schedule.
- E. Construction Progress Schedule Duration:
 1. Construction schedule to begin with Notice to Proceed and conclude with Final Completion.
 2. Float or slack time within construction progress schedule:
 - a. Not for exclusive use or benefit of Owner or Contractor.
 - b. Jointly owned by Owner and Contractor.

- c. Expiring project resource available to Owner and Contractor to meet contract milestones and Project completion date.
 - d. Use of float time disclosed or implied by use of alternate float suppression is to be shared proportionately by Owner and Contractor.
- 3. Owner may reduce time of performance of Contract work to match time of completion shown on Contractor's baseline early completion schedule, at no cost to Owner.
- 4. Pursuant to Contract's float sharing requirements:
 - a. No time extensions will be granted nor delay damages paid until delay occurs which impacts Project's critical path, consumes available float time, consumes available contingency time, and extends completion beyond Contract's completion date.
 - b. Use of float suppression techniques such as following are prohibited:
 - 1) Preferential sequencing.
 - 2) Preferential logic.
 - 3) Special lead/lag logic restraints.
 - 4) Extended activity times.
 - 5) Irrelevant linking of tasks.
- F. Commence schedule preparation within 15 days of Notice of Award.
- G. Preliminary Schedule:
 - 1. Schedule review meeting to occur with Owner and Architect within 30 days of Notice of Award.
 - 2. Include:
 - a. Contractor's work prior to submission of preliminary schedule.
 - b. General schedule concept for entire Project.
 - c. Detailed schedule for construction progress for first quarter of entire construction period or 90 days of Project duration, whichever is less.
 - d. Sign-off statement from major subcontractors stating that they have participated in preparation of baseline construction progress schedule and agree with baseline construction progress schedule.
 - 3. Do not commence construction until Preliminary Schedule has been reviewed and accepted with comments by Owner.
- H. Construction Progress Schedule:
 - 1. Revise preliminary schedule based upon review comments.
 - 2. Submit within 30 days after receiving comments.
 - 3. Within 30 days of respective subcontract execution, provide sign-off statement from respective major subcontractors stating that they have participated in preparation of baseline construction progress schedule and agree with baseline construction progress schedule.
- I. Revisions:
 - 1. Show changes occurring since previous submission of updated schedule.
 - 2. Indicate actual progress of each activity.
 - 3. Show completion dates.
 - 4. Include changes discussed at construction progress meetings.
 - 5. Make changes to critical deadline dates only with Owner's and major subcontractor's approval.
 - 6. Include with submission, list of schedule changes made since previous submission:
 - a. Major changes in scope.
 - b. Activities modified since previous updating.
 - c. Revised projections due to changes.
 - d. Logic changes.
 - e. Durations.
 - f. Actual starts.
 - g. Actual finishes.
 - h. Activity additions.
 - i. Activity deletions.
 - j. Changes resulting from Change Orders.

- k. Other identifiable changes.
 - 7. Owner is not responsible for changes specifically not indicated in list of schedule changes.
 - 8. When requested by Owner, submit Contractor's weekly progress reports.
 - 9. Provide narrative report, including:
 - a. Discussion of problem areas, including:
 - 1) Current and anticipated delay factors, and their impact.
 - 2) Corrective actions taken or proposed, and their effect.
 - b. Effect of change in schedules of others outside of this Contract.
 - c. Description of revisions:
 - 1) Effect on schedule due to change of scope.
 - 2) Revisions in duration of activities.
 - d. Other changes that may affect schedule.
- J. Submission:
 - 1. Comply with Section 01•33•00.
 - 2. Submit Preliminary Schedule within 10 days of Notice to Proceed.
 - 3. Updated Schedules:
 - a. Submit monthly.
 - b. Accurately depict progress to first day of each month.
 - c. Include updated construction progress schedule with each month's Application for Payment.
 - 4. Submit one copy to Architect and one copy to Owner.
- K. Distribution:
 - 1. Distribute copies of Architect-reviewed schedules to:
 - a. Project site file: 1 copy.
 - b. Subcontractors.
 - c. Material Suppliers.
 - 2. Instruct recipients to report inability to comply, and provide detailed explanation, with suggested remedies.

1.3 PERIODIC WORK OBSERVATIONS

- A. Architect will make periodic observations at same time as progress meetings.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\013200.wpd

SECTION 01•33•00
SUBMITTAL PROCEDURES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.
- B. Types of submittal requirements specified in this section include shop drawings, product data, samples, information submittals, and miscellaneous work-related submittals.
- C. Related Sections:
 - 1. Section 01•29•00 - Payment Procedures: Schedule of Values and Estimated Payment Schedule.
 - 2. Section 01•32•00 - Construction Progress Documentation: Construction Progress Schedule.
 - 3. Section 01•60•00 - Product Requirements: Proposed Products List.
 - 4. Individual submittal requirements specified in respective specification sections.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM E2032, Guide for Extension of Data from Fire Endurance Tests.
- B. Definitions:
 - 1. Delegated Design Submittals:
 - a. Submittals of items whose design is delegated to Contractor by Contract Documents, and whose design requirements are indicated on drawings or specifications.
 - b. Submittals are for Architect's review and require Architect's responsive action.
 - c. Changed Condition Drawings: Drawings which show conditions different from those indicated on Contract Drawings.
 - 2. Submittals for Architect's Review:
 - a. Submittals are for Architect's review and require Architect's responsive action.
 - 3. Submittals for Architect's Information:
 - a. Submittals are for Architect's information and do not require Architect's responsive action.
 - b. Architect may make comments and take review action on these submittals.

1.3 AVAILABILITY OF CONTRACT DOCUMENTS IN DIGITAL FORMAT FOR SUBMITTAL PREPARATION

- A. Contract Documents available in following format at Contractor's cost:
 - 1. Contract Documents and software formats:
 - a. Drawings: Adobe Portable Document File (PDF).
 - b. Specifications: Adobe Portable Document File (PDF).
- B. Following Contract Drawings are available in accordance with AIA E201-2007 *Digital Data Protocol Exhibit* and *CAD Release*.
 - 1. Contract Documents available upon request in AutoDesk AutoCAD 2022-2025 format for following purposes:
 - a. Architectural Reflected Ceiling Plans for Sprinkler shop drawings.
 - b. Architectural Plans for fire alarm system shop drawings.
 - c. Other drawings are not available.
 - 2. Contract Drawings are available upon request in pdf format at no cost to Contractor.

1.4 CONTRACTOR RESPONSIBILITIES

- A. Contractor shall not be relieved of responsibility for deviation from requirements of Contract Documents by Architect's review of submittals under General Conditions, unless Contractor has specifically informed Architect in writing of such deviation at time of submission and Architect has given written approval to specific deviation. Contractor shall not be relieved from responsibility for errors or omissions in submittals by Architect's review thereof.
- B. Direct specific attention, in writing or on resubmitted submittals to revisions other than those requested by Architect on previous submittals.
- C. Do not commence portions of Work requiring submittals approved by Architect as provided in General Conditions. Perform Work in accordance with approved submittals.
- D. Fire Suppression, Plumbing, Refrigeration, Heating, Ventilation, Air Conditioning, Electrical, Lightning Protection, Surveillance, Detection, Alarm, Electronic Safety, and Security Submissions: Submit complete list of material, manufacturers, and other specified information, as listed under respective specification Sections within 30 days after date of Notice to Proceed; no consideration will be given to partial lists submitted from time to time. Indicate products requiring different arrangement or connections from those indicated in Contract Documents are accepted by Architect, Contractor is responsible for installing products to function or operate in harmony with intent described in Contract Documents, and make changes necessary to accommodate the different arrangement at no additional cost to Owner.
- E. Make submission far enough in advance of scheduled installation dates to allow for submittal reviews, obtaining necessary approvals, possible revisions, resubmission reviews, placing orders, fabrication/manufacturing/ and delivery to Project site.

1.5 CONTRACTOR'S REVIEW

- A. By approving and submitting submittals, Contractor certifies that:
 - 1. Products, field measurements, installation space, connection space, and related field construction criteria have been, or will be, determined and verified.
 - 2. Information contained within submittals have been checked and coordinated with requirements of Contract Documents.
 - 3. Submittal conforms to Contract Documents and other information given.
 - 4. Check and coordinate submittals of particular section or trade with submittals of other sections or trades for coordination and complete installation of Work.
 - 5. Submittal's acceptability in terms of means, methods, techniques, sequences, and operations of construction has been verified.
- B. Indicate Contractor's certification on submittal by signed or initialed stamp, stating that information submitted complies with requirements of Contract Documents. Perform revisions and markups prior to submission to Architect.
- C. Contractor's certification of acceptance indicates evidence that submittals have been reviewed by Contractor.
 - 1. Submittals without certification of acceptance or whenever it is evident (despite certification stamp being placed on submittal) that submittal has not been reviewed, will be returned to Contractor for re-submission without further consideration; in such event, it will be deemed that Contractor has not complied with this requirement and Contractor shall bear risk of delays to same extent as if no submittals had been submitted.
 - 2. Submission or re-submission of corrected submittal constitutes evidence that Contractor accepts and is willing to perform Work shown, in accordance with Contract Documents.
- D. If acceptable, Architect may allow variations, subject to appropriate adjustment in Contract Sum.
- E. If Contractor fails to describe variations, Contractor is not relieved of responsibility for executing work in accordance with Contract Documents, even though submittals have been reviewed.

- F. Contractor to identify items that vary from requirements in Contract Documents.
- G. Ensure that submittals specified in Contract Documents have been submitted to Architect for review.
- H. Contractor agrees to reimburse Owner for Architect's services for review of submissions that vary from Contract Documents.
- I. Improper Checking and Coordination: Cost of change in Work due to improper checking or improper coordination shall be paid by Contractor.
- J. No claim for extra cost shall be based on Work shown on shop drawings.
- K. After review and approval, submit to Architect for review.

1.6 ARCHITECT'S REVIEW

- A. Architect's review will be only general in nature and shall not be construed as permitting departure from Contract Documents, or relieving Contractor of responsibility for errors resulting from deviations from Contract Documents.
- B. Architect will review progress schedules, schedule of values, estimated payment schedule, proposed product lists, product data, shop drawings, samples, and return them within 15 days of receipt by Architect.
- C. Do not make "Mass" submittals (6 or more submittals) to Architect at one time. If Mass submittals are received, Architect's review time stated above will be extended to perform review. Architect will review Mass submittals based upon priority determined by Architect after consultation with Owner and Contractor.
- D. Architect will review submittals for:
 - 1. Color.
 - 2. Finish.
 - 3. Design intent.
 - 4. Aesthetics of Architectural details.
 - 5. Technical content of engineering submissions.
- E. Submittals covering several types of products used for a single purpose (such as firestops, sealants, gypsum board accessories, plumbing fixtures, temperature controls, panel boards, light fixtures), will be treated as a single submission. Entire submission will be approved or disapproved. Individual items will not be acted upon separately.
- F. Architect will return, without review, submittals not specified by Contract Documents.
- G. Review Comments:
 - 1. No Exception Taken, Approved, Approved as Submitted, Approved as Specified, Conforms, Reviewed, or Meets Criteria: No corrections required by Architect. Fabrication and installation may commence.
 - 2. Make Corrections Noted, Approved as Corrected, Approved as Noted, Comments Noted, Conforms as Noted; Furnish as Corrected; Note Markings; Reviewed, Comments Indicated; Reviewed as Noted; or Reviewed with Comments:
 - a. Indicates minor amount of correction is required.
 - b. Checking is complete and corrections are obvious without ambiguity.
 - c. Fabrication and installation may commence, provided such action expedites construction in adherence with noted corrections.
 - d. Resubmit only when Contractor is not able to comply with noted corrections.
 - e. If fabrication is not made strictly in accordance with corrections noted, such item will be rejected in field and Contractor shall replace such Work in accordance with corrected submittal.
 - f. Acceptance of work is dependent upon complying with notations on submittal.
 - 3. Revise and Resubmit:
 - a. Further clarification is required before Architect's acceptance can be given.
 - b. Unmarked items may be fabricated and installed unless otherwise directed.
 - c. Revise submittal and resubmit to Architect for review.
 - d. Fabrication of items indicated to be revised:
 - 1) Is not permitted until submittal is corrected and accepted by Architect.
 - 2) Is done at Contractor's risk.

- e. Remove and replace items fabricated or incorporated in Project at no additional cost to Owner, if items were fabricated or incorporated without submittals accepted by Architect.
 - 4. Not Acceptable; Rejected:
 - a. When submittal is contrary to contract requirements or too many corrections are required.
 - b. Architect will list reasons for rejection on submittal or in transmittal letter accompanying return of submittal.
 - c. Correct and resubmit to Architect for review.
 - d. Do not fabricate or install.
 - e. Fabrication of Items:
 - 1) Is not permitted until submittal is corrected and accepted by Architect.
 - 2) Is done at Contractor's risk.
 - f. Remove and replace items fabricated or incorporated in Project at no additional cost to Owner, if items were fabricated or incorporated without submittals accepted by Architect.
 - 5. Other Action: As marked by Architect. Used for:
 - a. Special processing or Contractor activity.
 - b. Architect's Information.
 - c. Record submittals.
 - 6. Submittals of key/major products/systems which are partially acceptable to Architect will be noted with indication of which portions are released for construction.
- H. Review Status:
 - 1. Released for Construction: Fabrication and installation may commence.
 - 2. Partially Released for Construction:
 - a. Fabrication and installation may commence on items not indicated to be corrected.
 - b. Correct items to be corrected and resubmit for review; resubmit to Architect for review.
 - 3. Not Released for Construction:
 - a. Correct and resubmit for review.
 - b. Fabrication and installation are to not commence.
 - c. Resubmit to Architect for review.
- I. Return of Submittals to Contractor Unreviewed: Architect may return submittals to Contractor unreviewed for following reasons. Unreviewed submittal not be considered official:
 - 1. Submitted in violation of specified procedures.
 - 2. Submitted in by parties other than General Contractor.
 - 3. Inadequate review by Contractor.
 - 4. Inaccurate and substantial error.
 - 5. Submission not specified by Contract Documents.
- J. Partial Submittals: Where partial submissions cannot be reviewed until complete submission has been received, or where correlation is required between material submitted and material not yet submitted, that submission will not be considered official until it is complete.

1.7 SUBSTITUTIONS OF REVIEWED PRODUCTS

- A. After submittal has been reviewed, make change in brand or model in accordance with substitution procedures stated in Section 01•25•00.
- B. Such substitute materials will be allowed only if they are in Owner's best interest.

1.8 GENERAL SUBMITTAL REQUIREMENTS

- A. Preparation of Submittals:
 - 1. Package each submittal appropriately for transmittal and handling.
 - 2. Submittals received from sources other than Contractor will be returned without action.
- B. Designate in construction progress schedule, or in separate coordinated schedule, dates for submission and dates that reviewed submittals will be needed.

- C. Include Following Items:
1. Letter of transmittal or email signed by Contractor.
 2. Date of submission and dates of previous submissions.
 3. Project title and Architect's Project number.
 4. Contract identification.
 5. Names of: Contractor, Subcontractor, Supplier, Manufacturer, trade name, and catalog number.
 6. Identification of product, with specification section number.
 7. Number submittals according to Contractor's administrative procedures.
 8. Field dimensions, clearly identified as such.
 9. Relation to adjacent or critical features of Work or materials.
 10. Applicable reference standards.
 11. Identification of deviations from Contract Documents.
 12. Identification of revisions on re-submittals.
 13. An 8 inch by 3 inch blank space for Contractor and Architect/Engineer stamps in lower right hand corner. Shop drawings without such blank space will be returned without review until such space is provided.
 14. Schedules.
 15. Identify deviations from Contract Documents.
 16. Information about who furnishes related work (usually noted "by others").
 17. Contractor's certification, initialed or signed, certifying to review of submittal and approval, verification of products, field measurements and field construction criteria, and coordination of information within submittal with requirements of Work and Contract Documents. No submittals will be reviewed by Architect without Contractor's certification.
 18. Other pertinent data.
- D. Incomplete Submittals:
1. Failure to meet submittal requirements will constitute an incomplete submittal.
 2. Architect will not review incomplete submittals.
 3. Claims for delay under General Conditions on incomplete submittals are without basis and will be rejected.

1.9 SPECIFIC-CATEGORY SUBMITTAL REQUIREMENTS

- A. General:
1. Except as otherwise indicated in individual specification Sections, comply with following requirements for each indicated category of submittal.
 2. Provide and process intermediate submittals, where specified between initial and final submittals in similar manner to initial submittals.
 3. There is no obligation on Owner for Architect to provide Contractor with electronic copies of contract documents for use in preparation of submittals.
- B. Shop Drawings:
1. Specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form for general application to several projects.
 2. Provide newly-prepared information, with graphic information at accurate scale (except as otherwise indicated), and name of preparer indicated (firm name):
 3. Present drawings in clear and thorough manner. Identify section views and details by reference to sheet and detail, schedule, or room numbers shown on Contract Drawings.
 4. Use figured dimensions; do not scale drawings.
 5. Maximum Sheet Size: 30 inches by 42 inches.
 6. Prepare original drawings.
 7. Reproductions of Contract Documents altered, stamped, dated, and submitted as Shop Drawings will not be accepted.
 8. Clearly indicate dimensions and identify which are based on field measurement.

9. Identify materials, products, equipment, accessories, trimmings, protective coatings and factory finishes.
 10. Indicate special coordination requirements.
 11. Working dimensions and erection dimensions.
 12. Arrangements.
 13. Sectional views.
 14. Details and methods of fabrication, assembly, and erection.
 15. Details, fastenings, anchorage, and attachment to adjoining Work or contiguous work.
- C. Product Data:
1. Standard printed information on materials, products, and systems; not specially prepared for this project.
 2. Designate intended selections, models, types, names, sizes, catalog numbers, dimensions, materials, capacities, performance data, or other information identifying specific products or components proposed for use in Project.
 3. Collect specified data into one submittal for each unit of work or system; and mark to show which products, models, choices, and options are applicable to Project.
 4. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements.
 5. Preparation:
 - a. Clearly mark to identify pertinent products or models.
 - b. Show performance characteristics and capacities.
 - c. Show dimensions and clearances.
 - d. Show wiring or piping diagrams and controls.
 6. Manufacturer's standard schematic drawings and diagrams:
 - a. Modify drawings and diagrams to delete information which is not applicable to Work.
 - b. Supplement standard information to provide information specifically applicable to Work.
- D. Samples:
1. Fabricated and non-fabricated physical examples of materials, products, and units of work; both as complete units and as smaller portions of units of work; either for limited visual inspection or more detailed analysis.
 2. Provide units identical with final condition of proposed materials or products for work.
 3. Clearly show full range of quality, color, and texture which will be evident in finished work
 4. Provide full set of optional samples where Architect's selection is specified.
 5. Include information with each sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards.
 6. Provide samples to clearly illustrate:
 - a. Functional characteristics of product with integrally related parts and attachment devices.
 - b. Full range of colors (manufacturer's standard colors plus other colors available from manufacturer), textures, and patterns.
 7. Color Selection:
 - a. Architect will not make color selections until all submittals requiring color selection have been made so that product colors can be coordinated.
 - b. Failure to submit all colors to be selected in timely manner will constitute waiver of delay claims on those items submitted pending color selection.
 - c. Custom Colors: Submit samples illustrating colors, textures, patterns, and finishes matching Architect's samples.
 - d. Rejection of Work Not Conforming to Reviewed Samples:
 - 1) Do not use products which are not equal to reviewed samples and discard immediately upon their discovery.

- 2) Acceptance of samples will not preclude rejection of products not complying with contract requirements which is discovered prior to end of guarantee period.
- E. Engineering Judgments of Fire-Rated Elements:
1. Submit for Alternatives and Variations to Specified or Indicated:
 - a. Firestopping Details or Systems:
 - 1) Expansion joint firestopping protection systems.
 - 2) Exterior wall cavity firestopping protection systems.
 - 3) Floor edge perimeter fire containment systems.
 - 4) Linear gap firestopping protection systems:
 - a) Base of wall.
 - b) Head of wall.
 - c) Wall to wall.
 - 5) Membrane firestopping protection systems.
 - 6) Perimeter fire containment protection systems.
 - 7) Through penetration protection system.
 - b. Fire-Rated Assemblies:
 - 1) Beams. Includes girders, joists, and trusses.
 - 2) Columns.
 - 3) Floor-ceiling assemblies.
 - 4) Roof-ceiling assemblies.
 - 5) Walls.
 - c. Fire-Rated Openings:
 - 1) Doors.
 - 2) Storefronts.
 - 3) Curtain walls.
 - 4) Windows.
 2. Do not submit in place of tested systems when tested systems are available.
 3. Submittal Requirements:
 - a. Firestopping details or systems; issue only by one of following:
 - 1) Firestop system manufacturer's qualified technical personnel.
 - 2) In concert with firestop manufacturer, by:
 - a) Knowledgeable registered Professional Fire Protection Engineer, or
 - b) Independent testing agency that provides listing services for systems.
 - 3) Knowledgeable registered Professional Fire Protection Engineer.
 - 4) Independent testing agency that provides listing services for systems.
 - b. Fire-Rated Assemblies, issue only by one of following:
 - 1) Fire-rated assembly component manufacturer's qualified technical personnel
 - 2) In concert with manufacturer, by:
 - a) Knowledgeable registered Professional Fire Protection Engineer, or
 - b) Independent testing agency that provides listing services for systems.
 - 3) Knowledgeable registered Professional Fire Protection Engineer, or
 - 4) Independent testing agency that provides listing services for systems.
 - c. Fire-Rated Openings, issue only by one of following:
 - 1) Fire-rated opening manufacturer's qualified technical personnel
 - 2) In concert with manufacturer, by:
 - a) Knowledgeable registered Professional Fire Protection Engineer, or
 - b) Independent testing agency that provides listing services for systems.
 - 3) Knowledgeable registered Professional Fire Protection Engineer, or
 - 4) Independent testing agency that provides listing services for systems.
 - d. Base Upon:
 - 1) Interpolation or analysis of previously tested fire-rated systems and assemblies that are either sufficiently similar in nature or clearly bracket conditions upon which judgment is to be given. Base additional knowledge and technical interpretations upon:

- a) Accepted engineering principals.
 - b) Fire science, and
 - c) Fire testing guidelines including, but not limited to:
 - 1] ASTM E2032.
 - 2] Society of Fire Protection Engineers, *Engineering Guide of Performance-Based Fire protection Analysis and Design of Buildings*.
 - 3] Society of Fire Protection Engineers, *The Enforcers Guide to Performance-Based Design Review*.
 - 2) Full knowledge of elements of construction to be protected and understanding of probable behavior of that construction, and recommended fire-rated system or assembly protecting it, were it to be subjected to Standard Fire Test Method for required fire rating.
 - 3) Include evaluation of surrounding construction components and insulation of detail, device, system, or assembly during testing to ensure acceptable fire-protective performance.
 - e. Limit only to specific conditions and configurations upon which Engineering Judgment was rendered and based upon reasonable performance expectations for recommended fire-rated system under those conditions.
- 4. Architect's Acceptance:
 - a. Will only be accepted only for single specific project and location.
 - b. Cannot be transferred to other project or location without thorough review of aspects of the next project or location's circumstances.
- 5. Authority Having Jurisdiction Acceptance:
 - a. Notify Authority Having Jurisdiction that Engineering Judgement has been issued for fire-resistive element in Project.
 - b. Upon request by Authority Having Jurisdiction, submit Engineering Judgement for review and acceptance by Authority Having Jurisdiction.
- F. Submittals for Architect's Information:
 - 1. Certifications:
 - a. When specified in individual Specification sections, submit manufacturer's certificate.
 - b. Submit certificate in form of affidavit, executed by responsible officer, certifying that product furnished for this project meet or exceed requirements of Contract Documents.
 - c. Submit supporting reference data, affidavits, and certifications as appropriate.
 - d. Certificates may be recent or previous test results on product, but shall be acceptable to Architect.
 - 2. Manufacturer's Instructions:
 - a. When specified in individual Specification sections, submit manufacturer's printed instructions for delivery, assembly, installation, adjusting, finishing, and other pertinent data.
 - b. Identify conflicts between manufacturer's instructions and Contract Documents.
 - c. Submit with product data.
 - 3. Support Reactions Design Data:
 - a. Reaction loads from contractor-designed (including manufacturer-designed) equipment and systems on building structure.
 - b. Include static and dynamic loads.
 - 4. Test and Evaluation Reports:
 - a. When specified in individual Specification sections, submit manufacturer's standard test data with and in same quantity as product data
 - b. Submit project-specific reports within 7 days of performing test or inspection. Distribute copies to Architect, Project site file, subcontractor, and other entities requiring information.

1.10 SUBMITTAL QUANTITY REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in Work or in work of other Contractors.
- B. Quantity of Each Submittal:
 - 1. Unless stated otherwise in Specification Sections, submit in following quantities.
 - 2. Shop Drawings, Product Data, Submittals for Architect's Information, and Warranties:
 - a. Do not submit paper copies.
 - b. Submit as Adobe Acrobat Portable Document File (PDF):
 - 1) Assemble individual documents into a single PDF file for each submittal.
 - 2) Do not send multiple files of individual drawing sheets, data sheets, certificates, and warranties.
 - a) Send multiple drawing sheets as single PDF file.
 - b) Send multiple product data sheets, certificates, and warranties as single PDF file.
 - c) Send as single PDF file submittals consisting of:
 - 1] Product data sheets.
 - 2] Manufacturer instructions.
 - 3] Certificates.
 - 4] Color charts.
 - 5] Test reports.
 - 6] Warranties.
 - 3) Submitted PDF file can be assembled from electronic PDF files or scanning of paper copy (color charts excluded).
 - a) When scanning paper copy, scan at resolution rate of 300 to 600 dots per inch.
 - 4) Additional PDF File Requirements:
 - a) File Format: Adobe Acrobat Versions 5.0 to 10.0.
 - b) Not have fill-in form fields.
 - c) Not have security settings.
 - d) Not have file encryption settings turned-on.
 - c. Architect reserves right to change PDF file names.
 - d. Architect reserves right to encrypt file to restrict changes from being made to file contents.
 - e. Files may be disbursed by Architect via Architect's file transfer protocol site instead of by email.
 - 3. Samples: Submit quantity of copies which Contractor requires plus two which will be retained by Architect.
 - 4. Color Charts:
 - a. Submit non-electronic quantity of copies which Contractor requires plus two which will be retained by Architect.
 - 1) Original chart from manufacturer.
 - 2) Do not submit copy of hard copy color chart.
 - 3) Do not submit copy of color printed color chart.
 - b. In Addition to Submit as Adobe Acrobat Portable Document File (PDF):
 - 1) To be PDF file downloaded from manufacturer's web site.
 - 2) Do not submit scanned copy of hard copy color chart.
 - 3) Do not submit scanned copy of color printed color chart.
 - 4) If file size exceeds 7 Megabytes, multiple files can be submitted.
- C. Failure to submit sufficient quantity of submittal copies constitutes an incomplete submittal.
- D. Failure to submit sufficient quantity of submittal copies constitutes delay in start of review by Architect. Architect's review time will not commence until quantity of submittal copies is sufficient to comply with specified requirements.
- E. Failure to submit sufficient quantity of submittal copies constitutes waiver of delay claims on those submittal items submitted in insufficient quantity of copies.

1.11 RESUBMISSION REQUIREMENTS

- A. Submit as specified for initial submittal.
- B. Make corrections or revisions to submittals to coordinate them with contract documents and other shop drawings made at no additional cost.
- C. Make and identify corrections or changes in submittals identified by Architect.
- D. Architect will record time to review submittal after original submittal and first resubmittal.
Contractor shall reimburse Owner for charges of Architect and Architect's Consultants for reviewing submittal more than 2 times.
- E. Make no changes to resubmitted submittals in excess of those corrections noted by Architect, unless accompanied by letter explaining additional changes.
- F. Identify resubmitted submittals as "Resubmitted."
- G. Architect's review time is same as for initial submittals.

1.12 DISTRIBUTION

- A. Shop Drawings or Product Data: Distribute reproductions of Shop Drawings and copies of Product Data which carry Architect review stamp to:
 - 1. Project site file.
 - 2. Record Documents file.
 - 3. Supplier or Fabricator.
 - 4. Other affected contractors, subcontractors, suppliers, fabricators, governing authorities, and others as necessary for specified performance of Work.
- B. Samples:
 - 1. Distribute samples which carry Architect's review stamp.
 - 2. Maintain one of each sample on Project site.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\013300.wpd

SECTION 01•35•13.11
OCCUPIED FACILITY PROJECT PROCEDURES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of the Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 FACILITY REGULATIONS

- A. Comply with Owner's regulations, including those that may be issued during term of Contract.
- B. Particular attention is called to regulations regarding circulation, noise, sanitation, safety, security, smoking, language, and behavior.
- C. Require that construction personnel certify their awareness with requirements of this Section.
- D. Interior of Project's building is a non-smoking environment.
- E. Keys:
 - 1. When necessary to perform Work, Owner will issue keys to existing mechanical or electrical spaces.
 - 2. Make request minimum of 7 days prior to scheduled day for accessing affected spaces.
 - 3. Return keys at end of each day; request additional keys on succeeding days, as necessary.

1.3 OWNER'S REPRESENTATIVE

- A. Comply with directions of Owner's Representative in matters affecting operation, safety, and security of the Project, tenants, occupants, and visitors. Failure to comply with directions of Owner's Representative will be of sufficient reason to dismiss Contractor, Subcontractor, or employee. Future access to Project will be denied.
- B. Abide by directions of Fire Marshal in matters pertaining to fire safety and preventative measures.
- C. Immediately implement oral instructions by Fire Marshal. Confirmation or explanation of oral instructions will be made by Owner by written notice at next scheduled progress meeting.
- D. Instruct personnel employed by Contractor and Subcontractors to abide by facility regulations, and directions of Owner's Representative and Fire Marshal.
- E. Notify Owner in writing of problems with Contract in terms of working conditions, cooperation of Owner's personnel, project safety, vandalism, stolen equipment or materials, or unusual field conditions.

1.4 PERSONNEL IDENTIFICATION AND ACCESS CONTROL

- A. Contractor and Subcontractor employees are to wear Owner-approved numbered identification badges while on Project premises.
- B. Conspicuously fix identification badges to outer garments above elbow height.
- C. Personnel not complying with this requirement will be escorted from Project or denied access to facility.
- D. Maintain record of names and identification of persons associated with Project entering Owner's property; including time of entry and time of exit. Submit copy of list to Owner on each day.

1.5 NORMAL LIMIT OF OPERATIONS

- A. Normal limit of operations are confined within Limits of Work Area designated on Drawings.
- B. Restrict personnel passage, transport of products, and construction operations to areas within Limits of Work Area.
- C. Notify construction personnel of areas outside Limits of Work Area.
- D. Provide temporary barricades delineating Limits of Work Area.
- E. Allow access to Owner, Architect, and separate contractors.
- F. Periodic Operations Outside Limits of Operation:

1. Use of certain passageways and other areas, outside defined limits of Work area will be granted in intermittent basis when requested in advance to permit contracted construction operations.
2. Notify Owner minimum of 7 days in advance of need to operate outside limits of Work area. Owner will be judge, and approve in advance, time and extent of such use.
3. Perform only after written approval by Owner.
4. Limit request for use of corridors and other spaces to hour-by-hour basis.
5. Comply with designated travel paths, staging areas, dumpster locations, and other restricted items indicated on Drawings.
6. Elevators will be available for Contractor's use as described in Section 01•50•00.

1.6 SEQUENCING

- A. Sequence work under provisions of Section 01•10•00.
- B. Schedule arrangements for Work which will not interfere with normal facility functioning, particularly in occupied areas or adjacent areas, 7 days in advance with Owner to provide for minimum of disruption and inconvenience.
- C. Meet with Owner to schedule work sequences to avoid interference with normal facility functioning.
- D. Owner will schedule and approve interference to minimize disruption to normal facility operations.
- E. Loading berths will be available for Contractor's use.
 1. Schedule use with Owner.
 2. Only use areas designated by Owner for loading and offloading products or debris.
 3. Limit truck and equipment access to areas designated by Owner.
- F. Protect curbs and sidewalks from potential damage created by trucks and equipment passing to reach work areas.
- G. Should Owner determine locations of stored products, storage areas, storage sheds, storage platforms, trailers, or construction office are interfering with facility operations, relocate as directed by Owner at no cost to Owner.
- H. Relocate facility fixtures and equipment out of work areas prior to commencing construction activities and relocate back after completing construction activities.
- I. Outages:
 1. Keep utility and service outages to minimum.
 2. Schedule outages to occur at night, on holidays, and on weekends.
 3. Entire Facility Power Outages Exceeding 8 Hours: Provide temporary power service for facility at full load amperages and voltages.
 4. Fire Pump Replacements:
 - a. Arrange piping at replacement pump and existing pump so outage during changeover is minimized to less than 24 hours.
 - b. Provide full time fire watch throughout facility when fire pumps are not functioning.
 5. Make request 7 days in advance of proposed outage.
 6. Requests for outages will not be considered unless they include identification of areas affected by proposed outage.
 7. Investigate utility and service lines to determine effect of outage on facility operations. Prior to making investigations, obtain Owner's approval to perform investigations.
 8. Provide temporary shut-off valves, drain valves, caps, switches, or other equipment to minimize outage period, to accommodate phasing requirements, or minimize portions of facility affected by outage.
 9. Drain and refill system to accommodate phasing requirements, or minimize portions of facility affected by outage.
 10. Provide temporary heating and cooling to maintain temperature of 75°F in occupied areas.
 11. Perform only after written approval by Owner.
- J. Working Hours and Overtime Notification:
 1. Notify Owner and receive permission for work outside normal daytime working hours either within or outside limits of Work area.

2. If in Owner's judgement, item of Work is being unreasonably delayed or interfering with progress of dependent Work through no fault of Owner, overtime Work may be ordered at Contractor's expense.
 3. Owner may direct Contractor to perform overtime Work for Owner's convenience. When overtime Work is directed for Owner's convenience, additional payment will be made to Contractor for premium time only.
 4. Plan construction operations in accordance with work hour restrictions established by Owner.
- K. Burning and Welding Operations:
1. Neither burning or welding are permitted without Owner's prior approval.
 2. Make request 7 days in advance of proposed burning or welding..
 3. Requests for burning or welding will not be considered unless they include identification of areas affected.
 4. Perform only after written approval by Owner.
 5. Fire Marshal has right to stop burning or welding Work if it is determined that unsafe conditions exist.
 6. Correct unsafe conditions as directed by Fire Marshal and obtain approval of such corrections prior to commencing further Work.
 7. In addition to requirements stated in Section 01•50•00, keep portable fire extinguishers of appropriate classification within hand reach during operations.
 8. Keep exits, corridors, and passageways clear and unobstructed.
 9. Remove flammable materials to location not closer than 35 feet of operations.
 10. Instruct personnel of nearest fire alarm locations.
 11. Cover fixed flammable items with fire-resistant blankets.
 12. Maintain "fire-watch" security effort for minimum of 30 minutes after completion of operations.
 13. Smoke Detectors and Fire Protection Systems:
 - a. Existing systems to remain operational throughout Project.
 - b. If possible false alarms are anticipated during specific construction operations, detectors may be covered during that specific operation with specified notification and concurrence of authorities having jurisdiction.
 - c. At end of each day, clear and make detectors operable if they are permitted to be covered.
 14. Welding: Screen arc-welding from vision of passers-by.
 15. Burning: Open flame burning is not permitted.
- L. Secure equipment after each work shift to prevent injury to people or property.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

3.1 OUTAGE REQUEST FORM (On following page)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\013513-11.wpd

OUTAGE REQUEST FORM

Date Application Made:

Person Requesting Outage:

Name of Supervisor of Person Requesting Outage:

Firm Requesting Outage:

Outage Start Time:

Outage Start Date:

Outage End Time:

Outage End Date:

Areas, Floors, Rooms Affected by Outage:

.....

.....

.....

.....

Work to be Performed:

.....

.....

.....

.....

Systems Affected by Outage:

.....

.....

.....

Items Below for Owner's Use Only

Approved? (Circle One): Yes No

Approval Date:

Approval Given By:

Date and Time (Circle One):

As Requested Change to following Date and Time:

Owner's Presence Required? (Circle One): Yes No

Name of Person Required to Be Present During Outage:

Supervisor's Name:

Supervisor's 24 Hour Phone Number:

SECTION 01•41•00
REGULATORY REQUIREMENTS

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 REFERENCES

- A. Reference Standards:
1. Code of Maryland (COMAR):
 - a. COMAR 26.11.35, Volatile Organic Compounds from Adhesives and Sealants.
 - b. COMAR 26.11.39, Architectural and Industrial Maintenance (AIM) Coatings.
 2. National Fire Protection Association (NFPA):
 - a. NFPA-101 - Life Safety Code.
 - b. NFPA-70 - National Electric Code.
 3. United States Department of Justice (ADAAG):
 - a. ADAAG, 28 CFR Part 36, Appendix A. Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.3 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submit following Informational Submittals:
1. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with environmental regulations bearing on performance of Work.

1.4 TAXES, FEES, AND PERMITS

- A. Owner has filed and paid for building permit. Contractor shall obtain and pay for other permits and pay for governmental fees, licenses, and inspections, necessary for execution and completion of Work which are customarily secured after execution of Contract and which are legally required at time bids are received.
- B. Contractor's attention is directed to requirement that certain permits and governmental agency approvals are required for construction of Project.
- C. Contractor shall serve and pay for permits for Work within rights-of-way for utility connections.
- D. Owner-Filed Permit Status:
1. Building Permit:
 - a. Status: Pending approval by reviewing agencies.
 2. Contractor is subject to requirements of listed building permit.
- E. Should Contractor elect to perform Temporary Work not shown on Drawings, Contractor shall secure necessary permits.

1.5 COMPLIANCE WITH CODES

- A. Comply with applicable codes listed below and financing programs.
- B. If Contractor observes that Contract Documents are at a variance with applicable laws, statutes, building codes, and regulations, promptly notify Owner, in writing, and necessary changes will be accomplished by appropriate modification.
- C. If Contractor performs Work knowing work is contrary to such laws, ordinances, rules, and regulations, and without notice to Owner, Contractor shall assume full responsibility therefore and shall bear costs attributable thereto.
- D. Where codes conflict, comply with more stringent requirement.

- E. Relation of Contract Documents with Codes and Government Regulations in Conflict with Contract Documents:
 - 1. Codes and Government Regulations take precedence when they are more stringent than Contract Documents.
 - 2. Contract Documents take precedence when they are more stringent than Codes and Government Regulations.

1.6 APPLICABLE CODES

- A. Drawings and specifications were prepared in accordance with following codes, regulations, and local amendments:
 - 1. Accessibility:
 - a. Americans with Disabilities Act Accessibility Guidelines (ADAAG): Entire project.
 - 2. Building: ICC International Building Code, 2021 edition.
 - 3. Existing building is governed by International Existing Building Code 2021 edition:
 - a. Project is classified as Alteration—Level 2.
 - 4. Electrical: NFPA-70 National Electric Code, 2021 edition.
 - 5. Energy Conservation: ICC International Energy Conservation Code, 2021 edition, adopted and amended by Baltimore County, Bill 49-24.
 - a. Project Classification: Commercial Building.
 - 6. Fire Prevention: NFPA-1 Fire Prevention Code, 2018 edition.
 - 7. Fuel Gas Code: ICC Fuel Gas Code, 2021 edition, adopted and amended by Baltimore County, Bill 94-23.
 - 8. Health: State of Maryland, Health Regulations.
 - 9. Life Safety:
 - a. NFPA-101 Life Safety Code, 2018 edition.
 - 10. Mechanical: ICC International Mechanical Code, 2021 edition.
 - 11. Plumbing: ICC International Plumbing Code, 2021 edition, adopted and amended by Baltimore County, Bill 94-23.
 - 12. Zoning: County of Baltimore.
- B. Should permit review and code inspections require modification to Contract Documents, submit request for a change under provision of Section 01•26•00.

1.7 VOLATILE ORGANIC COMPOUNDS

- A. Project is governed by regulations affecting volatile organic compound content of:
 - 1. Adhesives.
 - 2. Architectural, Industrial, and Maintenance Coatings.
 - 3. Sealants.
- B. Governing Regulation:
 - 1. Maryland:
 - a. Adhesives: COMAR 26.11.35.
 - b. Architectural, Industrial, and Maintenance Coatings: COMAR 26.11.39.
 - c. Sealants: COMAR 26.11.35.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 VOLATILE ORGANIC COMPOUND CHARTS

- A. Adhesives.
- B. Architectural, Industrial, and Maintenance Coatings.
- C. Sealants.

END OF SECTION

THIS PAGE IS INTENTIONALLY BLANK

Adhesives

VOC Maximum Values

Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds

	OTC MD
ADHESIVE CATEGORY V V Effective Date or Regulation Name >>	COMAR 26.11.35
ABS Welding	400
Adhesive Primer for Plastic	See Plastic Cement Welding Primer
Building Envelope Membrane	See Other Substrate
Carpet Pad Adhesives	See Indoor Floor Covering Installation
Ceramic Tile Installation	130
Computer Diskette Manufacturing	850
Contact / Contact Bond Adhesive	250
Cove Base Installation	150
CPVC Welding	150
CPVC Welding for Life Safety Systems	See CPVC Welding
Dry Wall and Panel Adhesives	See Multipurpose Construction
Fiberglass	200
Flexible Vinyl	250
Indoor Carpet Adhesives	See Indoor Floor Covering Installation
Indoor Floor Covering Installation	150
Metal to Metal	30
Multipurpose Construction	200
Non-Membrane Roof Repair	300
Other Substrates	250
Outdoor Floor Covering Installaton	250
Outdoor Carpet Adhesives	See Outdoor Floor Covering Installation
Perimeter Bonded Sheet Vinyl Flooring	660
Plastic Cement Welding	650
Plastic Cement Welding Primer	650
Plastic Foams	See Fiberglass
Porous Material (except wood)	120
PVC Welding	510
Reinforce Plastic Composite	See Fiberglass
Rubber	250
Rubber Floor Adhesives	See Sheet Applied Rubber installation
Sheet Applied Rubber Installation	850
Single Ply Roof Membrane Adhesives	See Single Ply Roof Membrane Installation/Repair

Adhesives

VOC Maximum Values

Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds

OTC

MD

ADHESIVE CATEGORY V V Effective Date or Regulation Name >>

COMAR 26.11.35

Single Ply Roof Membrane Adhesive Primer	See Single Ply Roof Membrane Installation/Repair
Single Ply Roof Membrane Installation/Repair	250
Single Ply Roof Membrane	See Single Ply Roof Membrane Installation/Repair
Special Purpose Contact Adhesive	See Contact Bond
Structural Glazing	100
Structural Wood Member Adhesive	See Porous Material (Except Wood)
Structural Wood Member	See Porous Material (Except Wood)
Subfloor Adhesives	See Porous Material (Except Wood)
Thin Metal Laminating	780
Tire Retread	100
Top and Trim Adhesive	See Multipurpose Construction
Traffic Marking Tape Adhesive Primer	150
Traffic Marking Tape	150
VCT and Asphalt Tile Adhesives	See Indoor Floor Covering Installation
Waterproof Recorcinal Glue	170
Wood	See Porous Material (Except Wood)
Wood Flooring Adhesive	See Indoor Floor Covering Installation

Notes:

x = No Value Established

Architectural and Maintenance Coatings VOC Maximum Values

Grams of VOC Per Liter of Coating,	OTC
Less Water and Less Exempt Compounds	MD
COATING CATEGORY V V Effective Date or Regulation Name >>	COMAR 26.11.39
Aluminum Roof Coatings	See Roof Coating, Aluminum
Antenna Coating	<u>530</u>
Antifouling Coatings	<u>450</u>
Antigraffiti Coatings	<u>600</u>
Basement Specialty Coatings	400
Bituminous Roof Coatings	270
Bond Breakers	350
Building Envelope Coating	50
Calcimine Recoaters	475
Chalkboard Resurfacers	<u>450</u>
Colorant, Architectural Coating Excluding IM Coatings	50
Colorant, Solvent Based IM	500
Colorant, Water Based IM	50
Concrete-Curing Compounds	350
Concrete-Curing Compounds; For Roadways and Bridges**	See Concrete-Curing Compounds
Concrete-Curing and Sealing Compounds	See Concrete-Curing Compounds
Concrete Protective Coatings	<u>400</u>
Concrete / Masonry Sealer	100
Concrete Surface Retarders	780
Driveway Coatings, Sealers, Fillers	50
Dry-Fog Coatings	150
Extreme High Durability Coatings	<u>800</u>
Faux Finishing Clear Coatings	350
Faux Finishing Decorative Coatings	See Faux Finishing Clear Coatings
Faux Finishing Glazes	See Faux Finishing Clear Coatings
Faux Finishing Japan Coatings	See Faux Finishing Clear Coatings
Fire-Resistant Coatings (SFRM's and IFRM's)	350

Architectural and Maintenance Coatings VOC Maximum Values

Grams of VOC Per Liter of Coating,	OTC
Less Water and Less Exempt Compounds	MD
COATING CATEGORY V V Effective Date or Regulation Name >>	COMAR 26.11.39
Fire-Retardant Coatings, Clear ***	See Fire-Resistant Coatings
Fire-Retardant Coatings, Pigmented ***	See Industrial Maintenance Coatings
Flat Coating (Interior):	See Paints
Flat Coating (Exterior):	See Paints
Floor Coatings (Only Opaque)	100
Form-Release Compounds	250
Graphic Arts (Sign) Coatings	500
Heat Reactive Coatings	420
High Temperature Coatings	420
Impacted Immersion Coatings	780
Industrial Maintenance (IM) Coatings	250
IM Coatings - High Temperature	See Industrial Maintenance Coatings
IM Coatings - Anti-Graffiti; Non-Sacrificial	See Industrial Maintenance Coatings
IM Coatings - Anti-Graffiti; Sacrificial	See Industrial Maintenance Coatings
IM Primers - Zinc Rich	340
Lacquer	See Shellac — Clear or Pigmented, as appropriate
Lacquer — Clear Brushing	See Shellac — Clear
Lacquer — Pigmented	See Shellac — Pigmented
Low Solids Coatings	120
Magnesite Cement Coatings	450
Mastic Coatings (Textured)	100
Metallic Pigmented Coatings	500
Multi-Color Coatings	250
Nonferrous Ornamental Metal Lacquers and Surface Protectants	See Shellac — Clear or Pigmented, as appropriate
Nuclear Coatings	450
Paints; Flats - Interior	50
Paints; Flats - Exterior	50
Paints; Nonflat Coatings - Interior	100
Paints; Nonflat Coatings - Exterior	100

Architectural and Maintenance Coatings VOC Maximum Values

Grams of VOC Per Liter of Coating,	OTC
Less Water and Less Exempt Compounds	MD
COATING CATEGORY V V Effective Date or Regulation Name >>	COMAR 26.11.39
Paints; Nonflat High Gloss - Interior	150
Paints; Nonflat High Gloss - Exterior	150
Pre-Treatment Wash Primers	420
Primers, Sealers, and Undercoaters	100
Quick-Dry Enamels	450
Quick-Dry Primers, Sealers, and Undercoaters	450
Reactive Penetrating Carbonate Stone Sealer	500
Reactive Penetrating Sealer	350
Recycled Coatings	250
Repair and Maintenance Thermoplastic	650
Roof Coatings	250
Roof Coatings, Aluminum	450
Roof Coatings, Bituminous	See Roof Coating
Roof Primers, Bituminous	350
Rust Preventative Coatings	250
Sanding Sealers	See Wood Coatings
Sealers	See Wood Coatings
Shellac — Clear	730
Shellac — Pigmented	550
Specialty Primers (for covering fire, smoke, and chalk stains)	100
Stains	250
Stains, Clear and Semitransparents	See Stains
Stains, Opaque	See Stains
Stains; Low Solids	See Stains
Stain Controllers	720
Stains, Interior and Exterior	See Stains
Stains, Interior (Not listed for exterior use)	See Stains
Stone Consolidants	450
Swimming Pool Coatings	340

Architectural and Maintenance Coatings VOC Maximum Values

Grams of VOC Per Liter of Coating,	OTC
Less Water and Less Exempt Compounds	MD
COATING CATEGORY V V Effective Date or Regulation Name >>	COMAR 26.11.39
Swimming Pool Coatings — Repair	See Swimming Pool Coating
Swimming Pool Coatings — Other	See Swimming Pool Coating
Temperature Safety Coatings	See High Temperature Coating
Thermoplastic Rubber Coatings and Mastics	550
Traffic Coatings	See Traffic Marking Coating
Traffic Marking Coatings	100
Trowel-Applied Faux Finish Coating	See Faux Finishing Clear Coatings
Tub and Tile Refinish	420
Varnish - Conjugated Oil	450
Varnishes	See Varnish - Conjugated Oil if oil-Based; See Varnish — Conversion if Acid or Alkyd Based
Varnish — Conversion	725
Waterproofing Membranes	250
Waterproofing Sealers	See Waterproofing Membranes
Waterproofing Concrete/Masonry	See Waterproofing Membranes
Wood Coatings	275
Wood Finishes — Clear	See Wood Coatings
Wood Preservatives — Below-Ground	See Wood Preservative — Other
Wood Preservativee — Low Solids	See Wood Preservative — Other
Wood Preservatives — Other	350
Zone Marking Coatings	See Traffic Marking Coatings
Notes:	

Architectural and Maintenance Coatings VOC Maximum Values

Grams of VOC Per Liter of Coating,

Less Water and Less Exempt Compounds

COATING CATEGORY V V Effective Date or Regulation Name >>

OTC
MD
COMAR 26.11.39

x = No Value Established

Values in underline italics are US EPA AIM Values, since no value is stated in reference standard

Values in bold italics are SCAQMD Values, since no value is stated in reference standard

Sealants

VOC Maximum Values

Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds

	OTC
	MD
SEALANT CATEGORY V V Effective Date or Regulation Name >>	COMAR 26.11.35
Architectural	250
Marine Deck	760
Nonmembrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Foam Insulation	x
One Component Foam Sealants	x
Two Component Foam Sealants	x
Other	420
<i>Sealant Primers</i>	
<i>Architectural</i>	
<i>>>Non Porous Substrate</i>	250
<i>>>Porous Substrate</i>	775
<i>Modified Bituminous</i>	X
<i>Marine Deck</i>	760
<i>Other</i>	750

SECTION 01•42•00 REFERENCES

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents:
 - 1. Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.
 - 2. Document 00•70•00 - General Conditions: Reference Standards.
 - 3. Drawings: Abbreviations and symbols used on Drawings

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - 2. Institute of Electrical and Electronics Engineers (IEEE):
 - a. IEEE SI 10, Use of International System of Units (SI): The Modern Metric System.

1.3 REFERENCED STANDARDS

- A. Referenced standards include their associated amendments and supplements.
- B. Date of standard is that in effect as of Bid date, except when specific date is specified or specific date is required by Code.
- C. Reference standards have same force and effect as if bound directly into or copied directly into Contract Documents. Such standards are made part of Contract Documents by reference.
- D. Names and titles of standards are frequently abbreviated. Where acronyms or abbreviations are used in Specifications, they are defined to mean recognized name of trade association, standards generating organization, governing authority, or other entity applicable to context of text provision.
- E. Contractual relationships of parties to Contract are not altered from Contract Documents by mention or inference otherwise in reference document.
- F. Obtain copies of standards from publication source when needed for execution of Work or when required by Contract Documents. Maintain copy at site during progress of affected Work.

1.4 SPECIFICATION LANGUAGE

- A. Imperative mood of sentence structure is generally used in Specifications, which places verb as first word in sentence. Except where otherwise indicated, requirements expressed imperatively are to be performed by Contractor.
- B. In certain circumstances, language of Specifications and other Contract Documents are of abbreviated type. It implies words and meanings that will be appropriately interpreted. Words and phrases such as "the," "shall," "shall be," "Contractor shall," "a," "all," "an," "any," and other similar words are eliminated.
- C. Singular words are interpreted as plural and plural words are interpreted as singular where applicable and where full context of Contract Documents so indicates.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 DEFINITIONS OF CERTAIN TERMINOLOGY IN SPECIFICATIONS

- A. And: Conjunction used to connect elements that are to be taken jointly. It may also mean plus or added to preceding quality.
- B. Approved: Where used in conjunction with Architect's response or action, meaning will be held to limitations of Architect's responsibilities and duties as specified in General and Supplementary Conditions. In no case will Architect's approval be interpreted as release of Contractor from responsibilities to fulfill requirements of Contract Documents.
- C. Concealed: Items hidden from sight. Items placed in partly excavated spaces, crawl spaces, and service tunnels or spaces used solely for repair or maintenance.
- D. Directed, Requested: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted," mean "directed by Architect," "requested by Architect," and similar phrases.
- E. Exposed: Items not concealed.
- F. Finish: Manner or method of completion. Final appearance of a surface, including texture, smoothness, sheen, and color, after finishing operations have been performed. Finishing operations include substrate preparation, application, curing, and protection of products.
- G. Furnish: To procure, purchase, supply, and deliver complete with related accessories, ready for assembly, application, installation, or similar operations.
- H. Install: Anchor, apply, assemble, connect, construct, erect, mount, place, or similar operation, complete with related accessories.
- I. Installer: Entity (person or firm) engaged to perform a singular unit of Work at Project Site, including installation operations. Installers shall be experienced in operations they are engaged to perform.
- J. Major Contractor/Supplier: Entity responsible for 5 percent or more of Contract Sum.
- K. Or: Conjunction used to introduce several possibilities. Meaning shall not be construed that individual possibilities in series may be selected by Contractor for compliance in lieu of other stated possibilities.
- L. Product: Natural or manufactured materials, components, machinery, fixtures, equipment, devices, components, systems, and their associated accessories to be incorporated in Project.
- M. Provide: To furnish and install, complete and ready for operations and use for intended purpose.
- N. Similar: Interpreted in its general sense and not meaning identical. Coordinate elements defined as "similar" in relationship to their location and connection with other parts of Project.

3.2 ABBREVIATIONS

- A. Certain phrases may be delineated by use of abbreviations.
- B. Metric abbreviations are described in IEEE SI 10.
- C. Schedule of Abbreviations:
 - 1. AHJ, Authority Having Jurisdiction.
 - 2. awg, American Wire Gauge.
 - 3. C, Celsius.
 - 4. cfm, Cubic feet per minute.
 - 5. CMU, Concrete Masonry Unit.
 - 6. CT, Current Transformer.
 - 7. DBT, Dry Bulb Temperature.
 - 8. DFT, Dry Film Thickness.
 - 9. e.g., For example.
 - 10. EMT, Electric Metallic Tubing.
 - 11. EVT, Equiviscous Temperature.
 - 12. F, Fahrenheit.
 - 13. ga, Gauge; gage.

14. gpm, Gallons per minute.
15. pcf, Pounds per cubic foot.
16. ppb, parts per billion.
17. ppm, parts per million.
18. psf, Pounds per square foot.
19. psi, Pounds per square inch.
20. psig, Pounds per square inch, gauge.
21. pvc, Polyvinyl-chloride.
22. PVDF, Polyvinylidene fluoride.
23. rpm, Revolutions per minute.
24. WBT, Wet Bulb Temperature.
25. WFT, Wet Film Thickness.

3.3 SYMBOLS

- A. Certain terms may be delineated by use of symbols.
- B. Schedule of Symbols:
 1. #, Number.
 2. °, Degrees.
 3. ', Feet; Minutes.
 4. ", Inches; Seconds.
 5. ±, Plus to minus; Plus or minus.

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\014200.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 01•43•00
QUALITY ASSURANCE

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 REFERENCES

- A. Reference Standards:
1. ASTM International (ASTM):
 - a. ASTM A880, Criteria for Use in Evaluation of Testing Laboratories and Organizations for Examination and Inspection of Steel, Stainless Steel, and Related Alloys.
 - b. ASTM C1077, Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
 - c. ASTM E1212, Establishment and Maintenance of Quality Control Systems for Nondestructive Testing Agencies.
 - d. ASTM E329, Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials, as Used in Construction.
 - e. ASTM E543, Evaluating Agencies that Perform Nondestructive Testing.
 - f. ASTM E548, General Criteria Used for Evaluating Laboratory Competence.
 - g. ASTM E994, Calibration and Testing Laboratory Accreditation Systems General Requirements for Operation and Recognition.
 2. International Accreditation Services (IAS):
 - a. IAS AC 291, Accreditation Criteria for Special Inspection Agencies.
 - b. IAS AC89, Accreditation Criteria for Testing Agencies.
 - c. IAS AC98, Accreditation Criteria for Inspection Agencies.

1.3 LICENSED PROFESSIONAL QUALIFICATIONS

- A. Where specified in individual specification sections for design of items delegated to Contractor, employ engineer to design specified items.
- B. Registered professional engineer licensed to practice engineering in jurisdiction where Project is located.
- C. Registration to be in engineering discipline associated with system, assembly, components, or product to be designed.
1. Structural systems and components to be designed by structural engineer.
 2. Heating, ventilation, air conditioning, or refrigeration systems and components to be designed by mechanical engineer.
 3. Electrical systems and components to be designed by electrical engineer.
- D. Minimum of 5 years experience in design of systems specified in individual specification sections.
- E. Additional or more stringent requirements may be specified in individual specification sections.

1.4 MANUFACTURER QUALIFICATIONS

- A. Manufacturer Qualifications: Company specializing in manufacturing Products specified in individual specification sections with minimum 5 years documented experience.
- B. Additional or more stringent requirements may be specified in individual specification sections.

1.5 FABRICATOR QUALIFICATIONS

- A. Company specializing in fabricating work specified in individual specification sections with minimum 5 years documented experience.

- B. Additional or more stringent requirements may be specified in individual specification sections.
- 1.6 INSTALLER, APPLICATOR, AND ERECTOR QUALIFICATIONS
- A. Acceptable to manufacturer with documented experience on at least 5 projects of similar nature in past 5 years.
 - B. Additional or more stringent requirements may be specified in individual specification sections.
 - C. Manufacturer's willingness to sell its products to Contractor or installer does not infer qualification of buyer.
 - D. Use quantity of qualified workers to perform work in expeditious manner.
- 1.7 WELDER QUALIFICATIONS
- A. AWS certified within past 12 months for each type of weld required.
 - B. Additional or more stringent requirements may be specified in individual specification sections.
- 1.8 INSPECTION AND TESTING AGENCY QUALIFICATIONS
- A. Comply with "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.
 - B. Accredited as complying with IAS AC 291.
 - C. Inspection Agencies: Accredited as complying with IAS AC98.
 - D. Testing Agencies: Accredited as complying with IAS AC89.
 - E. Accredited as complying with requirements of ASTM E548 and ASTM E994.
 - F. Agencies Testing Concrete: Accredited as complying with ASTM C1077 and ASTM E329.
 - G. Agencies and Personnel Testing and Inspecting Firestops:
 - 1. Accredited as complying with ASTM E699.
 - 2. Personnel Who Have:
 - a. Passed FM 4991 test.
 - b. Passed UL Qualified Firestop Contractor test.
 - c. Obtained International Firestop Council's Special Inspector Certificate.
 - 3. Company not engaged in installing firestops.
 - H. Agencies Performing Nondestructive Testing: Accredited as complying with ASTM E543 and ASTM E1212.
 - I. Agencies Testing, Examining, or Inspecting Steel, Stainless Steel, and Related Alloys: Accredited as complying with ASTM A880 and ASTM E329.
 - J. Agencies to be authorized to operate in jurisdiction in which Project is located.
 - K. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Institute of Standards and Technology during most recent tour of inspection, with memorandum of remedies of deficiencies reported by inspection.
 - L. Testing Equipment:
 - 1. Calibrate at reasonable intervals by devices of accuracy traceable to either:
 - a. National Institute of Science and Technology.
 - b. Accepted values of natural physical constants.
 - 2. Agencies to maintain full-time registered Engineer on staff to review services.
 - 3. Agencies to be accredited by U.S. Department of Commerce under National Voluntary Laboratory Accreditation Program. Submit evidence of such accreditation prior to performing testing on project.
 - 4. Accomplish sampling and testing of fresh concrete by technicians employed by agencies and certified to do sampling and testing under certification program of one of following:
 - a. American Concrete Institute.
 - b. National Ready Mixed Concrete Association.
 - c. Institute for Certification of Engineering Technicians.
 - d. Ready Mixed Concrete Producers Technical Committee.

5. Furnish evidence of technician's current certification upon request by Architect or agency engaging services of laboratory.

1.9 FIRE DOOR ASSEMBLY INSPECTORS

- A. Certified in accordance with Intertek's Fire and Egress Door Inspector certification program.
- B. Additional or more stringent requirements may be specified in individual specification sections.

1.10 MANUFACTURER'S FIELD SERVICES

- A. Submit qualifications of field observer 30 days in advance of required observations; observer is subject to approval of Architect.
- B. When required in individual Specifications section, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment; and test, adjust, and balance of equipment, as applicable, and to make written report of observations and recommendations to Architect.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers written instructions.
- D. Submit reports within 7 days of observation. Distribute copies to Architect, Project Site file, subcontractor, and other entities requiring information.

1.11 FIELD SAMPLES

- A. Field samples are defined as physical samples of single products of individual Specification Sections.
- B. Assemble and erect at location acceptable to Architect; install in accordance with applicable Specification Sections.
- C. Approval does not supersede requirements of Contract Documents.
- D. Make adjustments to field samples as required by Architect.
- E. Field samples accepted by Architect will serve as standard of comparison for quality and workmanship of actual construction. Accepted field samples may be retained in completed Work, unless otherwise indicated in individual specification sections.
- F. When not permitted to be retained in completed Work, remove and clear area when Work based on field sample is complete and when approved by Architect.
- G. Do not proceed with actual construction until field sample is approved by Architect.
- H. In actual construction, remove deviations from approved field sample.

1.12 MINIMUM QUALITY/QUANTITY

- A. Quality or quantity shown or specified is intended to be minimum for Work to be performed or provided.
- B. Except as otherwise specifically indicated, actual Work may either comply exactly with that minimum within specified tolerances, or may exceed that minimum within reasonable limits.
- C. In complying with these requirements, indicated numeric values are either minimums or maximums as noted, or as appropriate for context of requirements.
- D. Refer instances of uncertainty to Architect for interpretation before proceeding

1.13 REFERENCE STANDARDS

- A. Comply with association, trade, or similar standards, referenced in Specifications, except where more rigid requirements are specified or are required by applicable codes.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\014300.wpd

SECTION 01•45•00
QUALITY CONTROL

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 AMBIENT CONDITIONS

- A. Cope with ambient conditions existing during construction.
- B. Do not subject products to ambient conditions to which they may be susceptible or which may adversely effect work.
- C. Do not install or apply products where ambient conditions have adversely affected substrates, or are likely to occur which will affect its curing or eventual performance.
- D. Provide temporary temperature, humidity, lighting, and ventilation, to perform execution of work within conditions specified.
- E. Refer to specific specification sections for ambient condition requirements more stringent than minimum specified here.
- F. Provide ambient conditions within requirements of manufacturer's instructions for installing product.
- G. Do not install materials when building is cold and damp, or hot and dry.
- H. Protect bottoms of excavations from frost after excavations are made and until concrete is cured.
- I. Concrete, mortar, cement, plaster, coatings and adhesives: Protect substrates and installed products from frost and freezing.
- J. Install finish materials under temperature and humidity conditions closely approximating those which will exist when building is occupied.
- K. Allow finishes involving use of water to fully cure before installing adjacent moisture susceptible products.
- L. Protect finish materials in building from frost, freezing, moisture, and mildew.
- M. Interior Finish Carpentry and Architectural Woodwork: Do not subject to excessive humidity and do not allow to become wet.
- N. Metals: Prevent oxidation. Coordinate sizes to accommodate temperature fluctuations.

1.3 INSPECTION AND TESTING AGENCY SERVICES

- A. Selection and Payment:
 - 1. Contractor will employ and pay for services of an independent testing agency to perform specified inspection and testing.
- B. Testing Agency Responsibilities:
 - 1. Cooperate with Architect and Contractor.
 - 2. Provide qualified personnel after due notice.
 - 3. Perform specified inspections, sampling, and testing of materials and methods of construction, in accordance with specified standards.
 - 4. Ascertain compliance of materials with requirements of Contract Documents.
 - 5. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
 - 6. Submit written report of each test and inspection within 7 days following individual tests/inspections; transmit one copy via email to Architect, Owner, Contractor, and one copy to Record Documents File.
 - 7. Include in each report:
 - a. Date issued.
 - b. Project title and number.
 - c. Testing agency name, address, and telephone number.
 - d. Name and signature of testing agency inspector.

- e. Date and time of sampling or inspection.
- f. Record of temperature and weather conditions.
- g. Date of test.
- h. Identification of product by specification section.
- i. Location of sample or test in Project.
- j. Type of inspection or test.
- k. Results of tests and compliance with Contract Documents.
- l. Interpretation of test results, when requested by Architect.
- 8. Perform additional tests as required by Architect.
- 9. Attend preconstruction conferences and progress meetings.
- C. Limitations of Authority of Testing Agency. Testing Agency is not authorized to:
 - 1. Release, revoke, alter, or enlarge requirements of Contract Documents.
 - 2. Approve or accept portions of Work as limited in their contracts with Contractor.
 - 3. Perform duties of Contractor.
 - 4. Stop execution of non-conforming Work as limited in their contracts with Contractor.
- D. Contractor's Responsibilities:
 - 1. Coordinate with testing agency personnel, provide access to Work and to manufacturer's facilities.
 - 2. Cooperate with testing agency in taking specified quantities of samples of materials proposed to be used and which require testing.
 - 3. Provide to testing agency preliminary design mix proposed to be used for concrete, mortar, and other materials mixes which require control by testing agency.
 - 4. Furnish to Architect copies of product's test reports as specified.
 - 5. When requested, furnish to Architect copies of product's test reports to authorities having jurisdiction.
 - 6. Furnish Incidental Labor and Facilities:
 - a. To provide access to work to be tested.
 - b. To cooperate with testing agency in personnel in taking samples at project site or at source of product to be tested.
 - c. To facilitate inspections and tests.
 - d. For storage and curing of test samples.
 - 7. When local codes or laws require approval or inspection of drawings or equipment before installation or operation, obtain such approval and submit one signed original and 3 copies of approval for purchaser's records.
 - 8. Witnessed Performance Tests: Required when indicated in individual Specification Sections, notify Architect 10 days in advance of when date equipment will be ready for final inspection or performance tests so that appropriate representatives will be present.
 - 9. Owner has right to inspect products during development or fabrication. Such inspection will not release Contractor from responsibility or liability with respect to such products.
 - 10. Notify testing agency 48-hours prior to expected time for operations requiring inspection and testing services when full time testing and inspection services are not in progress.
 - 11. Make installed Work comply with specified requirements when test or inspection results indicate non-compliance with specified requirements.
- E. Specific tests are specified in respective specification Sections.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

SECTION 01•50•00
TEMPORARY FACILITIES AND CONTROLS

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 PRICE AND PAYMENT PROCEDURES

- A. Alternates:
1. Refer to Section 01•23•00 for alternates involving Work of this Section.
 2. This Section is governed by Alternate for dehumidification.

1.3 REFERENCES

- A. Reference Standards:
1. ASTM International (ASTM):
 - a. ASTM A392, Zinc-Coated Steel Chain-Link Fence Fabric.
 - b. ASTM F3342, Guide for Temporary Fence Applications for Construction Sites.
 - c. ASTM F567, Practice for Installation of Chain-Link Fence.
 2. International Code Council (ICC):
 - a. ICC IBC, International Building Code.
 3. National Fire Protection Association (NFPA):
 - a. NFPA 70, National Electrical Code.
 4. United States Department of Justice (ADAAG):
 - a. ADAAG, 28 CFR Part 36, Appendix A. Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).
- B. Delegated Design Submittals:
1. Shop Drawings:
 - a. Submit shop drawings for scaffolding and shoring
 - b. Stamp shop drawings with seal and signature of licensed professional responsible for design.
 - c. Submit letter signed and sealed by licensed professional responsible for design stating that impacts to structure from scaffolding are within structural limitations of existing structure as defined by Building Codes, OSHA regulations, and local ordinances.
 2. Calculations: Submit for shoring.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements:
1. Comply with NFPA 70.
 2. Comply with Federal, State, and local, codes and regulations
 3. Comply with utility company requirements.
- B. Licensed Professional Qualifications:
1. Comply with Section 01•43•00.
 2. Registered professional engineer licensed to practice in jurisdiction where Project is located.
 3. Experience in design of:
 - a. Scaffolding used for facade access.
 - b. Shoring.
 4. Minimum duration of experience 10 years.

1.5 PROJECT CONDITIONS

- A. Contractor has access to existing utilities as indicated in this Section.

- B. At Contractor's expense make additions to or improvements to existing utilities to allow for Contractor's access to or use of existing utilities.
- C. Maintain project in accordance with safety and insurance requirements and standards.
- D. Hazards Control:
 - 1. Store volatile wastes in covered metal containers and remove from premises daily.
 - 2. Prevent accumulation of waste which creates hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
 - 4. Comply with regulatory requirements.
- E. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- F. Disposal:
 - 1. Do not burn or bury rubbish and waste materials on Project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

2.0 PRODUCTS

2.1 MATERIALS

- A. Materials may be new or used, adequate in capacity for usage, not create unsafe conditions, and not violate requirements of applicable codes and standards.
- B. Contractor is responsible for design.

2.2 CONSTRUCTION AIDS

- A. Provide construction aids and equipment to facilitate execution and inspection of Work: Scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, shoring, and other facilities or equipment.
- B. Contractor is responsible for design.
- C. Scaffolding:
 - 1. Design in accordance with ICC IBC and OSHA regulations.
 - 2. Design to have safe impact within structural limitations on existing structure as defined by ICC IBC, OSHA regulations, and local governing regulations.
 - 3. Anchors to Building Facade:
 - a. Style:
 - 1) Removable friction fit.
 - 2) Permanent anchors are not permitted.
 - 3) Epoxy anchors are not permitted, unless removed as scaffolding is removed with:
 - a) Anchor holes cored and patched in concrete.
 - b) Masonry units replaced in masonry surfaces.
 - b. Material:
 - 1) Stainless steel.
 - 2) Alloy: UNS S30400 or S31600.
 - 4. Concrete foundations where scaffolding is supported by exposed soil.

2.3 BARRIERS AND ENCLOSURES

- A. Materials to Contractor's option, as appropriate to serve purpose.
- B. Contractor is responsible for design.
- C. Design to resist loads specified in ICC IBC.
- D. Railings:
 - 1. Height: Minimum of 42 inches.
 - 2. Sufficient to direct pedestrians around construction areas.
- E. Barriers:
 - 1. Height: Minimum of 8 feet.
 - 2. Provide doors at openings in barriers.

- F. Enclosures:
1. Provide temporary enclosures to separate work areas from areas of existing building occupied by Owner to prevent penetration of dust or moisture into occupied areas, to prevent damage to existing equipment, and to protect Owner's employees and operations from construction work.
 2. Temporary Partition and Ceiling Enclosures:
 - a. Comply with structural and fire rating requirements of applicable codes and standards.
 - b. Construct of steel framing and sheath with 5/8 inch thick Type X gypsum board.
 - c. Provide 3 foot by 7 foot door with 90 minute fire rating at stairs and exits, and 45 minute fire rating at other locations.
 - d. Close joints between materials, and seal edges and intersections with existing surfaces, to prevent penetration of dust or moisture.

2.4 SIGNS

- A. Structure and Framing: May be new or used, wood or metal, in sound condition structurally adequate to work and suitable for specified finish.
- B. Informational Signs:
1. May be new or used.
 2. Messages as appropriate for intended use.
 3. Painted signs with painted lettering, or standard products.
 4. Size of Signs and Lettering: As required by regulatory agencies, or as appropriate to usage.
 5. Colors: As required by regulatory agencies, otherwise of uniform colors throughout Project.

2.5 FIELD OFFICES

- A. Office and Facilities:
1. Office space to be provided by Owner. Coordinate final location with Owner.

3.0 EXECUTION

3.1 GENERAL

- A. Provide and maintain for construction operations.
- B. Provide prior to commencement of construction operations.
- C. Provide for safety of tenants and public.
- D. Maintain in place, as necessary, during construction operations.
- E. Excavations:
1. Located 5 feet or less from street lot line: Enclose with barrier not less than 6 feet high.
 2. Located more than 5 feet from street lot line: Provide barrier when required by building official.

3.2 TEMPORARY UTILITIES

- A. Comply with applicable requirements specified in Divisions 21, 22, 23, and 26.
- B. To Permit Construction of Project, Determine and Design Temporary Utility Systems:
1. Size.
 2. Capacity.
 3. Distribution system.
 4. Components.
- C. Maintain and operate systems to assure continuous service.
- D. Modify and extend systems as work progresses.
- E. Electricity and Lighting:
1. Provide connections to existing facilities, size to provide service for power and lighting; Owner will pay costs of power used.

2. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout construction site by use of construction-type power cords.
 3. Provide adequate artificial lighting for areas of work when natural light is not adequate for work, and for areas accessible to public.
- F. Fire Protection:
1. Comply with local fire prevention code and authorities having jurisdiction.
 2. Provide and maintain fire protection equipment for fire extinguishment ready for immediate use.
 3. Minimum Locations:
 - a. Each stairway on every floor where combustible materials have accumulated.
 - b. Every storage and construction shed.
 - c. Where special hazards exist, such as storage and use of flammable and combustible liquids.
 - d. Distribute equipment around Project and particularly in immediate vicinity of performance of welding or similar fire hazard operations.
 4. Comply with NPFA-1.
 5. Standpipes:
 - a. Comply with ICC IBC and NPFA-1.
 - b. Where permanent standpipe is indicated on Drawings, provide not less than one standpipe for use during construction.
 - c. Install when progress of construction is not more than 40 feet in height above lowest level of fire department vehicle access.
 - d. Provide with fire department hose connections at accessible locations adjacent to usable stairs.
 - e. Extend as construction progresses to within one floor of highest point of construction having secured decking or flooring.
 - f. Buildings Being Demolished:
 - 1) Where building is being demolished and standpipe exists within building, maintain standpipe operable condition to be available for use by Fire Department.
 - 2) Demolish standpipe with building but not demolished more than one floor below floor being demolished.
 - g. Either temporary or permanent in nature, and with or without water supply.
 - h. Make water supply for fire protection, either temporary or permanent, as soon as combustible material accumulates.
 6. Sprinkler System:
 - a. As permanent system is being constructed, inspect and place completed segments into service.
 - b. Operation of Valves:
 - 1) Permit operation of sprinkler control valves only by authorized personnel.
 - 2) Accompany by notification of duly designated parties.
 - 3) When sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, check sprinkler control valves at end of each work period to ascertain that protection is in service.
 7. Once activated, maintain permanent fire alarm system and fire suppression system in active condition as required by Authority Having Jurisdiction. If permanent system is shut down, comply with requirements of Authority Having Jurisdiction.
- G. Heat and Ventilation:
1. Provide temporary heat and ventilation to maintain adequate environmental conditions to facilitate progress of Work, to meet specified minimum conditions for installation of materials, and to protect materials and finishes from damage due to temperature or humidity.

2. Provide forced ventilation of enclosed areas for curing of installed materials, to disperse humidity and to prevent hazardous accumulations of dust, fumes, vapors, or gases.
3. Portable heaters: Complete units with controls.
4. Pay costs of installation, maintenance, operation and removal, and for fuel consumed.
5. Provide connections to existing facilities, extend and supplement with temporary units to comply with requirements. Pay costs of installation, maintenance, operation and removal. Owner will pay costs of fuel used from existing system.
6. Dehumidification:
 - a. Assume building HVAC equipment and systems will not be available for providing dehumidification.
 - b. Provide for:
 - 1) Application and curing of plaster.
 - 2) Finishing and curing of gypsum board.
 - c. Establish Alternate Value on:
 - 1) Provide 30 days of dehumidification, during:
 - a) Heating season.
 - b) Cooling season.
 - 2) Heating degree days and cooling degree days using baseline temperature of 65°F.
 - 3) Heating Degree Days: 1000.
 - 4) Cooling Degree Days: 400.
- H. Means of Egress:
 1. Stairways: Provide temporary lighted stairway unless one or more of permanent stairways are erected as construction progresses.
 2. Maintain during Contract duration.
- I. Water:
 1. Make connections to existing facilities, provide water for construction purposes; Owner will pay costs of water used.
 2. Install branch piping with taps located so that water is available throughout construction site by use of hoses. Protect piping and fittings against freezing.
- J. Sanitary Facilities:
 1. Provide sanitary facilities.
 2. Service, clean, and maintain, facilities and enclosures.
 3. Existing facilities may be used during construction period.
 4. Use designated permanent facilities during construction period.
 5. Do not use existing plumbing facilities.
- K. Temporary Wireless Local Area Network (Wi-Fi): Pay costs for installation, maintenance and removal, and service charges for data transmissions.

3.3 CONSTRUCTION AIDS

- A. Consult with Architect, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of Work.
- B. Comply with applicable requirements specified in sections of Divisions 02 through 49.
- C. Relocate construction aids as progress of construction proceeds, by storage or work requirements, and to accommodate legitimate requirements of Owner and other contractors employed at site.
- D. Loading berth in existing facility may be used by construction personnel. Coordinate with Owner scheduled to avoid conflicts.
- E. Stairs:
 1. Designated stairs in existing building not to be used by construction personnel:
 - a. To be determined during pre-construction meeting
- F. Elevators:
 1. Designated elevators in existing building not to be used for construction purposes:
 - a. To be determined during pre-construction meeting.

2. Provide protective coverings for finish surfaces of elevator cars and entrances.
- G. Maintain facilities and equipment in an undamaged condition.

3.4 BARRIERS AND ENCLOSURES

A. Protection of Pedestrians During Construction, Remodeling and Demolition Activities:

1. Height of Construction:
 - a. 8 Feet or Less:
 - 1) Distance from Construction to Lot Line:
 - a) Less than 5 feet: Fence or construction railings
 - b) 5 feet or more: Fence.
 - b. More than 8 Feet:
 - 1) Distance from Construction to Lot Line:
 - a) Less than 5 feet: Barricade and covered walkway.
 - b) 5 Feet or More, but Not More than One-fourth Height of Construction: Barricade and covered walkway.
 - c) 5 Feet or More, but Between One-fourth and One-half Height of Construction: Barricade.
 - d) 5 Feet or More, but Exceeding One-half Height of Construction: Fence.

B. Barriers and Barricades:

1. Place on side of walkway nearest construction.
2. Extend entire perimeter of construction site.
3. Doors: Normally keep closed.
4. Provide and maintain barriers to prevent public entry and protect existing facilities from construction operations; remove when no longer needed or at completion of Work.
5. Directional Barricades:
 - a. Protect directional barricade where walkway extends into street.
 - b. Of sufficient size and construction to direct vehicular traffic away from pedestrian path.
6. Provide barricades, safety devices, and other protection measures required by law and Contract Documents to maintain and protect pedestrian and vehicular traffic and adjacent properties from injury due to falling material, stored material, or other construction of Project.
7. Provide facilities of neat and uniform appearance, structurally adequate for intended purposes.
8. Maintain barriers during entire construction period.
9. Relocate barriers as progress of construction proceeds.
10. Remove barricades and safety devices obstructing pedestrian or vehicular traffic at end of each work day or when they are no longer needed.

C. Interior Enclosures: Provide temporary partitions and ceilings to separate work areas from Owner occupied areas. Paint surfaces exposed to view from Owner occupied areas.

D. Maintain in place and kept in good order for entire length of time pedestrians may be endangered.

3.5 TEMPORARY CONTROLS

A. Dust Control:

1. Minimize raising dust from construction operations.
2. Provide positive means to prevent airborne dust from dispersing into atmosphere.

B. Noise Control:

1. Execute Work as quietly as possible to avoid unnecessary disturbance to occupants within premises.
2. Perform operations to minimize noise.
3. Perform noise-producing work in less sensitive hours of day or week as directed by Owner.

4. Complaints duly registered with Owner of unacceptable noise levels may be cause for use of special precautions and methods of operation to reduce noise to acceptable levels.
5. Owner is sole judge of tolerableness of noise levels.
- C. Security:
 1. Provide security and facilities to protect Work from unauthorized entry, vandalized, and theft.
 2. Conduct operations in manner to avoid risk of loss, theft, or damage by vandalism.
 3. Comply with Owner's security program.
- D. Water Control: Maintain excavations free of water.

3.6 FIELD OFFICES

- A. Maintain temporary field offices during entire construction period.
- B. Maintain and supervise use of designated existing spaces for offices, provide furnishings; clean and restore spaces at completion of work.
- C. At completion of work, remove Contractor installed contents.
- D. Provide periodic maintenance and cleaning for temporary furnishings, equipment, and services. Perform cleaning in accordance with Section 01•70•00.
- E. Use of Existing Facilities:
 1. Designated existing spaces may be used for field offices: Location mutually agreed upon by Owner and Contractor.
 2. Provide specified furnishings, equipment and services.

3.7 SIGNS

- A. Informational Signs:
 1. Provide temporary on-site informational signs:
 - a. As required by codes, laws, and regulatory agencies.
 - b. To identify key elements of construction facilities.
 - c. To direct pedestrian and vehicle traffic.
 2. Erect at appropriate locations to provide information.
 3. Install at height for optimum visibility, on ground-mounted poles or attached to temporary structural surfaces.
- B. Maintenance:
 1. Maintain signs and supports in neat, clean condition; repair damages to structure, framing, or sign.
 2. Relocate informational signs as Work progresses.

3.8 REMOVAL OF TEMPORARY FACILITIES

- A. Completely remove temporary facilities when their use is no longer needed or at completion of Project.
- B. Remove temporary facility's foundations and debris; grade site to indicated elevations and clean areas.
- C. Clean and repair damage caused by temporary installations or use of temporary facilities.
- D. Restore existing facilities used for temporary services to specified, or to original condition.
- E. Completely remove temporary materials, equipment and services:
 1. When construction needs can be met by use of permanent construction.
 2. At completion of Project.
- F. Clean and repair damage caused by installation or by use of temporary facilities.
 1. Remove foundations and underground installations for construction aids.
 2. Grade area of site affected by temporary installation to indicated elevations and slopes, and clean area.
- G. Restore existing facilities used for temporary purposes to specified, or to original, condition.
- H. Replace and put in good condition public and private ways, catch basins, conduit, trees, fences, or things injured in executing this Contract.
- I. Completely remove barricades, including foundations, when construction has progressed to point that they are no longer needed, and when approved by Architect.

- J. Clean and repair damage caused by installation, fill and grade areas of site to indicated elevations and slopes, and clean area.
- K. Leave public property in as good condition as it was before work commenced.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\015000.wpd

SECTION 01•60•00
PRODUCT REQUIREMENTS

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of the Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 BASIC PRODUCT REQUIREMENTS

- A. Contract is based upon products and standards established in Contract Documents without consideration of proposed substitutions.
- B. Products specified define standard of quality, type, function, dimension, appearance and performance required.
- C. Substitution proposals are permitted for specified products.
- D. Do not substitute products unless substitution has been accepted and approved in writing by Architect.
- E. Conform to applicable specifications and standards.
- F. Comply with size, make, type, and quality specified, or as specifically approved in writing by the Architect.
- G. Products may be specified by manufacturer's name, trade name, or catalog number to indicate capacity or quality of product to be used.
- H. When equipment has been specified by manufacturer's name, trade name, or catalog number, adequate space conditions and clearances have been verified. When non-specified products are used, verify that adequate space conditions and clearances are maintained.
- I. Manufactured and Fabricated Products:
1. Design, fabricate, and assemble in accordance with industry standard engineering and shop practices.
 2. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 3. Two or more items of the same kind shall be identical, by the same manufacturer.
 4. Provide products suitable for service conditions.
 5. Comply with product capacities, sizes, and dimensions shown or specified, unless variations are specifically approved in writing by Architect.
- J. When manufacturer discontinues production of product, provide manufacturer's latest equivalent quality product, subject to Architect's determination of equivalency.
- K. Do not use products for purposes other than for which it is designed or is specified.
- L. Unless itemized products are specifically noted as Not-In Contract or Existing, provide Products either scheduled or otherwise shown on Drawings.
- M. Provide incidental items necessary for installation of completed systems or products.

1.3 LISTED PRODUCTS

- A. Listing agencies are product testing and listing organizations which comply with testing, listing, and follow-up requirements of codes and are acceptable to authorities having jurisdiction. Listing agencies include, but are not limited to, the following:
1. Factory Mutual; Norwood, MA.
 2. Guardian Fire Testing Laboratories; Cobleskill, NY.
 3. Intertek Testing Services; Boxborough, MA.
 4. Underwriters Laboratory; Northbrook, IL.
- B. Provide listed products for use in assemblies where indicated in Contract Documents with requirements of product listing agencies as they apply to the listed products. Where requirements of product listing conflict with requirements indicated in Contract Documents, contact Architect for interpretation. Do not commence affected Work until receiving clarification from Architect.

1.4 EXISTING PRODUCTS

- A. Except as specifically indicated or specified, do not use products removed from the existing structure in completed Project.
- B. Salvage existing products as indicated in Contract Documents.
- C. When it is difficult to obtain or match existing products, salvage existing products for re-use.
- D. Carefully disassemble materials indicated to be salvaged and remove jointing materials and attachments.
- E. For products to be re-used in the Project:
 - 1. Use special care during removal, handling, storage and reinstallation, to assure proper function in the completed Work.
 - 2. Arrange for transportation, storage, and handling of products which require off-site storage, restoration, or renovation. Pay costs for such work.
 - 3. Thoroughly clean salvaged products.
- F. Use salvaged materials only to extent directed and approved as adequate.

1.5 PRODUCT HANDLING

- A. Comply with manufacturer requirements.
- B. Arrange deliveries of Products in accordance with construction schedules; coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels, compliance labels, and other identification information intact and legible.
 - 2. Immediately upon delivery, inspect shipment to assure compliance with requirements of Contract Documents and approved submittals, and that Products are protected and undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

1.6 PRODUCT STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the weather in weather-tight enclosures.
 - 2. Maintain temperature and humidity within ranges required by manufacturer.
- B. Exterior Storage:
 - 1. Store fabricated products above the ground, on blocking or skids. Prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - 2. Store loose granular products in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Store in manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free of damage or deterioration.
- D. Store in Orderly Arrangement:
 - 1. Allow maximum access.
 - 2. Do not impede traffic or drainage.
 - 3. Maintain product protection.
 - 4. Weekly inspect arrangements and service arrangements to comply with specified requirements.
- E. Store products, tools, equipment, only within the demised premises, or in areas designated for that purpose by the Owner.
- F. Storage space is limited.
 - 1. Schedule deliveries to minimize space required on site for storage.
 - 2. Coordinate locations for storage with Owner.
 - 3. Provide continuous security against damage or loss.

1.7 PRODUCT OPTIONS

- A. Proposed Products List: Within 30 days after Contract Date, submit to Architect complete list of major products proposed to be used, with the name of manufacturer and installing subcontractor.
- B. Product Options:
 - 1. Products specified only by reference standard: Select product meeting that standard. Evidence of compliance is required at time of making submittal.
 - 2. Products Specified by Naming One or More Products or Manufacturers:
 - a. Use only one of the named acceptable manufacturers.
 - b. Submit Substitution Request Form (in Section 01•25•00) for substitutions for Product or manufacturer not specifically named.
 - 1) Substitution requests are subject to review by Owner.
 - 2) Allow additional two weeks for review by Owner.
 - 3. Acceptable Product: Term used to assist user in locating specified product and is not intended to denote sole source for product specified. Acceptable product listed denotes typical product by one of listed acceptable manufacturers. Products by other listed manufacturers meeting or exceeding listed product or specified criteria may be used without following substitution procedures.
 - 4. Products Specified by Naming One Product or Indicating Option of Selecting Equivalent Products by Stating "Equivalent To", or "Or Other Approved Manufacturers", "Approved Equal," or Other Similar Language:
 - a. Submit "Substitution Request" in accordance with Section 01•25•00, for product not specifically named.
 - b. Substitution requests are subject to review by Owner.
 - c. Allow additional two weeks for review by Owner.
 - d. Do not assume that submitted substitution product will be accepted.
 - 5. Products Specified by Naming Only One Product and Manufacturer with "Substitutions: Not Permitted": Use listed product.
 - 6. Products Specified by One or More Acceptable Manufacturers with "Substitutions: Not Permitted": Select only from listed manufacturers.
- C. Acceptable Manufacturer Product Listing:
 - 1. Products may be specified by manufacturer named with product description, by manufacturer's model number only, or by manufacturer's model number with product description.
 - 2. When products are listed by manufacturer's model number with product description, provide product with items/finishes/qualities indicated under the product description, since the specified model number may not contain all product ordering information.
 - 3. Should model number and product description be contradictory to each other, contact the Architect for clarification.
- D. Basis of Design:
 - 1. Contract Documents were prepared around product listed as Basis of Design.
 - 2. Dimensions, Structural Systems, Fire Suppression Systems, Plumbing Systems, HVAC Systems, Electrical Systems, and Electronic Safety and Security Systems:
 - a. Are based upon Basis of Design manufacturer and product.
 - b. Indicate changes on shop drawings and perform approved changes at no additional cost to Owner if selection of different manufacturer or product requires changed:
 - 1) Dimensions of surrounding construction.
 - 2) Structural systems.
 - 3) Fire Suppression systems.
 - 4) Plumbing systems.
 - 5) HVAC systems.
 - 6) Electrical systems.
 - 7) Electronic Safety and Security systems.

3. Colors, Textures, and Patterns:
 - a. Are based upon Basis of Design manufacturer and product.
 - b. Selections of submitted products will be based upon Basis of Design manufacturer and product.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION (Not Used)

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\016000.wpd

SECTION 01•70•00
EXECUTION AND CLOSEOUT REQUIREMENTS

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.
- B. Payment for Costs:
 - 1. Costs caused by ill-timed or defective work, or work not conforming to Contract Documents, including costs for additional services of Architect: Party responsible for ill-timed, rejected, or non-conforming work.
 - 2. Work done on instructions of Architect, other than defective or non-conforming work: Owner.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM D6432, Using the Surface Ground Penetrating Radar Method for Subsurface Investigations.
 - 2. Concrete Sawing and Drilling Association (CSDA):
 - a. CSDA BP-007, Ground Penetrating Radar for Concrete Scanning.
- B. Definitions:
 - 1. Clean (for Final Cleaning): Level of cleanliness provided by professional cleaners using commercial building cleaning products and equipment.

1.3 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with more restrictive of following or manufacturer's written requirements under which products can be installed or applied.
 - 1. Maintain project in accordance with safety and insurance requirements and standards.
 - 2. Hazards Control:
 - a. Store volatile wastes in covered metal containers and remove from premises daily.
 - b. Prevent accumulation of waste which creates hazardous conditions.
 - c. Provide adequate ventilation during use of volatile or noxious substances.
 - 3. Conduct cleaning and disposal operations in compliance with local ordinances and anti-pollution laws.
 - 4. Disposal:
 - a. Do not burn or bury rubbish and waste materials on project site.
 - b. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - c. Do not dispose of wastes into streams or waterways.

1.4 SEQUENCING

- A. Coordinate in accordance with Section 01•31•00.
- B. Coordinate penetrations of Architectural assemblies by fire suppression, plumbing, HVAC, or electrical systems, by setting sleeves or by core drilling to accept penetrating items. Core drilling of structural elements to comply with requirements for cutting and patching.
- C. Coordination for Cutting and Patching:
 - 1. Avoid cutting and patching by sequencing and coordinating trades to incorporate Work into construction assemblies.
 - 2. Do not endanger work by cutting, altering, or patching.
 - 3. Do not cut or alter work of Owner or separate Contractor without written consent of Architect.

2.0 PRODUCTS

2.1 MATERIALS

- A. Replacement of Work Removed: Comply with specification sections for work affected by cutting and patching.
- B. Cleaning Materials:
 - 1. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
 - 2. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
 - 3. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

3.0 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Comply with manufacturer's printed instructions in full detail, including each sequential step.
- B. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.
- C. Maintain one set of complete instructions at Project site during installation and until completion.
- D. Should instructions conflict with Contract Documents, request clarification from Architect before proceeding. Do not proceed with work without interpretation from Architect.

3.2 EXAMINATION REQUIREMENTS

- A. Prior to commencement of each section of Work, carefully examine previously executed sections of Work, existing conditions, or Work performed by other trades, which might affect execution of specified section of Work.
- B. Inspect surfaces, substrates, materials, equipment, and areas related to execution of Work. Reject damaged or defective items.
- C. Equipment service connections indicated on Drawings may not be in true position. Verify true position of service connection prior to commencing making of service connection.
- D. Identify potential problems before commencement of fabrication and installation of Work. Promptly notify Architect of errors, inconsistencies, omissions, or apparent discrepancies discovered. Obtain clarifications from Architect.
- E. Verify dimensions and measurements before proceeding with execution of Work.
- F. Verify that characteristics of operating equipment are compatible with building utilities and services.
- G. Check Work for bearing, alignment, level, and security of attachment.
- H. Inspect substrates to ensure they are:
 - 1. Dry and clean within requirements stated by manufacturer of product to be installed.
 - 2. Free of oil, wax, deleterious materials, or loose material.
 - 3. Firm, stable, level, aligned, plumb, or oriented as specified or indicated.
- I. Correct conditions which may adversely affect installation/application before installation/application commences.
- J. Do not commence work until unsatisfactory conditions have been corrected.
- K. Complete installation of Work to be concealed, covered, or embedded prior to commencement of concealing work.
- L. Commencement of a Specification Section indicates that Contractor has inspected and accepts previously executed work, conditions are acceptable for installation of work to be executed, and Contractor agrees to undertake corrective actions and guarantee stipulations.

3.3 PREPARATION REQUIREMENTS

- A. Layout of Project:
 - 1. Employ surveyor to lay out Project's grades, lines, and levels.

2. Establish utility levels, slopes, and invert elevations in relation to existing and new building components.
 3. Before commencement of Work, notify Architect of variation from and discrepancy between location survey and Owner-provided survey. Commencement of Work indicates no variations/discrepancies.
- B. Ground Penetrating Radar Examination of Slabs:
1. Existing building slab has unknown locations of following items within floor slabs:
 - a. Reinforcement bars embedded within slabs.
 - b. Beams under slabs.
 - c. Conduits within slabs.
 - d. Horizontal pipe runs embedded within slabs.
 - e. Concrete column shear heads and column capitals.
 2. Use ground penetrating radar to locate potential conflicts involving new bolt locations, vertical pipe penetrations, vertical duct penetrations, vertical conduit penetrations with existing:
 - a. Reinforcement bars embedded within slabs.
 - b. Beams under slabs.
 - c. Conduits within slabs.
 - d. Horizontal pipe runs embedded within slabs.
 - e. Concrete column shear heads and column capitals.
 3. Perform investigation after layout of walls and prior to:
 - a. Construction of new walls.
 - b. Drilling for setting anchor bolts.
 - c. Core drilling for new pipe and conduit penetrations.
 - d. Slab cutting for new vertical duct penetrations.
 4. Perform ground penetrating radar investigation of slab in accordance with:
 - a. ASTM D6432.
 - b. CSDA BP-007.
 5. Adjust locations of bolt locations, vertical pipe penetrations, vertical duct penetrations, vertical conduit penetrations to miss existing:
 - a. Reinforcement bars embedded within slabs.
 - b. Beams under slabs.
 - c. Conduits within slabs.
 - d. Horizontal pipe runs embedded within slabs.
 - e. Concrete column shear heads and column capitals.
 6. Where conflicts occur between existing elements specified in previous paragraph and new penetrating elements specified in previous paragraph, after consultation with Architect, adjust locations of bolt locations; walls containing vertical pipe penetrations, vertical duct penetrations, and vertical conduit penetrations of existing slabs.
- C. Prior to commencement of each section of Work, carefully prepare previously executed sections of Work, existing conditions, or Work performed by other trades, which might affect execution of specified section of Work.
- D. Prepare surfaces, substrates, materials, equipment, and areas related to execution of Work.
- E. Identify potential problems before commencement of preparation of Work. Promptly notify Architect of errors, inconsistencies, omissions, or apparent discrepancies discovered. Obtain clarifications from Architect.
- F. Do not commence work until conditions have been prepared for subsequent construction operations.
- G. Commencement of a Specification Section indicates that Contractor has prepared previously executed work, conditions are acceptable for installation of work to be executed, and Contractor agrees to undertake corrective actions and guarantee stipulations.
- H. Protect private and public property, adjoining or affected by Project construction, from damage caused by Contractor's operations.

3.4 INSTALLATION, APPLICATION, ERECTION, PLACEMENT, CONSTRUCTION REQUIREMENTS

- A. Supervise performance of Work in manner and by means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- B. Maintain quality control over supervision, subcontractors, suppliers, manufacturers, products, services, workmanship, and site conditions, to produce Work in accordance with Contract Documents.
- C. Comply with reference standards as minimum quality of Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Comply with submittals which have not been rejected or returned for revision and resubmission.
- E. Provide qualified personnel to produce Work of specified quality.
- F. Should specified reference standards conflict with Contract Documents, request interpretation from Architect before proceeding.
- G. If problems arise in connection with execution of Work regarding its relation to product or substrate:
 - 1. Stop work in that area immediately.
 - 2. Contact manufacturer and supplier, or Architect, to determine rectifying conditions.
 - 3. Do not proceed until corrective actions have been completed.
- H. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- I. Match approved samples, field samples, or mock-ups.
- J. Tolerances:
 - 1. Unless other tolerances are specified, comply with following tolerances.
 - 2. Substrates are not to vary more than:
 - a. 1/8-inch from required plane in an undivided space or span of 10-feet (whichever is least). For elevated floor slabs, this amount is exclusive of slab's natural deflection caused by imposed and inherent loads.
 - b. 1/16-inch within a single running foot.
 - 3. Alignments are not to vary more than:
 - a. 1/8-inch from required line in an undivided space or distance of 10-feet (whichever is least).
 - b. 1/16-inch within a single running foot.
 - 4. True to Line: Allowed deviation from straight line within:
 - a. Plus or minus 1/16 inch in one foot.
 - b. Plus or minus 1/8 inch in 10 feet.
 - c. Plus or minus 1/4 inch in 20 feet.
 - d. Plus or minus 3/8 inch in more than 20 feet.
 - 5. Flat: Allowed deviation from flat plane in any planar direction within:
 - a. Plus or minus 1/16 inch in one foot.
 - b. Plus or minus 1/8 inch in 10 feet.
 - c. Plus or minus 1/4 inch in 20 feet.
 - d. Plus or minus 3/8 inch in more than 20 feet.
 - 6. Level: Allowed deviation from horizontal plane within plus or minus 1/2 degree of angle.
 - 7. Plumb: Allowed deviation from vertical plane within plus or minus 1/2 degree of angle.
 - 8. In Existing Buildings:
 - a. New construction is to comply with specified tolerances.
 - b. Where new construction aligns with existing construction, specified tolerances may be exceeded to extent necessary to obtain smooth transitions from new construction to existing construction.

3.5 CUTTING AND PATCHING

- A. Examination:
 - 1. Examine existing conditions, including elements subject to movement or damage.

2. After uncovering work, inspect conditions affecting installation of new products.
 3. Commencement of cutting and patching indicates acceptance of conditions.
- B. Preparation:
1. Provide shoring, bracing, and support to maintain structural integrity of Project.
 2. Provide protection for other portions of Project.
 3. Provide protection from elements for areas exposed by uncovering Work; maintain excavations free of water.
- C. Performance:
1. Cut into new construction to provide for installation of other Work and subsequent fitting and patching required to restore surface to original condition.
 2. Cut, fit, patch, including attendant excavation and backfill, as necessary to complete Work and to:
 - a. Fit several parts together.
 - b. Integrate with other Work.
 - c. Uncover portions of Work to provide for ill-timed Work.
 - d. Remove and replace defective Work.
 - e. Remove and replace Work not complying with Contract Documents.
 - f. Remove samples of installed Work as necessary for testing.
 - g. Provide for penetrations of fire suppression, plumbing, HVAC, and electrical systems.
 - h. Uncover Work to allow for Architect's observation of covered Work which has been covered up prior to required observation by Architect.
 3. Execute cutting, fitting, removal, and alteration by methods which will prevent damage to other Work and will produce surfaces to receive installation of new Work.
 4. Execute excavation and backfill which will prevent settlement or damage to Project.
 5. Execute fitting and adjustment to provide finished installation to comply with specified requirements.
 6. Execute by methods which will prevent damage to other work, and will provide surfaces to receive installation of repairs and new work.
 7. Restore work which has been cut, removed, or damaged to match existing conditions.
 8. Install new products to provide completed work in accordance with requirements of Contract Documents.
 9. Cut rigid materials using masonry saw or core drill.
 10. Do not cut and patch structural elements in manner that would result in reduction of load carrying capacity or of load reduction ratio.
 11. Do not cut and patch operational or safety-related elements in manner that would result in reduction of their capacity to perform in manner intended, including energy performance, or that would result in increased maintenance, decreased operation life, or decreased safety.
 12. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
 13. Comply with requirements for firestops for penetrations through fire-rated assemblies.
 14. Except where otherwise indicated, refinish exposed finishes of patched areas to match existing and where necessary extend finish restoration into adjoining surfaces in manner which will eliminate evidence of patching and refinishing.
 15. Prepare surfaces prior to application of finishes in same manner required for new installation.
 16. Waterproofed and Roofed Surfaces: Repair in accordance with manufacturer's repair and warranty requirements.
 17. Where patching occurs in previously painted or coated surfaces, provide prime coat and required intermediate coats over patch. Apply final finish coat over surface extending beyond patch to nearest intersections or entire assembly.
 18. Where patch of finishes occur, finish and sheen to match existing, unless otherwise indicated.
 19. Refinish surfaces as necessary to provide an even finish:
 - a. Continuous Surfaces: To nearest intersections.

- b. Assembly: Refinish entire assembly.

3.6 CLEANING AND WASTE MANAGEMENT

A. Progress Cleaning:

1. Thoroughly clean areas and spaces affected by Work.
2. Conduct daily inspection to verify that specified cleaning requirements are met.
3. Comply with requirements of authorities having jurisdiction.
4. Do not allow accumulation of scrap, debris, waste materials, and other items resulting from construction operations.
5. Maintain premises and public properties free from accumulation of waste, debris, and rubbish caused by operations.
6. Remove boxes, crates, containers, other debris, waste materials, rubbish, and surplus materials.
7. Clean loose material and splatters, setting and grout splashes.
8. At reasonable intervals (but not greater than each week) during progress of Work:
 - a. Clean site and adjoining public properties.
 - b. Dispose of waste materials, debris, and rubbish.
 - c. Clean mud, dirt, and debris resulting from construction operations from drives, roads, and lots as required.
 - d. Maintain access to site in neat and orderly condition.
 - e. Sweep interior spaces clean.
9. Store debris only within demised premises, and in areas designated by Owner.
10. Provide on site dumpster containers for collection of waste materials, debris, and rubbish.
11. Remove waste materials, debris, and rubbish from site; legally dispose at public or private dumping areas off Owner's property.
12. Handle materials in controlled manner with minimum handling; do not drop or throw materials from heights.
13. Broom clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
14. Prior to enclosing space, remove rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces.
15. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly painted surfaces.
16. Remove snow and ice from public walkways and access of Project under construction.
17. Occupied Facilities:
 - a. Remove trash, rubble, and debris created by construction activities at end of each day's activities.
 - b. Render construction areas safe and habitable for Owner and tenants.
 - c. Maintain premises and grounds around building free of debris.
 - d. Load debris directly onto waiting trucks and containerized vehicles to prevent littering of Project site.
18. After finish flooring installation is 50 percent complete, provide temporary:
 - a. Walk-off mats at every building entrance doorway having daily cleaning of mats.
 - b. Protective Shoe Covers:
 - 1) Provide for workers and visitors.
 - 2) Provide dispensers at every building entrance.
 - 3) Require use for every person entering building.
 - 4) Provide disposal containers at every building entrance.

B. Final Cleaning:

1. Perform:
 - a. Within or before 72 hours of punchlist inspections by Architect to determine Substantial Completion, when punchlist inspections are phased over time.
 - b. Within or before 72 hours of Substantial Completion.
2. Clean as recommended by manufacturer.

3. Do not use materials or methods which may damage finish, surface, or surrounding construction.
4. Thoroughly clean areas and spaces affected by Work
5. Employ experienced workers, or professional cleaners, for final cleaning.
6. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed exterior surfaces, and of concealed spaces.
7. Remove surplus excavation dirt.
8. Remove boxes, crates, containers, and other debris from site.
9. Remove waste materials, rubbish, tools, equipment, machinery, and surplus materials.
10. Clean sight-exposed surfaces.
11. Leave project clean, dust free, and ready for occupancy.
12. Clean loose material and splatters, setting and grout splashes.
13. Remove from Sight-Exposed Finished Surfaces:
 - a. Adhesives.
 - b. Blemishes.
 - c. Dust.
 - d. Dirt.
 - e. Fingerprints.
 - f. Grease.
 - g. Labels.
 - h. Marks.
 - i. Mastics.
 - j. Paint drippings or drops.
 - k. Soil.
 - l. Splashed materials.
 - m. Stains.
 - n. Other materials not specified to occur on surface.
14. Polished Surfaces:
 - a. Clean to designed specular finish.
 - b. Surfaces Requiring Polish: Apply polish to surface in accordance with surface manufacturer's requirements.
 - c. Replace scratched or marred surfaces.
15. Repair, patch, and touch-up marred surfaces to specified finish, to match adjacent surfaces.
16. Broom clean exterior paved surfaces to remove dirt and trash; rake clean other surfaces of grounds.
17. Maintain clean project, or designated portion, until it is occupied by Owner.
18. Ventilating Systems:
 - a. Clean permanent filters and replace disposable filters if units were operated during construction.
 - b. Clean ducts, blowers, and coils, if units were operated without filters during construction.
19. Glass:
 - a. Remove excess glazing compounds, paint, and labels.
 - b. Wash each side and dry.
 - c. Do not use metal scrapers.
20. Hardware: Clean and polish.
21. Flooring: Remove paper cover, clean, and polish.
22. Exposed Concrete Slabs: Wash, scrape, and scrub, using a detergent as necessary to remove bond breaker, dirt, and discolorations.
23. Permanent Label and Plates: Do not remove those permanently attached to equipment. Remove paint. Clean so that they are legible.
24. Remove devices and protective covers used to protect installed Work.
25. Remove temporary walk-off mats, footwear "booty" dispensers and disposal containers.

3.7 STARTING AND ADJUSTING

- A. Starting Systems and Equipment:
 - 1. Coordinate schedule for start-up of various equipment and systems.
 - 2. Clean systems and equipment prior to starting.
 - 3. Notify Owner 7 days prior to start-up of each item.
 - 4. Verify that safety devices or controls are operational.
 - 5. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
 - 6. Verify that tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
 - 7. Verify wiring and support components for equipment are complete and tested.
 - 8. Execute start-up under supervision of responsible Contractor's personnel in accordance with manufacturers' instructions.
 - 9. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
 - 10. Temporary Use of Systems or Equipment During Construction:
 - a. Prior to use, obtain Architect's approval.
 - b. Use does not affect or alter warranty requirements.
 - c. Startup does not alter date of warranty commencement established by General Conditions.
 - d. Provide additional interim maintenance and service required by manufacturer.
 - e. To cover period between equipment startup date and substantial completion date, provide extended manufacturer's warranty.
 - 11. Submit written report in accordance with Section 01•45•00 that equipment or system has been installed and is functioning as specified, within 7 days following determination that equipment or system has been installed and is functioning as specified.
 - 12. Immediately after equipment or system has been properly installed and is functioning correctly, commence testing, adjusting, and balancing procedures specified in Section 01•91•00.
- B. Adjusting Systems and Equipment:
 - 1. Clean systems and equipment prior to adjusting.
 - 2. Verify that safety devices or controls are operational.
 - 3. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- C. Adjusting Operating Parts of Products: Adjust parts for smooth, uniform operation.

3.8 PROTECTING INSTALLED CONSTRUCTION

- A. Apply protective coverings on installed and existing work to ensure freedom from damage or deterioration at time of Substantial Completion.
- B. Perform by covering, boarding-up, or substantially enclosing with adequate protection.
- C. Construct forms of protection in manner such that, upon completion, Project will be delivered to Owner in prior, whole, and unblemished condition.
- D. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.
- E. Provide protection at temporary openings in pipes, ducts, conduit, raceways, or equipment to prevent entrance of water, dirt, or other deleterious materials.
- F. Provide protective coverings at walls, projections, corners, and jambs, sills, and soffits, of openings in and adjacent to traffic areas.
- G. Cover walls and floors of elevator cabs, and jambs of cab doors, when elevators are used by construction personnel.

- H. Protect Finished Floors and Stairs from Dirt, Wear, and Damage:
 - 1. Secure heavy sheet goods or similar protective materials in place, in areas subject to foot traffic.
 - 2. Lay planking or similar rigid materials in place, in areas subject to movement of heavy objects.
 - 3. Lay planking or similar rigid materials in place, in areas where storage of products will occur.
- I. Protect Waterproofed and Roofed Surfaces:
 - 1. Restrict use of surfaces for foot or other traffic, and for storage of products.
 - 2. When an activity is mandatory, obtain recommendations for protection of surfaces from manufacturer. Install protection and remove on completion of activity. Restrict use of adjacent unprotected areas.
- J. Restrict traffic across planted lawn and landscape areas.
- K. Maintain manufacturer-installed temporary protective coatings on products until removal during final cleaning.
- L. At Contractor's expense, replace Work damaged by failure to provide protection, or by failure of protective means to protect installed work, with new work.
- M. Replace equipment damaged by installation, connection, or lubrication not in accordance with specified requirements.

3.9 CLOSEOUT PROCEDURES

- A. Contract Closeout Procedure:
 - 1. Prerequisites to Substantial Completion: Perform following items before requesting Architect's inspection for Certification of Substantial Completion:
 - a. Submit statement of accounting to Architect.
 - 1) Reflect adjustments to Contract Sum:
 - a) Original Contract Sum.
 - b) Additions and deductions resulting from:
 - 1] Previous change orders.
 - 2] Alternates.
 - 3] Deductions for uncorrected Work.
 - 4] Deductions for liquidated damages.
 - 5] Deductions for reinspection payments.
 - 6] Other adjustments.
 - c) Total Contract Sum, as adjusted.
 - d) Previous payments.
 - e) Sum remaining due.
 - 2) Architect will prepare final Change Order, reflecting approved adjustments to Contract Sum which were not previously made by Change Orders.
 - b. Notify Owner of pending insurance change-over requirements.
 - c. Obtain and submit evidence enabling Owner's full, unrestricted use of Project, and access to services and utilities.
 - d. Change utility service billing from Contractor to Owner. Contractor is responsible for costs until billing is switched.
 - e. Submit evidence of compliance with requirements of governing authorities:
 - 1) Partial and Final Certificates of Occupancy
 - 2) Certificates of Inspection:
 - a) Building.
 - b) Communications.
 - c) Electrical.
 - d) Electronic Safety and Security Systems.
 - e) Fire Suppression.
 - f) Heating, Ventilation, and Air Conditioning.
 - g) Plumbing.
 - f. Submit project record documents, and operating and maintenance data.
 - g. Complete start-up, testing, and balancing of systems.

- h. Conduct instructions to Owner's personnel.
- i. Deliver spare parts and maintenance materials.
- j. Make final changeover of locks and keying system, transmit keys and keying (including pinning) schedule to Owner, and notify Owner of change-over in security provisions.
- k. Discontinue or change-over and remove construction facilities and temporary controls.
- l. Complete final cleaning.
- 2. Substantial Completion Procedure:
 - a. Complete work in space.
 - b. Inspect work for compliance with Contract Documents.
 - c. Make corrections based upon Contractor's inspection.
 - d. Notify Architect in writing that work has been completed, inspected, and corrected. Submit to Architect:
 - 1) Written notice that Project, or designated portion, is substantially complete.
 - 2) List of items to be completed or corrected.
 - 3) Completed form AIA Document G707A *Consent of Surety to Reduction in Partial Release of Retainage*, or equivalent.
 - e. Within reasonable time after receipt of such notice, Architect will make inspection with Contractor to determine status of completion.
 - 1) See Article below regarding inspection process.
 - f. Should Architect determine that Project is not substantially complete:
 - 1) Architect will promptly notify Contractor in writing, giving reasons.
 - 2) Remedy deficiencies in Project, and send second written notice of substantial completion to Architect.
 - 3) Architect will reinspect Project.
 - g. When Architect concurs that Project is substantially complete, Architect will:
 - 1) Prepare a Certificate of Substantial Completion on AIA Form G704 or equivalent, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by Architect.
 - 2) Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
 - h. As condition precedent to release of retainage, submit as-built construction progress schedule.
- 3. Prerequisites to Final Completion: Perform following items before requesting Architect's inspection for Certification of Final Completion.
 - a. Permit Owner to make sufficient tests and inspections to determine compliance of Project with Contract Documents. Tests and inspections will be made within one month from date of substantial completion. If tests or inspections show Project not to be as represented or contracted for, Owner may refuse to accept it, and Contractor will be advised and given reasonable time to make corrections. Make corrections at Contractor's expense.
 - b. Vacate project; remove debris, unused materials, equipment, and tools.
 - c. Submit warranties, bonds, maintenance agreements, and similar documents.
 - d. Submit evidence of Payment and Release of Liens: To requirements of General and Supplementary Conditions. Submit on AIA Documents G706 *Contractor's Affidavit of Payment of Debts and Claims* and G706A *Contractor's Affidavit of Release of Liens*, or equivalent.
 - e. Submit certificate of insurance for products and completed operations.
 - f. Submit an updated accounting statement for final changes to Contract Sum.
 - g. Submit final Application for Payment in accordance with procedures and requirements stated in Conditions of Contract. Include final releases of liens and supporting documentation not previously submitted and accepted.
- 4. Final Completion Procedure:
 - a. When Contractor considers Project is complete, submit written certification that:

- 1) Contract Documents have been reviewed.
- 2) Project has been inspected by Contractor for compliance with Contract Documents.
- 3) Project has been completed in accordance with Contract Documents.
- 4) Equipment and systems have been tested in presence of Owner's Representative and are operational.
- 5) Project is completed and ready for final inspection.
- b. Architect will make inspection to verify status of completion with reasonable promptness after receipt of certification.
- c. Should Architect consider Project is incomplete or defective:
 - 1) Architect will promptly notify Contractor in writing, listing incomplete or defective work.
 - 2) Take immediate steps to remedy stated deficiencies, and send second written certification to Architect that Project is complete.
 - 3) Architect will reinspect Project.
- d. When Architect finds that Project is acceptable under Contract Documents, Architect will request Contractor to make closeout submittals.
5. Reinspection Fees:
 - a. Architect Will Make Two Inspections:
 - 1) Initial inspection.
 - 2) Follow-up inspection.
6. End-of-Guarantee Inspection:
 - a. Arrange to meet with Owner within 30 days prior to specified end of guarantee period for purpose of assimilating list of items which require correction under specified guarantees.
 - b. Should Contractor be unable or fail to schedule a meeting prior to this time, Guarantee is automatically extended until such time as meeting takes place and Contractor is fully responsible for correcting such deficiencies as if they occurred under original guarantee period.
- B. Architect's Inspection:
 1. Architect Will Arrange for Inspections By:
 - a. Structural Engineer.
 - b. Electrical Engineer.
 2. Architect Will Make Inspection in Following Phases:
 - a. Scheduling:
 - 1) Architect has scheduled to spend following amount of time to perform punchlist inspections:
 - a) Total Time:
 - 1] Initial Inspections: 100 hours.
 - 2] Reinspections: 50 hours.
 - 2) Should time amounts specified above be exceeded, Architect will seek reinspection fees, as specified above.
 - b. Finish Carpentry and Gypsum Board Surfaces:
 - 1) Initial Inspection: To occur after gypsum board repairs have been made prior to application of final coat of paint.
 - 2) Follow-Up Inspection: After application of final coat of paint.
 - c. Work Results Other than Finish Carpentry and Gypsum Board Surfaces:
 - 1) Initial Inspection:
 - a) As specified above under Substantial Completion Procedure.
 - b) Inspection will be discontinued and spaced declared Not Ready for Inspection, should inspection reveal greater than following items requiring completion or correction within inspected space:
 - 1] Other Spaces: 10.
 - 2] Corridors: 10.

- c) When Architect determines space is Not Ready for Inspection, Contractor to:
 - 1] Complete work in space.
 - 2] Inspect work for compliance with Contract Documents.
 - 3] Make corrections based upon Contractor's inspection.
 - 4] Notify Architect in writing that work has been completed, inspected, and corrected.
 - 2) Reinspection: When Contractor has certified in writing that items in list of corrections have been corrected.
 - 3. Inspection Process for Finish Carpentry, Gypsum Board Surfaces, and Painted Surfaces:
 - a. Artificial light source used for inspection will have illuminance of 90 lumens.
 - b. Wall Surfaces:
 - 1) Walls up to 9'-0" above Floor Surface:
 - a) Artificial light will be applied obliquely across surfaces from distance of not greater than 24 inches from surface.
 - b) Illuminated surface will be inspected from distance of not greater than 30 inches from surface.
 - 2) Walls Greater than 9'-0" above Floor Surface:
 - a) Artificial light will be applied obliquely across surfaces from approximately 7'-0" above floor surface.
 - b) Illuminated surface will be inspected from not less than 5'-0" above floor surface.
 - c. Ceiling Surfaces:
 - 1) Ceilings at 9'-0" above Floor Surface:
 - a) Artificial light will be applied obliquely across surfaces from distance of not greater than 24 inches from surface.
 - b) Illuminated surface will be inspected from distance of not greater than 48 inches from surface.
 - 2) Ceilings Greater than 9'-0" above Floor Surface:
 - a) Artificial light will be applied obliquely across surfaces from approximately 7'-0" above floor surface.
 - b) Illuminated surface will be inspected from not less than 5'-0" above floor surface.
 - 4. Floor Surfaces:
 - a. Artificial light source used for inspection will have illuminance of 90 lumens.
 - b. Artificial light will be applied obliquely across surfaces from distance of not greater than 48 inches from surface.
 - c. Illuminated surface will be inspected from distance of not greater than 48 inches from surface.

3.10 CLOSEOUT SUBMITTALS

- A. Project Record Documents:
 - 1. Maintenance of Documents:
 - a. Maintain at job site, one copy of:
 - 1) Contract Drawings.
 - 2) Specifications.
 - 3) Addenda.
 - 4) Reviewed Submittals, marked "No Exceptions Taken" or "Make Corrections Noted."
 - 5) Change Orders, field orders, supplemental instructions, and other contract modifications.
 - 6) Approved substitutions.
 - 7) Reports of inspection and testing agencies.
 - 8) Other items indicated in Sections of Division 01.

- b. Store documents in temporary field office, apart from documents used for construction.
- c. Provide files and racks for storage of documents.
- d. Provide locked cabinet or secure storage space for storage of samples.
- e. Maintain documents and samples in clean, dry, legible condition; do not use record documents for construction purposes.
- f. Make documents available for review and inspection by Architect and Owner during entire period of construction.
- 2. Marking Devices: Record in red erasable pencil on a set of black and white copy of Contract Documents.
- 3. Recording:
 - a. Label each document "Project Record" in neatly printed or stamped letters.
 - b. Record information concurrently with construction progress.
 - c. Do not permanently conceal work until required information has been recorded.
 - d. Thoroughly coordinate changes within Record Documents, making adequate and proper entries on each page of Specifications, Drawings, and other Documents where such entries are required to show changes.
 - e. Record changes such that Owner may reasonably rely upon information shown for future purposes.
 - f. Date each entry.
 - g. Draw clouds around affected areas.
 - h. Use different colors for overlapping changes.
 - i. Contract Drawings: Legibly mark to record actual construction:
 - 1) Depths of various elements of foundation in relation to first floor level.
 - 2) Horizontal and vertical location of underground utilities and appurtenances, referenced to permanent surface improvements. Include invert elevations.
 - 3) Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - 4) Relocation of concealed structural components.
 - 5) Field changes of dimension and detail.
 - 6) Changes made by addenda, change orders, field orders, supplemental instructions, and other contract modifications.
 - 7) Details not on original Contract Drawings.
 - 8) Where such information cannot be clearly shown, record it on reproducible large scale drawings.
 - 9) Delineate actual locations of items shown schematically:
 - a) Indicate:
 - 1] Conduits.
 - 2] Circuits.
 - 3] Pipes.
 - 4] Ducts.
 - 5] Other schematically shown mechanical and electrical systems.
 - b) Identify items to describe them as specified.
 - c) Indicate vertical location of items.
 - 10) Contractor is not responsible for recording changes subsequent to Final Completion, except for changes resulting during Correction Period.
 - j. Project Manuals: Legibly mark up each Specification Section to record:
 - 1) Manufacturer, trade name, model number, and supplier of each product and item of equipment actually installed, including approved substitutions.
 - 2) Changes made by addenda, change orders, field orders, supplemental instructions, and other contract modifications.
 - 3) Other matters not originally specified.
 - k. Samples: If not indicated on approved samples retain as record documents, attach tag to record:

- 1) Manufacturer or supplier.
 - 2) Trade name.
 - 3) Catalog or model number.
 - 4) Finish and color, as applicable.
 - 5) Other applicable data.
4. Prior to Submission:
- a. Electronically scan record drawings and record project manual.
 - b. Place scanned images on compact disc or digital video disc.
 - c. File Format: Adobe Acrobat Portable Document File (PDF), Version 6.0 to 10.0.
 - d. Scan Resolutions:
 - 1) Drawings: At least 600 dots per inch and not more than 1200 dots per inch.
 - 2) Project Manuals: At least 300 dots per inch and not more than 600 dots per inch.
 - e. Scan in black and white.
 - f. File Naming:
 - 1) Drawings:
 - a) Names files same as sheet number.
 - b) Do not scan drawings and name them sequentially (such as Dwg001, Dwg002, and Dwg003).
 - 2) Project Manual:
 - a) Scan as a single file.
 - b) Delete blank pages.
 - c) Provide with bookmarks for each Division and each Specification Section.
5. Submittal:
- a. At Contract Closeout, deliver scanned record documents on compact disc, digital video disc, or File Transfer Protocol site, to Architect.
 - b. Accompany with transmittal letter, in duplicate, containing:
 - 1) Date.
 - 2) Project title and number.
 - 3) Contractor's name and address.
 - 4) Typed list identifying each item submitted as record document.
 - 5) Certification that each document as submitted is complete and accurate.
 - 6) Signature of Contractor or Contractor's authorized representative.
6. Architect's Review:
- a. Architect will identify locations needing additional information from Contractor.
 - b. Architect may add notations for record purposes.
7. Contractor's Correction:
- a. Add information, identified by Architect, to hard copy drawings.
 - b. Rescan Drawings and Specification Sections which are revised, and reissue to Architect on compact disc, digital video disc, or File Transfer Protocol site, inserted between unrevised Drawings and Specification Sections.
 - c. Send hard copy of Drawings and Specification Sections to Architect.
 - d. Architect will transfer documents to Owner.
 - e. Record Submission: One set, hard copy, with scanned electronic version.
- B. Operating and Maintenance Data:
1. Format of Manuals
 - a. Prepare data as instructional manuals for use by Owner's personnel.
 - b. Binders:
 - 1) Heavy-duty plastic or fiberboard covers with binding mechanism concealed inside binder.
 - 2) Commercial quality three-ring binders with durable and cleanable plastic covers.
 - 3) Maximum ring size: 3 inches.
 - 4) When multiple binders are used, correlate data into related consistent groupings.

- c. Size: 8-1/2 inches by 11 inches. When larger pages are used, fold them to 8-1/2 by 11 inches to be used as pullouts or foldouts.
- d. Paper: 20-pound minimum, white, for typed pages.
- e. Text:
 - 1) Neatly typewritten table of contents for each volume, arranged in systematic order.
 - 2) Manufacturer's printed data, or neatly typewritten text.
- f. Drawings:
 - 1) 11 inches in height.
 - 2) Larger drawings are acceptable, but fold to fit in drawing pocket inside rear cover or bound in with text.
- g. Flysheets:
 - 1) Separate each portion of manual with neatly prepared flysheets briefly describing contents of ensuing portion.
 - 2) May be in color.
- h. After paper copy has been produced, scan and save as electronic copy:
 - 1) Manuals: Save as portable document file (pdf), Version 6.0 to 10.0.
 - 2) Drawings: Save as portable document file (pdf, Version 6.0 to 10.0), or as Tiff file.
- 2. Include Following Information in Manuals:
 - a. Cover: Identify each volume with typed or printed title: "Operating and Maintenance Instructions". List:
 - 1) Title of Project.
 - 2) Identity of separate structure as applicable.
 - b. Table of Contents: Identity of general subject matter covered in manual.
 - c. List of Project Participants:
 - 1) Owner, Contractor, Architect, Engineer, Subcontractors, Suppliers.
 - 2) List name of responsible principal, address, and telephone number.
 - d. Product Data:
 - 1) List of each product required to be included; index to volume's content.
 - 2) Provide typed description of product, and major component parts of equipment.
 - 3) Identify each product with indexed tabs organized by product name and other identifying symbols as set forth in Contract Documents.
 - 4) Include submittals accepted by Architect.
 - 5) List with each product, name, address, and telephone number of:
 - a) Subcontractor or installer.
 - b) Maintenance contractor, as appropriate.
 - c) Identify area of responsibility of each.
 - d) Local source of supply for parts and replacement.
 - 6) Include only those sheets which are pertinent to specific products.
 - 7) Annotate each sheet to:
 - a) Clearly identify specific product or part installed.
 - b) Clearly identify Project-specific data.
 - c) Delete references to inapplicable information.
 - 8) Supplement with written text for particular installation:
 - a) Organize in consistent format under separate headings for different procedures.
 - b) Provide logical sequence of instructions for each procedure.
 - e. Drawings:
 - 1) Supplement product data with drawings as necessary to clearly illustrate:
 - a) Relations of component parts of equipment and systems.
 - b) Control and flow diagrams.
 - 2) Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - 3) Do not use Project Record Documents as maintenance drawings.

- 4) Provide with reinforced punched binder tab so they are bound in with text.
 - 5) Fold larger drawings to size of text pages.
- f. Warranty, Bond, and Service Contracts. Include:
 - 1) Information sheet for Owner's personnel.
 - 2) Procedures in event of failure.
 - 3) Instances which might affect validity of warranties or bonds.
3. Materials and Finishes Manual:
 - a. Record Submission: One set, hard copy, with scanned electronic version.
 - b. Incorporate approved submittals with Architect-acceptance review stamps.
 - c. Content, for architectural products, applied materials and finishes:
 - 1) Where Architect-accepted submittals do not include following information, provide supplemental manufacturer's data, giving full information on products:
 - a) Catalog number, size, composition.
 - b) Color and texture designations.
 - c) Information required for re-ordering special-manufactured products.
 - 2) Instructions for care and maintenance.
 - a) Manufacturer's recommendation for types of cleaning agents and methods.
 - b) Cautions against cleaning agents and methods which are detrimental to products.
 - c) Recommended schedule for cleaning and maintenance.
 - d. Content, for moisture-protection and weather-exposed products:
 - 1) Where Architect-accepted submittals do not include following information, provide supplemental manufacturer's data, giving full information on products:
 - a) Applicable standards.
 - b) Chemical composition.
 - c) Details of installation.
 - 2) Instructions for inspection, maintenance, and repair.
 - e. Additional requirements for maintenance data: As specified in respective Specification Sections.
4. Equipment and Systems Manual:
 - a. Record Submission: One set, hard copy, with scanned electronic version.
 - b. Provide manufacturer-printed information.
 - c. Provide separate sections for fire suppression, plumbing, refrigeration, heating, ventilation, air conditioning, and electrical systems.
 - d. Content, for Each Unit of Equipment and System, as Appropriate:
 - 1) Description of unit and component parts.
 - a) Function, normal operating characteristics, and limiting conditions.
 - b) Performance curves, engineering data and tests.
 - c) Complete nomenclature and commercial number of replaceable parts.
 - 2) Operating Procedures:
 - a) Manufacturer's printed operating instructions.
 - b) Describe sequence of operation by control manufacturer.
 - c) Start-up, break-in, routine and normal operating instructions.
 - d) Regulation, control, stopping, shut-down and emergency instructions.
 - e) Summer and winter operating instructions.
 - f) Special operating instructions.
 - g) As-installed control diagrams by controls manufacturer.
 - h) As-installed color coded piping diagrams.
 - i) Charts of valve tag numbers, with location and function of each valve.
 - j) List of temperature controls by manufacturer and model number.
 - 3) Maintenance Procedures:
 - a) Manufacturer's printed maintenance instructions.

- b) Routine operations.
 - c) Guide to "trouble-shooting".
 - d) Disassembly, repair, and reassembly.
 - e) Alignment, adjusting, and checking.
 - 4) Servicing and lubrication schedule, with list of required lubricants.
 - 5) Component bearings for each item with month and year when each item should be inspected and serviced.
 - 6) Original manufacturer's parts list, illustrations, assembly drawings, and diagrams, required for maintenance.
 - a) Predicted life of parts subject to wear.
 - b) Items recommended to be stocked as spare parts.
 - 7) List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - 8) In addition, mount framed (under glass) copies of operating instructions for Heating, Ventilating and Electrical and Air Conditioning Systems on Mechanical Room wall.
 - 9) Other data as required under respective sections of Specifications.
 - e. Content, for each electric and electronic system:
 - 1) Description of system and component parts.
 - a) Function, normal operating characteristics, and limiting conditions.
 - b) Performance curves, engineering data and tests.
 - c) Complete nomenclature and commercial number of replaceable parts.
 - 2) Circuit directories of panelboards.
 - a) Electrical service.
 - b) Controls.
 - c) Communications.
 - 3) As-installed color coded wiring diagrams.
 - 4) Operating procedures:
 - a) Manufacturer's printed operating instructions.
 - b) Routine and normal operating instructions.
 - c) Sequences required.
 - d) Special operating instructions.
 - 5) Maintenance procedures:
 - a) Manufacturer's printed maintenance instructions.
 - b) Routine operations.
 - c) Guide to "trouble-shooting".
 - d) Disassembly, repair, and reassembly.
 - e) Adjustment and checking.
 - 6) List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 - 7) Circuit directory, product data, and "Record" drawing of electric service entrance equipment, not provided by local electric utility company.
 - 8) Other data as required under pertinent sections of specifications.
 - f. Prepare and include additional data when need for such data becomes apparent during instruction of Owner's personnel.
 - g. Additional requirements for operating and maintenance data: As specified in respective Specification Sections.
5. Submission Schedule:
 - a. Submit one copy of preliminary draft of proposed formats and outlines of contents prior to start of work. Architect will review draft and return with comments.
 - b. Submit one copy of completed data in final form fifteen days prior to final inspection or acceptance. Copy will be returned after final inspection or acceptance, with comments.
 - c. Submit specified quantity of copies of approved data in final form 10 days after final inspection or acceptance.

6. Prior to Submission:
 - a. Electronically scan manuals.
 - b. Place scanned images on compact disc or digital video disc.
 - c. File Format: Adobe Acrobat Portable Document File (PDF), Version 6.0 to 10.0.
 - d. Scan Resolutions: At least 300 dots per inch and not more than 600 dots per inch.
 - e. Scan in color.
 - f. File Naming:
 - 1) Scan as single file, organized by Specification Divisions and Sections with Operations and Maintenance Data, Materials and Finishes, and Warranty information co-located by Specification Divisions and Sections.
 - 2) Delete blank pages.
 - 3) Provide with bookmarks for each Division and each Specification Section.
 7. Submittal: At Contract Closeout, deliver scanned manuals on compact disc, digital video disc, or File Transfer Protocol site, to Architect.
 8. Architect's Review:
 - a. Architect will identify locations needing additional information from Contractor.
 - b. Architect may add notations for record purposes.
 9. Contractor's Correction:
 - a. Add information, identified by Architect, to hard copy manuals.
 - b. Rescan pages which are revised, and reissue on compact disc, digital video disc, or File Transfer Protocol site, inserted between unrevised pages.
 - c. Send hard copy of Drawings and Specification Sections to Architect
 - d. Architect will transfer documents to Owner.
- C. Warranties:
1. Description:
 - a. Co-execute when specified.
 - b. Review to verify compliance with Contract Documents.
 - c. Submit to Architect for review and transmittal to Owner.
 2. Submittal Requirements:
 - a. Assemble warranties, bonds, and service and maintenance contracts, executed by respective manufacturer, supplier, and subcontractor.
 - b. Quantity of original signed copies required: Two each.
 - c. Table of Contents: Neatly typed, in orderly sequence.
 - d. Provide following information for each item:
 - 1) Product or work item.
 - 2) Firm, with name of principal, address and telephone number.
 - 3) Item affected by warranty, bond, or service and maintenance contract.
 - 4) Date of beginning of warranty, bond or service and maintenance contract.
 - 5) Duration of warranty, bond or service maintenance contract.
 - 6) Provide information for Owner's personnel:
 - a) Procedure in case of failure.
 - b) Instances which might affect validity of warranty or bond.
 - 7) Contractor, name of responsible principal, address and telephone number.
 3. Format of Submittals:
 - a. Prepare in duplicate packets.
 - b. Place in commercial quality, three-ring binder with durable and cleanable plastic covers.
 - c. Size 8-1/2 inches by 11 inches, punch sheets for 3-ring binder.
 - a) Fold larger sheets to fit into binders.
 - d. Cover: Identify each packet with typed or printed title, "Warranties and Bonds".

List:

 - 1) Title of Project.
 - 2) Name of Contractor.
 - e. Incorporate into Operating and Maintenance Data manuals.

4. Time of Submittals:
 - a. For equipment or component parts of equipment put into service during progress of construction, submit documents within 10-days after inspection and acceptance.
 - b. Otherwise make submittals within 10-days after date of Substantial Completion, prior to final request for payment.
 - c. For items of work, where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.
- D. Spare Parts and Maintenance Materials:
 1. Products Required:
 - a. Provide quantities of products, spare parts, maintenance tools, and maintenance materials, specified in individual sections to be provided to Owner, in addition to that required for completion of Work.
 - b. Products:
 - 1) Identical to those installed in Project.
 - 2) Include quantities in original purchase from supplier/manufacturer to avoid variations in manufacture.
 2. Storage, Maintenance:
 - a. Store products with products to be installed in Project under provisions of Section 01•60•00.
 - b. After delivery of products to site, maintain spare products in same space and condition as products to be installed in Project.
 - c. When adequate secure storage facilities are available at site, capable of maintaining conditions required for storage and not required for Contract work or storage, or for Owner's needs, spare products may be stored in available space.
 - d. Maintain spare products in original containers with labels intact and legible, until delivery to Owner.
 3. Delivery to Owner:
 - a. Coordination with Owner:
 - 1) Prior to final payment, deliver and unload spare products to Owner at Project site.
 - 2) Obtain receipt signed by Owner's representative upon delivery.
 - b. For portions of Project accepted and occupied by Owner prior to Substantial Completions:
 - 1) Deliver proportional part of spare products to Owner.
 - 2) Obtain receipt signed by Owner's representative upon delivery.
 - c. Owner will handle and store products.

3.11 DEMONSTRATION AND TRAINING

- A. Prior to commencing demonstration and training:
 1. Submit name of instructor to Architect for acceptance.
 2. Provide schedule or program format of instruction to Architect for acceptance.
- B. Demonstrate operation and maintenance of Products to Owner's personnel 2 weeks prior to date of Substantial Completion.
- C. Demonstrate Project equipment and instruct in classroom environment located at project site by qualified manufacturers' representative who is knowledgeable about Project.
- D. For equipment or systems requiring seasonal operation, perform demonstration for other season within 6 months.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain operation and maintenance.
- F. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment or designated location.

- G. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- H. When specified in individual Sections, amount of time required for instruction on each item of equipment and system is that specified in individual sections.
- I. Minimum Instruction Time: 24 straight hours on 3 consecutive days.
- J. Include tour of facility to show location of control devices, control valves, motors, control sensors, and other system components.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\017000.wpd

SECTION 01•80•00
PERFORMANCE REQUIREMENTS

1.0 GENERAL

1.1 SUMMARY

- A. Related Documents: Conditions of the Contract, Division 1 - General Requirements, and Drawings apply to Work of this Section.

1.2 REFERENCES

- A. Reference Standards:
1. American Society of Civil Engineers (ASCE):
 - a. ASCE 7, Minimum Design Loads in Buildings and Other Structures.
 2. ASTM International (ASTM):
 - a. ASTM E330, Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 3. International Code Council (ICC):
 - a. ICC IBC, International Building Code.
 4. National Fire Protection Association (NFPA):
 - a. NFPA 252, Fire Tests of Door Assemblies.
 - b. NFPA 257, Fire Tests for Window and Glass Block Assemblies.
 5. UL Solutions (UL):
 - a. UL 10C, Positive Pressure Fire Tests of Door Assemblies.
 - b. UL1784, Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
1. Engineering Judgements:
 - a. Submit for substitutions of specified fire-rated assemblies.
 - b. Submit for variations from third-party tested and classified fire-rated assemblies.

1.4 FACILITY PERFORMANCE REQUIREMENTS

- A. Design Requirements:
1. Certain elements of facility are designated to be designed by Contractor.
 2. Manufacturer, fabricator, or installer is responsible for designing system or units, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
 3. Where specified, manufacturer, fabricator, or installer is to employ registered professional engineer, licensed to practice engineering in jurisdiction where Project is located, to engineer each component of system. Employ:
 - a. Electrical engineer for electrical, communications, electronic security, and electronic safety systems.

- b. Fire protection engineer or NICET certificate holder for fire suppression systems.
 - c. Plumbing engineer for plumbing and other piping systems.
 - d. Mechanical engineer for HVAC and refrigeration systems.
 - e. Structural engineer for other systems.
- 4. Elements to be designed by Contractor:
 - a. Fire suppression system.
 - b. Plumbing systems.
 - c. HVAC systems.
 - d. Electric power systems.
 - e. Lighting systems.
 - f. Communications raceway systems.
 - g. Electronic safety systems.
- 5. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
- 6. Provide concealed fastening wherever possible.
- 7. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between:
 - a. Piping and units.
 - b. Units and supporting structure.
- B. Interface With Adjacent Systems:
 - 1. Integrate design and connections with adjacent construction.
 - 2. Accommodate allowable tolerances and deflections for structural members in installation.

1.5 FACILITY INTERIORS PERFORMANCE REQUIREMENTS

- A. Apply to items contained interior to building's envelope/skin, exterior walls, roof, and exterior soffits and ceilings.
- B. Fire Resistance Requirements:
 - 1. Product manufacturer to perform specified testing.
 - 2. Fire Rated Swinging and Horizontal Sliding Doors and Frames; Fire Rated Windows:
 - a. Test fixed glass light frames in accordance with NFPA 257.
 - b. Test doors in accordance with NFPA 252, or UL 10C.
 - c. Glass lights in doors to be fire tested as part of fire testing of door.
 - d. Hardware in doors to be fire tested as part of fire testing of door.
 - e. Doors and frame to have smoke resistance specified below.
 - 3. Fire-Rated Assemblies:
 - a. Comply with fire-rated assembly listings identified on Drawings and in Specifications.
 - b. Refer to schedule at end of section for detailed description of fire-rated assemblies.
- C. Smoke Resistance Requirements:
 - 1. Product manufacturer to perform specified testing.
 - 2. Smoke Rated Doors and Frames:

- a. Test fire doors in accordance with UL1784 using gasket to provide "S" Label for door and gasket.
 - b. Air leakage rate of door assembly to not exceed 3.0 ft³/min per square foot of door opening at 0.10 inches of water for both ambient temperature and elevated temperature tests.
 - c. Glass lights in doors to be tested as part of smoke testing of door.
 - d. Hardware in doors to be fire tested as part of smoke testing of door.
 - e. Perform on Doors at Following Locations:
 - 1) Fire rated corridor doors.
 - 2) Smoke barrier doors.
 - 3) Doors identified in door schedule to be smoke rated.
- D. Structural Requirements:
- 1. As calculated in accordance with ASCE 7, as modified by ICC IBC and local building code; design and size components to withstand:
 - a. Floor and roof, live and dead loads.
 - b. Non-Axial Load Bearing Walls: Design and size components to withstand lateral load acting inward and outward normal to plane of assembly when tested in accordance with ASTM E330, and as required for components and cladding as defined in ASCE 7, whichever is greater:
 - 1) Walls Not Enclosing Elevator Hoistways: 5 lb/ft².
 - c. Seismic loads and sway displacement.
 - 2. Deflection Limits:
 - a. Systems Containing Glass: Limit mullion deflection to flexure limit of glass, 3/4 inch, or 1/175 of member span, whichever is less; with full recovery of glazing materials.
 - b. Systems Not Containing Glass: Limit framing member deflection to flexure limit of 1/240 of member span; with full recovery.
 - 3. Design and size components to accommodate, without damage to system, without damage to components, or without deterioration of seals:
 - a. Movement within system.
 - b. Member deflection shall be under full code live and dead loads.
 - 1) Limit stud wall and beam framing member deflections to:
 - a) Load Bearing Stud Walls: 1/240 of member span.
 - b) Non-Load Bearing Stud Walls: 1/240 of member span.
 - c. Movement between system and perimeter non-axial load-bearing framing components.
 - d. Dynamic loading and release of loads.
 - e. Deflection due to self-weight of system.
 - f. Deflection of structural support framing.
 - g. Construction tolerances.
 - h. Deflection of edge beams due to loading applied after erection of cladding to magnitude specified.
 - i. Mid-span slab edge deflection of span/240.
 - j. Mid-span joist and beam deflection of span/240.

4. Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connection between units, attachment devices, and building structure.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 SCHEDULE OF FIRE-RATED WALL ASSEMBLIES

- A. Masonry Assemblies:
 1. One-Hour Fire-Rated Concrete Masonry Wall Assemblies:
 - a. Wall Type Series: G and H.
 - b. UL Designs: U905, U906, U937.
- B. Steel Stud Assemblies:
 1. One-Hour Fire-Rated Steel-Stud Framed Wall Assemblies; Gypsum Board:
 - a. Wall Type Series: Maa.
 - b. UL Designs by Location:
 - 1) Interior Walls:
 - a) Non-Load-Bearing: U404, U419, U425, U465, V417.
 - b) Load-Bearing: U423.

3.2 SCHEDULE OF WALL TYPES:

- A. Following list describes naming convention for wall types.
- B. Every combination of wall types, size, and suffix is not used.
- C. Designator:
 1. Top Row: Aab1
 2. Bottom Row: 23T
- D. Core Type (A); Types:
 1. C: Cast-In-Place Concrete.
 2. G: Concrete masonry units (filled with masonry grout).
 3. H: Concrete masonry units (not filled with masonry grout).
 4. M: Steel studs or steel furring.
 5. MM: Steel studs (two parallel rows; with prescribed gap between).
 6. T: Tilt-up concrete.
 7. W: Wood studs or wood furring.
 8. WW: Wood studs (two parallel rows; with prescribed gap between).
- E. Substrate Configurations (one side "a" and opposite side "b"); Types:
 1. a: 5/8 inch thick gypsum board; one layer.
 2. b: 5/8 inch thick gypsum board; two layers.
 3. c: 5/8 inch thick gypsum board; three layers.
 4. d: 5/8 inch thick gypsum board; four layers.
 5. e: 1/2 inch thick gypsum board; one layer.
 6. f: 1/2 inch thick gypsum board; two layers.
 7. g: 3/4 inch plywood.

8. h: 1/2 inch plywood.
 9. i: 5/8 inch thick gypsum board; one layer. With 3/4 inch plywood; one layer.
 10. j: 5/8 inch thick gypsum board; one layer. With 1/2 inch plywood; one layer.
 11. k: 1/2 inch thick gypsum board; one layer. With 3/4 inch plywood; one layer.
 12. l: 1/2 inch thick gypsum board; one layer. With 1/2 inch plywood; one layer.
 13. m: (reserved for future use)
 14. n: 5/8 inch thick cement panel; one layer.
 15. o: 5/8 inch thick cement panel; one layer. With 5/8 inch thick gypsum board; one layer.
 16. p: 1/2 inch thick cement panel; one layer.
 17. q: 1/2 inch thick cement panel; one layer. With 1/2 inch thick gypsum board; one layer.
 18. r: 5/8 inch thick gypsum board; one layer. With resilient furring.
 19. s: 1 inch thick gypsum coreboard.
 20. t: (reserved for future use)
 21. u: 5/8 inch thick gypsum board; one layer; on 1-1/8 inch isolation clip.
 22. v: 5/8 inch thick gypsum board; one layer; on 1-1/8 inch isolation clip. With 5/8 inch thick gypsum board; one layer.
 23. w: 5/8 inch thick gypsum board; one layer; on 1-1/8 inch isolation clip. With 3/4 inch plywood; one layer.
 24. x: 5/8 inch thick gypsum board; two layers; on 1-1/8 inch isolation clip.
 25. y: 5/8 inch thick gypsum board; two layers; on 1-1/8 inch isolation clip. With 5/8 inch thick gypsum board; one layer.
 26. z: 5/8 inch thick gypsum board; two layers; on 1-1/8 inch isolation clip. With 3/4 inch plywood; one layer.
 27. If no letter is indicated, there is no substrate.
- F. Wall Tag Value (3): See wall types schedule.
- G. Height / Head Condition Detail Reference (2).
- H. Fire Rating Duration in Hours (3).
- I. Insulation Type (T):
1. A: Fiber batt/blanket; 2-1/2 inches thick.
 2. B: Fiber batt/blanket; 3-1/2 inches thick.
 3. C: Other acoustical material; thickness as described in wall type detail.
 4. T: Thermal. See wall type detail for description.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\018000.wpd

SECTION 02•41•00
DEMOLITION

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Perform Work to not interrupt normal working operations, facilities, and services.
 - 2. Demolition activities may need to be scheduled during times outside of normal morning to afternoon construction operation hours.
 - 3. Existing facility to remain in service. Coordinate scheduling and scheduling of work with Owner in accordance with Section 01•35•13.11.
 - 4. Project involves construction inside already existing structure. Existing building and its present condition stand as construction documents of equal importance to Contract Documents. Contractors, by submitting bid, are assumed to be completely familiar with existing condition of building as it influences Work described in Drawings and Specifications. No claims for extra cost will be considered for existing conditions visible or reasonably inferable from careful examination of existing building.
 - 5. Field survey existing conditions prior to executing work of this Section.
 - 6. Owner assumes no responsibility for actual condition of items or structures to be demolished.
 - 7. Conditions existing at time of commencement of Contract will be maintained by Owner insofar as practicable.
 - 8. Temporary Facilities:
 - a. Provide in accordance with Section 01•50•00.
 - b. Provide, erect, and maintain temporary barriers and security devices.
 - c. Construct to separate areas where noisy or dirt or dust operations are performed.
 - d. Construct temporary enclosures to completely substantial in nature to provide maximum security of existing facility during non-operational hours.
 - e. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to demolition work.
 - f. Provide protective measures to provide free and safe passage of Owner's personnel and general public to and from occupied portions of building.
 - g. Chutes:
 - 1) Tight and completely enclosed.
 - 2) Do not extend chutes in unbroken line for more than 25 feet without suitable and substantial barriers to prevent descending materials from attaining excessive or dangerous velocity.
 - 3) Equip every chute with gate or stop located at bottom of such chute, and construct and arrange as to stop or control flow of materials from chute.
 - 9. Photography:
 - a. Photograph existing conditions of existing materials, equipment, and surrounding properties to establish condition prior to start of demolition operations.
 - b. Photograph conditions which could be misconstrued as damage resulting from demolition operations.
 - c. Provide Owner with copies of photographs prior to starting demolition operations.

10. Regulatory Requirements:
 - a. Comply with applicable Federal, State, and local, codes and ordinances.
 - b. Obtain and pay for demolition permits, fees, and licenses.
 - c. Do not close or obstruct roadways, sidewalks, egress paths, fire hydrants, or fire department connections to building fire suppression system without permits.
 - d. Maintain safe and structurally sound public access and emergency egress from building.
 - e. Comply with governing regulations pertaining to environmental protection.
 - f. Conform to procedures applicable when discovering hazardous materials.
 - g. Perform operations to not create nuisance in vicinity of such operations.
 - h. Conduct demolition to minimize interference with adjacent occupancies.
 - i. Conduct operations with minimum interference to public or private accesses.
- B. Pre-Demolition Meeting:
 1. Conduct in accordance with Section 01•31•00.
 2. Discuss coordination and scheduling of demolition work.
 3. Discuss relation and coordination of demolition work with alterations, and related new construction.
- C. Sequencing:
 1. Sequence work under provisions of Section 01•10•00.
 2. Coordinate demolition operations with other construction activities of Project.
 3. Create openings in exterior of existing facility with maximum work force in shortest possible time.
 4. Sequence selective demolition activities with new construction activities to provide for immediate installation of new work in these areas.
- D. Scheduling:
 1. Schedule salvaging for reuse on site to precede removal for reuse off site.
 2. Schedule salvaging for removal for reuse off site to precede demolition.
 3. Schedule demolition to precede new construction.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submit following Submittals for Architect's Information:
 1. Schedule:
 - a. Indicate proposed methods and sequence of operations.
 - b. Indicate materials and elements to be salvaged or recycled.
 - c. Include procedures for dust and noise control.
- C. Closeout Submittals:
 1. Submit under provisions of Section 01•70•00.
 2. Record Documentation:
 - a. Record actual locations of capped utilities, facility services, and subsurface obstructions.
 - b. Audited list of salvaged and recycled materials.

1.4 FIELD CONDITIONS

- A. Ambient Conditions:
 1. Make every effort to keep following to minimum:
 - a. Noise.
 - b. Dust.
 - c. Vibrations.
 - d. Other activities which would bother occupants or adversely affect equipment housed in existing buildings or adjacent areas.

2. Dust Control:
 - a. Control dust resulting from selective demolition operations by use of dust containment partitions to prevent spread to occupied portions of building, and to avoid creation of nuisance in surrounding area.
 - b. Use temporary enclosures, and other suitable methods to limit dust rising and scattering in air to lowest practical level.
 - c. Remove temporary dust containment partitions at completion of project and repair damage to existing finishes.
3. Project to remain watertight.

2.0 PRODUCTS (Not Used)

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Examine site and determine type and extent of construction and difficulty of alterations.
- C. Visit site to establish extent of work.
- D. Before commencement of demolition operations, carefully survey existing building, and carefully examine Drawings and Specifications, to determine extent of salvage and demolition.
- E. Examine conditions of Project, including weather or other deleterious elements subject to damage or movement during demolition.
- F. After uncovering work, examine conditions affecting installation of Products or performance of work.

3.2 PREPARATION

- A. Comply with Section 01•70•00.
- B. Structural Systems:
 1. Verify dimensions, type, size, and location, of existing structural systems affected by new work.
 2. Inspect and evaluate for reuse existing structural elements.
 3. Ensure that structural elements are not overloaded.
 4. Replace deteriorated, and damaged, timber and masonry. If deteriorated or damaged structural systems are uncovered, and are not indicated on Drawings, notify Owner and Architect and upon written authorization perform repair/replacement operations on time and material basis.
 5. Contractor is responsible for increasing structural supports or adding supports for cutting, removal, and demolition activities.
 6. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.
 7. If Safety of Structure Appears to Be Endangered:
 - a. Cease operations.
 - b. Notify authorities having jurisdiction, Owner, and Architect.
 - c. Take precautions to support structure until determination is made for continuing operations.
 - d. Do not resume operations until directed.
- C. Mark Location of Utilities and Facility Services Including:
 1. Fire suppression systems.
 2. Plumbing systems.
 3. HVAC systems.
 4. Integrated automation systems.
 5. Electrical systems.

6. Communications systems.
7. Electronic safety and security systems.
- D. Protection:
 1. Take precautions to ensure against damage to existing construction to remain in place.
 2. Construct and maintain shoring, bracing, and supports for cutting, removal, and demolition operations.
 3. Provide adequate temporary support to assure structural integrity of affected portion of Work.
 4. Provide devices and methods to protect other portions of Project, including existing improvements, existing equipment, and existing furnishings, from damage.
- E. Protection During Selective Demolition:
 1. Protect portions of Project which may be exposed by cutting and patching work.
 2. Protect existing materials and equipment which are not to be demolished.
 3. To prevent damage to existing finishes, existing improvements, existing equipment, existing furnishings, framing and structure, and maintain safety for public while demolishing parts of structures, provide and install:
 - a. Temporary Utilities, Construction Aids, and Barriers.
 - b. Structural shoring, needling, and bracing.
 4. Existing Utilities, Facility Services, and Structures:
 - a. Protect existing utilities, facilities services, and structures encountered in performance of Work from damage, whether or not indicated on Drawings.
 - b. Protect existing utilities and facility services from interruption of service.
 - c. If existing utilities or facility services are encountered which are not shown on Drawings, or not correctly shown on Drawings, stop adjoining construction operations, notify Owner, and do not proceed until receiving instructions for proceeding from Owner.
 - d. If existing utilities, facilities services, or structures, whether or not shown on Drawings, are damaged, stop adjoining construction operations, notify Owner, and do not proceed until receiving instructions for proceeding from Owner.
 - e. Repair damage to known existing utilities, facilities services, or structures at Contractor's expense.
 5. Furniture, Equipment, or Fixtures to Remain: Cover and protect from soiling or damage when demolition work is performed in rooms or areas which such items have not been removed.
 6. Protect from Damage: Existing finish work that is to remain in place and becomes exposed during demolition operations.
 7. Protect floors with coverings to prevent damage to finishes.
 8. Openings in Building Envelope:
 - a. Erect and maintain weatherproof closures for exterior openings.
 - b. Construct in accordance with Section 01•50•00.
 - c. Ensure that no water leakage or damage occurs to structure or interior areas of existing building.

3.3 DEMOLITION

- A. Perform in accordance with Section 01•70•00.
- B. General:
 1. Perform in accordance with demolition schedule and governing regulations.
 2. Disconnect, remove, cap, and identify designated utilities within demolition area.
 3. Do not allow materials, objects, or debris, to fall in or on structures, alleys, or other public ways; or on buildings, other structures, or adjoining property.
 4. Wet down materials, objects, or debris or treat to prevent dust or other materials, objects, or debris, that may be blown about.
 5. Removal of Materials:
 - a. Lower loose materials accumulating on upper floors of buildings to ground level in receptacles by elevators, hoists, or enclosed chutes.

- b. When individual items are indicated to be removed, remove visually-exposed mounting devices and hardware used to mount item.
 - c. Legally transport and dispose of materials off-site.
- C. Selective Demolition:
 - 1. Extent is indicated on Drawings.
 - 2. Perform demolition in systematic manner.
 - 3. Concrete or Masonry:
 - a. Demolish in small portions.
 - b. Cut at junctures with construction to remain.
 - c. Use power-driven masonry saw or hand tools.
 - d. Do not use power-driven impact tools to cut portions for existing materials to remain.
 - 4. Promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.
 - 5. Civil, Structural, or Facility Service Elements:
 - a. If anticipated elements are encountered which conflict with intended function or design, investigate and measure both nature and extent of conflict.
 - b. Submit written report to Architect describing conflict in accurate detail.
 - c. Pending receipt of directive from Architect, rearrange demolition schedule to continue overall job progress without delay.
 - d. Electric conduit may be re-used for new circuits provided it is of specified size and type, and is in condition acceptable to Architect and Owner.
 - 6. When Facility Service Elements are Removed:
 - a. Remove to point below finished floors or behind finished walls.
 - b. Terminate and cap sufficient distance behind finished surface to permit installation of finish materials.
 - c. Integrated Automation, Electrical, Communication, or Electronic Safety and Security Systems:
 - 1) Remove wiring to source panelboard or switch, or to last remaining device on same circuit.
 - 2) Remove conduit, hangers, or supports not re-used.
 - 3) Conduit abandoned in concrete slabs, wall, or other inaccessible locations:
 - a) Leave empty except for nylon pull wire.
 - b) Cap ends with push plugs for future re-use.
- D. Salvage of Materials:
 - 1. Material Resulting from Demolition Operations Not to be Reused or Remain as Owner's Property: Assume title and sell such material for its salvage value at Contractor's option.
 - 2. Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses.
 - 3. Transport salvaged items from site as they are removed.
 - 4. On-site sale of salvage material in Contractor's title is not permitted.
 - 5. Items Indicated "Salvage for Re-Installation," "Salvage for Reuse on Site," or Salvage for Reuse Off Site":
 - a. Remove materials to be re-installed or retained in manner to prevent damage.
 - b. Store and protect in accordance with Section 01•60•00.
 - c. Clean and prepare for re-installation as specified.

3.4 ALTERATION AND RECONSTRUCTION

- A. Prepare surfaces as recommended by manufacturers of finishes to be applied. Include necessary cleaning, preparation, and sealing of existing surfaces.
- B. Perform minor demolition, disassembly, removal or relocation, and preparation of existing materials and areas to facilitate execution of new work and materials.
- C. Do not damage existing construction affected by alterations.

- D. Cutting and Removal:
 - 1. Carefully disassemble or cut away construction to be removed such that construction to remain terminates in smooth straight line or joint.
 - 2. Perform cutting by carborundum saw or other acceptable method.
- E. Execute fitting and adjustment of products to provide finished installation to comply with specified products, functions, tolerances, and finishes.
- F. Restore work which has been cut, relocated, or removed to provide completed Work in accordance with Contract Documents.
- G. Install new products to provide completed Work in accordance with Contract Documents.
- H. Fit work airtight, or as indicated on drawings, to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. Patching, Extending, and Matching:
 - 1. With products and workmanship quality matching or exceeding that of existing construction, existing areas shall be altered at points indicated, patched, opened, or extended, with new products, to points indicated.
 - 2. Transitions of finishes shall be smooth without noticeable change in plane or materials unless specifically noted to be jointed.
 - 3. Provide extensions to pipes, conduits, ducts, sleeves, drains, wiring boxes, and similar surface penetrating devices, where floor, wall, or ceiling surfaces receive added layers of new products, so existing or new:
 - a. Surface-mounted items can be mounted on new surface.
 - b. Flush surface-aligned items can be mounted in flush alignment with new surface.
 - c. Slightly recessed items can be mounted in slightly recessed from new surface.
 - 4. Undercut doors, reset door protection plates, and reset thresholds, where floor surfaces receive added layers of new products.
- J. Finish, as indicated, entire surfaces where alterations occur.
 - 1. For continuous surfaces, refinish to nearest intersection or as indicated on drawings.
 - 2. For assembly, refinish entire unit.

3.5 REPAIR

- A. Repair adjacent construction or surfaces soiled or damaged by demolition.
- B. Repair demolition performed in excess of that indicated or specified.
- C. Return structures and surfaces to remain to condition existing prior to commencement of demolition.
- D. Repair damage done to existing or new construction, as result of demolition to match requirements for new construction at Contractor's expense.
- E. Repair damage to adjoining property to satisfaction of adjoining property owner.
- F. Repair damage to adjoining public ways to satisfaction of authority having jurisdiction.
- G. At no cost to Owner:
 - 1. Replace removed material not indicated to be removed.
 - 2. Repair damage caused to adjacent materials by demolition.
 - 3. Repair damage caused to adjacent facilities by demolition.

3.6 CLEANING

- A. Clean in accordance with Section 01•70•00 to achieve "progress cleaning."
- B. Daily, clean away materials, debris, and refuse from demolition operations.
- C. Do not allow materials to accumulate, create hazards, or create unsightly appearances.
- D. Remove temporary protection.
- E. Completely remove from site and properly dispose of material, debris, and equipment.
- F. Upon completion leave premises in clean condition, and free from hazards or unsightly appearance.

3.7 PROTECTION

- A. Comply with Section 01•70•00.
- B. Protect existing unaltered construction in same manner as new and altered construction.

3.8 SCHEDULES

A. Materials Scheduled for Reuse on Site Include:

1. Tile wall base.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\024100.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 02•82•00
ASBESTOS REMEDIATION

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
1. Conditions of Contract.
 2. Drawings.
 3. Division 01 - General Requirements
 4. Division 22 - Plumbing
 5. Division 23 - Heating, Ventilating, and Air Conditioning.
 6. Section 09•23•00 - Gypsum Plastering.
 7. Section 09•29•00 - Gypsum Board.
 8. Section 09•51•00 - Acoustical Ceilings.
 9. Section 09•65•00 - Resilient Flooring.

1.2 PRICE AND PAYMENT PROCEDURES

- A. Allowances: Refer to Section 01•21•00 for allowances involving Work of this Section.

1.3 REFERENCES

- A. Reference Standards:
1. American National Standards Institute (ANSI):
 - a. ANSI Z88.2, Respiratory Protection.
 - b. ANSI Z9.2, Fundamentals Governing Design and Operation of Local Exhaust Systems.
 2. ASTM International (ASTM):
 - a. ASTM D1331, Surface and Interfacial Tension of Solutions of Surface-Active Agents.
 - b. ASTM E1368, Visual Inspection of Asbestos Abatement Projects.
 3. Code of Federal Regulations (CFR):
 - a. 29 CFR 1926.103, Respiratory Protection.
 - b. 29 CFR 1926.1101, Asbestos, Tremolite, Anthophyllite, Actinolite.
 - c. 29 CFR 1926.200, Accident Prevention Signs and Tags.
 - d. 29 CFR 1926.51, Sanitation.
 - e. 29 CFR 1926.59, Hazard Communication.
 - f. 40 CFR 61, National Emission Standards for Hazardous Air Pollutants.
 - g. 40 CFR 61-SUBPART A, General Provisions.
 - h. 40 CFR 61-SUBPART M, National Emission Standard for Asbestos.
 - i. 40 CFR 763, Asbestos Containing Material in Schools.
 4. Code of Maryland (COMAR):
 - a. COMAR 26.11.21, Control of Asbestos
 5. UL Solutions (UL):
 - a. UL 586, High-Efficiency, Particulate, Air Filter Units.
- B. Definitions:
1. ACM: Asbestos Containing Materials.
 2. Area Sampling: Sampling of asbestos fiber concentrations which approximates concentrations of asbestos in theoretical breathing zone but is not actually collected in breathing zone of employee.
 3. Asbestos: Chrysolite, amosite, crocidolite, tremolite, anthophyllite, and actinolite asbestos, and these minerals that have been chemically treated or altered. Materials are considered to contain asbestos if asbestos content of material is determined to be at least one percent.

4. Asbestos Control Area: Area where asbestos removal operations are performed which is isolated by physical boundaries which assist in prevention of uncontrolled release of asbestos dust, fibers, or debris.
5. Asbestos Fibers: Those fibers having aspect ratio of at least 3:1 and longer than 5 micrometers as determined by National Institute for Occupational Safety and Health (NIOSH) Method 7400.
6. Asbestos Permissible Exposure Limit: 0.1 fibers per cubic centimeter of air as 8-hour time weighted average measured in breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for protection of workers health.
7. Background: Ambient airborne asbestos concentration in uncontaminated area as measured prior to asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.
8. Encapsulation: Abatement of asbestos hazard through appropriate use of chemical encapsulants.
9. Friable Asbestos Material: One percent asbestos containing material that can be crumbled, pulverized, or reduced to powder by hand pressure when dry
10. Glovebag Technique: Asbestos removal and control techniques described in 29 CFR 1926.1101 Appendix G.
11. Negative Pressure Enclosure (NPE): Technique described as negative pressure enclosure in 29 CFR 1926.1101.
12. Nonfriable Asbestos Material: Material that contains asbestos in which fibers have been immobilized by bonding agent, coating, binder, or other material so asbestos is well bound and will not normally release asbestos fibers during appropriate use, handling, storage, or transportation. Asbestos fibers may be released under other conditions such as demolition, removal, or mishap.
13. Personal Sampling: Air sampling which is performed to determine asbestos fiber concentrations within breathing zone of specific employee, performed in accordance with 29 CFR 1926.1101.
14. Private Qualified Person (PQP): Qualified person (QP) hired by Contractor to perform herein listed tasks.
15. Qualified Person (QP):
 - a. Registered Architect, Professional Engineer, Certified Industrial Hygienist, consultant, or other qualified person who has successfully completed training and is accredited under legitimate State Model Accreditation Plan described in 40 CFR 763 as Building Inspector, Contractor/Supervisor Abatement Worker, or Asbestos Project Designer; and has successfully completed National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent.
 - b. Qualified to perform visual inspections indicated in ASTM E1368.
 - c. Licensed in State where Project is located.
16. TEM: Transmission Electron Microscopy.
17. Time Weighted Average (TWA): 8-hour time weighted average airborne concentration of asbestos fibers.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Regulatory Requirements:
 - a. Maintain one copy of each applicable laws, regulations, and standards affecting performance of asbestos abatement.
 - b. Medical Requirements:
 - 1) Comply with 29 CFR 1926.1101.

- 2) Medical Examinations:
 - a) Before exposure to airborne asbestos fibers, provide workers with comprehensive medical examination required by 29 CFR 1926.1101, or other pertinent State or local directives.
 - b) Satisfy within 12 months prior to start of Project.
- 3) Give same medical examination on annual basis to employees engaged in occupation involving asbestos and within 30 calendar days before or after termination of employment in such occupation. Specifically identify X-Ray films of asbestos workers to consulting radiologist and mark medical record jackets with word "ASBESTOS."
- 4) Medical Records:
 - a) Maintain complete and accurate records of employees' medical examinations, medical records, and exposure data for period of 50 years, or longer if required by requirements of State where project is located, after termination of employment.
 - b) Make records of required medical examinations and exposure data available for inspection and copying Assistant Secretary of Labor for Occupational Safety and Health (OSHA), or authorized representatives of them, and employee's physician upon request of employee or former employee.
- c. Training:
 - 1) Train personnel involved in asbestos control work in accordance with United States Environmental Protection Agency (USEPA) Asbestos Hazard Emergency Response Act (AHERA) training criteria or State training criteria, whichever is more stringent.
 - 2) Upon Request by Owner, Document Training by Providing:
 - a) Dates of training.
 - b) Training entity.
 - c) Course outline.
 - d) Names of instructors.
 - e) Qualifications of instructors.
 - 3) Furnish each employee with respirator training and fit testing administered by PQP as required by 29 CFR 1926.1101.
 - 4) Fully cover engineering and other hazard control techniques and procedures.
- d. Permits, Licenses, and Notifications:
 - 1) Prior to start of work, obtain necessary permits and licenses in conjunction with asbestos abatement, removal, hauling, and disposition, and furnish notification of such actions required by Federal, State, regional, and local authorities.
 - 2) In accordance with 40 CFR 61-SUBPART M, notify State's environmental protection agency and Owner in writing 15 working days prior to commencement of work.
 - 3) Submit revisions of notifications to Federal, State, regional, and local authorities.
 - 4) Post, and maintain for duration of asbestos abatement, notice of asbestos project signs at required locations in or on Project building.
- e. Environment, Safety, and Health Compliance:
 - 1) Comply applicable laws, ordinances, criteria, rules, and regulations of Federal, State, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials.
 - 2) Comply with applicable requirements of 29 CFR 1926.1101, 40 CFR 61-SUBPART A, and 40 CFR 61-SUBPART M.
 - 3) Submit matters of interpretation of standards to appropriate administrative agency for resolution before starting work.

- 4) Where requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, comply with most stringent requirement.
- 5) Following laws, ordinances, criteria, rules and regulations regarding removal, handling, storing, transporting and disposing of asbestos materials apply:
 - a) COMAR 26.11.21.
- f. Respiratory Protection Program: Establish and implement respirator program required by ANSI Z88.2, 29 CFR 1926.1101, and 29 CFR 1926.103.
- g. Asbestos Hazard Control Supervisor: Require on-site supervisor to be trained using model Contractor accreditation plan as indicated in Federal statutes for specified work.
- h. Hazard Communication:
 - 1) Comply with 29 CFR 1926.59.
 - 2) Maintain copy of Material Safety Data Sheets (MSDS) for materials brought to site.
- i. Emergency Plan:
 - 1) Develop, maintain, and enforce plan to address fires, explosions, toxic atmospheric conditions, electrical hazards, confined space hazards, heat related injuries, trips, and falls.
 - 2) Workers to understand locations of emergency exits and emergency plan procedures.
 - 3) Prominently post telephone numbers of emergency personnel at Project site.
- j. Respiratory Protection Program: Submit written program manual or operating procedure including methods of compliance with regulatory statutes.
- k. Respirator Program Records: Submit records of respirator program as required by ANSI Z88.2, 29 CFR 1926.103, and 29 CFR 1926.1101.
2. Certifications:
 - a. Abatement Employee Training:
 - 1) Submit prior to start of work but after main abatement submittal
 - 2) Signed certification by each employee indicating that employee has received training in handling of materials and wastes that contain asbestos in accordance with 40 CFR 763.
 - 3) Understands health implications and risks involved, including illnesses possible from exposure to airborne asbestos fibers.
 - 4) Understands use and limits of respiratory equipment to be used.
 - 5) Understands results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101 on initial and annual basis.
 - 6) Organize certificates by individual worker, not grouped by type of certification.
 - b. Abatement Employee Medical Certification:
 - 1) Submit certificates prior to start of work but after submission of Asbestos Hazard Abatement Plan.
 - 2) Submit written certification for each worker and supervisor.
 - 3) Sign each certification by licensed physician.
 - 4) Indicate whether person met or exceeded of medical prerequisites listed herein and in 29 CFR 1926.1101 and 29 CFR 1926.103 as prescribed by law.
 - c. Equipment Certifications:
 - 1) Show compliance with ANSI Z9.2.
 - 2) Submit manufacturer's certificates of compliance for equipment used to contain airborne asbestos fibers:
 - a) Vacuums.
 - b) Water filtration equipment.

- c) Ventilation systems.
 - d) Other equipment used to contain airborne asbestos fibers.
 - e) Chemical encapsulants sealers.
 - 3. Notifications:
 - a. Notify Owner in writing 15 days prior to start of asbestos work as indicated in applicable laws, ordinances, criteria, rules, and regulations.
 - b. Rental Equipment: Provide copy of written notification to rental company concerning intended use of equipment and possibility of asbestos contamination of equipment.
- B. Pre-Abatement Meeting:
 - 1. Conduct in accordance with Section 01•31•00.
 - 2. Attendees:
 - a. Contractor.
 - b. Asbestos abatement subcontractor.
 - c. Asbestos hazard control supervisor.
 - d. PQP.
 - e. Owner.
 - 3. Agenda:
 - a. Discussion of Asbestos Hazard Abatement Plan. Identify changes required in specification as result of Asbestos Hazard Abatement Plan to allow for free discussion and Owner's approval of Asbestos Hazard Abatement Plan prior to starting work.
 - b. Work procedures.
 - c. Safety precautions.
- C. Sequencing
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Owner will evacuate asbestos control area during asbestos abatement work.
 - 3. Coordinate replacement of asbestos containing plaster with new gypsum board or plaster specified in Section 09•29•00 or Section 09•23•00.
 - 4. Coordinate replacement of asbestos containing ceiling panels/tiles with new acoustical ceiling specified in Section 09•51•00.
 - 5. Coordinate replacement of asbestos containing pipe insulation with new pipe insulation specified in Division 22.

1.5 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submit following Submittals for Architect's Information:
 - 1. Product Data. Submit:
 - a. Local exhaust equipment.
 - b. Vacuums.
 - c. Respirators.
 - d. Pressure differential automatic recording instrument.
 - e. Amended water.
 - f. Encapsulants.
 - 2. Alternative Procedures:
 - a. If specified procedures cannot be utilized, submit request to Owner providing details of problem encountered and recommended alternatives.
 - b. Provide equivalent or superior protection than procedures which cannot be utilized.
 - c. Obtain Owner's approval prior to commencing alternative procedure operations.
 - d. Obtain variances to notifications filed with authorities having jurisdiction.
 - 3. Certifications specified in Quality Assurance article.
 - 4. Qualification Statements: PQP's, asbestos abatement contractor's, and testing laboratory's qualification data.
 - 5. Asbestos hazard abatement plan.
 - 6. Notifications letters to USEPA and State authorities having jurisdiction.

7. Landfill Approval and Waste Shipment Records:
 - a. Prepare in accordance with 40 CFR 61.15(d).
 - b. Sign and date by landfill's agent.
 - c. Certify amount of asbestos materials delivered to landfill.
 - d. Submit within 3 days after delivery to landfill.
 - e. Submit hazardous waste manifest signed copies to Owner within 3 days of manifest execution.
8. Employee training certifications.
9. Medical certifications.
10. Respiratory protection program.
11. Test and Evaluation Reports: Submit written results of testing specified as part of Field Quality Control articles.
12. Unusual Event Reports:
 - a. Prepare reports of unusual or significant events at Project site.
 - b. Includes, but not limited to failures of negative pressure system or ruptures of temporary enclosure.

1.6 QUALITY ASSURANCE

- A. Asbestos Abatement Contractor Qualifications:
 1. Successfully completed training in and is accredited and is certified as Contractor/Supervisor Abatement Worker described by 40 CFR 763.
 2. Appropriately licensed in State where Project is located.
 3. Assume Full Responsibility and Liability For:
 - a. Compliance with applicable laws, regulations, and standards.
 - b. Licensing requirements and patented systems pertaining to asbestos abatement.
 - c. Work practices, hauling, and disposal.
 - d. Protection of workers, building occupants, and visitors to Project site.
 4. Hold harmless and indemnify Owner of liability resulting from:
 - a. Patented infringements
 - b. Failure to comply with applicable laws, regulations, and standards by Contractor, Contractor's employees, or Subcontractors.
- B. Testing Laboratory Qualifications:
 1. American Industrial Hygiene Association (AIHA) accredited.
 2. Persons counting samples judged proficient by current inclusion on AIHA Asbestos Analysis Registry (AAR) and successful participation of laboratory in Proficiency Analytical Testing (PAT) Program.
 3. Where analysis to determine asbestos content in bulk materials or transmission electron microscopy is required, accredited by National Institute of Science and Technology (NIST) under National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis.
- C. Private Qualified Person Qualifications:
 1. Successfully completed training in and is accredited and is certified as Building Inspector, Contractor/Supervisor Abatement Worker, or Asbestos Project Designer as described by 40 CFR 763.
 2. Successfully completed National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent.
 3. Qualified to perform visual inspections indicated in ASTM E1368.
 4. Appropriately licensed in State where Project is located.
- D. Landfill Qualifications: Approved for asbestos disposal by USEPA, State, and local regulatory agencies.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Design Requirements:
 - 1. Employ PCP to engineer Asbestos Hazard Abatement Plan.
 - 2. Drawings are diagrammatic and are intended to establish general extent of asbestos abatement.
- B. Asbestos Hazard Abatement Plan Requirements:
 - 1. Design safety precautions such as lockout, tagout, tryout, fall protection, and confined space entry procedures and equipment and work procedures to be used in removal and demolition of materials containing asbestos.
 - 2. Do not combine with other hazard abatement plans.
 - 3. Prepare, sign, and seal by PQP.
 - 4. Provide Table of Contents for each abatement submittal, following sequence of requirements in Contract.
 - 5. Requirements to Include but Not Be Limited To:
 - a. Precise personal protective equipment to be used including, but not limited to:
 - 1) Respiratory protection.
 - 2) Whole-body protection.
 - b. Location of Asbestos Control Areas, Including:
 - 1) Clean and dirty areas.
 - 2) Buffer zones.
 - 3) Showers.
 - 4) Storage areas.
 - 5) Change rooms.
 - 6. Removal methods.
 - 7. Interface of trades involved in construction.
 - 8. Sequencing of asbestos related work.
 - 9. Disposal plan.
 - 10. Type of wetting agent and asbestos sealer to be used.
 - 11. Locations of local exhaust equipment.
 - 12. Planned air monitoring strategies.
 - 13. Detailed description of method to be employed in order to control environmental pollution.
 - 14. Fire, medical, and other emergency response plans.
- C. Obtain Owner's written approval prior to starting asbestos work.
- D. Comply with Asbestos Hazard Abatement Plan as if addition to specification.

2.2 ACCESSORIES

- A. Amended Water: Water containing wetting agent or surfactant with maximum surface tension of 2.9 Pa/cm when tested in accordance with ASTM D1331.
- B. Plastic Sheetting:
 - 1. Polyethylene sheet.
 - 2. May be reinforced or unreinforced.
 - 3. Fire-retardant treated to have flame spread index less than 25, determined in accordance with ASTM E84.
 - 4. Thickness: 6 mils.
- C. Wetting Agent:
 - 1. Chemical added to water to reduce water's surface tension thereby increasing water's ability to soak into material to which it is applied.
 - 2. Maximum Surface Tension Determined in Accordance with ASTM D1331: 2.9 Pa/cm.

2.3 EQUIPMENT

- A. HEPA Filter Equipment:
 - 1. High efficiency particulate air (HEPA) filtered vacuum or exhaust ventilation equipment with filter system capable of collecting and retaining asbestos fibers.
 - 2. Filters to retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

- B. Owner or Owner's Representative
 - 1. Provide, with at least two complete sets of personal protective equipment as required for entry to and inspection of asbestos control area.
 - 2. Provide equivalent training to Owner same as provided to Contractor's personnel in use of required personal protective equipment.
- C. Respirators:
 - 1. Approved by National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
 - 2. Respirators for Handling Asbestos: Provide to personnel engaged in pre-cleaning, cleanup, handling, demolition and removal of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101 and 29 CFR 1926.103.
- D. Exterior Whole Body Protection:
 - 1. Outer Protective Clothing:
 - a. Provide personnel exposed to asbestos with disposable "non-breathable," whole body outer protective clothing, head coverings, gloves, and foot coverings.
 - b. Provide disposable plastic or rubber gloves to protect hands.
 - c. Cloth gloves may be worn inside plastic or rubber gloves for comfort, but not be used alone.
 - d. Make sleeves secure at wrists, make foot coverings secure at ankles, and make clothing secure at neck by use of tape.
 - e. Dispose of asbestos contaminated work clothing as asbestos contaminated waste.
 - 2. Work Clothing:
 - a. Provide cloth work clothes for wear under outer protective clothing and foot coverings.
 - b. Either dispose of or properly decontaminate them as recommended by PQP after each use.
 - 3. Personal Decontamination Unit:
 - a. Physically attach decontamination units to asbestos control area.
 - b. Build both personnel decontamination unit and equipment. decontamination unit onto and integral with each asbestos control area.
 - c. Locate at each entrance to negative pressure enclosure.
 - d. Provide temporary negative pressure unit with separate decontamination locker room and clean locker room, with shower that complies with 29 CFR 1926.51(f)(4)(ii) through (v) between locker room and clean locker room, for personnel required to wear whole body protective clothing.
 - e. Locate showers between decontamination locker room and clean locker room.
 - f. Provide two separate lockers for each asbestos worker, one in each locker room.
 - g. Keep street clothing and street shoes in clean locker.
 - h. HEPA vacuum and remove asbestos contaminated disposable protective clothing while still wearing respirators at boundary of asbestos control area and seal in impermeable bags or containers for disposal.
 - i. Do not wear work clothing between home and work.
 - j. Require that employees shower before changing into street clothes.
 - 4. Waste and Equipment Decontamination / Pass-Out Unit:
 - a. Physically attach decontamination units to asbestos control area.
 - b. Build both personnel decontamination unit and equipment. decontamination unit onto and integral with each asbestos control area.
 - c. Locate at each entrance to negative pressure enclosure.
 - d. Construct at location away from personal decontamination units.
 - e. Locate where there is direct access from negative pressure enclosure to building exterior.
 - f. Construct same as personal decontamination units.
 - g. Do not use for personnel ingress or egress to negative pressure enclosure.

5. Shower Water Collection and Filtration:
 - a. Physically attach decontamination units to asbestos control area.
 - b. Build both personnel decontamination unit and equipment. decontamination unit onto and integral with each asbestos control area.
 - c. Collect used shower water and filter with water filtration equipment to remove asbestos contamination.
 - d. Dispose of filters and residue as asbestos waste.
 - e. Discharge clean water to sanitary system.
 6. Eye Protection: Provide goggles to personnel engaged in asbestos abatement operations when use of full face respirator is not required.
- E. Warning Signs and Labels:
1. Provide bilingual warning signs printed in English and Spanish at approaches to asbestos control areas.
 2. Locate signs at such distance that personnel may read sign and take necessary protective steps required before entering area.
 3. Provide labels and affix to asbestos materials, scrap, waste, debris, and other products contaminated with asbestos.
 4. Warning Sign:
 - a. Provide vertical format conforming to 29 CFR 1926.200, and 29 CFR 1926.1101.
 - b. Minimum Size: 20 by 14 inches.
 - c. Display Following Legend in Lower Panel:
 - 1) Legend Notation Danger: 1 inch Sans Serif Gothic or Block.
 - 2) Asbestos: 1 inch Sans Serif Gothic or Block.
 - 3) Cancer and Lung Disease Hazard: 1/4 inch Sans Serif Gothic or Block.
 - 4) Authorized Personnel Only: 1/4 inch Gothic.
 - 5) Respirators and Protective Clothing are Required in this Area: 1/4 inch Gothic.
 - 6) Spacing between lines to be at least equal to height of upper of two lines.
 - d. Warning Labels:
 - 1) Provide labels conforming to 29 CFR 1926.1101 of sufficient size to be clearly legible.
 - 2) Displaying following legend: "DANGER. CONTAINS ASBESTOS FIBERS. AVOID CREATING DUST. CANCER AND LUNG DISEASE HAZARD. BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM."
- F. Local Exhaust System:
1. Provide local exhaust system in asbestos control area in accordance with ANSI Z9.2 and 29 CFR 1926.1101 that will provide at least four air changes per hour inside of negative pressure enclosure.
 2. Operate local exhaust equipment 24 hours per day, until asbestos control area is removed.
 3. Make openings in negative enclosure system airtight with tape or sealants.
 4. If more than one local exhaust system is installed, turn them on individually, and check integrity of negative enclosure system for secure attachment and need for additional reinforcement.
 5. Be leakproof to filter.
 6. Equip with HEPA filters.
 7. Maintain minimum pressure differential in control area of minus 0.02 inch of water column relative to adjacent, unsealed areas.
 8. Provide continuous 24-hour per day monitoring of pressure differential with pressure differential automatic recording instrument
 9. Do not use building ventilation system as local exhaust system for asbestos control area.
 10. Filters on Exhaust Equipment: Comply with ANSI Z9.2 and UL 586.
 11. Terminate local exhaust system outdoors.
 12. Do not exhaust to occupied building interior.

13. Terminate local exhaust system remote from public access or ventilation system intakes.
14. Use 12 inch diameter flexible duct to reach from asbestos control area to building exterior.
- G. Tools and Vacuums:
 1. Leakproof to filter.
 2. Equip with HEPA filters.
 3. Filters on Vacuums: Comply with ANSI Z9.2 and UL 586.
 4. Do not use power tools to remove asbestos containing materials unless tool is equipped with effective, integral HEPA filtered exhaust ventilation systems.
 5. Remove residual asbestos from reusable tools prior to storage or reuse.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Electric Power Supply:
 1. Verify electric power supply is adequate to power negative enclosure system ventilation units and other electrically powered equipment.
 2. If power is inadequate, provide temporary power.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Protection of Existing Construction to Remain:
 1. Perform without damage or contamination of existing construction to remain.
 2. Where existing construction to remain is damaged or contaminated, as verified by Owner using visual inspection or sample analysis, restore existing adjacent construction to its original condition or decontaminated at no expense to Owner as deemed appropriate by Owner.
 3. Damage or contamination includes inadvertent spill of dirt, dust, or debris in which it is reasonable to conclude that asbestos may exist.
 4. When Spills Occur:
 - a. Stop work immediately.
 - b. Clean up spill.
 - c. When satisfactory visual inspection and air sampling results are obtained from PQP work may proceed at discretion of Owner
- C. Furnishings: Furniture, furnishings, and equipment will remain in building. Cover and seal furnishings with plastic sheet or remove from asbestos control area and store in location on site approved by Owner.
- D. Precleaning: Prior to establishment of enclosure:
 1. Wet wipe and HEPA vacuum surfaces potentially contaminated with asbestos.
 2. After pre-cleaning, remove movable objects from asbestos control area.
 3. After pre-cleaning, enclose fixed objects in 2 layers of plastic sheeting and seal securely in place.
- E. Asbestos Control Area Requirements:
 1. Utilities:
 - a. Shut down and lock out power to HVAC system components that are in, supply, or pass through asbestos control area.
 - b. Electric Power:
 - 1) Shut off unnecessary electric power in asbestos control area and lock out at circuit panel box.
 - 2) Provide temporary power sources and lighting to perform work.
 - 3) Install ground fault circuit interrupters with electrical equipment used in asbestos control area.

- 4) Use only grounded extension cords in single lengths or with water proof connectors to connect separate lengths if single lengths do not reach asbestos control area.
2. Asbestos Control Area Security:
 - a. Restrict access only to authorized, trained, and protected personnel.
 - b. Do not allow to be accessible to general public nor to building occupants, including maintenance and custodial personnel.
 - c. Restrict entry by physically isolating asbestos control area.
 - d. Lock means of access (doors, windows, hallways, and similar access points) to prevent entry to asbestos control area.
 - e. Do not lock emergency exits, but seal with plastic sheeting and tape airtight.
 - f. When required by Owner, maintain log book which records name, affiliation, time in, and time out for each entry by every person who enters asbestos control area.
 3. Negative Pressure Enclosure:
 - a. Completely separate asbestos control area from other portions of building and outside. Include airtight separations at:
 - 1) Ventilation openings (supply and exhaust).
 - 2) Doorways.
 - 3) Windows.
 - 4) Convectors.
 - 5) Drains.
 - 6) Light fixtures.
 - 7) Other openings into asbestos control area.
 - b. Seal seams in HVAC system components that pass through asbestos control area.
 - c. Seal edges of partitions at floor, ceiling, walls and fixtures to form air tight seals.
 - d. Block and seal openings and cracks in areas where release of airborne asbestos fibers can be expected.
 - e. Seal cracks leading out of asbestos control area with duct tape, caulk, or foam.
 - f. Establish negative pressure enclosure with use of curtains, portable partitions, or other enclosures to prevent escape of asbestos fibers from contaminated asbestos control area.
 - g. Negative pressure enclosure to include protective covering of uncontaminated walls and ceilings with continuous membrane of two layers of plastic sheet sealed with tape to prevent water or other damage.
 - h. Seal joints in plastic sheets with tape.
 - i. Floor Covering:
 - 1) Cover floors in asbestos control area with 2 layers of plastic sheeting.
 - 2) Ensure that holes in floor are solidly sealed before plastic sheeting is installed.
 - 3) Size plastic sheeting to minimize seams.
 - 4) Stagger seams and separate them by distance of at least 6 feet.
 - 5) Extend floor sheeting up wall by at least 12 inches beyond wall to floor junction to provide seal against water damage and for negative pressure containment.
 - 6) Do not cover locations where floor tile is to be removed.
 - j. Wall Covering:
 - 1) Cover walls in asbestos control area with 1 layer of plastic sheeting.
 - 2) Size wall sheeting to minimize seams.
 - 3) Stagger seams and separate them by distance of at least 6 feet.
 - k. Ceiling Covering:
 - 1) Protect ceilings, which are constructed of or covered with porous or non-cleanable material, by installing 1 layer of plastic sheeting.
 - 2) Mechanically support plastic sheeting independently of duct tape or adhesive seals so seals do not support plastic's weight.

- l. Local Exhaust System:
 - 1) Provide local exhaust system in asbestos control area.
 - 2) Openings will be allowed in enclosures of asbestos control areas for personnel and equipment entry and exit, supply and exhaust of air for local exhaust system, and removal of properly containerized asbestos containing materials.
 - 3) Replace local exhaust system filters to maintain system efficiency.
- m. Locations to Have Negative Pressure Enclosure:
 - 1) Areas of renovation work.
- 4. Do Not Commence Abatement Until:
 - a. Asbestos control area containment has been constructed and tested.
 - b. Pre-abatement submissions, notifications, postings, and permits have been provided and are satisfactory to Owner.
 - c. Negative pressure ventilation systems are functioning as specified.
 - d. Equipment for abatement, clean-up, and disposal are on site.
 - e. Worker training and certification is completed.
 - f. Contractor receives permission from PQP to commence abatement.

3.3 ABATEMENT PROCEDURE

- A. Perform asbestos related work in accordance with 29 CFR 1926.1101, 40 CFR 61-SUBPART M, and as specified herein.
- B. Use Following Techniques:
 - 1. Negative pressure enclosure.
 - 2. Wet removal procedures.
- C. Personnel to wear and utilize protective clothing and equipment.
- D. Do not permit eating, smoking, drinking, chewing gum, tobacco, or applying cosmetics in asbestos work or control areas.
- E. Do not permit personnel to be outside asbestos control areas wearing protective clothing or respirators, except as part of disposal activities.
- F. Do not use Owner's equipment, supplies, or telephones.
- G. Do not expose personnel of trades not engaged in removal and demolition of asbestos containing material at time to airborne concentrations of asbestos unless personnel protection and training provisions of this specification are complied with by trade personnel.
- H. If asbestos fiber release or spill occurs outside of asbestos control area, stop work immediately, correct condition to satisfaction of Owner including clearance sampling, prior to resumption of work.
- I. Removal Procedures:
 - 1. Wet Removal:
 - a. Wet asbestos material with fine spray of amended water using equipment capable of providing fine spray mist in order to reduce airborne fiber levels when material is disturbed
 - b. Apply amended water during removal, cutting, or other handling to reduce emission of airborne fibers.
 - c. Perforate outer covering of insulation which has been painted or jacketed to allow penetration of amended water.
 - d. Saturate material to substrate, however, do not allow excessive water to accumulate in asbestos control area.
 - e. Spray material repeatedly to maintain continuously wet condition.
 - f. Keep removed material wet enough to prevent fiber release until it can be containerized for disposal.
 - g. Wetting procedures are not equally effective on different types of asbestos containing materials, however use procedures in each case.
 - h. Remove saturated asbestos containing material in manageable sections.
 - i. Containerize removed material before moving to new location for continuance of work.

- j. Periodically spray surrounding areas and maintained in wet condition until visible material is cleaned up.
- 2. Remove ACM and immediately place in 6 mil plastic disposal bags.
- 3. Remove asbestos containing material in gradual manner, with continuous application of amended water or wetting agent in such manner that no asbestos material is disturbed prior to being adequately wetted.
- 4. Where unusual circumstances prohibit use of 6 mil plastic bags, submit alternate proposal for containment of asbestos fibers to Owner for approval. For example, in case where both piping and insulation are to be removed, Contractor may elect to wet insulation, wrap pipes and insulation in plastic and remove pipe by sections.
- 5. Containerize asbestos containing material while wet.
- 6. Do not allow asbestos material to accumulate or become dry.
- 7. When possible, begin removal at point farthest from negative air ventilation units and proceed toward units.
- 8. Lower and handle asbestos containing material as indicated in 40 CFR 61-SUBPART M.
- 9. Do not drop removed material.
- 10. Do not throw removed material to floor.
- 11. Remove material as intact sections or components whenever possible.
- 12. After completion of stripping, wet, brush, and sponge, or clean by some equivalent method, to remove visible residue from surfaces which asbestos containing materials have been removed.
- 13. If electric power failure occurs, immediately stop abatement work and do not resume until power is restored and negative ventilation units are in operation again.
- 14. Sealing Contaminated Items Designated for Disposal:
 - a. Remove contaminated architectural, mechanical, and electrical appurtenances such as Venetian blinds, full-height partitions, carpeting, ducts and fittings, pipes and fittings, radiators, light fixtures, conduit, panels, and other contaminated items designated for removal by completely coating items with lock-down encapsulant at demolition site before removing items from asbestos control area.
 - b. These items need not be vacuumed.
 - c. Spray-apply by airless method.
 - d. Visually gauge thoroughness of sealing operation extent of colored coating on exposed surfaces.
- 15. Exposed Pipe Insulation:
 - a. Edges:
 - 1) Contain edges of asbestos insulation to remain that are exposed by removal operation.
 - 2) Wet and cut rough ends true and square with sharp tools and then encapsulate edges with 1/4 inch thick layer of non-asbestos containing insulating cement troweled to smooth hard finish.
 - b. When cement is dry, lag end with layer of non-asbestos lagging cloth, overlapping existing ends by at least 4 inches.
 - c. When insulating cement and cloth is impractical method of sealing raw edge of asbestos, take appropriate steps to seal raw edges as approved by Owner.
- 16. Mini-Enclosure for Small Scale Activities:
 - a. Obtain variances necessary to utilize mini-enclosure procedure.
 - b. Structure to consist of plastic sheeting supported by preconstructed framework formed around asbestos control area.
 - c. Use 2 layers of plastic sheeting for floors, walls and ceilings of mini-enclosure.
 - d. Extend plastic sheet floor inside mini-enclosure no less than 1 foot up each wall.
 - e. Minimize structure in size to allow entry to only quantity of workers necessary to perform activity.
 - f. Changing Room:

- 1) Construct small changing room (approximately 3 feet by 7 feet) contiguous to mini-enclosure.
- 2) Enter changing room from exterior and from changing room to mini-enclosure through double sheeted entry ways.
- 3) Seal first layer of sheeting in entry way to doorway at top and on right side.
- 4) Seal second sheet at top and on left side.
- g. Workers to use double set of protective coveralls.
- h. After completing activity, workers to:
 - 1) HEPA vacuum outer layer of disposable coveralls.
 - 2) Remove disposable coveralls.
 - 3) Leave disposable coveralls in mini-enclosure as asbestos contaminated waste.
 - 4) Enter Changing Room:
 - a) Remove inner layer of disposable coveralls.
 - b) Wet wipe.
 - c) Leave respirator on until exiting changing room.
17. Asbestos Containing Plaster:
 - a. Per Maryland Department of Environment, Air, and Radiation, glovebag use is not permitted; use Mini-Containments.
 - b. Minimum opening size in plaster for penetrations of pipe or conduit is 4 inches, regardless pipe or conduit size.
- J. Maintenance of Asbestos Control Area:
 1. Inspect plastic sheet barriers inside workplace, in worker decontamination facility, and at partitions constructed to isolate asbestos control area from occupied areas:
 - a. Prior to start of each day's activities.
 - b. Minimum twice daily after start and prior to completion of each day's activities.
 - c. Following completion of each day's activities.
 2. Immediately upon Discovery of Breaches of Enclosure System:
 - a. Repair damage to enclosure system.
 - b. Repair defects in enclosure system.
 3. Regardless of time during activities after barriers have been erected, if visible material is observed outside of asbestos control area or if damage occurs to barriers, clean up debris or residue by using appropriate HEPA vacuuming and wet mopping procedures.
 4. If air samples collected outside of asbestos control area during abatement activities indicate airborne fiber concentrations greater than 0.005 fibers per cm² or pre-measured background level (whichever is lower):
 - a. Immediately cease for inspection of enclosure.
 - b. Clean-up of surfaces outside of asbestos control area using HEPA vacuums and wet cleaning techniques.
- K. Housekeeping:
 1. Maintain surfaces of asbestos control area free of accumulations of asbestos fibers.
 2. Give meticulous attention to restricting spread of dust and debris.
 3. Keep waste from being distributed over general area.
 4. Use HEPA filtered vacuum cleaners.
 5. Do not blow down space with compressed air.
 6. When asbestos removal is complete, asbestos waste is removed from asbestos control area, and final clean-up is completed, Owner will attest that area is safe before signs can be removed.
 7. After final clean-up and acceptable airborne concentrations are attained but before HEPA unit is turned off and enclosure removed, remove pre-filters on building HVAC system and provide new pre-filters.
 8. Dispose of HVAC pre-filters as asbestos contaminated materials.
 9. Remove and containerize visible accumulation of asbestos containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to

move material around. Do not use metal shovels to pick up or move accumulated waste. Take care to prevent damage to plastic floor sheeting.

- L. Clean-Up:
 - 1. Remove containerized waste from asbestos control area and transport from asbestos control area to disposal site or temporary storage facility.
 - 2. Wet clean surfaces in asbestos control area using rags, mops, sponges and HEPA vacuum systems as appropriate.
 - 3. Decontaminate tools and equipment and remove at appropriate time in cleaning sequence.
 - 4. Clean asbestos control area until it is in compliance with Federal, State and Local requirements or more stringent criteria specified herein.
 - 5. Provide additional cleaning cycles, at no cost to Owner until compliance with Federal, State, Local, and specified requirements have been met.
 - 6. Keep negative air filtration devices operational during clean-up and decontamination procedure.
 - 7. When clean-up is completed, allow asbestos control area to dry.
- M. Final Clearance of Asbestos Control Area:
 - 1. Continue to operate negative air filtration system.
 - 2. Carefully roll up plastic sheeting used to protect floors, walls, ceilings and non-removable fixtures with contaminated portion on inside and package for disposal as asbestos contaminated waste.
 - 3. Dispose of other debris as asbestos contaminated waste.
 - 4. After air monitoring is successfully completed, spray plastic used to maintain critical barriers at doors windows, vents, and other penetrations in negative pressure enclosure with encapsulant.
 - 5. Using amended water, wet clean with walls, floors, woodwork, ceilings, fixtures, and other surfaces.
 - 6. Allow surfaces to dry.
 - 7. Dispose of cloths and sponges used in cleaning operation as contaminated waste.
 - 8. Reclean areas failing final inspection.
 - 9. Provide additional cleaning cycles required to pass final inspection at no cost to Owner.
 - 10. Except as noted below, clearance criteria for release of asbestos control area will be as stated in 40 CFR 763.90 (1) of Subpart E.
 - 11. Retest until satisfactory results are obtained.
 - 12. If final clearance samples exceed acceptable limits, additional testing that is necessary are at Contractor's cost.
 - 13. For abatement projects requiring TEM clearance, if air monitoring fails to meet acceptable clearance criteria, pay for subsequent testing. Additional testing to have 6 hour turnaround time for results.
 - 14. TEM clearance samples to be below 70 s/mm² and PCM clearance samples to be less than 0.01 fibers/cm². Averaging of samples is not permitted for demonstrating final clearance.
- N. Re-Establishment of Asbestos Control Area and Systems
 - 1. Re-establish asbestos control area after successful completion of clearance air monitoring.
 - 2. Remove remaining critical plastic barriers and dispose as contaminated waste.
 - 3. Re-secure mounted objects removed during preparation stage.
 - 4. Replace objects that were removed to temporary locations.
 - 5. Restore area to its original or better condition.
 - 6. Repair areas damaged as result of abatement activities at no cost to Owner.
 - 7. Mechanical and Electrical Systems: Re-establish in original or better working condition.
 - 8. Owner will visually inspect surfaces within enclosure for residual material or accumulated dust or debris.
 - 9. Re-clean areas showing dust or residual materials.
 - 10. If re-cleaning is required, air sample and establish acceptable asbestos airborne concentration after re-cleaning.

11. Owner must agree that area is safe in writing before unrestricted entry will be permitted.
 12. Owner has option to perform monitoring to determine if areas are safe before entry is permitted.
- O. Waste materials, except as specified otherwise, are Contractor's property.
- P. Disposal of Asbestos
1. Dispose of waste materials as specified in applicable local, State, and Federal regulations and herein.
 2. Disposal Procedure:
 - a. Collect asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place in sealed fiber-proof, waterproof, non-returnable containers (e.g. double plastic bags 6 mils thick, cartons, drums, or cans).
 - b. Wastes within containers are to be adequately wet in accordance with 40 CFR 61-SUBPART M.
 - c. Affix warning and Department of Transportation (DOT) label to each container including bags or use at least 6 mils thick bags with approved warnings and DOT labeling preprinted on bag.
 - d. On outside of each container, clearly indicate name of waste generator and location at which waste was generated.
 - e. Prevent contamination of transport vehicle (especially if transport vehicle is rented truck likely to be used in future for non-asbestos purposes).
 - 1) Line vehicle cargo area with plastic sheeting (similar to asbestos control area enclosure).
 - 2) Thoroughly clean cargo area after transport and unloading of asbestos debris is complete.
 - f. Dispose of waste asbestos material at Environmental Protection Agency (EPA) or State-approved asbestos landfill off Owner property.
 - g. For temporary storage, store sealed impermeable bags in asbestos waste drums or skids
 3. Area for interim storage of asbestos waste-containing drums or skids will be assigned by Owner.
 4. Comply with 40 CFR 61-SUBPART M, State, regional, and local standards for hauling and disposal.
 5. Sealed plastic bags may be dumped from drums into burial site unless bags have been broken or damaged.
 6. Retain damaged bags in drum and bury entire contaminated drum.
 7. Uncontaminated drums may be recycled.
 8. Workers unloading sealed drums to wear appropriate respirators and personal protective equipment when handling asbestos materials at disposal site.

3.4 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
1. Comply with Section 01•45•00.
 2. Owner provided.
- B. Complete Fiber Counting:
1. Provide results to PQP for review within 16 hours of "time off" of sample pump.
 2. Notify Owner immediately of airborne levels of asbestos fibers in excess of acceptable limits.
 3. Submit sampling results to Owner and affected Contractor employees where required by law within 3 working days, signed by testing laboratory employee performing air sampling, employee that analyzed sample, and PQP.
 4. Notify Contractor and Owner immediately of variances in pressure differential which could cause adjacent unsealed areas to have asbestos fiber concentrations in excess of 0.01 fibers per cubic centimeter or background whichever is higher.
 5. Levels to not exceed 0.1 fibers per cubic centimeter

- C. Pressure Differential Recordings for Local Exhaust System:
1. Provide local exhaust system that creates negative pressure of at least 0.02 inches of water relative to pressure external to enclosure.
 2. Operate it continuously, 24 hours day, until temporary enclosure of asbestos control area is removed.
 3. Submit pressure differential recordings for each work day to PQP for review and to Owner within 24 hours from end of each work day.
- D. Air Sampling:
1. Perform in accordance with 29 CFR 1926.1101 and as specified herein.
 2. Perform sampling for environmental and quality control reasons by PQP.
 3. Unless otherwise specified, use NIOSH Method 7400 for sampling and analysis.
 4. Monitoring may be duplicated by Owner at discretion of Owner.
 5. If air sampling results obtained by Owner differ from those results obtained by Contractor, Owner will determine which results predominate
 6. Sampling Prior to Asbestos Work:
 - a. Provide area air sampling and establish baseline one day prior to masking and sealing operations for each removal site.
 - b. Establish background by performing area sampling in similar but uncontaminated sites in building.
 7. Personal and Area Sampling During Asbestos Work:
 - a. PQP to provide as indicated in 29 CFR 1926.1101 and governing environmental regulations.
 - b. In addition, provided same type of work is being performed, provide area sampling at least once every work shift close to work inside enclosure, outside clean room entrance to enclosure, and at exhaust opening of local exhaust system.
 - c. If sampling outside enclosure shows airborne levels have exceeded background or 0.01 fibers per cubic centimeter, whichever is greater, stop work, correct condition(s) causing increase, and notify Owner immediately.
 - d. Where alternate methods are used, perform personal and area air sampling at locations and frequencies that will accurately characterize evolving airborne asbestos levels.
 8. Visual Inspection After Final Clean-Up:
 - a. If residue is observed, residue will be assumed to be asbestos and cleaning cycle is to be repeated.
 - b. Surfaces, including plastic sheeting, is to successfully pass visual inspection.
 - c. Asbestos control area to be entirely dry with no visible wetness.
 9. Sampling After Final Clean-Up (Clearance Sampling):
 - a. Provide area sampling of asbestos fibers and establish airborne asbestos concentration of less than 0.01 fibers per cubic centimeter after final clean-up but before removal of enclosure or asbestos work control area.
 - b. After final cleanup and asbestos control area is dry but prior to clearance sampling, PQP to perform visual inspection in accordance with ASTM E1368 to ensure that asbestos control and asbestos control area is free of accumulations of dirt, dust, or debris.
 - c. Obtain samples using aggressive procedures described in USEPA 1985 "Measuring Airborne Asbestos following Abatement Acton", and 40 CFR 763 Appendix A to Subpart E.
 - d. Prepare written report signed and dated by PQP documenting that asbestos control area is free of dust, dirt, debris, and waste has been removed.
 - e. Asbestos fiber counts from these samples to be less than 0.01 fibers per cm² or be not greater than background, whichever is greater.
 - f. Analyze samples by phase contrast microscopy (PCM) using NIOSH 7400 method or transmission electron microscopy (TEM) in accordance with 40 CFR 763, Appendix A to Subpart E.
 - g. Analyze PCM samples on site.

- h. TEM results to be available within 12 hours of sample collection. Quicker TEM turnaround may be available depending on Project.
 - i. Should final samples indicate higher value, take appropriate actions at Contractor's expense to:
 - 1) Re-clean area.
 - 2) Repeat sampling.
 - 3) Repeat TEM analysis.
- E. Field Inspection:
- 1. While performing asbestos abatement, Project is subject to on-site inspection by Owner who may be assisted by or represented by safety or industrial hygiene personnel.
 - 2. If work is found to be in violation of this specification, Owner will issue stop work order to be in effect immediately and until violation is resolved.
 - 3. Related costs including standby time required to resolve violation are Contractor's expense.
- F. Asbestos Disposal Quantity Report:
- 1. Direct PQP to record and report to Owner, amount of asbestos containing material removed and released for disposal. Deliver report for previous day at beginning of each day shift with amounts of material removed during previous day reported in linear feet or square feet as described initially in this specification and in cubic feet for amount of asbestos containing material released for disposal.

3.5 SCHEDULE

- A. Asbestos abatement includes demolition and removal of following approximate quantities and general locations:
- 1. 1500 square feet of asbestos-containing wall surface located in renovation areas and its associated work areas.
 - 2. 1500 square feet of asbestos-containing plaster located in renovation areas and its associated work areas.
 - 3. 1500 square feet of asbestos-containing ceiling panels/tile located in renovation areas and its associated work areas.
 - 4. 1500 square feet of asbestos-containing mastic located in ceiling.
 - 5. 100 feet of 1 inch diameter asbestos insulation on domestic water pipe located in renovation areas and its associated work areas.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\028200.wpd

ASBESTOS ABATEMENT INFORMATION SHEET

Asbestos Removal Contractor Name and Address	School Site Name and Address

Asbestos Removal Contractor License Number: _____

Work Order Number (Owner Will Supply): _____

School Site Number(Owner Will Supply): _____

Owner's Person Ordering Work:

Office: _____

Field: _____

Start Date: _____

Completion Date: _____

Total Quantity of Hours: _____

Location and Description of Abatement Site

Square Footage:	Linear Footage:

Reason for Choosing Response Action:

Description and explanation of entire abatement activity and engineering controls utilized. Include exact locations, amounts and types of asbestos removed, encapsulated or enclosed, attach additional sheets if necessary.

On attach paper, list personnel assigned to project. Include:

Name.

Classification (Worker, Supervisor, Designer, etc.).

Accreditation Number.

State of Accreditation.

Date of Accreditation.

Expiration of Current Accreditation.

Signature Verifying Having Worked on Project.

List of Equipment:

Name of Project Monitoring Firm: _____

END OF FORM

PROJECT DESIGNER (PQP) INFORMATION SHEET

Project Designer (PQP) Name: _____

Project Designer Accreditation Number: _____

States Where Accredited: _____

Company Affiliation: _____

Company Address: _____

Attach Following Information:

State/ EPA Notification of Asbestos Project Sheet

County Waste Disposal Approval.

Landfill Receipt.

Project Design Paperwork.

Other Correspondence or Information Pertaining to Abatement.

Reminder: AHERA, Federal, State, and Local requirements are effective for this Project.

Signature of Chief Officer or Designee: _____

Printed Name and Title: _____

Date: _____

END OF FORM

SECTION 02•83•00
LEAD REMEDIATION

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 09•91•00 - Painting

1.2 PRICE AND PAYMENT PROCEDURES

- A. Payment for disposal of hazardous waste will not be made until signed copy of manifest from treatment or disposal facility certifying amount of lead-containing materials delivered is returned and copy is furnished to Owner.

1.3 REFERENCES

- A. Reference Standards:
 - 1. American National Standards Institute (ANSI):
 - a. ANSI Z9.2, Design and Operation of Local Exhaust Systems.
 - 2. ASTM International (ASTM):
 - a. ASTM E1553, Collection of Airborne Particulate Lead During Abatement and Construction Activities.
 - b. ASTM E1613, Digested Samples of Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption Spectrometry (FAAS), or Graphite Furnace Atomic Absorption Spectrometry (GFAAS) Techniques.
 - c. ASTM E1645, Preparation of Dried Paint Samples for Subsequent Lead Analysis by Atomic Spectrometry.
 - d. ASTM E1728, Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination.
 - e. ASTM E1729, Field Collection of Dried Paint Samples for Subsequent Lead Determination.
 - f. ASTM E1741, Preparation of Airborne Particulate Lead Samples Collected during Abatement and Construction Activities for Subsequent Analysis by Atomic Spectrometry.
 - g. ASTM E1792, Wipe Sampling Materials for Lead in Surface Dust.
 - h. ASTM E1795, Non-Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings.
 - i. ASTM E1797, Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings.
 - j. ASTM E1973, Collection of Surface Dust by Air Sampling Pump Vacuum Technique for Subsequent Lead Determination.
 - k. ASTM E2051, Determination of Lead in Paint, Settled Dust, Soil and Air Particulate by Field-Portable Electroanalysis.
 - l. ASTM E2119, Practice for Quality Systems for Conducting In Situ Measurements of Lead Content in Paint or Other Coatings Using Field-Portable X-Ray Fluorescence (XRF) Devices.
 - m. ASTM E3074, Clearance Examinations Following Lead Hazard Reduction Activities in Single Family Dwellings, in Individual Units of Multifamily Dwellings, and in Other Child-Occupied Facilities.
 - n. ASTM E3193, Measurement of Lead (Pb) in Dust by Wipe, Paint, and Soil by Flame Atomic Absorption Spectrophotometry (FAAS).

3. Code of Maryland (COMAR):
 - a. COMAR 26.02.07, Procedures for Abating Lead Containing Substances from Buildings.
 2. Environmental Protection Agency (EPA):
 - a. EPA 747-K-99-001, Protect Your Family from Lead in Your Home.
 3. Department of Housing and Urban Development (HUD):
 - a. HUD 01, Evaluation and Control of Lead-Based Paint Hazards in Housing.
 4. National Institute for Occupational Safety and Health (NIOSH):
 - a. NIOSH 84-100, Manual of Analytical Methods.
 5. UL Solutions (UL):
 - a. UL 586, High-Efficiency, Particulate, Air Filter Units.
- B. Definitions:
1. Lead Hazard Control Activity: Construction activity where worker may be occupationally exposed to lead and procedures have to be followed to assure that: 1). Lead inside lead hazard control area is cleaned up to appropriate levels and 2). Lead dust does not disperse outside lead hazard control area at unacceptable levels.
 2. Public/Commercial Building: Buildings on real property, including residential real property, generally accessible to public except housing, child occupied facilities, and industrial buildings. Examples include but are not limited to offices, stores/shopping centers, churches, schools, hospitals, museums, airports, hotels, and convention centers.

2.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
1. Regulatory Requirements:
 - a. Ensure flammable components comply with applicable portions of local, state, and federal codes, laws, and ordinances for flame spread and smoke developed indices.
 - b. Perform work in accordance with requirements of and applicable regulations including, but not limited to 29 CFR 1910, 29 CFR 1926, and Accident Prevention Plan. Resolve matters of interpretation of standards to Owner's satisfaction before starting work. Where these requirements vary, most stringent shall apply. Following State and local statutes, regulations, and requirements apply to lead hazard control activities to be performed:
 - 1) State, COMAR 26.02.07.
 - c. Certify in writing to Regional Office of EPA, state's environmental protection agency responsible for lead hazard activities, and Owner at least 10 days prior to commencement of work that licenses, permits and notifications have been obtained.
 - d. Be responsible for associated fees or costs incurred in obtaining licenses, permits and notifications.
 - e. Regulations:
 - 1) Make at least 2 copies of 29 CFR 1926.62 available for use by either Owner or affected workers; and for purpose of providing required information and training to workers involved in project.
 - 2) Maintain 1 copy project site file.
 - 3) Post second copy where it will be accessible to workers on site.
 - f. Worker Information: Place right-to-know notices in clearly visible areas accessible to personnel on site, to comply with Federal, state, and local regulations.
 - g. Air Monitoring Results:
 - 1) Prepare to be easily understood by workers.
 - 2) Maintain 1 copy project site file.
 - 3) Post second copy where it will be accessible to workers on site as specified in 29 CFR 1926.62.

2. Emergency Telephone Numbers:
 - a. Post list of emergency telephone numbers at site.
 - b. Include Telephone Numbers of:
 - 1) 911 center.
 - 2) Nearest hospital.
 - 3) Owner and Contractor representatives who can be reached 24 hours each day.
 - 4) Professional consultants directly involved in project.
3. Lead Hazard Information Pamphlet Distribution:
 - a. Prior to commencing lead hazard control activities, provide pamphlet to owners/occupants who are affected by project as defined in 40 CFR 745.Subpart E, EPA 747-K-99-001.
 - b. Provide pamphlet in compliance with 40 CFR 745.80 through 40 CFR 745.88.
 - c. Collect signatures from affected residents acknowledging they have been informed of planned lead hazard control activities.
 - d. Medical Surveillance Requirements: Make every attempt to keep occupational exposure to lead on this project below action level of 30 mg/m³ defined in 29 CFR 1926.62. If it is not possible to stay below action level, and if occupational exposures could possibly exceed action level for 30 or more days per year, institute medical surveillance program. Medical Surveillance Program: Meet examination frequency and content requirements specified in paragraphs j1, j2, and j3 of 29 CFR 1926.62. Medical removal as specified in 29 CFR 1926.62.k, if necessary, is at Contractor's expense. Perform medical surveillance and biological monitoring accordance with 29 CFR 1926.62 (g) and (j). Perform initial biological monitoring on lead hazard control workers prior to assignment to Project. Do not assign workers to Project if results indicate need for restricted activities.
 - e. Medical Exam: Lead hazard control workers to pass medical examinations necessary to be approved by occupational physician to wear respiratory protection on this project. Occupational physician's approval to be given prior to assignment to project.
 - f. Respiratory Protection Program: Have written respiratory protection program implemented on this Project. Respiratory protection program to meet requirements of 29 CFR 1926.62 and 29 CFR 1910.134. Include project-specific respiratory protection requirements in accident prevention plan.
- B. Pre-Abatement Meeting:
 1. Conduct in accordance with Section 01•31•00.
 2. Attendees:
 - a. Contractor.
 - b. QSHP.
 - c. OSHS.
 - d. Contractor's independent risk assessor.
 3. Agenda:
 - a. Review submittal items for completeness, and where specified, for acceptance.
 - b. Revise details of APP to correct deficiencies, and resubmit for acceptance.
 - c. Do not begin until APP has been accepted, unless otherwise authorized by Owner.
 4. Perform immediately prior to beginning each phase of work.
- C. Sequencing:
 1. Sequence work under provisions of Section 01•10•00.
 2. Coordinate lead hazard control activities with work being performed in adjacent areas.
 3. Explain coordination procedures Accident Prevention Plan and describe how Contractor will prevent lead exposure to other contractors or other personnel performing work unrelated to lead hazard control activities.

2.3 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submit following Submittals for Architect's Information:
 - 1. Accident Prevention Plan (APP):
 - a. Elements:
 - 1) Signature sheet.
 - 2) Background Information.
 - 3) Statement of safety and health policy.
 - 4) Responsibilities and lines of authorities.
 - 5) Subcontractors and suppliers.
 - 6) Training.
 - 7) Safety and health inspections.
 - 8) Safety and health expectations, incentive programs, and compliance.
 - 9) Accident reporting.
 - 10) Medical support.
 - 11) Corporate plans and programs required by this contract, (HAZCOM, Respiratory Protection).
 - b. Lead Hazard Control:
 - 1) Address occupational exposure issues and describe procedures to be followed to protect people on Project site from lead hazards while lead hazard control activities are being performed.
 - 2) Address Each of Following Elements:
 - a) Location and brief description of each work activity that will emit lead into workplace atmosphere. Include description of components containing lead with cross reference to project drawings.
 - b) Describe equipment, materials, controls, crew size, worker responsibilities, and operating and maintenance procedures.
 - c) Drawing of lead hazard control areas, including decontamination areas.
 - d) Describe specific lead control methods and procedures to protect people on project site from lead exposure.
 - e) Technologic equipment used to keep occupational exposure below Permissible Exposure Limit (PEL) and minimize worker exposure to lead (includes but is not limited to HEPA-filtered vacuum equipment/cleaners, special negative air enclosure equipment and supplies, and similar devices and materials).
 - f) Worker Exposure Assessment:
 - 1] Include methods and procedures to monitor and document worker exposure to lead.
 - 2] Initial Determination Methods and Procedures:
 - a] Describe worker monitoring (if performed for "initial determination" described in 29 CFR 1926).
 - b] Monitoring for initial determination may be omitted from plan if Contractor has sufficient proof from previous operations as specified in 29 CFR 1926 that workers will not be exposed over action level.
 - c] Substitute objective proof of action level compliance in Part A if "initial determination" monitoring is omitted.
 - 3] Continued Exposure Monitoring Methods and Procedures: Worker exposure monitoring after initial lead exposure determination has been made.

- g) Work Practices Program Describing:
 - 1] Protective clothing to be used to protect workers from lead exposure.
 - 2] Housekeeping procedures employed to minimize spread on lead contamination in lead hazard control area.
 - 3] Hygiene facilities and practices used to prevent workers from inadvertent ingestion of lead.
- h) Administrative Control Procedures, to be used as last resort, to limit worker exposure to lead.
 - 1] Include and describe worker rotation schedule to be employed, should engineering or personal protective equipment precautions fail to be effective.
 - 2] Omit this element of plan if administrative controls will not be used.
- i) Medical Surveillance practices and procedures used to monitor worker exposure to lead and to assure fitness for wearing respiratory protection devices.
- j) Worker training meeting requirements of 29 CFR 1926 to assure workers understand hazard associated with working with lead and how to protect themselves.
- k) Security:
 - 1] Method: Fenced and locked security area for each lead hazard control area.
 - 2] Keep log book documenting entry into and out of lead hazard control area.
 - 3] Restrict entry into lead hazard control areas to personnel authorized by Contractor.
 - 4] Train, medically evaluate, and equip persons entering control areas with personal protective equipment required for specific control area to be entered.
- c. Activity Hazard Analyses:
 - 1) Prepare for each work task data element specified on individual work tasks scheduled at end of this section.
 - 2) Submit to Owner prior to beginning specified work.
 - 3) Continuously review and modify, when appropriate, to address changing conditions or operations.
- d. Occupant/Building Protection Plan: Describe measures and management procedures to be taken during lead hazard control activities to protect building occupants/building facilities (and future building occupants/facilities) from exposure to lead contamination while lead hazard control activities are performed.
- e. Clearance Plan: Develop Clearance Plan: Describe practices and procedures used to assure that lead hazard control activities are complete and that lead contamination within lead hazard control area comply with final clearance levels or visual clearance criteria. Explain sampling and analysis procedures used to document project completion and clearance goals.
- f. Maintain 1 copy of APP Contractor's project site file.
- g. Post second copy of APP where it will be accessible to personnel on site.
- h. As work proceeds, adapt APP to new situations and conditions.
- i. Changes to APP can be made by QSHP with Owner's acceptance.
- j. Should unforeseen hazard become evident during performance of work:
 - 1) QSHP is to inform Owner, both verbally and in writing, for immediate resolution. In interim, QSHP is to take necessary action to re-establish and maintain safe working conditions; and to safeguard onsite personnel, visitors, public, and environment.

- k. Disregard for provisions of this specification, or accepted APP, is cause for stopping of work until matter is rectified.
 - 2. Clearance Report: Report prepared by QSHP.
 - 3. Qualifications and Organization Report:
 - a. Describe Qualifications Of:
 - 1) Qualified safety and health professional (QSHP).
 - 2) Onsite safety and health supervisor (OSHS).
 - 3) Labor staff.
 - 4) Independent risk assessor.
 - b. Include organization chart showing personnel by name and title and project specific responsibilities and authorities.
 - c. Describe qualifications of laboratories selected for this project.
 - d. Sign by Contractor and QSHP to indicate that personnel and laboratories comply with certification and experience requirements of this section and that project personnel have been given authority to complete tasks assigned to them.
 - 4. Test and Evaluation Reports:
 - a. Sampling and Analysis Log:
 - 1) Log of analytical results required for sampling.
 - 2) Maintain copy on Project site.
 - 3) Keep current.
 - b. Submit written results of testing specified as part of Field Quality Control articles.
 - 5. Certifications specified in Quality Assurance article.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
 - 2. Record Documentation: Record actual locations of lead contaminated surface where lead has not been removed, but has been encapsulated or otherwise enclosed.

2.4 QUALITY ASSURANCE

- A. Qualified Safety and Health Professional (QSHP):
 - 1. Have demonstrable experience with implementation of occupational safety and health regulations.
 - 2. Be trained to same requirements as workers.
 - 3. Meet training, experience and authority requirements in 29 CFR 1926.62 to be competent person and be trained and have experience and education to meet 40 CFR 745 Subpart L requirements to carry following certifications:
 - a. Certified Risk Assessor.
 - b. Certified Project Designer.
 - c. Certified Supervisor.
 - 4. Person responsible for development of project specific requirements in Accident Prevention Plan (APP).
 - 5. Supervise implementation of APP requirements.
 - 6. Visit site to verify effectiveness of APP and to coordinate resolution of unknown situations that may develop as work progresses.
 - 7. Provide consultation to Onsite Safety and Health Supervisor (OSHS).
 - 8. Review sampling and analytical results to evaluate occupational exposure levels.
 - 9. Verify effectiveness of controls and determine if clearance requirements have been met.
- B. Lead Hazard Control Workers:
 - 1. Certified and trained in lead hazard control activities required in this contract.
 - 2. Meet training requirements in 40 CFR 745 Subpart L to carry certification as Certified Worker.
- C. Independent Certified Risk Assessor:
 - 1. Independent subcontractor to prime Contractor on project.
 - 2. Be trained to same requirements as workers.

3. Meet training and experience requirements in 40 CFR 745 to carry certification as certified risk assessor.
 4. Perform sampling and evaluating analytical data to verify clearance levels have been achieved.
 5. Sign clearance report indicating clearance requirements for contract have been met.
- D. Testing Laboratories:
1. Laboratory Performing Analysis on Paint Chip, Soil or Dust Wipe Samples: Accredited by EPA's National Lead Laboratory Accreditation Program (NLLAP).
 2. Laboratory Performing Analysis on Worker Exposure (Industrial Hygiene) Samples:
 - a. Participant in American Industrial Hygiene Association's Industrial Hygiene Laboratory Accreditation Program (IHLAP).
 - b. Successfully participating in Proficiency Analytical Testing (PAT) program for lead.
 3. Blood Lead Testing laboratory performing analysis on worker blood samples:
 - a. Approved by OSHA.
 - b. Meet requirements contained in http://www.osha-slc.gov/OCIS/toc_bloodlead.html.
- E. Disposal Facility and Transporter:
1. Submit written evidence that hazardous waste treatment, storage, or disposal facility is approved for lead disposal by EPA and State or local regulatory agencies.
 2. Provide copies of required signed agreements between Contractor (including subcontractors and transporters) and lead disposal facility.
- F. Worker Training Program:
1. Meet 40 CFR 745 Subpart L requirements.
 2. Provide by EPA accredited training provider.
 3. Submit proof in Qualifications and Organization Report showing that personnel have passed certification examinations for their respective disciplines, that fees for certification have been paid to EPA (or to state for state-run programs) and that EPA has certified QSHP, independent risk assessor, and workers to perform their duties.
- G. Worker Training Requirements for Personnel Performing or Responsible for Onsite Oversight of Lead Hazard Control Activities to Include Understanding Of:
1. Content of 29 CFR 1926.62 and its appendices.
 2. How operations could result in exposure over action level.
 3. Purpose, selection, fitting, use and limitations of respirators.
 4. Purpose and description of medical surveillance program.
 5. Use of engineering controls and good work practices to limit occupational exposure to lead.
 6. Implementation of lead hazard control plan appendix of accident prevention plan.
 7. Medical supervision for use of chelating agents.
 8. Worker right of access to medical surveillance records as specified in 29 CFR 1910.20.
- H. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum 5 years documented experience.
- I. Certifications:
1. Certification of Visual Inspection:
 - a. Certify that lead hazard control areas for each individual work task data elements have passed visual clearance criteria and are ready for clearance sampling.
 - b. To pass visual clearance, lead hazards have to be removed; control technology appropriately applied/installed; lead hazard control area to be free from visible dust debris, paint chips or other residue that may have been generated by lead hazard control activities.

2.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Protect materials from damage and contamination.
- C. During periods of cold weather, protect plastic materials from cold.

- D. Do not store flammable or hazardous materials inside building.
- E. Regularly inspect materials to identify damaged or deteriorating items.
- F. Damaged or Deteriorated Items:
 - 1. Do not use.
 - 2. Remove from site as soon as they are discovered.
- G. Stored materials to not present hazard or inconvenience to workers, visitors, or other occupants and workers of facility in which they are located.

2.6 FIELD CONDITIONS

- A. Ambient Conditions: Comply with manufacturer's written requirements under which products can be applied.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Lead Clearance Requirements:
 - 1. Public and Commercial Buildings Clearance Levels Inside Lead Hazard Control Area:
 - a. Floors: 10 mg/ft².

2.2 ENCAPSULANTS

- A. Non-Reinforced Liquid Encapsulation Coatings: ASTM E1795.
- B. Reinforced Liquid Encapsulation Coatings: ASTM E1797.

2.3 PAINT REMOVERS

- A. Chemical Paint Strippers:
 - 1. Description:
 - a. Not contain methylene chloride.
 - b. Formulate to prevent stain, discoloration, or raising of substrate materials.
 - 2. Acceptable Manufacturer and Product:
 - a. Back to Nature Products; Manalpan, NJ: Ready Strip, Multi-Strip, Lift N Strip, and Aero Strip.
 - b. Eldorado Solutions: Carmel, IN: Dorado Strip 2021.
- B. Chemical Paint Stripper Neutralizer:
 - 1. Description:
 - a. Compatible with substrate.
 - b. Suitable for use with chemical stripper that has been applied to surface.
 - 2. Acceptable Manufacturer and Product:
 - a. Back to Nature Products; Manalpan, NJ: After Strip. Paint Remover and Waste Stabilization Compounds: Description: Certified as being EPA Best Demonstrated Technology to stabilize waste generated by lead removal process. Capable of stabilizing lead in removed waste. Prevent lead from leaching from waste. Acceptable Manufacturer and Product:
 - b. Back to Nature Products; Manalpan, NJ: Strip-Tox.
 - c. NexTec; Dubuque, IA: PreTox.
- C. Detergents and Cleaners: Have demonstrated effectiveness in lead control work using cleaning techniques specified by HUD 01 guidelines.

2.4 DISPOSAL MATERIALS

- A. Bags:
 - 1. Polyethylene plastic.
 - 2. Thickness: Minimum of 6 mils thick (4 mils thick if double bags are used).
 - 3. Other thick plastic material shown to demonstrate equivalent performance.
 - 4. Capable of being made leak-tight. Leak-tight means that solids, liquids, or dust cannot escape or spill out.

- B. Leak-Tight Wrapping: Polyethylene plastic that is minimum of 6 mils thick or other thick plastic material shown to demonstrate equivalent performance.
- C. Sheeting:
 - 1. Polyethylene plastic with minimum thickness of 6 mil, or other thick plastic material shown to demonstrate equivalent performance.
 - 2. Provide in largest sheet size reasonably accommodated by project to minimize number of seams.
 - 3. Where project location constitutes out of ordinary potential for fire, or where unusual fire hazards cannot be eliminated, use flame-resistant polyethylene sheets which conform to requirements of NFPA 701.
- D. Tape and Adhesive Spray:
 - 1. Capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces.
 - 2. Retain adhesion when exposed to wet conditions, including amended water.
 - 3. Tape: Minimum 2 inches wide, industrial strength.
- E. Containers:
 - 1. Leak-tight.
 - 2. Label in accordance with EPA, DOT, and OSHA standards.

2.5 EQUIPMENT

- A. Keep on site sufficient quantities of health and safety materials required by 29 CFR 1926.62, and other materials and equipment needed to complete project.
- B. Personal Protective Equipment:
 - 1. Furnish, at no cost to workers, clothing for protection from lead-contaminated dust and debris. Provide adequate supply of these items available for worker use.
 - 2. Coveralls: Full-body moisture permeable (breathable) disposable or reusable cotton or cotton/polyester blend coveralls.
 - 3. Boots.
 - 4. Boot/Shoe Covers: Provide to prevent contamination of boots and shoes.
 - 5. Hand Protection: Provide gloves and other forms of hand protection.
 - 6. Head Protection: Provide hard hats for workers.
 - 7. Eye and Face Protection: Provide eye and face protection as required by 29 CFR 1910.133.
 - 8. Respirators:
 - a. Provide NIOSH certified air-purifying respirators or filtering face pieces for use as respiratory protection for airborne lead and for other hazardous airborne contaminants that may be encountered; as determine by OSHS.
 - b. At minimum, furnish respirators to each worker required to enter lead hazard control area where worker exposure assessment has not yet been performed, or where monitoring data establishes need for respiratory protection, or if requested by worker.
 - 9. Respirator Cartridges/Filtering Face Pieces:
 - a. Change out cartridges/filtering face pieces of respirator cartridges of when they become sufficiently loaded with particulate matter that workers experience breathing resistance.
 - b. Dispose of used cartridges/filtering face pieces in accordance with applicable regulations.
 - c. Cartridges and Filtering Face Pieces: N, R or P 100 rated to assure sufficient protection from lead exposure.
- C. Hygiene Facilities:
 - 1. Hand Wash Stations:
 - a. Provide for use by lead hazard control workers.
 - b. Comply with requirements in 29 CFR 1926.51f.
 - c. Workers to wash faces and hands when leaving lead hazard control area and after each work-shift, if showers are not provided.

2. Change Area:
 - a. Provide change area for workers between contaminated work clothing and street clothes.
 - b. Equip so that contaminated work clothing and street clothes are stored separately to prevent cross contamination.
3. Showers:
 - a. Provide if worker exposures exceed PEL.
 - b. When provided, showers facilities to meet requirements of 29 CFR 1926.51f.
4. Eating Area:
 - a. Set aside area or provide room for taking breaks and eating lunch.
 - b. Keep free as practicable from lead contamination.
 - c. Workers to follow procedures in 29 CFR 1926.62i4 when using room.
- D. Abrasive Removal Equipment: Do not use powered machine for vibrating, sanding, grinding, or abrasive blasting unless equipped with local exhaust ventilation systems equipped with high efficiency particulate air (HEPA) filters.
- E. Negative Air Pressure System:
 1. Minimum Requirements:
 - a. Do not proceed with work in area until containment is set up and HEPA filtration systems are in place.
 - b. Meet requirements of ANSI Z9.2 including approved HEPA filters per UL 586.
 - c. At Project commencement, equip with new HEPA filters.
 - d. Sufficient to maintain minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas.
 - e. Deliver rated volume of air with clean first stage filter, intermediate filter, and primary HEPA filter in place.
 - f. Certified HEPA filter being capable of trapping and retaining mono-dispersed particles as small as 0.3 micrometers at minimum efficiency of 99.97 percent.
 - g. Capable of continuing to deliver no less than 70 percent of rated capacity when HEPA filter is 70 percent full or measures 2.5 inches of water static pressure differential on magnehelic gauge.
 - h. Equip with Manometer Type Negative Pressure Differential Monitor:
 - 1) Minor scale division of 0.02 inch of water and accuracy within ± 1.0 percent.
 - 2) Calibrate daily as recommended by manufacturer.
 - i. Equip with means for operator to easily interpret readings in terms of volumetric flow rate of air per minute moving through machine at given moment.
 - j. Equip with electronic mechanism that automatically shuts machine off in event of filter breach or absence of filter.
 - k. Equip with audible horn that sounds alarm when machine has shut itself off.
 - l. Equip with automatic safety mechanism that prevents improper insertion of main HEPA filter.
 2. Auxiliary Generator:
 - a. Provide with capacity to power minimum of 50 percent of negative air machines during work.
 - b. When power fails, generator controls to automatically start generator and switch negative air pressure system machines to generator power.
 - c. Generator to not create carbon monoxide hazard to workers.
- F. Vacuum Systems:
 1. Suitably size for project.
 2. Filters to trap and retain mono-disperse particles as small as 0.3 micrometers at minimum efficiency of 99.97 percent.
 3. Dispose used filters that are being replaced as required by regulatory requirements.
- G. Heat Blower Guns:
 1. Flameless, electrical, paint-softener type with controls to limit temperature to 1,100°F.
 2. DI (non-grounded) 120 volts AC.
 3. Equip with cone, fan, glass protector, and spoon reflector nozzles.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Follow practices and procedures described in accident prevention plan.
- C. Protection of Existing Areas To Remain:
 - 1. Perform Project work including, but not limited to, lead hazard work, storage, transportation, and disposal without damaging or contaminating adjacent work and areas.
 - 2. Where such adjacent work or adjacent areas are damaged or contaminated, restore existing work and areas to original condition at no additional cost to Owner.
- D. Lead Hazard Control Areas:
 - 1. Set up in manner that minimizes migration of lead dust beyond lead hazard control area boundaries and minimize exposure to workers.
 - 2. Prohibit public access into lead hazard control areas.
 - 3. Interior Lead Hazard Control Containment Features:
 - a. Polyethylene sheeting sealed with spray adhesive and duct tape.
 - b. Portable plastic partitions.
 - c. Colored caution tape to designate lead hazard control area.
 - d. Cover floor in lead hazard control area with two layers of polyethylene sheeting.
 - e. Seal entry/exit with primitive air lock.
 - f. Seal openings, such as HVAC supply and return air vents, into lead hazard control area with polyethylene sheeting and duct tape or with sealed rigid coverings.
- E. Negative Air Pressure System Containment:
 - 1. Establishing and Maintaining:
 - a. Operate to provide at least 10 air changes per hour inside containment.
 - b. Operate local exhaust unit equipment continuously until containment is removed.
 - c. Smoke test for leaks at beginning of each work shift.
 - d. OSHA to continuously monitor and keep pressure differential log with automatic manometric recording instrument.
 - e. Notify Owner immediately if pressure differential falls below prescribed minimum.
 - f. Do not use building ventilation system as local exhaust system for lead hazard control area utilizing negative air pressure system.
 - g. Terminate local exhaust system out of doors unless Owner allows alternate arrangement.
 - h. Install new filters at beginning of project.
 - i. Periodically change filters to maintain specified pressure differential.
 - j. Dispose used filters as lead contaminated waste.
 - k. Operate continuously during lead hazard control work unless otherwise authorized by Owner.
 - 2. Discontinuing:
 - a. At completion of project, run units until full cleanup has been completed and final clearance testing requirements have been met.
 - b. Dismantle as described in Lead Hazard Control Plan.
 - c. Seal HEPA filter machine intakes with polyethylene to prevent environmental contamination.
- F. Furnishings: Remove furniture and equipment from work area before lead hazard control work begins.

3.3 ABATEMENT PROCEDURES

- A. Perform in accordance with Section 01•70•00, and applicable regulations.
- B. Follow practices and procedures described in accident prevention plan.
- C. Warning Signs and Labels:
 - 1. Post warning signs in each lead hazard control area where worker exposure to lead is undetermined or where exposures are above permissible exposure limit as defined in 29 CFR 1926.62.
 - 2. Locate signs to allow personnel to read signs and take necessary precautions before entering lead hazard control area.
 - 3. Warning Signs:
 - a. Languages: English and Spanish.
 - b. Size: Sufficient size to be clearly legible.
 - c. Message: WARNING. LEAD WORK AREA. POISON. NO SMOKING OR EATING.
 - 4. Warning Labels:
 - a. Affix to lead waste disposal containers used to hold materials, debris, and other products contaminated with lead hazards.
 - b. Languages: English and Spanish.
 - c. Size: Sufficient size to be clearly legible.
 - d. Message: CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, OR LOCAL REGULATIONS.
- D. Use of Hygiene Facilities:
 - 1. Decontaminate personnel and equipment when exiting lead hazard control area.
 - 2. Decontamination Procedures:
 - a. HEPA vacuum outer garments and equipment.
 - b. Wet wipe equipment.
 - c. Remove outer layer of garments.
 - d. Thoroughly wash face and hands, if showering not required.
 - e. Shower, if applicable.
 - f. Remove respirator, if applicable.
 - g. Exit lead hazard control area.
 - 3. Change Room:
 - a. Workers to use change room to change into work clothing at beginning of work shift.
 - b. At end of work shift, workers to change back into street clothing and leave contaminated work clothing at site for disposal or laundering.
 - 4. Workers to use eating facility for rest/lunch breaks.
- E. Operate equipment within lead hazard control area in manner that minimizes migration of lead dust beyond lead hazard control area boundaries and minimize exposure to workers.
- F. Lead Hazard Control Procedures, Methods and Techniques:
 - 1. Surface Refinishing:
 - a. Paint or otherwise seal treated surfaces.
 - b. Coat surfaces including walls, ceilings, and woodwork with appropriate primer and repaint.
 - c. Do not paint surfaces enclosed with vinyl, aluminum coil stock, and other materials traditionally not painted.
 - d. Prepare and paint surfaces to be painted to control lead hazards in accordance with Section 09•91•00.
- G. Paint Removal Methods:
 - 1. Prohibited Paint Removal Methods Include:
 - a. Open flame burning or torching, including use of heat guns having operating temperatures greater than 1,100°F.
 - b. Machine sanding or grinding without HEPA exhaust.

- c. Non-contained hydro blasting or high-pressure water wash.
 - d. Abrasive blasting or sandblasting without HEPA exhaust.
 - e. Dry scraping, except near electrical outlets or when using heat gun.
 - f. Use of chemical paint removers containing methylene chloride.
2. Protect building components and structures adjacent to removal process from damage due to removal process employed.
 3. Chemical Paint Stripping:
 - a. Perform according to manufacturer's recommendations.
 - b. Thoroughly wash and neutralize stripped substrates before applying primer or sealing coat.
 4. Low Temperature Heat Gun:
 - a. Electrical Requirements:
 - 1) Prior to beginning work, verify electrical fuses and adequate electrical supply.
 - 2) Use only fuses properly sized for service, and otherwise permitted by Electric Code.
 - 3) Do not change out fuses sized according to Electric Code with larger fuses to increase amperage beyond safe limits.
 - 4) Portable electric generators may be used to safely supply adequate amperage.
 - b. Fire Suppression Requirements. Keep Following Items Available Within 100 Feet of in Area of Heat-Gun Removal Operations:
 - 1) Water-charged garden hose with pressure-release spray nozzle.
 - 2) Crowbar available to remove smoldering wood.
 - 3) Long-handled sledgehammer to open up walls exposed to smoldering insulation.
 - 4) Fully charged ABC-type (20 pound minimum) fire extinguisher.
 - c. Provide adequate ventilation for work area.
 - d. Worker protection to include respirators equipped with combination HEPA filter/organic vapor cartridges.
 - e. Equip heat guns with extension tubes or wire mesh to prevent premature burnout of heating elements and to minimize paint film scorching or smoking.
 - f. Optimal heat gun to substrate separation is typically 3 to 6 inches.
 5. HEPA Sanding:
 - a. Provide HEPA vacuum sized to provide adequate airflow, permitting system to operate properly.
 - b. If longer exhaust hoses are used, provide larger HEPA vacuum to handle extra pressure drop in vacuum hose.
 - c. Operate HEPA filter in accordance with manufacturer's instructions.
 - d. Worker protection to include respirators or filtering face pieces equipped with HEPA filters.
 6. Wet Scraping:
 - a. Only dry scrape surfaces near electrical outlets.
 - b. Do not moisten surfaces near electrical outlets.
 - c. Scrape loose material from surface.
 - d. Deposit scraped material onto containment plastic.
 - e. Clean up damp scrapings as soon as possible to prevent tracking throughout work area.
 - f. Select scraper blades appropriate for type of surface being scraped.
 - g. Keep scraper blades sharp.
 7. HEPA Vacuum Blasting:
 - a. Shroud blast head under vacuum and pass exhaust through HEPA filter.
 - b. Keep blast head in continuous contact with surface to avoid dispersal of both blast medium and particulate.

- c. Equip equipment with device that separates blast media from material to be removed, effectively recycling blast material and minimizing amount of waste.
 - d. Position work to minimize workers reaching above shoulder level, in order to minimize worker fatigue and loss of blast head contact with surface.
- 8. HEPA Vacuum Needle Gun:
 - a. Equip vacuum needle gun head with vacuum shroud designed for surface to be treated.
 - b. Operate to maximize surface contact of vacuum shroud.
 - c. Position work to minimize workers reaching above shoulder level, in order to minimize worker fatigue and loss of blast head contact with surface.
- 9. Offsite Paint Removal:
 - a. Remove building components to be stripped using removal techniques that minimize amount of airborne dust generated.
 - b. Cut painted seams between walls and components with utility razor knife to minimize wall damage.
 - c. If more than one component is to be removed and stripped, label each component for eventual reinstallation using punch system.
 - d. Make identifying punches in obscure location on each component.
 - e. Once removed, wrap component and seal for transport.
 - f. Thoroughly wash and neutralize stripped components after stripping.
 - g. Restore stripped components to structural soundness after stripping.
 - h. Clean components using standard HEPA vacuum/wet wash/HEPA vacuum cycle.
 - i. Dry and pH neutralize before repainting.
- 10. Onsite Paint Removal:
 - a. Apply paint remover applied in accordance with manufacturer's instructions.
 - b. Perform outdoor application under weather conditions recommended by manufacturer.
 - c. Secure work area surrounding application process to prevent access by children and unauthorized personnel.
 - d. Provide workers with appropriate personal protective clothing and equipment in accordance with manufacturer's recommendations and industrial hygiene practice.
 - e. Provide portable eyewash whenever eye irritant strippers are used.
 - f. Provide abundant source of running water in work area.
 - g. Test stripper in small area prior to full scale stripping.
 - h. Do not use caustic strippers on aluminum or glass surfaces.
 - i. Dispose of waste as specified.
 - j. Neutralize stripped surfaces and wash in accordance with manufacturer's instructions and as specified.
 - k. Completely dry stripped surfaces before repainting.
 - l. Repaint only with paints having proven compatibility with stripping techniques employed.
- H. Waste Disposal Procedures:
 - 1. Waste Stream Classification:
 - a. Determine RCRA waste classification for waste streams generated by lead hazard control project.
 - b. Perform sampling and analysis specified in paragraph Waste Disposal.
 - c. Evaluate analytical results and propose waste stream treatment and disposal requirements for contract.
 - 2. Dispose of RCRA classified wastes at RCRA subtitle C Treatment Storage and Disposal Facility or at RCRA subtitle C hazardous wastes landfill.
 - 3. Hazardous Waste Transportation and Disposal:
 - a. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.

- b. Comply with land disposal restriction notification requirements in accordance with 40 CFR 268.
- I. Materials resulting from abatement work is property of Contractor.

3.4 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
 - 1. Comply with Section 01•45•00.
 - 2. Contractor provided.
- B. Sampling and Analytical Procedures:
 - 1. Personnel: Sampling and Analysis Methods Analysis shall conform to NIOSH 84-100 Method 7082, Lead, for personal sampling required by 29 CFR 1926.62.
 - 2. Air:
 - a. Sampling: ASTM E1553.
 - b. Analysis: ASTM E1741 or ASTM E2051.
 - 3. Paint Chips:
 - a. Sampling: ASTM E1729 and ASTM E1645.
 - b. Analysis: ASTM E1613, ASTM E2051, or ASTM E2119.
 - 4. Surface Dust:
 - a. Wipe Materials: ASTM E1792.
 - b. Wipe Sampling: ASTM E1728 and ASTM E1645.
 - c. Vacuum Sampling: ASTM E1973.
 - d. Analysis: ASTM E1613 or ASTM E2051.
- C. Occupational Exposure Assessment:
 - 1. Perform as described in lead hazard control portion of accident prevention plan.
 - 2. Monitoring for initial determination may be omitted if Contractor has sufficient proof from previous operations as specified in 29 CFR 1926.62 (d)(3)(iii) and (iv) that workers will not be exposed over action level.
 - 3. If Requirements of 29 CFR 1926.62d3 (iii) and (iv) Cannot Be Demonstrated Implement Following Occupational Exposure Monitoring Requirements:
 - a. During Initial Monitoring: Take samples from representative workers with greatest potential for exposure to aerosolized lead.
 - b. Continued/Additional Monitoring, after Initial Determination Has Been Made: Comply with applicable paragraphs in 29 CFR 1926.62(d)(6), Frequency.
- D. Lead Hazard Control Area/Containment Monitoring:
 - 1. Perform visual inspection once per day outside lead hazard control area to assure visual clearance criteria are maintained while lead hazard control activities are performed.
 - 2. Clean to Owner's satisfaction, contaminated surfaces outside lead hazard control area, if surfaces fail visual clearance criteria.
- E. Occupancy During Work:
 - 1. Wipe sample floor surface at location no more than 10 feet outside lead hazard control area at frequency of once per day while lead hazard control activities are being performed.
 - 2. Wipe sampling analytical results to pass clearance criteria for floors specified in this contract.
 - 3. If floor wipe samples required in this paragraph fail clearance criteria, clean contaminated surfaces outside lead hazard control area to Owner's satisfaction.
- F. Clearance Monitoring:
 - 1. Perform as described in portion of accident prevention plan.
 - 2. Perform following sampling and analysis to verify that clearance requirements for contract (inside lead hazard control) area have been met.
 - a. Take Dust Wipe Samples Inside Lead Hazard Control Area after Final Visual Inspection:
 - 1) Floors: 5 samples.

- G. Waste Disposal Sampling:
 - 1. Perform waste stream sampling and TCLP analysis for lead if there is doubt about RCRA hazardous waste status of solid waste generated by project and if state specific building demolition debris exemptions cannot be applied.
 - 2. Sample following waste streams for TCLP analysis to determine waste disposal requirements:
 - a. Building Demolition Debris: 5 samples.
 - b. Paint Chips: 5 samples.
 - c. Paint Residue from Stripping (Heat or Chemical) Operations: 5 samples.
 - d. Settled dust in vacuum canisters: 5 samples.
- H. Analytical Results:
 - 1. During course of Project, develop and maintain log of analytical results generated by above sampling requirements.
 - 2. Log to clearly describe reason for which sample was taken (worker exposure, migration control, clearance) analytical result for each sample and evaluate if analytical result passed or failed action levels.
 - 3. At minimum, include analytical results for samples required to be taken in paragraphs Occupational Exposure Assessment, Lead Hazard Control Area/Containment Monitoring, Occupancy During Work, and Clearance Monitoring specified above.
- I. Clearance Procedures:
 - 1. Comply with ASTM E3074.
 - 2. Sampling: ASTM E3193.
 - 3. Visual Inspection:
 - a. QSHP to perform visual inspection, for each lead hazard control area to assure that lead hazard control activities, identified in individual work task data elements, have been properly completed.
 - b. QSHP to visually verify that lead hazards have been removed, control technology has been appropriately applied/installed and that lead hazard control area is free of dust and paint chips generated by lead hazard control activities.
 - 4. Analytical Demonstration of Clearance: After visual inspection independent risk assessor to take clearance samples for laboratory analysis to verify clearance requirements specified under Clearance Requirements have been met.
- J. Evaluation of Sampling and Monitoring Results:
 - 1. Evaluate analytical results from samples taken during lead hazard control activities to determine compliance with occupational safety and health standards and project specific control efficiency and clearance/clean up levels.
 - 2. Occupational Safety and Health:
 - a. QSHP to review analytical results from samples taken for initial exposure assessment and continued occupational safety and health monitoring if required.
 - b. Evaluate effectiveness and adequacy of personal protective equipment, respirators, work practices, hygiene facilities and personal decontamination procedures and make upgrades/downgrades in equipment and procedures.
 - c. After notifying Owner, apply following:
 - 1) Exposures over PEL (0.05 mg/m³):
 - a) Improve work practices to reduce exposures.
 - b) Use respirators.
 - c) Assure eating facilities and change rooms are clean and are free from settled dust.
 - d) Shower as part of personal decontamination.
 - 2) Exposures over Action Level (0.03 mg/m³):
 - a) Assure exposed individuals enrolled in medical surveillance program.
 - b) Assure exposed individuals enrolled in and up to date with lead exposure training requirements.

3. Control Efficiency of Containment Features:
 - a. QSHP to review and document results of visual inspection determining visual clearance criteria are being met while lead hazard control activities are being performed.
 - b. QSHP to review analytical results from samples taken to determine if lead is migrating outside lead hazard control areas at levels in excess of clearance criteria.
 - c. QSHP to notify Owner and apply following actions if results exceed project specific clearance levels outside lead hazard control area:
 - 1) Require/improve containment.
 - 2) Improve work practices to reduce lead aerosol generation.
 4. Clearance:
 - a. QSHP to review analytical results for samples taken to determine compliance with project specific clearance requirements.
 - b. Apply following actions and perform at Contractor's expense if project specific clearance levels are exceeded:
 - 1) Reclean surfaces.
 - 2) Retest to determine clearance.
 5. Removal of Lead Hazard Control Area: Upon acceptance of final clearance certification by Owner, and when authorized, clear Lead Hazard Control Area boundary controls and remove warning signs.
- K. Clearance Report:
1. QSHP to prepare clearance report.
 2. Include following information:
 - a. Start and completion dates of lead hazard control activities.
 - b. Type of lead hazard control activity performed (such as, abatement, interim control, renovation, remodeling), locations and lead hazards controlled or abated.
 - c. Name and address of each firm conducting lead hazard control activities and name of each supervisor assigned to project.
 - d. Occupant Protection Plan prepared pursuant to Occupant Protection Plan.
 - e. Name, address and signature of QSHP or independent risk assessor to indicate clearance requirements have been met.
 - f. Certification of each Final Cleaning and Visual Inspection performed by QSHP.
 - g. Analytical results from clearance sampling performed by QSHP or independent risk assessor, name of laboratory that conducted analysis. Results shall be provided in both laboratory report and on appropriate example forms provided at end of this section.
 - h. Detailed written description of lead hazard control activities performed, including hazard control methods used, locations of rooms or components where lead hazard control activities occurred, reason for selecting particular hazard control methods for each component, and suggested monitoring of encapsulants or enclosures.
 - i. Hazardous waste disposal documentation: Submit one copy of completed manifest, signed and dated by initial transporter in accordance with 40 CFR 262.
 - j. Contractor provided installation/maintenance manuals.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.

3.6 SCHEDULE

- A. Remove lead paint from following surfaces:
1. Walls.
 2. Ceilings.
 3. Doors.

B. Remove lead dust from following surfaces:

1. Floors.
2. Furniture.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\028300.wpd

SECTION 03 30 10
MISCELLANEOUS CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Section includes cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures and finishes.

1.02 REFERENCE STANDARDS

- A. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute.
- B. ACI 301 – Specifications for Structural Concrete for Buildings; American Concrete Institute.
- C. ACI 302.1R – Guide for Concrete Floor and Slab Construction; American Concrete Institute.
- D. ACI 304R – Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute.
- E. ACI 305R – Hot Weather Concreting; American Concrete Institute.
- F. ACI 306R – Cold Weather Concreting; American Concrete Institute.
- G. ACI 318 – Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute.
- H. ASTM C 33 – Standard Specification for Concrete Aggregates.
- I. ASTM C 39/C 39M – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- J. ASTM C 94/C 94M – Standard Specifications for Ready-Mix Concrete.
- K. ASTM C 150 – Standard Specification for Portland Cement.
- L. ASTM C 173/C 173M – Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- M. ASTM C 260 – Standard Specification for Air-Entraining Admixtures for Concrete.
- N. ASTM C 494/C 494M – Standard Specification for Chemical Admixtures for Concrete.
- O. ASTM D 1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- P. IBC 2021 – International Building Code.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture.

1.04 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. Comply with the following sections of ACI 301, unless modified by requirements in the Contract Documents:
 - 1. "General Requirements".
 - 2. "Formwork and Formwork Accessories".
 - 3. "Reinforcement and Reinforcement Supports".
 - 4. "Handling, Placing and Constructing".
- C. Comply with ACI 117, "Specification for Tolerances for Concrete Construction and Materials".

PART 2 - PRODUCTS

2.01 FORMWORK

- A. Furnish formwork and formwork accessories according to ACI 301.

2.02 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.
- C. Plain-Steel Wire Reinforcement: ASTM A 185/A 185M fabricated from as-drawn steel wire into flat sheets.

2.03 CONCRETE MATERIALS

- A. Cement: Use the following cementitious materials, of the same type, brand and source throughout the Project.
 - 1. Portland Cement: ASTM C 150, Type 1.
 - 2. Blended Hydraulic Cement: ASTM C 595, Type IL, Portland-limestone.
 - 3. Blended Hydraulic Cement: ASTM C 595, Type IS, Portland blast-furnace slag.
 - a. Slag content shall not exceed 50% of the total blend.
- B. Normal Weight Concrete: ASTM C 33, graded, 1" nominal maximum aggregate size.
- C. Water: Clean and not detrimental to concrete.

2.04 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding 0.1 percent by weight of cement. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

2.05 RELATED MATERIALS

- A. Vapor Retarder: Plastic Sheet: ASTM E 1745, Class A.
- B. Joint-Filler Strips: ASTM D 1751; asphalt saturated cellulosic fiber.

2.06 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth or cotton mats.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309 Type 1, Class B.
- F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM 1315, Type 1, Class A.

2.07 CONCRETE MIXTURES

- A. Comply with ACI 301 requirements for concrete mixtures.
- B. Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301 as follows:
 - 1. Minimum Compressive Strength: At 28 days, 5000 psi for exterior work and 3000 psi for interior work.
 - 2. Maximum Water Cementitious Materials Ratio: .40 for exterior work and .58 for interior and below grade work.
 - 3. Cementitious Materials: At Contractor's option, use ground granulated blast-furnace slag as needed to reduce the total amount of Portland cement, which would otherwise be used, by not more than 50 percent.

4. Slump Limit: 4 inches and 8 inches for concrete with a verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
5. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of trowel finished floor slabs to exceed 3 percent.

2.08 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix and deliver concrete according to ASTM C 94/C 94M and furnish batch ticket information.
 1. When air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Not permitted.

PART 3 - EXECUTION

3.01 FORMWORK

- A. Design, construct, erect, brace and maintain formwork according to ACI 301.

3.02 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions and directions furnished with items to be embedded.

3.03 VAPOR RETARDERS

- A. Install, protect, and repair vapor retarders according to ASTM E 1643; place sheets in position with longest dimension parallel to the direction of pour.
 1. Lap joints 6 inches and seal with manufacturer's recommended adhesive or joint tape.

3.04 STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing and supporting reinforcement.
 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.05 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Locate and install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slab-On-Grade: Form weakened-place contraction joints, sectioning concrete into areas as indicated or approved by Architect.

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of the joint with groover tool to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8 inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams and other locations as indicated.
1. Extend joint fillers width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

3.06 CONCRETE PLACEMENT

- A. Comply with ACI 301 for placing concrete.
- B. Do not add water to concrete during delivery, at Project site, or during placement.
- C. Consolidate concrete with mechanical vibrating equipment.

3.07 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding 1/4 inch.
 1. Apply to concrete surfaces not exposed to view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch.
 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following rubbed finish, defined in ACI 301 to smooth-formed finished as-cast concrete where indicated.
 1. Smooth rubbed-finish.
 2. Grout-cleaned finish.
 3. Cork-floated finish.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.08 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Trowel Finish: Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or other thin film-finish coating system.
- C. Trowel or Fine Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tiles are to be installed by either thickset or thin-set methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
- D. Non-slip Broom Finish: Apply a non-slip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.

3.09 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306 for cold weather protection and with ACI 305 for hot weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft./h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods.
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12 inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs as indicated in a continuous operation by power spray or roller according to manufacturer's

written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat the process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during the curing period.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor will engage a qualified testing agency, acceptable to the Owner, Architect and Structural Engineer, to perform tests and inspections.
- B. Tests: Perform according to ACI 301.
 - 1. Testing Frequency: One composite sample shall be obtained for each 50 cubic yards or fraction thereof of each concrete mix poured each day.

3.11 REPAIRS

- A. Remove and replace concrete that does not comply with the requirements of this Section.

END OF SECTION

SECTION 04•05•13
MASONRY MORTARING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 04•20•00 - Unit Masonry: Prism and Compressive Tests.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C1384, Admixtures for Masonry Mortar.
 - b. ASTM C144, Aggregate for Masonry Mortar.
 - c. ASTM C150, Portland Cement.
 - d. ASTM C207, Hydrated Lime for Masonry Purposes.
 - e. ASTM C270, Mortar for Unit Masonry
 - f. ASTM C780, Method for Pre-Construction and Construction Evaluation of Mortar for Plain and Reinforced Unit Masonry.
 - g. ASTM C91, Masonry Cement.
 - 2. The Masonry Society (TMS):
 - a. TMS 602, Specifications for Masonry Structures.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Furnish items to Section 04•20•00 in sufficient time so they are integrated into masonry as construction proceeds.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data. Submit for:
 - a. Cementitious materials.
 - b. Admixtures.
 - 2. Samples:
 - a. Mortar color samples for selection.
 - b. Submit joint materials 8 inches in length.
 - 3. Certifications specified in Quality Assurance article.
- C. Submittals for Architect's Information:
 - 1. Test and Evaluation Reports: Submit written results of testing specified as part of Source and Field Quality Control articles.
 - 2. Submit property or proportion specifications used for mortar.

1.5 QUALITY ASSURANCE

- A. Comply with TMS 602 and as specified herein. More restrictive requirement governs when requirements conflict.
- B. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
- C. Certifications:
 - 1. Submit manufacturer's certification that following products furnished for Project meet or exceed specified requirements:

- a. Admixtures.
- b. Aggregate.
- c. Site Mixed Mortar: Property specification test.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Delivery and Acceptance Requirements:
 - 1. Deliver cementitious products in new unbroken containers.
 - 2. Deliver cementitious products in manufacturer's containers with labels intact and legible.
- C. Storage and Handling Requirements:
 - 1. Store cementitious products above ground surface, protected from wetting by precipitation and ground water.
 - 2. Protect cementitious product containers from damage which may break package.
 - 3. Protect aggregate from wetting by precipitation and ground water.
 - 4. Protect aggregate from dirt, dust, and other contaminants which may have a deleterious effect on performance of mortar.
 - 5. Do not use aggregate containing ice, excessive amounts of moisture, dirt, dust, or other contaminants which may have a deleterious effect on performance of mortar.
 - 6. Use only cementitious products from unopened and unbroken containers.
 - 7. Store different aggregates separately.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Comply with TMS 602.
 - 2. Cold Weather:
 - a. Do not use scorched sand. Keep mortar temperatures after mixing to less than 120°F to avoid flash set.
 - b. Keep air surrounding masonry assemblies at not less than 50°F for at least 72-hours after placing mortar.

2.0 PRODUCTS

2.1 CEMENT AND LIME MORTAR

- A. Cementitious Materials:
 - 1. Single Source Responsibility: Furnish each cement from one manufacturer, unless otherwise acceptable to Architect.
 - 2. Portland Cement-Lime Mixture:
 - a. Portland Cement: ASTM C150, Type I.
 - b. Hydrated Lime: ASTM C207, Type S, double hydrated, non-air entrained, containing not more than 8 percent of un-hydrated oxides.
 - c. Provide manufacturer-batched portland cement-lime mixture for use in making mortar. Field-batched and mixed portland cement-lime mixture is not permitted.
 - 3. Portland Cement-Limestone Mixture: Use not permitted.
 - 4. Masonry Cement:
 - a. ASTM C91.
 - b. Use Permitted Solely For:
 - 1) Concrete masonry used as backing for.
 - c. Do Not Use For:
- B. Aggregate:
 - 1. ASTM C144.
 - 2. Single Source Responsibility: Furnish each cement from one manufacturer, unless otherwise acceptable to Architect.
 - 3. Uniform throughout project from same source.

4. Clean, sharp, free of silt, dirt, organic matter, and other impurities, within limitations stated in ASTM C144.
5. Natural or manufactured sand may be used.
6. Pigmented Mortar: Use white sand.
- C. Water: Clean and free of harmful amounts of acids, alkalies, organic materials, and deleterious substances that would adversely affect quality or appearance of mortar or masonry units.
- D. Admixtures:
 1. ASTM C1384.
 2. Air-entraining admixtures or material containing air-entraining admixtures are not permitted.
 3. Antifreeze compounds are not permitted.
 4. Admixtures containing chlorides are not permitted.
 5. Bond Enhancer: Use not permitted.
 6. Set Accelerator: Use not permitted.
 7. Set Retarder: Use not permitted.
 8. Workability Enhancer: Use not permitted.

2.2 MIXES

- A. Comply with TMS 602.
- B. Carefully control and accurately maintain proportions during entire progress of project.
- C. Provide and use containers which accurately establish measurements for mixing of mortar (shovels are not acceptable measuring devices).
- D. Comply with instructions on pre-blended mix bags.
- E. Hand-mixing is not permitted.
- F. If mortar begins to stiffen from evaporation or from absorption of part of mixing water, immediately discard it.
- G. At end of each working day, thoroughly clean equipment used in mixing, transporting, and applying mortar.
- H. Site-Mixed Mortar:
 1. ASTM C270.
 2. Pre-Batched Mortar:
 - a. Pre-batch, at Contractor's option, dry components (cementitious materials, aggregate, dry admixtures) offsite to permit only adding liquid components (water and liquid admixtures) onsite.
 - b. Acceptable Manufacturers:
 - 1) American Dry Mix; Baltimore, MD: Roman Pre-Blended Bulk Masonry Mortars.
 - 2) Spec-Mix; Mendota Heights, MN.
 3. Mix according to proportion specification.
 4. Allow site-mixed mortars to hydrate as required by ASTM C270.
 5. If water is lost by evaporation within 2-1/2 hours after initial mixing, retemper with water.
- I. Mixes:
 1. Types M Mortar: Use is not permitted.
 2. Types S Mortar: Use Locations:
 - a. Masonry at and below grade.
 - b. Reinforced masonry.
 - c. Load-bearing masonry.
 - d. Fill for hollow masonry units solid two courses under structural members where brick or solid masonry units are not specified.
 3. Types N Mortar: Use is not permitted.
 4. Types O Mortar: Use is not permitted in new masonry construction.
 5. Type K Mortar: Use is not permitted for new unit masonry construction.
- J. Repointing Mortar:
 1. Prehydrate mortar by following method.
 2. Mix dry ingredients together.

3. Add only enough water to create a damp and stiff mix, which will retain its shape when pressed into a ball.
4. After 1 to 2 hours of prehydration, add sufficient water to bring mortar to a workable consistency.
5. Discard repointing mortar 2-1/2 hours after addition of water to pre-hydrated mix.

2.3 SOURCE QUALITY CONTROL

A. Mortar:

1. Control by laboratory tests in accordance with ASTM C780.
2. Test mortar indicating conformance with ASTM C270.
3. Determine Flexural Strength, in Accordance with ASTM C1072 using Test Method for Laboratory-Prepared Specimens.
4. Report proportions used from laboratory tests used to select mortar mix created in conformance with property specification.

3.0 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with Section 01•70•00.
- B. Comply with TMS 602.
- C. Do not use mortar in locations indicated to receive masonry grout.

3.2 FIELD QUALITY CONTROL

A. Field Tests and Inspections:

1. Comply with Section 01•45•00.
2. Contractor provided.
3. Refer to special inspection chart on Drawings.

B. Mortar:

1. Comply with TMS 602.
2. Perform following tests of ASTM C780, as required in subsequent paragraphs:
 - a. Annex 1: Consistency by Cone Penetration Test.
 - b. Annex 2: Consistency Retention of Mortars for Unit Masonry.
 - c. Annex 3: Initial Consistency and Consistency Retention or Board Life of Masonry Mortars Using a Modified Concrete Penetrometer.
 - d. Annex 4: Mortar Aggregate Ratio Test Method.
 - e. Annex 5: Mortar Water Content Test Method.
 - f. Annex 6: Mortar Air Content Test.
 - g. Annex 7: Compressive Strength of Molded Masonry Mortar Cylinders and Cubes.
 - h. Annex 8: Splitting Tensile Strength of Molded Masonry Mortar Cylinders.
 - i. Flexural Strength, Determined in Accordance with ASTM C1072 using Test Method for Field-Prepared Specimens.
3. Submit reports on form complying with ASTM C780, Annex 9.
4. Prior to starting masonry work, and no later than when sample panels are being laid, prepare test samples of mortar and aggregate for each type of mortar in accordance with following ASTM C780 Annexes: 1, 2, 3, 4, 5, 6, 7, 8, and flexural strength.
5. As work progresses, provide two sets of test samples on first 5000 square feet of masonry units laid, in accordance following ASTM C780 Annexes: 1, 2, 3, 4, 5, 6, 7, 8, and flexural strength.
6. Conduct successive tests for each subsequent 5000 square feet of masonry units laid, in accordance following ASTM C780 Annexes: 1, 2, 3, 4, 5, 6, 7, 8, and flexural strength.
7. Where tests fail to indicate satisfactory mortar, determine cause, submit correct mix design and coordinate mix design to method of mixing to be used, at no additional expense to Owner.

3.3 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. At regular intervals and upon completing work within this Section, remove debris resulting from masonry construction from site.
- C. Clean mortar from mixers and tools before mixing each fresh batch, and at end of each day's work.

3.4 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect work of other Specification Sections against defacement or damage resulting from work done under this Section.
- C. Immediately remove misplaced mortar from metal finishes and other finishes and wash with clear water.
- D. Exercise extreme caution when using cleaning agents which might damage adjacent construction or finishes.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\040513.wpd

SECTION 04•05•19
MASONRY ANCHORAGE AND REINFORCING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - a. Section 04•20•00 - Unit Masonry.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM A1064, Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - b. ASTM A153, Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - c. ASTM A580, Stainless and Heat-Resisting Steel Wire.
 - d. ASTM A951, Masonry Joint Reinforcement.
 - 2. The Masonry Society (TMS):
 - a. TMS 602, Specifications for Masonry Structures.
- B. Definitions:
 - 1. Comply with TMS 602.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Furnish items to Section 04•20•00 in sufficient time so they are integrated into masonry as construction proceeds.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for:
 - 1) Joint reinforcement.
 - 2) Ties and anchors.
 - 2. Certifications specified in Quality Assurance article.

1.5 QUALITY ASSURANCE

- A. Comply with TMS 602, and as specified herein. Where requirements conflict comply with most restrictive.
- B. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
- C. Certifications:
 - 1. Submit manufacturer's certification that products furnished for Project meet or exceed specified requirements. Include:
 - a. Products listed in TMS 602.
 - b. Pull-out strength of masonry ties and anchors.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Store products in dry, protected, above grade location.

- C. Protect products from permanent distortion.
- D. Do not use distorted products.
- E. Do not use rusted products.

2.0 PRODUCTS

2.1 JOINT REINFORCEMENT

- A. Description:
 - 1. ASTM A951.
 - 2. Wire Material: ASTM A1064 with ASTM A153, Class B2, 1.5 oz/ft² finish or ASTM A580, UNS S30200 or S30400.
 - 3. Fabricate in accordance with TMS 602.
 - 4. Fabricate in straight lengths of not less than 10 feet.
 - 5. Provide with matching corner and "T" units, approximately 30 inches long.
 - 6. Width: 1-1/2 to 2 inches less than thickness of wall.
 - 7. Pre-fabricated ladder-shape truss or triangular-shaped for walls not containing reinforcement bars.
 - 8. Pre-fabricated ladder-shape truss for walls containing reinforcement bars and grouted cells. Perpendicular cross wires spaced not more than 16 inches apart.
 - 9. Fabricate with single pair side wires welded to cross wires.
 - 10. V-Shaped drip type is not permitted.
- B. Acceptable Manufacturers:
 - 1. Hohman and Barnard; Hauppauge, NY:
 - 2. Masonry Reinforcing Corporation of America (Wire Bond); Charlotte, NC:

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify that conditions comply with TMS 602.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Before being placed, remove loose rust, ice, dirt, and deleterious coatings which could impair performance of masonry system.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00.
- B. Comply with TMS 602.
- C. Place as construction of masonry assembly progresses.
- D. Joint Reinforcement:
 - 1. Reinforce walls with continuous horizontal joint reinforcing unless specifically noted or specified to be omitted.
 - 2. Provide reinforcement in longest available lengths, utilizing minimum number of splices.
 - 3. Overlap ends not less than 6 inches.
 - 4. Provide mortar cover for wire of at least 5/8 inch for exterior face of wall and 1/2 inch for interior face of wall.
 - 5. Extend reinforcement above and below openings not less than 24 inches beyond each side of openings.
 - 6. Do not bridge joint reinforcement across expansion, contraction, or isolation joints.
 - 7. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.

8. In addition to wall reinforcing, provide additional reinforcing for masonry openings greater than 1 foot wide, with horizontal joint reinforcing placed in 2 horizontal joints approximately 8 inches apart, both immediately above lintel and immediately below sill. Extend reinforcing minimum of 2 feet beyond jambs of opening.
 9. Space Continuous Horizontal Reinforcing as Follows:
 - a. Place in first bed joint.
 - b. Multi-Wythe Walls (Solid or Cavity) Where Continuous Horizontal Reinforcing Also Acts as Structural Bond or Tie Between Wythes: Space reinforcing 16 inches on centers vertically.
- E. Masonry Anchorage:
1. Comply with TMS 602.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\040519.wpd

SECTION 04•20•00
UNIT MASONRY

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
- B. Products Installed but Not Furnished under this Section:
 - 1. Section 04•05•13 - Masonry Mortaring.
 - 2. Section 04•05•19 - Masonry Anchorage and Reinforcing.

1.2 PRICE AND PAYMENT PROCEDURES

- A. Alternates:
 - 1. Refer to Section 01•23•00 for alternates involving Work of this Section.
 - 2. Provide alternate for temporary enclosure and supplemental heat to provide specified ambient conditions for duration of masonry installation and curing.

1.3 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C55, Concrete Building Brick.
 - b. ASTM C90, Load-Bearing Concrete Masonry Units.
 - 2. The Masonry Society (TMS):
 - a. TMS 602, Specifications for Masonry Structures.
- B. Definitions:
 - 1. Comply with TMS 602.
 - 2. Reinforced Masonry: Masonry assemblies consisting of masonry units and steel reinforcement (other than wire joint reinforcement and ties) bonded with mortar and masonry grout in such manner that components act together in resisting forces.
 - 3. Un-Reinforced Masonry: Masonry assemblies not containing steel reinforcement (other than wire joint reinforcement and ties) bonded with mortar and masonry grout.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Coordinate with installation of products specified in Section 04•05•13, and Section 04•05•19.
 - 3. Coordinate with respective specification sections to assure location and installation of anchors, inserts, penetrations, fire suppression items, plumbing items, HVAC items, electrical items, communications items, and electronic safety and security items.

1.5 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Cleaning agents.
 - 2. Samples:
 - 3. Certifications specified in Quality Assurance article.
- C. Submittals for Architect's Information:

1. Test and Evaluation Reports: Submit written results of testing specified as part of Field Quality Control articles.
2. Manufacturer's instructions for cleaning agents.
3. Construction procedures to be used for cold weather and hot weather.

1.6 QUALITY ASSURANCE

- A. Comply with TMS 602 and as specified herein. When requirements conflict, more restrictive requirements govern.
- B. Manufacturer Qualifications:
 1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.
- C. Installer Qualifications:
 1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.
- D. Certifications:
 1. Submit manufacturer's certification that products furnished for Project meet or exceed specified requirements.
 2. Plain Concrete Masonry Units, submit fire-resistance classification certificates.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Comply with TMS 602.
- C. Deliver in undamaged condition.
- D. Deliver and handle to prevent, chipping, breaking, or other damage.
- E. Protect during storage, from:
 1. Wetting from precipitation and capillary action.
 2. Mud, dust, and deleterious materials, which may cause staining, damage, or defects.
- F. Discard masonry units which:
 1. Have absorbed moisture in excess of amounts permitted by reference standards.
 2. Have frozen.
 3. Are stained, damaged, or have defects caused by mud, dust, or deleterious materials.
- G. Mark special masonry unit shapes to coordinate with shop drawings.

1.8 FIELD CONDITIONS

- A. Ambient Conditions:
 1. Products:
 - a. Use masonry units containing moisture levels within acceptable limits of reference standards; use of masonry units containing moisture levels above or below acceptable limits of reference standards is not permitted.
 - b. Use of frozen masonry units is not permitted.
 2. Cold Weather Protection: Comply with TMS 602.
 3. Hot Weather Protection: Comply with TMS 602.

2.0 PRODUCTS

2.1 PLAIN CONCRETE MASONRY UNITS

- A. General:
 1. Special Shapes:
 - a. Match concrete masonry units in color, texture, and aggregate.
 - b. Provide following shapes where indicated on Drawings:
 - 1) Plain End.
 - 2) Stretcher.
 - c. Provide standard manufactured sizes or cut full-sized concrete masonry units.
 - d. Fabricate units so cores and webs will vertically align when laid in specified bond pattern for finished wall.

2. Sizes:
 - a. Concrete Masonry Units (Nominal): 8-inches by 16-inches by thickness indicated on Drawings.
 - b. Concrete Building Brick (Nominal): 2-2/3 inches by 8-inches by 4-inches.
3. Provide fire-rated units in fire-rated walls.
- B. Load-Bearing Concrete Masonry Units:
 1. ASTM C90.
 2. Weight: Light.
 3. Provide hollow and solid units.
 4. Minimum Compressive Strength (F'_c) of 2000 lb/in².
 5. Acceptable Units for Masonry Reinforcement Bars:
 - a. Description:
 - 1) Single cell units with open ends.
 - 2) Notch in top of webs to accept 2 horizontal reinforcement bars, so horizontal bars hold vertical bars inside.
 - 3) Lip on Bottom of Unit: 1/2 inch.
 - 4) Protrusion of lip in middle core to hold vertical bars in position from outside face of unit.
 - 5) Fabricate with complementary corner units to match with stretcher units for placement of horizontal bars
 - 6) Minimum Compressive Strength (F'_c) of 3000 lb/in².
 - b. Acceptable Product: Ivany Block®.
 6. Lintels: ASTM C1623.
- C. Concrete Building Brick:
 1. ASTM C55.
 2. Grade: N.
 3. Weight: Light.
 4. Minimum Compressive Strength (F'_c) of 2000 lb/in².
- D. Finish Face:
 1. Plain Smooth (As-Cast); where indicated to be painted, provide fine textured units.

2.2 ACCESSORIES

- A. Cleaning Agents:
 1. Cleaning agents containing acids or alkalies are not permitted without Architect's written acceptance; do not use muriatic acid solutions.
 2. Acceptable Cleaning Agents for General Masonry Surfaces:
 - a. Diedrich Chemicals - Restoration Technologies, Inc.; Oak Creek, WI: 202 Detergent New Masonry Cleaner.
 - b. ProSoCo, Inc.; Lawrence, KS: Sure Klean Number 600 Detergent.
 - c. EaCo Chem; New Castle, PA: New Masonry Detergent 80.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify that foundations comply with TMS 602.
- C. Verify that reinforcing dowels and bars comply with TMS 602.
- D. Verify that surfaces that are to support masonry are to indicated lines and grades.
- E. Verify that surfaces that are to support masonry are free from dirt and deleterious materials.

3.2 PREPARATION

- A. Prepare surfaces to receive masonry in accordance with Section 01•70•00 and TMS 602.
- B. Concrete Masonry: Wetting not permitted.
- C. Cutting Masonry Units:

1. Cut units with carborundum saw to ensure true shape corners with clean, sharp, undamaged edges.
2. Cut units as required to accommodate field conditions to provide pattern shown on Drawings, and to neatly fit to adjoining construction assemblies.
3. Wherever possible, use full units without cutting.
4. Use 100 percent solid units where webs or cores will be exposed by cutting.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00.
- B. Install in accordance with TMS 602.
- C. General:
 1. Layout:
 - a. Perform in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns, and offsets.
 - b. Avoid use of units smaller than half size units at corners, jambs, and other locations.
 2. Placement of Masonry Units:
 - a. Do not install masonry units having cracks, breaks, chips, or other defects exceeding allowances stated in ASTM specification standard for particular masonry product.
 - b. Thickness: Build walls, floors and other masonry construction to full thickness shown, except, build single wythe walls to actual thickness of masonry units of nominal thickness.
 - c. Lay with completely filled mortar joints for solid units.
 - d. Collar Joints: Comply with TMS 602.
 - e. Bond and interlock each course of each wythe at corners. Do not use units with less than 4-inch horizontal face dimensions at corners or jambs.
 - f. Do not furrow bed joints.
 - g. Install pigmented mortar for full bed depth. Partial bed depth installation or pointing pigmented mortar into joints is not permitted.
 - h. Butter ends of masonry units with sufficient mortar to completely fill head and bed joints.
 - i. Tightly shove masonry units into place. Do not slush head joints.
 - j. After placing units, cut-off mortar squeezed out of joints from exposed face of units, and cut-off from face of cells/cavities to be filled with masonry grout.
 - k. Rock closures into place with head joint mortar thrown against in-place adjacent masonry units.
 - l. Adjusting units to final position:
 - 1) Perform while mortar is soft and plastic.
 - 2) Remove masonry units disturbed after laying; clean and re-install in fresh mortar.
 - 3) Where adjustment must be made after mortar has started to harden, remove unit and mortar, and re-install unit with fresh mortar.
 - m. After they are set in position, do not pound corners and jambs to fit stretcher units into place.
 - n. Joints:
 - 1) Mortar Joint Thickness:
 - a) Unless Noted Otherwise: 3/8-inch thickness.
 - 2) Create uniform width, except for minor variations to maintain bond alignment.
 - 3) Result from full depth mortar beds.
 - o. Lay exterior face masonry from scaffolding located on outside of building.
 - p. Provide uniform color of successive courses of masonry.
 - q. Provide exposed surfaces clean, true, flat, and even-textured, free from chips or other defects in faces, edges, or corners of units.

- r. Maintain flat plane where floor finishes, ceiling finishes, and other exposed construction will shut walls.
- s. Remove and replace defective units; do not point cracks, chips, or other defects.
- t. Masonry assemblies to be covered by other construction to appear same as visually exposed masonry.
- u. Keep concrete masonry dry.
- v. Acceptable methods of filling vertical longitudinal joints, except in cavity walls:
 - 1) By parging either face of backing wythe or back of facing wythe.
 - 2) By filling vertical joint with masonry grout.
 - 3) Shoving alone.
- 3. Joining of Work:
 - a. Where fresh masonry joins partially in-place masonry:
 - 1) Remove loose masonry units and mortar.
 - 2) Clean and lightly wet exposed surface of set masonry.
 - b. Stop-off horizontal runs of masonry by stepping back one-half length of unit in each course, creating angled stop in masonry; vertical toothed stop-offs of masonry is not permitted.
 - c. Tooth-like patterns between adjoining lifts of masonry are not permitted except upon Architect's written permission.
- 4. Anchoring and Structural Bonding: Comply with TMS 602.
- 5. Bearing Courses for Structural Loading:
 - a. Provide solid masonry units.
 - b. Lay units level and true.
 - c. Variations in elevation of top surface of adjacent masonry units and irregularities in bearing surface greater than 1/4-inch in 10-feet, under straightedge, shall be cause for removal and re-setting of bearing course.
 - d. Do not allow mortar to project above bearing course.
 - e. Unless more stringent details are indicated, following minimums apply:
 - 1) Bearing Courses for Cast-In-Place Concrete Slabs, Short Span Steel Joists, and Lintels Up To 78-inches in Length: Provide one 8-inch course of solid concrete masonry units or three courses of brick bearing course to run continuous.
 - 2) Bearing Courses for Structural Steel Framing, Beams, Girders, Joists, Trusses, and Beam Lintels: Provide bearing of two 8-inch courses of solid concrete masonry units or 5 courses of brick full width of wall and length equivalent to minimum 32-inches plus width of bearing plate.
 - 3) Bearing Courses for Wood Framing, Beams, Girders, Joists, Trusses, and Beam Lintels: Provide bearing of two 8-inch courses of solid concrete masonry units or 5 courses of brick full width of wall and length equivalent to minimum 32-inches plus width of bearing plate.
 - 4) Solid Masonry Units: Use only normal (heavy) weight sand and concrete aggregate blocks. Use of filled hollow units, slag units, lightweight units, or cinder units is not permitted in bearing courses.
 - 5) Construct piers four square feet in area, or smaller, of solid units.
- 6. Built In Products:
 - a. Consult other trades and make provisions that will permit installation of other specification sections in manner to avoid cutting and patching.
 - b. Drill, cut, fit, and chase, masonry assemblies for installation of pipes, ducts, conduits, equipment, fixtures, and built-ins, for construction of other trades.
 - c. Except where trim is provided or where space is required for joint sealer or firestop, fit masonry neatly against, or solidly place masonry grout around, built-in items.
 - d. Leave openings shown for equipment to be installed after completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to opening.

- e. Set steel lintels to exact lines and levels, and embedded for secure anchorage. Set concrete masonry lintels where openings occur in masonry and steel lintels are not indicated on Drawings.
 - f. Provide end bearing for lintels as indicated on Drawings; 8-inches minimum if not indicated otherwise.
 - g. Set metal frames in place, braced on masonry laid to frames, space between frame and masonry filled solid with mortar.
 - h. Coordinate and execute installation with mortar, masonry grout, and masonry accessories specified in Section 04•05•13, Section 04•05•16, Section 04•05•19.
 - i. Build chases and recesses as shown and as required for Work of other trades.
 - j. Install chases or recesses minimum of one masonry unit length from jambs of openings.
 - k. Provide not less than 8-inches of masonry between adjacent chases and recesses.
 - l. Build-in chases; cut-in chases are not permitted.
 - m. Chases are not permitted in piers of solid concrete masonry units.
 - n. Do not embed aluminum (coated or uncoated) products in masonry.
 - o. Where built in items are to be embedded in cores of hollow masonry units, place layer of mortar stop screen in joint below and rod mortar or grout into core.
7. Joint Tooling:
- a. Tool exposed joints when "thumb print" hard with joint tool which is slightly larger than width of joint.
 - b. Joint tool shape as specified below for installation of specific masonry.
 - c. Trowel point or concave tool exterior joints below grade.
 - d. Flush cut joints not tooled.
 - e. Strike joints in surfaces to be covered with plaster, stucco, and surface-applied finishes and materials other than paint.
 - f. As work progresses, trowel protruding mortar fins in cavity flat onto wythe's inner face.
8. Repairing and Pointing:
- a. Repair:
 - 1) Cut out defective joints and holes in exposed masonry and re-point with mortar, tooling to match adjacent joints.
 - 2) Remove and replace masonry units which are loose, chipped, broken, stained, or otherwise damaged; if units do not match adjoining units as indicated on Drawings.
 - 3) Provide new units to match adjoining units and install in fresh mortar or masonry grout, pointed to eliminate evidence of replacement.
 - b. Re-Pointing:
 - 1) During tooling of joints, enlarge voids and holes (except weep holes) and completely fill voids and holes with fresh mortar.
 - 2) Point-up joints at corners, openings, and adjacent construction to provide neat and uniform appearance.
 - 3) Prepare joints for application of joint sealers.
 - c. Tuck-Pointing for Repair of Installed Mortar Joints:
 - 1) Rake mortar joints to depth of not less than 1/2-inch nor more than 3/4-inch.
 - 2) Saturate joints with clean water.
 - 3) Fill solidly with mortar used for main part of wall.
 - 4) Tool joints to match adjacent joints.
- D. Plain Concrete Masonry Units:
- 1. Smooth Face Units:
 - a. Bond Pattern:
 - 1) Running bond.
 - 2) Vertical joints centered over units in course below.

- b. Joint Finish:
 - 1) Interior of Building: Concave.
 - 2. Embedded Conduits and Pipes:
 - a. Take particular care to embed conduit and pipes within concrete masonry units without fracturing exposed shells, and fit units around switch, receptacle, and other boxes set in walls.
 - b. Where use of hollow concrete masonry units in solid masonry unit walls is required for installation of embedded items, fill cells of hollow units in each course solidly with mortar or masonry grout before next course is laid.
 - 3. Placement:
 - a. Lay hollow units with full mortar bed coverage on cross webs and on horizontal and vertical face shells.
 - b. Completely bed solid units.
 - c. Lay concrete masonry units dry; wetting is not permitted.
 - d. Lay concrete masonry units with webs and cores of units vertically aligned in finished wall.

3.4 MAXIMUM TOLERANCES FOR MASONRY SURFACES

- A. Construct to comply with following tolerances.
- B. Remove and reconstruct Work not complying with following tolerances.
- C. Comply with TMS 602.
- D. Variation in Size of Wall Openings: Zero to plus 1/4-inch.
- E. Variation in Plane, Face of Masonry Unit to Face of Masonry Unit, Vertical and Horizontal: Plus 1/8-inch to minus 1/8-inch.
- F. Variation in Plane, in 10-feet: Plus 1/4-inch to minus 1/4-inch.

3.5 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
 - 1. Comply with Section 01•45•00.
 - 2. Contractor provided.
 - 3. Refer to special inspection chart on Drawings.
 - 4. Project is categorized as Non-Essential facility.
 - 5. Quality Assurance Level Testing and Inspection, as specified in TMS 6026: A.
 - 6. Perform periodic inspection of attachment and connections of masonry to wall framing.
 - a. Perform at start of installation, 50 percent completion, and 95 percent completion of roofing installation.

3.6 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Comply with TMS 602.
- C. General:
 - 1. Remove mortar spots and droppings from masonry by dry brushing with stiff non metallic fiber brushes at end of each day's work and after final pointing.
 - 2. At regular intervals and upon completing masonry construction, remove from site, debris resulting from masonry construction.
 - 3. Remove rubbish and sweep out pipe, duct, and similar inaccessible spaces and shafts, before closing up with masonry.
- D. Concrete Masonry:
 - 1. Rub down protruding mortar from joints smooth to adjoining masonry surface.
 - 2. After rubbing mortar joints, wash walls with water and stiff non metallic fiber brushes.
 - 3. If brushing and water rinsing do not produce clean surface, use cleaning agent upon Architect's written approval.
- E. Cleaning Agent:
 - 1. Use cleaning agent, with Architect's written acceptance, only if cleaning by brushing, wiping, and water rinsing does not remove mortar spots and droppings.
 - 2. Test cleaning agent on mock up before proceeding with work on finished walls.

3. Do not proceed with cleaning until mock up test results are accepted by Architect.
4. Follow cleaning agent manufacturer's instructions; deliver copy with cleaning agent.
5. Follow masonry unit manufacturer's instructions for masonry unit cleaning.
6. Thoroughly wet surface of masonry on which no green efflorescence appears.
7. Scrub with accepted cleaning agent.
8. Rinse with clean water within time limit established by cleaning agent manufacturer and clay brick manufacturer.
9. Clean small sections of wall at single time.
10. Clean wall from top to bottom.
11. Protect sash, metal lintels, other corrodible, and stainable construction materials when masonry is cleaned.
12. Replace masonry surfaces scarified by cleaning activities at no additional cost to Owner.

3.7 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Bracing:
 1. Comply with TMS 602.
 2. Contractor is responsible for design, installation, and removal of temporary bracing, forming, and falsework, of masonry assemblies.
- C. Load Application:
 1. Construction Load Application: Comply with TMS 602.
 2. Do not apply uniform floor/roof loading for at least 12 hours after constructing masonry columns and walls.
 3. Do not apply concentrated loads for at least 3 days after constructing masonry columns or walls.
- D. Wall Covering:
 1. During erection, cover top of wall with strong waterproof nonstaining membrane at end of each day's work or shutdown.
 2. Cover partially completed walls with strong waterproof nonstaining membrane when work is not in progress.
 3. On both sides of wall, extend cover minimum of 24-inches down from top of wall.
 4. Hold cover securely in place.
- E. Prevent mortar, from staining face of masonry left to be exposed to view or to be painted:
 1. Immediately remove mortar splatters and droppings from masonry faces.
 2. Protect sills, ledges, and projections, from mortar droppings.
 3. Protect door jambs and corners from damage.
- F. Protect masonry from breakage, chipping, crazing, collapse, damage, defacement, deterioration, graffiti, scratching, or staining.
- G. Protect doors, door frames, windows, window frames, and glass, from breakage, chipping, crazing, denting, staining, or scratching.
- H. Protect adjacent construction and finishes from damage caused by masonry construction and cleaning.
- I. Repair and replace damage to adjacent construction, caused by masonry construction, at no additional cost to Owner.
- J. Normal weathering of masonry which will be exposed to weather after completion will be acceptable, provided other conditions and activities do not interfere and result in unacceptable conditions.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 Towson Ct House ADA\11_Specifications\11.01_Working\CD\042000.wpd

SECTION 05 12 00
STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members, support members and struts.
- B. Base plates, embedded plates, shear stud connectors and expansion joint plates.
- C. Grouting under base plates.

1.02 REFERENCE STANDARDS

- A. AISC (MANUAL) – Steel Construction Manual; American Institute of Steel Construction, Inc.
- B. AISC S303 – Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.
- C. AISC S348 – Specification for Structural Joints Using Grade A325 or A490 Bolts.
- D. ASTM A 36/A 36M – Standard Specification for Carbon Structural Steel.
- E. ASTM A 53/A 53M – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.
- F. ASTM A 108 – Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.
- G. ASTM A 123/A 123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- H. ASTM A 153/A 153M – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- I. ASTM A 307 – Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- J. ASTM A 500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- K. ASTM A 563 – Standard Specification for Carbon and Alloy Steel Nuts.
- L. ASTM A 992/A 992M – Standard Specification for Structural Steel Shapes.
- M. ASTM C 1107/C 1107M – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink).
- N. ASTM E 94 – Standard Guide for Radiographic Examination.
- O. ASTM E164 – Standard Practice for Ultrasonic Contact Examination of Weldments.

- P. ASTM E 165 – Standard Test Method for Liquid Penetrant Examination.
 - Q. ASTM E 709 – Standard Guide for Magnetic Particle Examination.
 - R. ASTM F 436 – Standard Specification for Hardened Steel Washers.
 - S. ASTM F 959 – Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners.
 - T. ASTM F 1554 – Standard Specification for Anchor Bolts, Steel, 36, 55 and 105 ksi Yield Strength.
 - U. AWS A2.4 – Standard Symbols for Welding, Brazing, and Non-Destructive Examination.
 - 1. American Welding Society.
 - V. AWS D1.1/D1.1M – Structural Welding Code – Steel; American Welding Society.
 - W. IBC 2021 – International Building Code.
- 1.03 SUBMITTALS
- A. See Section 01 30 00 – Administrative Requirements, for submittal procedures.
 - B. Shop Drawings:
 - 1. Indicate profiles, sizes, spacing, and locations of structural members.
 - 2. Include details of cuts, openings, attachments, fasteners, splices and camber.
 - 3. Detail all connections.
 - a. Indicate pre-tensioned and slip-critical high-strength bolted connections.
 - b. Indicate welded connections with AWS welding symbols. Include type, size and length.
 - c. Indicate all AWS weld designations for pre-qualified full and partial penetration welds and detail all joint preparations.
 - 4. Provide erection details for all field welded connections.
 - 5. For structural-steel connections indicated to comply with design loads, connections and structural analysis data shall be signed and sealed by the qualified professional engineer registered in the State of Maryland responsible for their preparation.
 - C. AISC certification for fabricator and erector or required additional documentation for non-AISC certified fabricator and erector.
 - D. Mill Test Reports: Signed by manufacturer certifying that the product complies with specified requirements. Indicate structural strength, destructive test analysis and non-destructive test analysis.
 - E. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
 - F. Quality control test reports for shop and field including ultrasonic test results.

1. Submit certification by a Professional Engineer registered in the State of Maryland that all joint preparation for complete joint penetration welds meet AISC requirements and that all welding procedure specification requirements have been met.

1.04 QUALITY ASSURANCE

- A. Structural steel shall be domestic origin, produced and supplied from the United States of America only. Refer to the federal "Buy American Act" and applicable local regulations.
- B. Fabricate structural steel members in accordance with AISC "Steel Construction Manual" and AISC "Code of Standard Practice for Steel Buildings and Bridges".
- C. Comply with Section 10 of AISC "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.
- D. Welding: Comply with AWS D1.1, "Structural Welding Code-Steel" for procedures, tolerances, appearance and quality.
- E. Fabricator: Engage a firm experienced in fabricating structural steel similar to that indicated for this project and within 15 percent this project size, with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the Work.
 1. Provide documentation that fabricator has provided material for and erected at least 3 projects within 15 percent of project size and complexity, in the last six years.
 2. Allow the Owner's representative to visit the fabrication plant as required to inspect in place quality control procedures and structural steel fabrication.
 3. Fabricators who are not an AISC Certified Building Fabricator (BU), shall meet the following additional requirements:
 - a. Demonstrate that the fabricator has in place a quality control program for meeting IBC requirements and compliance with AISC recommendations and standards.
 - b. At no additional cost to the Owner, provide an independent shop inspection for compliance with IBC, AISC and AWS recommendations and standards.
 - c. Shop inspection tasks required by AISC 360 to be performed by the fabricator's quality control personnel, shall be overseen by the independent inspector hired by the fabricator.
 - d. At completion of fabrication, and prior to erecting steel, submit a certificate of compliance signed and sealed by the third party inspector, stating that the steel fabrication complies with the requirements of the construction documents.
 - e. Shop drawings shall be signed and sealed by a professional engineer, registered in the local jurisdiction, responsible for the design of the connections. The professional engineer shall carry a minimum of \$1,000,000.00 of professional liability insurance.
 - f. The steel fabricator shall provide field repair details, along with computations, for all required field modifications. The details and calculations shall be signed and sealed by the same professional engineer that certified the shop drawings.

- F. Erector: Engage a firm experienced in erecting structural steel similar to that indicated for the project and within 15 percent of this project size, with a record of successful in-service performance.
 - 1. Provide documentation that the erector has erected at least 3 projects within 15 percent of project size and complexity in the last six years.
 - 2. Erectors who are not an AISC Certified Steel Erector (CSE) shall meet the following additional requirements:
 - a. Provide an erection procedure safety document with cover letter, signed and sealed by a professional engineer registered in the State of Maryland, that states the document has been reviewed and is in conformance with erection procedures required by AISC.
- G. Design connections not detailed on the drawings under direct supervision of a Professional Engineer experienced in design of this work and licensed in the State of Maryland.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off the ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from erosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and re-lubricate bolts and nuts that become dry or rusty before use.
 - 2. Do not store materials on structure in a manner that might cause deterioration, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.06 COORDINATION

- A. Furnish anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel angles, Channels and Plates: ASTM A 36/A 36M. ASTM A 572 where plate is noted on plans to have a yield strength of 50 ksi.
- B. Steel W Shapes and Tees: ASTM A 992/A 992M.
- C. Cold-Formed Structural Tubing: ASTM A 500, Grade C.
- D. Pipe: ASTM A 53/A 53M, Grade B, Finish black.
- E. Shear Stud Connectors: Made from ASTM A 108 Grade 1015 bars. Headed stud type.
- F. Rods: ASTM A 36/A 36M.

- G. Structural Bolts and Nuts: Carbon steel, ASTM A 307, Grade A.
- H. High-Strength Structural Bolts, Nuts, and Washers: Grade A 325, with matching ASTM A 563 nuts and ASTM F 436 washers; Type 1, medium carbon, plain. Bolts and nuts shall be heavy hex.
- I. Anchor Rods: ASTM F 1554, Grade 36, plain, with matching ASTM A 563 nuts and ASTM F 436 washers.
- J. Load Indicator Washers: Provide washers complying with ASTM F 959 at all connections requiring pre-tensioned high-strength bolts.
- K. Welding Materials: AWS D1.1; type required for materials being welded.
- L. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C 1107/C 1107M and capable of developing a minimum compressive strength of 7,000 psi at 28 days.
- M. Shop and Touch-Up Primer: Type specified in Section 09 91 20, complying with VOC limitations of authorities having jurisdiction.
- N. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Shop fabricate to the greatest extent possible.
- B. Develop required camber for members.
- C. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 - 1. Plane thermally cut edges to be welded to comply with requirements of AWS D1.1.
- D. Bolt Holes: Drill or punch standard bolt holes perpendicular to metal surfaces.
- E. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

2.03 FINISH

- A. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted with slip-critical connections.
- B. Surface preparation: SSPC-SP2: "Hand Tool Cleaning" or SSPC-SP3, "Power Tool Cleaning".
 - 1. Refer to Division 9 for preparation of surfaces that are to receive coatings other than shop primer.
- C. Provide a dry film thickness of not less than 1.5 mil.

- D. Galvanize structural steel members to comply with ASTM A 123/A 123M. Provide minimum 1.7 oz/sq ft. galvanized coating. Galvanize shelf angles, lintels and hung plates located in exterior walls. Galvanize all exterior steel.

2.04 SOURCE QUALITY CONTROL

- A. An independent testing agency will perform source quality control tests, as specified in Division 1. Inspection services shall conform to Section 1705.2 of the 2021 IBC Code, the quality assurance inspection requirements of AISC 360 and the Statement of Special inspections noted in the structural drawings.
- B. High-Strength Bolts: Provide testing and verification of all shop-bolted connections in accordance with AISC "Specification for Structural Joints Using Grade A 325 or A 490 Bolts".
 - 1. Pre-tensioned and slip-critical bolts shall be installed using direct-tension-indicator washer method or twist-off type tension control bolt method.
- C. Welded Connections: Visually inspect all shop-welded connections and test all full penetration welds using ultrasonic testing performed in accordance with ASTM E 164.
 - 1. Inspect all joint preparations for complete joint penetration welds and verify compliance with welding procedure specification requirements.

PART 3 - EXECUTION

3.01 ERECTION

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Field weld components indicated on shop drawings.
- D. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with AISC "Specification for Structural Joints Using Grade A 325 or A 490 Bolts".
- E. Do not field cut or alter structural members without the approval of the Architect.
- F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete and surfaces that will be fireproofed. Repair damaged galvanized coatings with galvanized repair paint.
- G. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for non-shrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.02 TOLERANCES

- A. Maintain erection tolerances of structural steel and architecturally exposed structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges".

3.03 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Division 1. Inspection services shall conform to Section 1705.2 of the 2021 IBC Code, the quality assurance inspection requirements of AISC 360 and the Statement of Special Inspections noted in the structural drawings.
- B. High-Strength Bolts: Provide testing and verification of all field-bolted connections in accordance with AISC "Specification for Structural Joints Using Grade A 325 or A 490 Bolts".
 - 1. Pre-tensioned and slip-critical bolts shall be installed using direct-tension-indicator washer method or twist-off type tension control bolt method.
- C. Welded Connections: Visually inspect all field-welded connections and test all full penetration welds using ultrasonic testing performed in accordance with ASTM E 164.
 - 1. Inspect all joint preparations for complete joint penetration welds and verify compliance with welding procedure specification requirements.
- D. Correct deficiencies in work that inspections indicate does not comply with the specified requirements.

END OF SECTION

SECTION 05 31 00 STEEL DECKING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Composite floor deck.
- B. Metal form deck.
- C. Supplementary framing for openings up to and including 12 inches.
- D. Bearing plates and angles.
- E. Stud shear connectors.

1.02 REFERENCE STANDARDS

- A. ASTM A 36/A 36M – Standard Specification for Carbon Structural Steel.
- B. ASTM A 108 – Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
- C. ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- D. ASTM A 1008/A 1008M – Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardened.
- E. AWS D1.1/D1.1M – Structural Welding Code – Steel; American Welding Society.
- F. AWS D1.3 – Structural Welding Code – Sheet Steel, American Welding Society.
- G. SDI (DM) – Publication No. 31, Design Manual for Composite Decks, Form Decks, Roof Decks; Steel Deck Institute.
- H. SSPC-Paint 20 – Zinc-Rich Primers (Type I, “Inorganic”, and Type II “Organic”); The Society for Protective Coatings.

1.03 SUBMITTALS

- A. See Section 01 30 00 – Administrative Requirements, for submittals procedures.
- B. Shop Drawings: Indicate deck plan, support locations, anchorage details, projections, openings, reinforcement, cellular raceways and outlet box locations, pertinent details, and accessories.
- C. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.
- D. Certificates: Certify that products furnished meet or exceed specified requirements.

- E. Welders Certificates: Certify welders employed on the Work are certified to perform welding according to AWS requirements with AWS 1.3 qualification within the previous twelve months.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this Section with minimum of 5 years of documented experience.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Cut plastic wrap to encourage ventilation.
- B. Separate sheets and store deck on dry wood sleepers, slope for positive drainage.

PART 2 - PRODUCTS

2.01 STEEL DECK

- A. Composite Floor Deck: Fluted steel sheet embossed to interlock with concrete.
 - 1. Galvanized Steel Sheet: ASTM A 653/A 653M, Designation SS, with G60/Z180 galvanized coating.
 - a. Grade 50.
- B. Metal Form Deck: Corrugated Sheet Steel:
 - 1. Galvanized Steel Sheet: ASTM A 653/A 653M. Designation SS with G60/Z180 galvanized coating.
 - a. Grade 60.

2.02 ACCESSORY MATERIALS

- A. Bearing Plates and Angles: ASTM A 36/A 36M steel.
- B. Stud Shear Connectors: Made from ASTM A 108/A 108M Grade 1015 bars.
- C. Welding Materials: AWS D1.1.
- D. Fasteners: Galvanized hardened steel, self tapping screws, No. 10 minimum.
- E. Weld Washers: Mild steel, uncoated, ¾ inch outside diameter, 1/8 inch thick.
- F. Shop and Touch-Up Primer: Type specified in Section 09 91 20, complying with VOC limitations of authorities having jurisdiction.
- G. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, complying with VOC limitations of authorities having jurisdiction.
- H. Flute Closures: Closed cell foam rubber, 1 inch thick; profiled to fit tight to the deck.

2.03 FABRICATED DECK ACCESSORIES

- A. Sheet Metal Deck Accessories: Metal closure strips, wet concrete stops, and cover plates, 20 gage minimum thick sheet steel; of profile and size as indicated; material and finish same as deck.
- B. Cant Strips: Formed sheet steel, 16 gage thick, 45 degree slope, 3½ inch nominal width and height, flange for attachment.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions prior to beginning work.

3.02 INSTALLATION

- A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions. Align and level.
- B. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before permanently fastening.
- C. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck and support of other work.
- D. Weld deck in accordance with AWS D1.3.
- E. Where deck changes direction, install 6 inch minimum wide sheet steel cover plates, of same thickness as deck. Fusion weld 12 inches on center maximum.
- F. At floor edges, install concrete stops upturned to top surface of slab, to contain wet concrete. Provide stops of sufficient strength to remain stationary without distortion.
- G. At openings between deck and walls, columns, and openings, provide sheet steel closures and angle flashings to close openings.
- H. Close openings above walls and partitions perpendicular to deck flutes with single row of foam cell closures.
- I. Place metal cant strips in position and field weld.
- J. Weld stud shear connectors through steel deck to structural members below.
- K. Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up primer.

3.03 FLOOR DECK INSTALLATION

- A. Fasten floor-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated and as follows:
 - 1. Weld Diameter: 3/4 inch, nominal.
 - 2. Weld Spacing: Weld edge ribs of panel at each support and at 12" on center.

- B. Side-lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of half of the span or 36 inches, and as indicated on Drawings.
 - 1. Fasten with a minimum of 1½ inch long welds.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1½ inches, with end joints butted.

3.04 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Division 1. Inspection services shall conform to Section 1705.2 of the 2021 IBC Code and the Statement of Special Inspections noted in the structural drawings.
- B. Inspection shall include, but not be limited to, deck alignment, support, welds, side lap attachments and touch-up galvanizing.
- C. Remove and replace work that does not comply with specified requirements.

END OF SECTION

SECTION 05•51•00
METAL STAIRS

1.0 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. New stair.
 - 2. Floor mounted railings adjacent to stair, sloped floor, and wheelchair lift.
- B. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 09•91•00 - Painting.

1.2 REFERENCES

- A. Reference Standards:
 - 1. American Society of Civil Engineers (ASCE):
 - a. ASCE-7, Minimum Design Loads for Buildings and Other Structures.
 - 2. ASTM International (ASTM):
 - a. ASTM A1008, Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability.
 - b. ASTM A1011, Steel, Sheet, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability.
 - c. ASTM A269, Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - d. ASTM A307, Carbon Steel Bolts and Studs 60 000 PSI Tensile Strength.
 - e. ASTM A312, Seamless and Welded Austenitic Stainless Steel Pipe.
 - f. ASTM A36, Carbon Structural Steel.
 - g. ASTM A47, Ferritic Malleable Iron Castings.
 - h. ASTM A48, Gray Iron Castings.
 - i. ASTM A500, Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - j. ASTM A666, Annealed or Cold- Worked Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar.
 - k. ASTM A743, Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion-Resistant for General Application.
 - l. ASTM A890, Castings, Iron-Chromium-Nickel-Molybdenum, Corrosion-Resistant for General Application.
 - m. ASTM A992, Structural Steel Shapes.
 - n. ASTM F593, Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - o. ASTM F594, Stainless Steel Nuts.
 - 3. American Welding Society (AWS):
 - a. AWS D1.1, Structural Welding Code.
 - 4. Association for Materials Protection and Performance (AMPP):
 - a. AMPP-SSPC SP-2, Hand Tool Cleaning.
 - b. AMPP-SSPC SP-3, Power Tool Cleaning.
 - 5. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. NAAMM MSM, Metal Stair Manual.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Deliver items incorporated or built into adjacent construction to responsible trade in sufficient time that progress of work is not delayed.

3. Coordinate and furnish to appropriate section: Anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of metal fabrications.
4. Coordinate location of items incorporated or built into adjacent construction.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Delegated Design Submittals:
 1. Shop Drawings:
 - a. Indicate:
 - 1) Profiles.
 - 2) Sizes.
 - 3) Connection attachments.
 - 4) Reinforcing.
 - 5) Anchorage.
 - 6) Openings.
 - 7) Size and type of fasteners.
 - 8) Accessories.
 - 9) Welded connections using standard AWS welding symbols.
 - 10) Net weld lengths.
 - 11) Support loads.
 - b. Include erection drawings, elevations, and details.
 - c. Stamp shop drawings with seal and signature of licensed professional responsible for design.
- C. Submittals for Architect's Information:
 1. Test and Evaluation Reports:
 - a. Submit certified mill test reports for chemical analysis and physical tests for each heat number.

1.5 QUALITY ASSURANCE

- A. Licensed Professional Qualifications:
 1. Comply with Section 01•43•00.
 2. Experience in design of stairs and railings.
 3. Minimum duration of experience 10 years.
- B. Fabricator Qualifications:
 1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.
- C. Welder Qualifications: Comply with Section 01•43•00.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Protect against damage to finished surfaces.
- C. Stack in manner to prevent bending.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Design Requirements:
 1. Fabricator is responsible for designing units, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
 2. Employ registered professional engineer, licensed to practice structural engineering in jurisdiction where Project is located, to engineer each component of stair system.
 3. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.

4. Provide concealed fastening wherever possible.
 5. Attachment Considerations: Account for site peculiarities, and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between piping and units.
 6. Anticipated Live Load Interior Beam Deflections: $\text{Span}/240$.
 7. Maximum Allowable Deflection: $\text{Span}/240$.
- B. Structural Requirements:
1. Design stairs, handrails, and guardrails to comply with Section 4.4 of ASCE-7.

2.2 MATERIALS

- A. Metal Surfaces Exposed to View: Use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names, and roughness.
- B. Steel:
1. Hot-Rolled Shapes:
 - a. W-Shapes: ASTM A992.
 - b. Shapes Other than W-Shapes: ASTM A36.
 2. Bars: ASTM A36.
 3. Structural Tubes:
 - a. Cold-Formed Welded and Seamless Carbon Steel: ASTM A500, Grade C.
 4. Non-Galvanized Sheet: ASTM A1008 or ASTM A1011.
 5. Plate: ASTM A36.
 6. Castings: ASTM A47 or ASTM A48.
 7. Fasteners:
 - a. Bolts: ASTM A307.
 - b. Match or be compatible with metals being fastened.
- C. Stainless Steel:
1. Use Location: Handrails and top rail.
 2. Tubing:
 - a. ASTM A269.
 - b. UNS S30200 or S30400.
 3. Pipe:
 - a. ASTM A312.
 - b. UNS S30200 or S30400.
 4. Plate, Sheet, and Strip:
 - a. ASTM A666.
 - b. UNS S30200 or S30400.
 5. Castings: ASTM A743 or ASTM A890.
 6. Fasteners:
 - a. Bolts: ASTM F593.
 - b. Nuts: ASTM F594.
 7. Finish: 4.
- D. Welding Material:
1. AWS D1.1.
 2. Type required for materials being welded.
- E. Exposed Mechanical Fastenings:
1. Flush countersunk screws or bolts.
 2. Unobtrusively located.
 3. Consistent with design if structure.

2.3 FABRICATION

- A. General:
1. Comply with NAAMM MSM.
 2. Verify dimensions and conditions on site prior to shop fabrication.
 3. Commencement of fabrication indicates acceptance of site dimensions and conditions.
 4. Fabricate items with joints tightly fitted and secured.

5. Fit and shop assemble sections in largest practical sizes, for handling through building openings.
6. Form true to line and level with accurate angles and surfaces.
7. Ease exposed edges to radius of approximately 1/32 inch unless otherwise shown.
8. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing physical performance of components.
9. Welds:
 - a. Comply with AWS D1.1.
 - b. Grind exposed welds flush and smooth with adjacent finished surface.
 - c. Ease exposed edges to small uniform radius.
10. Make exposed joints butt tight, flush, and hairline.
11. Accurately form components required for anchorage of following items to each other and to building structure:
 - a. Stairs.
 - b. Landings.
 - c. Railings.
12. Construct stairs to comply with arrangements shown.
13. Join pieces together by welding unless otherwise indicated.
14. As required to anchor and contain stairs on supporting structure, provide complete stair assemblies including metal framing, hangers, columns, railings, newels, balusters, struts, clips, brackets, bearing plates, and other components for support of stairs and platforms.
15. Fabricate stringers as indicated on drawings.
16. Provide closures for exposed ends of stringers.
17. Construct platforms of structural shapes for headers and miscellaneous framing members.
18. Bolt or weld headers to:
 - a. Stringers.
 - b. Newels.
 - c. Framing members.
19. Fabricate and join so that bolts, if used, do not appear on finish surfaces.
20. Where masonry walls support stairs, provide temporary supporting struts designed for erection of stair components before installation of masonry.
21. Stair Guardrails and Handrails:
 - a. Guardrail:
 - 1) Provide with:
 - a) Intermediate Bars:
 - 1] Orientation: Vertical.
 - 2] Spacing: Not greater than 4 inches.
 - 2) Fabricate with top of guardrail at 42 inches above stair nosing and landings.
 - 3) Attach handrail to guardrail.
 - 4) Connect guardrail posts to stair framing by direct welding, except as otherwise indicated.
 - 5) Fabricate newels of pipe/tube and provide newel caps of gray iron castings.
 - b. Handrail:
 - 1) Minimum Space Between:
 - a) Guardrail Baluster Face and Handrail Face: 2-1/4 inches
 - b) Wall Face and Handrail Face: 2-1/4 inches
 - 2) Size: 1.66 inches maximum outside diameter.
 - 3) Mount at 34 inches above stair nosing and landings, unless otherwise indicated.
 - c. Connection Method: Welded.
 - d. Center guardrail and handrail to be continuous from top floor landing to bottom floor landing.
 - e. Handrails may be bent at corners, rail returns and wall returns, instead of using prefabricated fittings.

- f. Rail Bending:
 - 1) Form simple and compound curves by bending pipe/tube in jigs to produce uniform curvature for each repetitive configuration required.
 - 2) Maintain cross-section of pipe/tube throughout entire bend without buckling, twisting, or otherwise deforming, exposed surfaces of pipe/tube.
- B. Concrete Pan Stairs and Landings:
 - 1. Fabricate stairs with closed risers and treads of pan construction to receive concrete.
 - 2. Form treads and risers from minimum 0.10 inch thick sheet stock.
 - 3. Secure tread pans to stringers with clip angles welded in place.
 - 4. Stringers:
 - a. Shape: Channel.
 - b. Depth: As indicated on drawings.
 - c. Weld fascia plates to channels using 0.075 inch thick sheet stock across channel toes.
 - 5. Landings:
 - a. Form from minimum 0.10 inch thick sheet stock.
 - b. Reinforce underside with angles or tees to attain design load requirements.
 - 6. Balusters:
 - a. Size: 1-1/2 by 1-1/2 inches.
 - b. Shape: Square tube.
 - c. Connection to Stringers: Welded.

2.4 FINISHES

- A. Primer to Receive Field Paint Specified in Section 09•91•00 or Not Be Field Painted:
 - 1. Steel Located Interior of Exterior Building Walls:
 - a. Description:
 - 1) Short oil alkyd or modified alkyd.
 - 2) Surface Preparation: AMPP-SSPC SP-3 or AMPP-SSPC SP-2.
 - 3) Volatile Organic Compound Limits of Field-Applied Primer Paint:
 - a) Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b) Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Industrial Maintenance Coating.
 - b. Acceptable Manufacturers and Products:
 - 1) Carboline Company; St. Louis, MO: Carbocoat 115, at 1.5 to 2.0 mils dry film thickness.
 - 2) Complementary Coatings; Montvale, NJ: Corotech V130 Series Quick Dry Alkyd Metal Primer, at 1.9 to 2.2 mils dry film thickness.
 - 3) International Protective Coatings; Houston, TX: Interprime 140, at 1.4 to 1.8 mils dry film thickness.
 - 4) PPG Paints; Pittsburgh, PA: MetalCase 85 7-852 Series Alkyd Rust Inhibitive Metal Primer, at 2.1 to 2.5 mils dry film thickness.
 - 5) Tnemec Company; North Kansas City, MO: Series 88HS Azeroon HS Primer, at 2.0 to 3.5 mils dry film thickness.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify alignment with adjacent construction.

3.2 ERECTION

- A. Erect in accordance with Section 01•70•00, and approved submittals.

- B. Erect units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
- C. Provide anchors, plates, angles, hangers, and struts required for connecting stairs to structure.
- D. Verify alignment with adjacent construction. Coordinate related work.
- E. Do not field cut or alter members.
- F. Connections:
 - 1. Field bolt and weld to match standard of shop bolting and welding.
 - 2. Hide bolts and screws whenever possible.
 - 3. Where not hidden, use flush countersunk fastenings.
- G. Mechanically fasten joints butted tight, flush, and hairline.
- H. Welding:
 - 1. Comply with AWS D1.1.
 - 2. Field weld connections which cannot be shop-welded due to shipping size limitations.
 - 3. Grind welds smooth and flush.
- I. Tolerances:
 - 1. Comply with NAAMM MSM.
 - 2. Maximum Variation from Plumb: 1/4 inches in 12 feet.
 - 3. Maximum Variation from Alignment: 1/4 inches in 12 feet.
- J. Touch-up painted surfaces with paint primer.

3.3 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect from damage which may adversely affect physical performance or aesthetic appearance.

3.4 SCHEDULE

- A. Concrete-Filled Steel Pan Stairs:
 - 1. Location: Interior Stairs.
 - 2. Risers: Closed metal plate.
 - 3. Stair Treads and Landings: Concrete-Filled Metal Pan
 - a. Base bid: Quartz finish.
 - b. Alternate: Terrazzo finish.
 - 4. Guardrail and Handrail: Exposed metal.
 - 5. Frame, Tread, and Riser Metal: Steel; prime painted.
 - 6. Guardrail Metal:
 - a. Top Rail: Stainless steel.
 - b. All other metal: Steel, prime painted.
 - 7. Handrail Metal: Stainless steel.

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 Towson CtHouseADA\11_Specifications\11.01_Working\CD\055100.wpd

SECTION 07•84•00
FIRESTOPPING

1.0 GENERAL

1.1 SUMMARY

- A. Comply with requirements of this Section regardless of whether firestopping materials or systems are specified in other Sections of these Specifications.
- B. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C612, Mineral Fiber Block and Board Thermal Insulation.
 - b. ASTM C920, Elastomeric Joint Sealants.
 - c. ASTM E119, Fire Tests of Building Construction and Materials.
 - d. ASTM E136, Behavior of Materials in a Vertical Tube Furnace at 750°C.
 - e. ASTM E1399, Cyclic Movement and Measuring of Minimum and Maximum Joint Widths of Architectural Joint Systems.
 - f. ASTM E1966, Fire Resistive Joints.
 - g. ASTM E2174, On-Site Inspection of Installed Fire Stops.
 - h. ASTM E814, Fire Tests of Through Penetration Fire Stops.
 - i. ASTM E84, Surface Burning Characteristics of Building Materials.
 - 2. Factory Mutual (FM):
 - a. FM 4991, Approval of Fire Stop Contractors.
 - 3. UL Solutions (UL):
 - a. UL 1479, Fire Tests of Through Penetration Fire Stops.
 - b. UL 2079, Fire Resistance of Building Joint Systems.
- B. Definitions:
 - 1. Construction Gaps: Gaps, joints, or openings, whether static or dynamic, where:
 - a. Top of fire-rated wall may meet floor or roof structure.
 - b. Bottom of fire-rated wall may meet floor or roof structure.
 - c. Fire-rated walls intersect with other walls.
 - d. Linear breaches in fire-rated assemblies.
 - 2. Firestopping: Use of materials or combination of materials in fire-rated assembly to maintain fire and smoke integrity of assembly where assembly is breached.
 - 3. Fire Barrier: Fire-rated assemblies.
 - 4. Membrane Firestopping Protection System: Material, manufactured device, or assembly of materials that are designed and installed to prevent spread of flames, smoke, and combustion gasses through openings that are made through one side of fire-resistance rated assemblies to accommodate items such as conduits, pipes, tubes, vents, wires, and similar items.
 - 5. Through-Penetration Protection System: Material, manufactured device, or assembly of materials that are designed and installed to prevent spread of flames, smoke, and combustion gasses through openings that are made completely through fire-resistance rated assemblies to accommodate through-penetration items such as conduits, pipes, tubes, vents, wires, and similar items.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:

1. Within 6 inches of top of fire-rated walls, do not install membrane or through penetrations.
 2. Coordinate firestopping installation with other trades.
 3. Coordinate installation of penetration protection systems with adjacent construction so there is adequate clearance for installation.
- B. Pre-Installation Meeting:
1. Conduct pre-installation conference in accordance with Section 01•31•00.
 2. Attendees:
 - a. Contractor.
 - b. Firestopping installer.
 - c. Stud framer.
 - d. Gypsum board installer.
 - e. Plumbing and piping installers.
 - f. Electrical systems installer.
 3. Agenda:
 - a. Coordination of firestopping installation with facility systems installation.
 - b. Work sequences and techniques which affect firestopping installation.
- C. Sequencing:
1. Sequence work under provisions of Section 01•10•00.
 2. Do not enclose locations requiring installation of penetration protection systems until penetration protection systems have been installed and inspected by Owner's inspection agency and authority having jurisdiction.
 3. Prior to insulating, unless insulation meets requirements specified for firestopping, apply firestopping materials at penetrations of:
 - a. Pipes.
 4. Apply firestopping materials at building joints and construction gaps prior to completion of enclosing walls or assemblies.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
1. Firestopping systems other than Basis of Design systems may be used.
 2. Select Firestopping Systems Based Upon:
 - a. Performance / design criteria.
 - b. Assembly fire rating.
 - c. Assembly thickness.
 - d. Through Penetration Protection Systems:
 - 1) Penetrating item (penetrant).
 - 2) Relationship of penetrant to penetration hole.
 - 3) Annular space around penetrant.
 - 4) Construction assembly penetrated by penetrant.
 - e. Head-of-Wall and Base-of-Wall Firestops:
 - 1) Wall construction assembly.
 - 2) Floor construction assembly.
 - 3) Gap width.
 - f. Wall-to-Wall Firestops:
 - 1) Wall construction assemblies.
 - 2) Gap width.
 - g. Packing, damming, or backing materials.
 - h. Fill materials.
 3. Product Data:
 - a. Prepare and submit schedule of conditions requiring firestopping system and proposed products intended for each condition.
 - b. Submit product data for firestopping system materials, prefabricated penetration protection system devices, and accessories.
 4. Shop Drawings:

- a. Submit shop drawings for firestopping systems.
- b. Indicate:
 - 1) Materials.
 - 2) Reinforcement.
 - 3) Anchorage.
 - 4) Fastenings.
 - 5) Installation method.
- 5. Engineering Judgement:
 - a. Verify with Authority Having Jurisdiction that it will accept engineering judgements.
 - b. Submit where there is no specific third-party tested and classified firestop system available for particular configuration, regardless of manufacturer.
 - c. Submit for variations from third-party tested and classified firestop system.
 - d. Prepare by manufacturer in accordance with Listing Agency's Technical Evaluation Audit programs.
- 6. Retain printed copy of approved firestop submittal on project site during construction site.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
 - 3. Factory Mutual approved in accordance with FM 4991 or Listed as UL Qualified Firestop Contractor from Underwriters Laboratories.
 - 4. Certified, licensed, or otherwise qualified by firestopping manufacturer as having necessary staff, training, and minimum of 3 years experience in installation of manufacturer's products per specified requirements.
 - 5. Trained by direct representative of manufacturer (not distributor or agent) in selection and installation procedures.
 - 6. Manufacturer's willingness to sell its firestopping products to Contractor or to installer engaged by Contractor does not in itself confer qualification on buyer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Deliver in original unopened containers or packages bearing intact and legible manufacturer's names, brand designations, product descriptions, and mixing instructions.
- C. Do not use products which have sustained damage which may affect their performance.
- D. Store products in weather tight enclosure.
- E. Store products in original containers at temperatures within manufacturer's instructed temperature range.
- F. Do not damage materials.
- G. Do not use safing insulation which has become wet.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Comply with more restrictive of following or manufacturer's written requirements under which products can be installed.
- B. Do not apply products when temperature of substrate materials are not within manufacturer's stated limits.
- C. Do not apply products when temperature of surrounding ambient air is not within manufacturer's stated limits.
- D. Maintain products at manufacturer's instructed temperature for best workability.
- E. Provide adequate ventilation if using solvent.
- F. Keep flammable materials away from sparks or flame.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

A. Design Requirements:

1. Manufacturer is responsible for designing system, including necessary modifications to meet specified requirements.
2. Provide and install complete firestopping systems that have been tested and listed by third party testing and listing agency.
3. Use systems listed by:
 - a. Factory Mutual; Norwood, MA.
 - b. Guardian Fire Testing Laboratories; Cobleskill, NY.
 - c. Intertek Testing Services; Boxborough, MA.
 - d. UL Solutions; Northbrook, IL.
 - e. Other recognized fire-testing laboratory which has follow-up inspection service of manufacturer's facilities.
4. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between penetrant and firestops.

B. Performance Requirements:

1. Systems to prevent passage of flames, smoke, and combustion gasses through penetration, blank opening, or gap.
2. Systems to Close or Fill Through Openings Created by:
 - a. Burning or melting of:
 - 1) Combustible pipes.
 - 2) Pipe insulation materials.
 - b. Deflection of sheet metal due to thermal expansion; includes but is not limited to mechanical and electrical ducts.
3. Membrane Firestopping Protection System and Through-Penetration Protection Systems and Devices:
 - a. Penetration systems to be intumescent material or system of intumescent materials which have passed tests in configurations representative of field conditions.
 - b. Test Methods:
 - 1) F Ratings: Determine in accordance with ASTM E814 or UL 1479, at pressure differential of 0.01 inches of water.
 - 2) L Ratings: Determine in accordance with UL 1479, at pressure differential of 0.30 inches of water.
 - 3) T Ratings: Determine in accordance with ASTM E814 or UL 1479, at pressure differential of 0.01 inches of water.
4. Wall Linear Gap Systems:
 - a. Head-of-Wall, Wall-to-Wall, and Bottom of Wall (Intersections of Fire-Rated Assemblies): Test in accordance with ASTM E119, ASTM E1399, ASTM E1966, or UL 2079.
 - b. Wall-to-Wall (Intersections of Fire-Rated Assemblies): Test in accordance with ASTM E119, ASTM E1399, ASTM E1966, or UL 2079.
 - c. Bottom of Wall (Intersections of Fire-Rated Assemblies): Test in accordance with ASTM E119, ASTM E1399, ASTM E1966, or UL 2079.

C. Fire Resistance Requirements:

1. Flame Spread Index, Determined in Accordance with ASTM E84: Less than 25.
2. Membrane Firestopping Protection System, Wall Linear Gap Systems, and Through-Penetration Protection Systems and Devices:
 - a. F-Ratings: Minimum of 1 hour, but not less than fire rating of construction assembly.
 - b. L-Ratings:
 - 1) Penetrations:
 - a) At Ambient Temperature: Not exceed $5.0 \text{ ft}^3/\text{minute} \cdot \text{ft}^2$.

- b) At 400°F: Not exceed 5.0 ft³/minute•ft².
 - 2) Wall Linear Gaps:
 - a) At Ambient Temperature: Not exceed 5.0 ft³/minute•ft.
 - b) At 400°F: Not exceed 5.0 ft³/minute•ft².
- c. T-Ratings:
 - 1) Match fire rating of fire-rated construction assemblies for following items which are not enclosed in fire-rated wall or shaft enclosure assemblies:
 - a) Conduits.
 - b) Pipes.
 - 2) Not Required at:
 - a) Through-wall penetrations.
 - b) Membrane penetration of walls, excluding boxes other than electrical boxes.
 - c) Floor penetrations contained and located within wall cavity above floor or below floor.
 - 3) Fire tested with minimum 0.01 inches of water column.
- D. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - b. Maximum Value: As stated in Section 01•41•00 under Sealants for architectural sealants.
- E. Single Source Responsibility:
 - 1. No single manufacturer needs to be used for firestops.
 - 2. To prevent incompatibility when systems intersect, furnish from one manufacturer, each:
 - a. Base-of-wall protection system.
 - b. Head-of-wall protection system.
 - c. Membrane firestopping protection system.
 - d. Through-penetration protection system.
 - e. Wall-to-wall protection system.
 - 3. Provide each penetration protection system as complete unit from single manufacturer, including accessory items necessary for specified function. Do not intermix materials from different manufacturers in same firestop system or opening.

2.2 THROUGH-PENETRATION PROTECTION SYSTEMS

- A. Protection Systems:
 - 1. Sealant, putty, or mortar material.
 - 2. Foams are not permitted.
 - 3. Flexible to permit normal movement of penetrating item.
 - 4. To not shrink or contract upon drying evidenced by cracking or pulling back from contact surfaces.
 - 5. Moisture resistant.
 - 6. Not capable of dissolving in water after curing.
 - 7. Asbestos and lead free.
 - 8. Mixes: If mixing is required, mix components as instructed by manufacturer.
 - 9. Products Used in Exterior Exposed Fire-Rated Assemblies and Exposed to Exterior:
 - Comply with ASTM C920:
 - a. Type: S.
 - b. Grade: NS.
 - c. Class: 25.
 - d. Uses: NT, M, A, O.
- B. Urinal Drain, Other Electrical Penetrants, Other Mechanical Penetrants, and Multiple Penetrant: Select systems appropriate to penetrant and construction assembly penetrated.
- C. Nonmetallic Pipe, Metallic Pipe, Uninsulated Metallic Pipe, and Conduit Penetrations; Basis of Design UL Systems:

1. Systems other than those listed below may be selected at Contractor's option.
2. Wall Penetrations:
 - a. Penetration Hole with No Penetrating Item:
 - 1) Steel Stud Framed:
 - a) F-Rating of 1 Hour: W-L-0010, W-L-0011, W-L-0013, W-L-0014, W-L-0016, W-L-0018, W-L-0019, W-L-0023, W-L-0026, or W-L-0027.
 - 2) Concrete Masonry (Minimum Thickness of 5 or More Inches):
 - a) F-Rating of 1 Hour: Use 2 hour system.
 - b) F-Rating of 2 Hours: W-J-0007, W-J-0009, or W-J-0014.
 - b. Non-Metallic Pipe, Conduit, or Tube (4 Inches or Less in Diameter):
 - 1) Steel Stud Framed:
 - a) F-Rating of 1 Hour: W-L-2002, W-L-2029, W-L-2059, W-L-2078, W-L-2143, W-L-2166, W-L-2167, W-L-2216, W-L-2243, W-L-2406, W-L-2473, W-L-2496, W-L-2497, W-L-2506, or W-L-2536.
 - 2) Concrete Masonry (Minimum Thickness of 5 or More Inches):
 - a) F-Rating of 1 Hour: W-J-2205.
3. Floor and Floor-Ceiling Assembly Penetrations:
 - a. Penetration Hole with No Penetrating Item:
 - b. Non-Metallic Pipe, Conduit, or Tube (4 Inches or Less in Diameter):

2.3 WALL LINEAR GAP PROTECTION SYSTEMS

- A. System incorporating safing insulation with intumescent sealant.
- B. Flexible to permit normal movement of contact surface items.
- C. To not shrink or contract upon drying evidenced by cracking or pulling back from contact surfaces.
- D. Moisture resistant.
- E. Not capable of dissolving in water after curing.
- F. Asbestos and lead free.
- G. Mixes: If mixing is required, mix components as instructed by manufacturer.
- H. Head of Wall Condition Having Gap Less than or equal to 2 Inches; Basis of Design, UL Systems:
 1. Systems other than those listed below may be selected at Contractor's option.
 2. Fire-Rated Wall with Fire-Rated Horizontal Assembly (Floor or Roof):
 - a. One-Hour Fire Rating:
 - 1) Steel Stud Framed Walls:
 - a) Concrete Fire-Rated Floor or Roof Above Wall: HW-D-0021, HW-D-0044, HW-D-0054, HW-D-0079, or HW-D-0083.
 - 2) Steel Stud Framed Shaft Walls: Use two-hour systems listed below.
 - 3) Steel Stud Framed Walls Adjoining Steel Beams and Joists: HW-D-0546.
 - 4) Concrete Masonry Walls: Use two-hour systems listed below.
- I. Wall-to-Wall Condition having Maximum Clearance Distance Between Walls of Less than or equal to 2 Inches; Basis of Design, UL Systems:
 1. Systems other than those listed below may be selected at Contractor's option.
 2. One-Hour Fire Rating:
 - a. Steel Stud Framed Walls: WW-D-0045 or WW-D-0067.
 - b. Steel Stud Framed Wall Intersection with Concrete or Concrete Masonry Wall: WW-D-0040 or WW-D-0074.
 - c. Concrete Masonry Walls: Use two-hour systems listed below.
- J. Base of Wall Condition; Basis of Design, UL Systems:
 1. Systems other than those listed below may be selected at Contractor's option.
 2. One-Hour Fire Rating:
 - a. Steel Stud Framed Walls: BW-S-0001, BW-S-0002, BW-S-0003, BW-S-0007, or BW-S-0008.
 - b. Steel Stud Framed Shaft Walls: BW-S-0016.

2.4 SAFING INSULATION FILL MATERIAL FOR FIRESTOPPING

- A. Description:
 - 1. Mineral fiber; glass fiber not permitted.
 - 2. ASTM C612; Type I or II.
 - 3. Non-Combustible when tested in conformance with ASTM E136.
 - 4. Form: Semi-rigid.
 - 5. Density, Minimum: 4 lb/ft³.
 - 6. Thermal Resistance "R" Per Inch of Thickness at 75°F, Determined in Accordance with ASTM C518: 4.0.
 - 7. Facing: None.
 - 8. Thickness: Not less than 2 inches, yet achieve specified fire rating required by firestopping listed system design.
- B. Acceptable Manufacturers:
 - 1. Johns Manville Corporation; Denver, CO. MinWool Safing.
 - 2. Owens Corning — Thermafiber; Toledo, OH: Thermafiber Safing Insulation.
 - 3. Rockwool; Milton, ON: Rockwool Safe Insulation.

2.5 ACCESSORIES

- A. Safing Insulation Adhesive: Use not permitted.
- B. Safing Insulation Clips/Fasteners: As instructed by manufacturer.
- C. Sealant Primers:
 - 1. As instructed by manufacturer.
 - 2. Volatile Organic Compound Limits:
- D. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - b. Maximum Value: As stated in Section 01•41•00 under for primers:
 - 1) Porous Substrates.
 - 2) Non-Porous Substrates.
- E. Sealant Damming Materials:
 - 1. Non-combustible.
 - 2. Chemically compatible with sealant.
 - 3. Mineral fiberboard, mineral fiber matting, or safing insulation.
- F. Cleaning Solvents: As instructed by manufacturer.
- G. Labels:
 - 1. Provide label for each firestop condition.
 - 2. Type information in non-fading ink on vinyl labels.
 - 3. Include following information on each label:
 - a. Words, for Respective Firestop Condition:
 - 1) "Warning: Through Penetration Firestop System — Do Not Remove, Tamper, or Disturb."
 - 2) "Warning: Head-of-Wall Firestop System — Do Not Remove, Tamper, or Disturb."
 - 3) "Warning: Base-of-Wall Firestop System — Do Not Remove, Tamper, or Disturb."
 - 4) "Warning: Wall-To-Wall Firestop System — Do Not Remove, Tamper, or Disturb."
 - b. Manufacturer's name.
 - c. Product name.
 - d. Product type (sealant, putty, mortar, foam, pillow, brick, tape, or other generic material description).
 - e. F-Rating.
 - f. L-Rating.
 - g. T-Rating. State when not required for condition.
 - h. Testing and listing agency filing number, such as Factory Mutual, Intertek, or Underwriters Laboratory System number.

- i. Installing Contractor's name and contact information.
- j. Installation date.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify penetrants have been permanently installed prior to installation of firestops.
- C. Verify multiple penetrations have minimum spacing of 2 inches and not less than size of smallest penetrant.
- D. Sealants; Putties; Mortars:
 - 1. Confirm compatibility of surfaces to receive materials.
 - 2. Verify that surfaces of openings are sound, clean, dry, and ready to receive application of materials.
 - 3. Verify that penetration elements are securely fixed and located in accordance with firestop detail requirements; with minimum space between penetrations and surfaces of openings as required by manufacturer.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Clean contact surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of sealant or required fire resistance.
- C. Remove combustible materials and loose impediments from penetration opening gap and involved surfaces.
- D. Remove free liquid and oil from penetration surfaces.
- E. Protect adjacent surfaces and equipment from damage.
- F. Use masking tape to prevent firestop materials from contacting adjoining surfaces to remain exposed to view.
- G. Remove incompatible materials which affect bond, by scraping, brushing, scrubbing, or sand blasting.
- H. Priming:
 - 1. Apply primer to substrates where required by manufacturer.
 - 2. Confine primer to areas of bond.
 - 3. Do not allow spillage or migration onto non-bond surfaces.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00, respective firestop system listing, and approved submittals.
- B. Do not use following for firestop materials:
 - 1. Gypsum plaster.
 - 2. Gypsum board finishing compounds.
 - 3. Portland cement plaster.
 - 4. Mortar using portland cement or other hydraulic cements.
- C. Safing Insulation; Pipe and Conduit Wrap Installation:
 - 1. Seal holes or voids made by penetrations to ensure effective smoke barrier.
 - 2. Unless protected from possible loading or traffic install penetration protection system materials, in floors having void openings of 4-inches or more, to support same floor load requirements.
 - 3. Install safing insulation with safing clips/fasteners spaced no greater than 24-inches on centers.
 - 4. Leave no voids when installing safing insulation.
 - 5. Compress and install safing insulation on wire hangers in openings in floor slabs to completely seal around conduits, chutes, piping, or other utility lines.
- D. Fill Materials:

1. Completely fill void spaces with firestopping material regardless of geometric configuration, subject to tolerance established by manufacturer.
 2. Install to contact and adhere to substrates formed by openings and penetrant.
 3. Finish to smooth uniform surface, where permanently exposed to view.
- E. Firestopping Sealant, Putty, and Mortar:
1. Install damming materials and sealant to cover and seal penetration openings.
 2. Apply to clean, dry, and frost-free surfaces.
 3. Apply in sufficient thickness to achieve specified F-Rating to match fire-resistance rating of fire-rated assembly.
 4. Apply in sufficient thickness to achieve specified T-Rating and L-Rating.
 5. Directly contact to wet joint substrate.
 6. Completely fill recesses for penetrant configuration.
 7. Provide uniform cross sectional shapes and depths relative to sealant joint width that optimizes movement capability.
 8. Cleaning:
 - a. Remove excess material, droppings, and debris.
 - b. Remove sealant from materials and surfaces not specifically required to be sealed.
- F. Firestopping Putty Pads at Back-to-Back Electrical Boxes: Apply to boxes on opposite of walls or partitions when following does not occur:
1. Distance between boxes is less than horizontal spacing of box fire listing.
 2. Solid wood fireblocking is not installed between boxes.
- G. Firestop Pillows May be Installed at Following Locations When Permanent Firestop are Not Installed:
1. Ends of conduits containing electrical wiring.
- H. Insulated Pipes:
1. Cut and remove thermal insulation where pipes or ducts pass through firestopping, unless insulation meets requirements specified for listed firestop system.
 2. Replace thermal insulation with material having equal thermal insulating and firestopping characteristics.
- I. Wall Linear Gap Protection Systems:
1. Install safing insulation through depth of gap.
 2. Apply firestop sealant onto safing insulation and adjoining contact surfaces.
- J. Tool Surfaces:
1. Perform immediately after application and prior to beginning of skin formation.
 2. Eliminate air pockets within firestop material.
 3. Ensure contact and adhesion to substrates.
 4. Finish to smooth uniform surface.
- K. Remove masking tape as soon as possible after application of firestop material without disturbing firestop seal with substrate.
- L. Install Labels at Firestopping Locations:
1. Mechanically fasten or secure to:
 - a. Penetrating item or to penetrated assembly.
 - b. Surface adjoining joint or gap.
 2. Adhesive fasten is not permitted.
 3. Install on both sides of firestop.
 4. Locate within 6 inches of firestop.
 5. Locate where visible to persons seeking to remove penetrating items or firestop system.
 6. Install prior to inspections by testing agency and code authorities having jurisdiction.

3.4 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
1. Comply with Section 01•45•00.
 2. Contractor provided.

3. Wall Linear Gap Protection Systems, Membrane Firestopping Protection Systems, Through-Penetration Protection Systems, and Unprotected Opening Protection Systems: Comply with ASTM E2174.
4. Inspection agency to advise Owner and Contractor of deficiencies within 24 hours of inspection.
5. Maintain access to areas of work until inspection and approval by authority having jurisdiction.
- B. Manufacturer's Services: Comply with Section 01•43•00.
- C. Do not proceed to enclose firestopping with other construction until inspection agency has verified that fire stop installation complies with specified requirements.
- D. Correct deficient installation and perform additional inspections at Contractor's expense to verify compliance with requirements prior to enclosing inspector-approved penetrations and openings.

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Clean adjacent surfaces of excess sealant, putty, and mortar, using compatible solvent in accordance with manufacturer's instructions and precautions.
- C. Trim excess cured material with sharp knife or blade. Do not injure surfaces from which material has been removed.

3.6 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect firestopping during and after curing period from contact with contaminating substances.
- C. Do not dislodge penetration protection system pillows.

3.7 SCHEDULE OF LOCATION USES

- A. Following applies to fire-rated and smoke-rated assemblies.
- B. Empty and penetrated openings through assemblies.
- C. New and Uncovered Existing Through and Membrane Penetrations of, and Abandoned Penetration Holes, in fire-rated assemblies, assume following minimum quantity of penetrations to be firestopped for each fixture / device / condition:
 1. Urinal: 3.
 2. Bathroom Abandoned Penetrations: 3.
 3. Electric Closets: 3 in floor deck and 3 in underside of deck above.
- D. Through Penetrations and Membrane Penetrations By:
 1. Conduit.
 2. Electrical boxes.
 3. Piping.
- E. Intersections of:
 1. Interior fire-rated and smoke-rated walls with exterior non-fire-rated walls: Treat as wall-to-wall firestop condition.
 2. Fire-rated and smoke-rated walls of different materials (such as, concrete masonry to cast-in-place concrete, gypsum board to cast-in-place concrete, and gypsum board to concrete masonry): Treat as wall-to-wall firestop condition.
 3. Fire-rated and smoke-rated walls to columns and piers of different materials (such as, concrete masonry to cast-in-place concrete, gypsum board to cast-in-place concrete, and gypsum board to concrete masonry): Treat as wall-to-wall firestop condition.
- F. Intersections and penetrations of structural members and fire-rated and smoke-rated assemblies (such as, beams penetrating fire-rated and smoke-rated walls): Treat as head-of-wall firestop condition.
- G. Through and membrane penetrations of vertical service (pipe, conduit, cabling) shafts, hoistways, and shaft walls.

- H. Bottom of non-load-bearing fire-rated and smoke-rated walls at top of fire-rated floors: Treat as base-of-wall firestop condition.
- I. Top of non-load-bearing fire-rated and smoke-rated walls at underside of fire-rated floors or fire-rated roofs: Treat as head-of-wall firestop condition.
- J. Control joints in fire-rated and smoke-rated walls: Treat as wall-to-wall firestop condition.
- K. Locations where specifically shown on Drawings.

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\078400.wpd

SECTION 07•92•00
JOINT SEALANTS

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 07•84•00 - Firestopping.
 - 5. Section 09•30•00 - Tiling.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C1087, Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
 - b. ASTM C1193, Use of Joint Sealants.
 - c. ASTM C1330, Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
 - d. ASTM C510, Staining and Color Change of Single- or Multi-Component Joint Sealants.
 - e. ASTM C717, Terminology of Building Seals and Sealants.
 - f. ASTM C794, Adhesion-in-Peel of Elastomeric Joint Seals.
 - g. ASTM C834, Latex Sealing Compounds.
 - h. ASTM C920, Elastomeric Joint Sealants.
- B. Definitions:
 - 1. Use definitions in ASTM C717.
 - 2. Non-Bleeding: Not capable of exuding liquid chemical components of sealant.
 - 3. Non-Staining: Not capable of discoloring joint substrate.
 - 4. Sealant System: Sealant, sealant backing, and primer intended for use in particular condition.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 - 1. Conduct in accordance with Section 01•31•00.
 - 2. Convene 2 weeks prior to commencing work of this Section.
 - 3. Agenda:
 - a. Visit Project site to analyze site conditions, and inspect surfaces and joints to be sealed in order that recommendations may be made should adverse conditions exist.
 - b. Discuss following items:
 - 1) Substrate conditions.
 - 2) Preparatory work.
 - 3) Anticipated frequency and extent of joint movement.
 - 4) Joint design.
 - 5) Sealant installation procedures.
- B. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Coordinate work with Sections referencing this Section.
 - 3. Coordinate installation of sealants with substrates to which they are applied.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data and product specifications for each product.
 - b. Include data to indicate chemical characteristics, performance criteria, limitations, substrate preparation, installation requirements, and curing requirements.
 - c. Include information for accessories and other required components.
 - d. Include color charts indicating manufacturer's full color range available of each sealant type for Architect's initial selection.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Applicator Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 01•60•00.
- B. Deliver materials to site in unopened containers and bundles with labels indicating:
 - 1. Manufacturer's name.
 - 2. Product name and designation.
 - 3. Color.
 - 4. Expiration period for use.
 - 5. Working life.
 - 6. Curing time.
 - 7. Mixing instructions for multi-component materials.
- C. Storage and Protection:
 - 1. Store products within manufacturer's required temperature and humidity ranges.
 - 2. Prior to use, condition products within manufacturer's required temperature range, humidity range, and time period.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Apply sealant when the following are within manufacturer's limits during and for 24 hours after sealant installation:
 - a. Ambient and surface temperatures.
 - b. Relative humidity.
 - 2. Do not apply sealants to wet or frozen surfaces.
 - 3. Comply with manufacturer's requirements regarding application of sealants in vicinity of curing sealants of a different material.

2.0 PRODUCTS

2.1 SINGLE SOURCE RESPONSIBILITY

- A. Provide products for each sealant system from one manufacturer for entire Project, unless otherwise acceptable to Architect.
- B. Provide products from a single manufacturer to ensure material compatibility where different sealant materials come in direct contact with each other.
- C. Provide each sealant system as complete unit, including accessory items necessary for specified function.

2.2 ACRYLIC LATEX (Designation AL)

A. Description:

1. ASTM C834.
2. Non-sag; non-staining; non-bleeding.
3. Joint movement range without cohesive/adhesive failure: Plus 7.5 percent to minus 7.5 percent of joint width.
4. Color: As selected by Architect from manufacturer's full color range.
5. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - b. Maximum Value: As stated in Section 01•41•00 under Sealants for architectural sealants.

B. Acceptable Manufacturers and Products:

1. Pecora Corporation, Harleysville, PA: AC-20 + Silicone.
2. Tremco Corporation, Cleveland, OH: Tremflex 834.
3. Sika Corporation; Lyndhurst, NJ: SikaTile-880 Unsanded Caulk.
4. United States Gypsum Company; Chicago, IL: USG Acoustical Sealant.

2.3 SILICONE—SANITARY (Designation S-S)

A. Description:

1. ASTM C920:
 - a. Type: S.
 - b. Grade: NS.
 - c. Class: 25.
 - d. Uses: NT, M, G, A, O.
2. Neutral or acid curing, non-staining, non-bleeding, fungicide-containing.
3. Color: White Selected by Architect from manufacturer's full color range.
4. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - b. Maximum Value: As stated in Section 01•41•00 under Sealants for architectural sealants.

B. Acceptable Manufacturers and Products:

1. Dow Chemical; Midland, MI: Dowsil 786 Mildew-Resistant Silicone Sealant.
2. Momentive Performance Materials — GE Silicones; Waterford, NY: SCS1700 Sanitary.
3. Pecora Corporation; Harleysville, PA: 898NST.
4. Sika Corporation; Lyndhurst, NJ: Sikasil GP.
5. Tremco Corporation; Beachwood, OH: Tremsil 200.

2.4 ACCESSORIES

A. Joint Cleaner:

1. Chemical cleaners required by sealant manufacturer for substrates encountered, compatible with sealant backing bond breaker materials.
2. Free of Substances Capable of Staining, Corroding, or Harming:
 - a. Joint substrates.
 - b. Adjacent nonporous surfaces.
 - c. Sealant.
 - d. Sealant backing.
3. Formulated to promote optimum adhesion of sealants to joint substrates.

B. Primer:

1. Dyed coating material required by sealant manufacturer for enhancing sealant adhesion to joint substrates.
2. Non-staining to joint substrate beyond the substrate surface.
3. Required for use unless not required by results of:
 - a. "Manufacturer's sealant-substrate compatibility and adhesion test" described under Source Quality Control.
 - b. "Field hand-pull adhesion test" under Field Quality Control.
4. Volatile Organic Compound Limits:

- a. Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - b. Maximum Value: As stated in Section 01•41•00 under Sealants for:
 - 1) Porous Substrates.
 - 2) Non-Porous Substrates.
- C. Sealant Backing Bond Breaker Rod for Non-Pavement or Non-Walk Surface Joints:
 - 1. ASTM C1330.
 - 2. Open Cell Polyurethane: Use not permitted unless required by sealant manufacturer.
 - 3. Closed Cell Polyethylene:
 - a. Non-absorbent to liquid water.
 - b. Use in wall and ceiling joints unless otherwise required by sealant manufacturer.
 - 4. Reticulated polymeric: Sof®-Rod, Nomaco Inc., Zebulon, NC.
 - 5. Unless otherwise required by sealant manufacturer, oversize rod to be larger than joint width by following minimum amounts:
 - a. Open Cell Polyethylene: 50 percent.
 - b. Closed Cell Polyethylene: 33 percent.
 - c. Reticulated Polymeric: 25 percent.
- D. Sealant Backing Bond Breaker Tape:
 - 1. Pressure sensitive polyethylene tape or tetrafluorethylene self-adhesive tape required by sealant manufacturer to suit application.
 - 2. Minimum Thickness of 11 mils.
- E. Tooling Liquids: Non-staining material approved by manufacturer to reduce adhesion of sealant to joint finishing tools.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Ensure that concrete and masonry have cured minimum of 28 days.
- C. Verify that sealant backing is compatible with sealant.
- D. Verify That Substrate Surface:
 - 1. Is within manufacturer's moisture content range.
 - 2. Complies with manufacturer's cleanliness and surface preparation requirements.
- E. Joint Width:
 - 1. Verify joints are greater than minimum widths required by manufacturer.
 - 2. If joints are narrower than minimum required widths, widen narrow joints to indicated width.
 - 3. Do not place sealant in joints narrower than manufacturer's required minimum.

3.2 PREPARATION

- A. Prepare, clean, and prime joints in accordance with Section 01•70•00.
- B. Remove loose materials and matter which might impair adhesion of primer and sealant to substrate.
- C. Remove form release agents, laitance, and chemical retarders, which might impair adhesion of primer and sealant to concrete and masonry surfaces.
- D. Comply with ASTM C1193.
- E. Protect elements adjoining and surrounding work of this Section from damage and disfiguration.
- F. Priming:
 - 1. Prime joint substrates unless priming is not required by:
 - a. "Manufacturer's sealant-substrate compatibility and adhesion test" described in Source Quality Control article.
 - b. "Field hand-pull adhesion test" described in Field Quality Control article.
 - 2. Apply primer to substrate areas where joint sealant is to adhere.
 - 3. Comply with manufacturer's sequencing requirements for joint priming and sealant backing bond breaker rod installation to assure required primer application

coverage and rate without placement of primer on backer rod surface to be in contact with sealant and avoid three-sided sealant adhesion.

4. Do not allow spillage and migration of primer onto surfaces not to receive primer.
 5. Install sealant to primed substrates after primer has cured.
- G. Demolition / Removal:
1. Remove existing sealants and backing materials.
 2. Concrete, Masonry, Unglazed Surfaces of Ceramic Tile and Similar Porous Joint Substrate Surfaces: Clean by brushing, grinding, blast cleaning, mechanical abrading, or combination of these methods to produce clean, sound substrate capable of developing optimum bond with joint sealers.
 3. Metal, Glass, Porcelain Enamel, Glazed Surfaces of Ceramic Tile and Other Non-Porous Surfaces: Clean by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
 4. Remove laitance and form release agents from concrete.
 5. Exterior Insulation and Finish Systems: Do not cut or grind EIFS finish or base coat when removing sealant. Small amounts of sealant may be left on EIFS surface.
 6. Mortar Joints to Be Converted to Sealant Filled Joints:
 - a. Cut mortar from joints.
 - b. Rake to minimum depth required to accept cap.
 7. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 8. Prepare joints in accordance with requirements specified for new joints.

3.3 APPLICATION

- A. General:
1. Comply with requirements of Section 01•70•00.
 2. Comply with Results and Recommendations From:
 - a. "Manufacturer's compatibility and adhesion test" described in Source Quality Control Article.
 - b. "Field hand-pull adhesion test" described in Field Quality Control article.
 3. Provide compatible sealant system between dissimilar assemblies and adjacent construction.
 4. Seal locations necessary to create and secure continuous enclosure even though Drawings may not indicate all locations; do not seal weep holes.
 5. Seal to prevent migration of water, vapor, and air through joints.
 6. Comply with manufacturer's required application temperature and relative humidity ranges. Consult manufacturer when sealant cannot be applied within these ranges.
- B. Sealant Backing Bond Breaker:
1. Measure joint dimensions and size materials to achieve manufacturer-required width-to-depth ratios.
 2. Install to achieve sealant depth and sealant contact depth no greater than distance required by manufacturer for sealant material, joint width, and joint movement range.
 3. Install using blunt instrument to avoid puncturing.
 4. Do Not:
 - a. Twist, puncture, and tear material.
 - b. Leave gaps between ends of material pieces.
 - c. Stretch or compress material along its length.
 - d. Stretch or compress tape material along its width.
 5. Install to provide optimum joint profile and in manner to provide not less than 1/4 inch sealant depth when tooled.
 6. Install tape where insufficient joint depth makes use of rod not possible. Match tape width to joint width to prevent three-side adhesion. Do not wrap tape onto sides of the joint.

7. Replace backing bond breaker materials which have become wet with dry materials prior to sealant application.
- C. Sealant:
 1. Install sealants at same time as installation of backing bond breaker materials.
 2. Do Not Exceed Manufacturer's Required:
 - a. Material shelf life.
 - b. Material working life.
 - c. Installation time after mixing.
 3. Comply with manufacturer's requirements for applying different sealant materials in direct contact with each other.
 4. Use gun nozzle size to suit joint size and sealant material.
 5. Install sealant with pressure-operated devices to form uniform continuous bead.
 6. Use sufficient pressure to fill voids and joints full.
 7. Install to adhere to both sides of joint.
 8. Install to not adhere to back of joint; provide sealant backing.
 9. Install sealant free of air pockets and embedded matter.
 10. Recess sealant 1/8 inch from surface of pavements and horizontal surfaces.
- D. Sealant Tooling:
 1. Comply with manufacturer's tooling method requirements.
 2. Tool sealant within manufacturer's tooling time limits.
 3. Tooling Liquids:
 - a. Comply with manufacturer's requirements regarding use.
 - b. Do not use when not permitted by manufacturer.
 - c. Do not allow tooling liquids to come in contact with surfaces receiving sealant.
 4. Produce smooth exposed surface.
 5. Tool Sealant to Be Free of:
 - a. Air pockets and voids.
 - b. Embedded impurities.
 - c. Surface ridges, sags, and indentations.
 6. Achieve full sealant contact and adhesion with substrate.
 7. Form a concave tooled joint shape indicated in Section A of Figure 5 of ASTM C1193, unless otherwise indicated.
 8. Remove excess sealant from surfaces adjacent to joint.
 9. Allow acrylic latex sealant to achieve firm skin before paint is applied.

3.4 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Clean excess sealants and sealant smears from adjacent surfaces as application progresses; comply with sealant manufacturer's requirements and manufacturer of surface in which joints occur.
- C. Repair or replace defaced or disfigured finishes caused by work of this Section and replace where installation techniques result in unsatisfactory joining of materials and unsightly conditions.

3.5 PROTECTION

- A. Protect in accordance with Section 01•70•00.
- B. Protect sealants from contamination until cured.
- C. Protect sealant joints in horizontal surfaces from foot and vehicular traffic until cured.

3.6 SCHEDULE

- A. Items Not to be Sealed:
 1. Joints, perimeter, and penetrations in fire-rated assemblies. Use firestops specified in Section 07•84•00.
- B. Sealant Schedule:
 1. Interior Joints:
 - a. Designation AL; Apply at Following Locations:

- 1) Wall and ceiling joints not subject to movement.
 - 2) Wall and ceiling joints between frames and their rough opening.
 - 3) Wall and ceiling joints between frames and adjoining surfaces.
- b. Designation S-S; Apply at the Following Locations:
- 1) Joints between plumbing fixtures and adjoining floor, wall, and ceiling surfaces.
 - 2) Annular space around pipe penetrations through walls at plumbing fixtures regardless of whether pipe escutcheon is installed.
 - 3) Joints between components and adjoining construction involving work results of following Sections:
 - a) Section 09•30•00; joints which do not contain tile grout.

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\079200.wpd

SECTION 08•11•13
STEEL DOORS AND FRAMES

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 08•06•70 - Hardware Schedule.
 - 5. Section 08•71•00 - Door Hardware.

1.2 REFERENCES

- A. Reference Standards:
 - 1. Door and Hardware Institute (DHI):
 - a. DHI A115, Steel Door and Frame Preparation for Locks for 1-3/8 and 1-3/4 Inch Doors.
 - 2. Steel Door Institute (SDI):
 - a. SDI 105, Erection Instructions for Steel Frames.
 - b. SDI 110, Doors and Frames for Modular Masonry Construction.
 - c. SDI 117, Manufacturing Tolerances for Standard Steel Doors and Frames.
 - d. SDI 122, Installation and Trouble Shooting Guide for Standard Steel Doors and Frames.
 - e. SDI A250.10, Primed Painted Steel Surfaces for Steel Doors and Frames.
 - f. SDI A250.8, Steel Doors and Frames.
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 101, Life Safety Code.
 - b. NFPA 105, Installation of Smoke Doors.
 - c. NFPA 80, Fire Doors and Windows.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 - 1. Conduct pre-installation conference in accordance with Section 01•31•00.
 - 2. Perform for fire-rated doors, smoke rated doors, and fire-rated fixed glass light frames.
 - 3. Attendees:
 - a. Contractor.
 - b. Installer.
 - c. Manufacturer's representative.
 - d. Extend invitation to Authority Having Jurisdiction inspectors.
 - 4. Agenda:
 - a. Review installation instructions for doors, frames, and hardware.
 - b. Review requirements for compliance with manufacturer's fire and smoke labels on doors and frames.
 - c. Review inspection aspects of Authority Having Jurisdiction inspectors field inspection of doors and frames.
 - d. Review requirement that installation instructions remain on doors and frames until accepted by Authority Having Jurisdiction inspectors.
- B. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Do not fabricate door frames until submittals for following items have been accepted by Architect:
 - a. Wood doors.
 - b. Door hardware.

3. Provide requirements to Section 08•71•00 for gasket product to be used on fire doors and smoke doors having "S" Label.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 1. Product Data:
 - a. Submit product data for steel frames.
 2. Shop Drawings and Schedules:
 - a. Submit for:
 - 1) Frames.
 - b. Indicate:
 - 1) Size dimensions of:
 - a) Frames.
 - b) Openings.
 - 2) Anchorage.
 - 3) Coordination for hardware and sill.
 - 4) Elevations of:
 - a) Frames.
 - 5) Finishes.
 - 6) Incorporation of sealant, erection, and closure allowances taken into sizes.
 - 7) Profile design.
 - 8) Material thickness.
 - 9) Reinforcement.
- C. Submittals for Architect's Information:
 1. Certifications specified in Quality Assurance article.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.
- B. Fire Door Assembly Inspector Qualifications:
 1. Comply with Section 01•43•00.
- C. Certifications:
 1. Whenever sizes exceed maximum limitations established by testing agency, submit manufacturer's certification indicating:
 - a. Another design and construction for assembly fulfills size requirements with regular testing agency label.
 - b. Construction and design are identical to fire-tested models.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Protect from damage which may adversely affect physical performance/aesthetic appearance.
- C. Store under cover on Project site on wood sills or on floors in manner that prevents rust and damage.
- D. Provide frames of welded unit construction with temporary steel spreaders securely fastened to bottom of each frame.
- E. Store frames in vertical position.
- F. Maintain minimum 1/4 inch space between door faces to promote air circulation.
- G. Remove frame wrapper if it becomes wet.
- H. Installation Instructions:
 1. Attach to fire-rated doors, smoke rated doors, and fixed glass light fire-rated frames for use by inspectors from Authority Having Jurisdiction.
 2. Provide notice on instructions that instructions can only be removed by inspectors from Authority Having Jurisdiction.

3. Only inspectors from Authority Having Jurisdiction may remove instructions from doors and fixed glass light fire-rated frames.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Design Requirements:
 1. Manufacturer is responsible for designing units, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
 2. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
 3. Provide concealed fastening wherever possible.
 4. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and supporting structure.
- B. Fire Rated Doors and Frames: Comply with fire-resistance requirements specified in Section 01•80•00.
- C. Smoke Rated Doors and Frames: Comply with smoke-resistance requirements specified in Section 01•80•00.

2.2 STANDARD FRAMES

- A. Standard Frames:
 1. Frame Types:
 - a. Knockdown: Use at gypsum board walls.
 - b. Drywall: Use at gypsum board walls.
- B. Schedule:
 1. Support Facilities (F-Series, T-Series, U-Series, and V-Series, Hardware Sets in Section 08•06•70):
 - a. Frame:
 - 1) Wood Doors: 0.053 inches (16 gauge).
- C. Single Source Responsibility:
 1. Furnish from one manufacturer, unless otherwise acceptable to Architect.
- D. Acceptable Manufacturers:
 1. Members of Steel Door Institute.
 2. Members of Hollow Metal Manufacturers Association Division of National Association of Architectural Metal Manufacturers.

2.3 FABRICATION

- A. General:
 1. Form of steel to sizes and shapes indicated.
 2. Form without distortion, cracking, or marring of surface.
 3. Free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle.
 4. Moulded members: Clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment.
 5. Corners and Edges: Straight and sharply formed.
- B. Standard Frames:
 1. Comply with SDI-A250.8.
 2. Frames to be combination type with integral trim.
 3. Form rabbets and stops integral with frame.
 4. Fire-Rated Frames:
 - a. Construct with steel thicknesses, returns, stops, and other features required for designated fire-rating.
 - b. Install appropriate label on frame.

5. Cased Openings: Fabricate of same material, gauge, and assembly as specified for door frames, except omit door stops and preparation for hardware.
6. Wall Anchors:
 - a. Comply with SDI-A250.8.
 - b. Size:
 - 1) Sheet Steel: Not less than 0.042 inches (18-gauge) thick; shaped and notched.
 - c. Tack-weld in place.
 - d. Spacing: At least 24 inches on center, but not less than three in 7 foot jamb; for each additional 24 inches, or fraction thereof of frame height, add an additional frame anchor.
 - e. Provide testing agency approved anchors for fire-rated frames.
7. Terminated Stops on Frames: Not Permitted.
- C. Tolerances:
 1. Comply with SDI 117.
 2. Clearances:
 - a. Comply with SDI-A250.8.
 - b. Clearances are in addition to requirements for saddles, thresholds, weatherstripping, and other door swing obstructions.
- D. Hardware Preparation:
 1. Comply with SDI-A250.8, DHI A115, and as follows.
 2. Reinforce, drill, and tap, to receive hardware.
 3. Equivalent Number of Threads: Not permitted.
 4. Prepare at factory for hardware installation.
 5. Provide frames to receive surface applied hardware with reinforcing plates.
 6. Provide cover boxes in back of hardware cutouts.
 7. Silencers:
 - a. Punch frames to receive door silencers.
 - b. Provide on door side of frame's stop.
 - c. Material: Rubber or vinyl.
 - d. Single Door Frames: Provide three silencers on lock side.
 - e. Paired Door Frames: Two silencers for each leaf in head.
 8. Hardware Reinforcement: Comply with SDI A250.8
- E. Opening Identification:
 1. Mark each frame in Project with opening number as shown on drawings and door schedules unless other type of numbering system is approved by Architect.
 2. Fire-Rated Labeling:
 - a. Bear label of Underwriters Laboratories (UL), Factory Mutual Engineering and Research (FM), or Intertek (ITK) attesting to rating required.
 - b. Metal with raised letters.
 - c. Bear name or file number of door and frame manufacturer.
 - d. Permanently affix at factory to frames and to hinge edge of door.
 - e. Do not paint labels.
 - f. Oversized Openings: For fire rated openings which exceed size for which testing and labeling are available, furnish certificates stating that doors and frames are identical in design, materials, and construction to door which has been tested and meets requirements for class indicated.

2.4 FINISHES

- A. Comply with SDI-A250.8 and SDI A250.10.
- B. Paint primer. Provide for:
 1. Interior frames.
- C. Exposed surfaces to be smooth, even, thoroughly covered and free of runs sags, voids, flooding, or holidays.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.

3.2 INSTALLATION

- A. Install in accordance with Section 01•70•00, and approved submittals.
- B. Install units plumb, level, square, and free from warp while maintaining dimensional tolerances and alignment with surrounding construction.
- C. Comply with DHI A115, SDI-A250.8, SDI 105, SDI 110, SDI 122.
- D. In accordance with NFPA 80 and fire labeling requirements, install fire-rated:
 - 1. Frames.
- E. In accordance with NFPA 80, NFPA 105, and smoke labeling requirements, install smoke-rated:
 - 1. Frames.
- F. Frames:
 - 1. Set bottom hard against slab.
 - 2. Extend down to rough construction.
 - 3. Set in position and brace securely until permanent anchors are set.
 - 4. Fasten to retain position and clearance during construction of walls.
 - 5. Anchor bottom to floors with expansion bolts or with powder-driven fasteners.
 - 6. Build wall anchors into walls or secure to adjoining construction.
- G. Tolerances:
 - 1. Frames:
 - a. Squareness:
 - 1) Plus 1/16-inch to minus 1/16-inch.
 - 2) Measure on line, 90° from one jamb, at upper corner of frame at other jamb.
 - b. Alignment:
 - 1) Plus 1/16-inch to minus 1/16-inch.
 - 2) Measure on jambs on horizontal line parallel to plane of wall.
 - c. Twist:
 - 1) Plus 1/16-inch to minus 1/16-inch.
 - 2) Measure at face corners of jambs on parallel lines perpendicular to plane of wall.
 - d. Plumbness:
 - 1) Plus 1/16-inch to minus 1/16-inch.
 - 2) Measure from top of frame to floor along jamb.

3.3 FIELD QUALITY CONTROL

- A. Site Tests and Inspections:
 - 1. Comply with Section 01•45•00.
 - 2. Contractor provided.
 - 3. Inspect doors in accordance with NFPA-80 and NFPA-101.
 - 4. Inspect Fire-Rated Door Assemblies After:
 - a. Field modifications.
 - b. Project completion.
- B. Non-Conforming Work:
 - 1. Make repairs in accordance with inspection comments.
 - 2. Reinspect doors are repairs are made.

3.4 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect from damage of subsequent construction and operations.
- C. Install necessary protection such as rough wood bucks or cardboard wrapping.
- D. Damaged units will be rejected and replaced at no additional cost to Owner.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\081113.wpd

SECTION 08•14•00
WOOD DOORS

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 08•71•00 - Door Hardware.

1.2 REFERENCES

- A. Reference Standards:
 - 1. Architectural Woodwork Institute / Architectural Woodwork Manufacturers Association of Canada / Woodwork Institute (AWI/AWMAC/WI):
 - a. AWI/AWMAC/WI AWS, Architectural Woodwork Standards.
 - 2. National Fire Protection Association (NFPA):
 - a. NFPA 101, Life Safety Code.
 - b. NFPA 105, Installation of Smoke Doors.
 - c. NFPA 80, Fire Doors and Windows.
 - 3. Window and Door Manufacturers Association (WDMA):
 - a. WDMA CFWD, Care and Finishing of Wood Doors.
 - b. WDMA IS-1A, Architectural Wood Flush Doors.
 - c. WDMA IS-6A, Architectural Stile and Rail Doors.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 - 1. Conduct pre-installation conference in accordance with Section 01•31•00.
 - 2. Perform for fire-rated doors, smoke rated doors, and fire-rated fixed glass light frames.
 - 3. Attendees:
 - a. Contractor.
 - b. Installer.
 - c. Manufacturer's representative.
 - d. Extend invitation to Authority Having Jurisdiction inspectors.
 - 4. Agenda:
 - a. Review installation instructions for doors, frames, and hardware.
 - b. Review requirements for compliance with manufacturer's fire labels on doors and frames.
 - c. Review requirements for compliance with manufacturer's smoke labels on doors and frames.
 - d. Review inspection aspects of Authority Having Jurisdiction inspectors field inspection of doors and frames.
 - e. Review requirement that installation instructions remain on doors and frames until accepted by Authority Having Jurisdiction inspectors.
- B. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Do not fabricate doors until submittals for following items have been accepted by Architect:
 - a. Steel door frames.
 - b. Door hardware.
 - 3. Provide requirements to Section 08•71•00 for gasket product to be used on fire doors and smoke doors having "S" Label.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for doors.
 - b. Include finishing specifications for doors to receive factory-applied finish.
 - 2. Shop Drawings and Schedules. Indicate:
 - a. Sizes.
 - b. Locations.
 - c. Door elevations.
 - d. Construction of doors.
 - e. Location and extent of hardware blocking.
 - f. Fire-Ratings.
 - g. Smoke labeling.
 - h. Factory finishing.
 - i. Core and edge details..
 - 3. Samples:
 - a. Illustrate completed shop finish on 12 by 12 inches veneer which will be used on shop-finished doors.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
 - 2. Warranty Documentation: Submit specified warranty.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Fire Door Assembly Inspector Qualifications:
 - 1. Comply with Section 01•43•00.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Comply with WDMA CFWD.
- C. Comply with manufacturer's instructions.
- D. Protect wood doors during transit, storage, and handling to prevent damage, soiling, and deterioration.
- E. Provide protective coverings for shop-finished doors at factory prior to shipping.
- F. Use heavy paper cartons and mark with identification for specified installation.
- G. Delivery:
 - 1. Deliver to site after wet construction operations are completed and dry and building has reached average prevailing relative humidity.
 - 2. Deliver in manufacturer's original unopened protective covering or container, clearly marked with manufacturer's name, brand name and identifying door opening number on covering.
- H. Storage:
 - 1. Store in clean, dry, well ventilated area protected from sunlight.
 - 2. Avoid extreme heat or cold.
 - 3. Maintain relative humidity to be not less than 30 percent nor more than 60 percent.
 - 4. Store flat over level surface above floor on wood blocking.
 - 5. Under bottom door and over top of stack, furnish plywood or corrugated cardboard for protection.
 - 6. Cover doors to keep clean and avoid discoloration with an opaque covering which does not permit light to penetrate.
 - 7. Covering to allow air circulation.
 - 8. If doors are stored at Project site for more than one week, seal edges.

9. Condition doors to average prevailing humidity in installation area prior to hanging.
- I. Handling:
 1. Do not drag doors across one another or across other surfaces.
 2. Handle with clean gloves.
- J. Installation Instructions:
 1. Attach to fire-rated doors and smoke rated doors for use by inspectors from Authority Having Jurisdiction.
 2. Provide notice on instructions that instructions can only be removed by inspectors from Authority Having Jurisdiction.
 3. Only inspectors from Authority Having Jurisdiction may remove instructions.

1.7 FIELD CONDITIONS

- A. Environmental Conditions:
 1. Comply with door manufacturer requirements.
 2. Determine optimum moisture content based upon temperature and humidity conditions.
 3. Maintain temperature and humidity to within range same as after building is occupied.
 4. Do not install woodwork until temperature and relative humidity have been stabilized and will be maintained in installation areas.

1.8 WARRANTY

- A. Comply with Section 01•70•00.
- B. Warranty installed doors to be free from defects in material and workmanship.
- C. Time Period:
 1. Interior Flush Doors: Lifetime of Installation.
- D. Warranty against warpage in excess of 1/8 inch in 4'-0" by 8'-0".

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Design Requirements:
 1. Manufacturer is responsible for designing units, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
 2. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
 3. Provide concealed fastening wherever possible.
 4. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and supporting structure.
- B. Performance Duty Level:
 1. Flush Doors: WDMA IS-1A.
 2. Extra Heavy Duty Grade. Provide Commercial / Institutional Doors at Following Locations:
 - a. Public Toilet Rooms.
- C. Fire Rated Doors and Frames: Comply with fire-resistance requirements specified in Section 01•80•00.
- D. Smoke Rated Doors and Frames: Comply with smoke-resistance requirements specified in Section 01•80•00.
- E. Single Source Responsibility:
 1. Furnish each product from one manufacturer, unless otherwise acceptable to Architect.

2.2 CLEAR FINISH WOOD VENEER FLUSH COMMERCIAL / INSTITUTIONAL DOORS

- A. Description:
 1. General:
 - a. AWI/AWMAC/WI AWS Grade Custom.

- b. Face Veneer:
 - 1) Species:
 - a) Match existing.
 - b) Hickory Mahogany
 - c) African Mahogany
 - d) Honduras
 - e) Makore
 - f) Pecan
 - g) Sapele
 - 2) Grain: Plain.
- c. Door's Vertical Edges:
 - 1) Species: ME; match face veneer.
 - 2) Face veneer to cover edge bands.
- d. Door Veneer Match at Standalone Doors:
 - 1) Veneer Leaf Match: Book.
 - 2) Veneer Face Match: Center Balance.
 - 3) Door-to-Door Match: Pairs/Sets.
- 2. Fire-Rated Clear Finish Wood Veneer Flush Doors:
 - a. Core: Fire-resistant composite.
 - b. Veneer Layers on Each Face: 1 or 2.
 - c. Fire Rating: As indicated in Door Schedule.
 - d. Use of intumescent surface applied on doors or frames is not permitted.
 - e. Manufacture fire rated wood doors with factory-installed intumescent along door edge perimeter concealed under face veneer, or with fire-rated gypsum-wood composite stiles and rails.
 - f. Rate of Rise Label:
 - 1) Provide on doors protecting:
 - a) Corridors.
 - 2) Maximum of 450°F above ambient temperature at end of thirty minutes during fire test exposure.
 - 3) Rate of rise label may necessitate use of fire-rated door with fire rating higher than that indicated on Drawings.
- B. Acceptable Manufacturers:
 - 1. Members of Architectural Woodwork Institute.
 - 2. Members of Window and Door Manufacturers Association.

2.3 FABRICATION

- A. General:
 - 1. Exposed surfaces same on both faces of door, unless otherwise indicated.
 - 2. Comply with WDMA standards.
- B. Marking:
 - 1. Stamp each door with brand, stamp, or other identifying mark indicating quality and construction of door.
 - 2. Identify the standard on which door construction based.
 - 3. Identify the standard under which preservative treatment was made.
 - 4. Identify doors having a Type I glue bond.
- C. Adhesives and Bonds:
 - 1. Comply with WDMA IS-1A.
 - 2. Interior Doors: Type II bond.
 - 3. Provide nonstaining adhesive on doors with natural finish.
- D. Hardware Reinforcement:
 - 1. Provide minimum lock blocks to secure specified hardware.
 - 2. Provide full core width.
 - 3. Fire-Rated Doors: Comply with the manufacturer's labeling requirements for reinforcement blocking, but not mineral material similar to core.

- E. Prefitting:
 - 1. Factory prefabricated doors for specified hardware, indicated door frame, and indicated door-swing.
 - 2. Machine and size doors at factory by door manufacturer in accordance with standards under which doors are produced and manufactured.
 - 3. Include:
 - a. Sizing.
 - b. Beveling edges.
 - c. Mortising.
 - d. Drilling for hardware.
 - e. Beaded openings for glass and louvers.
- F. Flush Wood Commercial / Institutional Doors:
 - 1. Fabricate with 5 inch top, 5 inch bottom, and 10 inch middle, reinforcing band for hardware mounting.
 - 2. Fabricate with 5 inch wide mortise case, hinge, bolt, and panic hardware reinforcing.
- G. Preservative Treatment:
 - 1. Water-repellent preservative treatment.
 - 2. Perform at manufacturer's plant.
 - 3. Door Locations:
 - a. Toilet rooms.
- H. Fire-Rated Doors:
 - 1. Provide exposed faces and edges to match non-fire-rated doors in same area of building, unless otherwise indicated.
 - 2. Provide trim for openings (if any) which have been tested and listed for kind of door and rating indicated.
 - 3. Smoke Rated Doors: Provide with "S" Label.

2.4 FINISHES

- A. Clear Finish on Commercial/Institutional Doors:
 - 1. System: Catalyzed Polyurethane.
 - 2. Stain, Match existing adjacent doors.
 - 3. Washcoat closed grain woods prior to staining.
- B. Sealer: Door manufacturer's standard water-resistant sealer compatible with specified finish(es).
- C. Door Edges, Cutouts, Trim, and Wood Accessories: Seal with finish compatible with door face finish.

3.0. EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Doors: Examine door frames and verify that frames are correct type and have been installed for specified hanging of corresponding doors.

3.2 INSTALLATION

- A. Install in accordance with Section 01•70•00, and approved submittals.
- B. Doors:
 - 1. Condition doors to average prevailing humidity in installation area prior to hanging.
 - 2. Hardware: See Section 08•71•00 for installation.
 - 3. Install wood doors in accordance with manufacturer's instructions and as shown.
 - 4. Fit to frame and machine for hardware to whatever extent not previously worked at factory for specified fit and uniform clearance at each edge.
 - 5. Before Installation:
 - a. Seal top and bottom edges of doors with water-resistant sealer.

- b. Seal cuts made on the job immediately after cutting using approved water-resistant sealer.
- 6. Clearance:
 - a. Fire-Rated Doors: Provide clearances complying with limitations of fire testing agency label listing requirements.
- 7. Fire-Rated Doors and Frames: Comply with NFPA 80 and fire labeling requirements.
- 8. Smoke-Rated Doors and Frames: Comply with NFPA 80, NFPA 105, and smoke labeling requirements.
- 9. Shop-Finished Doors: If fitting and machining is performed at site, restore finish on surfaces defaced by fitting and machining to condition existing before fitting and machining.

3.3 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
 - 1. Comply with Section 01•45•00.
 - 2. Contractor provided.
 - 3. Inspect doors in accordance with NFPA-80 and NFPA-101.
 - 4. Inspect Fire-Rated Door Assemblies After:
 - a. Field modifications.
 - b. Project completion.
- B. Non-Conforming Work:
 - 1. Make repairs in accordance with inspection comments.
 - 2. Reinspect doors are repairs are made.

3.4 ADJUSTING

- A. Adjust operable parts in accordance with Section 01•70•00.
- B. Rehang or replace doors which do not swing or operate freely.

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Refinish or replace damaged doors at no additional cost to Owner.
- C. In Accordance With Manufacturer's Instructions Touch-up Finishes:
 - 1. That are scratched are marred.
 - 2. Where exposed fastener holes are filled.
 - 3. Match color and sheen of factory finish using materials compatible for field application.

3.6 PROTECTION

- A. Perform under provisions of Section 01•70•00.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 Towson CtHouseADA\11_Specifications\11.01_Working\CD\081400.wpd

SECTION 09•01•66.71
TERRAZZO FLOORING REHABILITATION

1.0 GENERAL

1.1 SUMMARY

- A. Terrazzo Flooring Rehabilitation Intent and Background Information:
 - 1. Existing Conditions Observed:
 - a. Terrazzo floor generally in good condition.
 - 2. Terrazzo Flooring Rehabilitation Operations Intent:
 - a. Repair floor as necessary due do demolition and new work.
- B. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 03•30•00 - Cast-In-Place Concrete

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C1315, Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
 - b. ASTM C150, Portland Cement.
 - c. ASTM C33, Concrete Sand.
 - 2. National Terrazzo and Mosaic Association (NTMA):
 - a. NTMA TS, Terrazzo Specifications.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 - 1. Conduct conferences in accordance with Section 01•35•91 for:
 - a. Removal coatings, dirt, and stains.
 - b. Compound cleaning.
 - c. Grinding and repolishing.
 - d. Extent and location of deteriorated terrazzo discovered after cleaning operations.
 - e. Extent of selective demolition for patches and rehabilitation.
 - f. Patching.
 - g. Rehabilitation.
 - 2. Confirm extent of:
 - a. Cleaning of specific stains beyond removal of coatings and dirt.
 - b. Compound cleaning.
 - c. Grinding and repolishing.
 - d. Crack rehabilitation.
 - e. Patches.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for cleaning agents and terrazzo patching materials.
 - 2. Samples:
 - a. Submit 12 by 12 inches in size illustrating terrazzo patches.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
 - 2. Record Documentation: Record actual mix design used for patches.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
 - 3. Member of National Terrazzo and Mosaic Association.
- B. Restorer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Comply with more restrictive of following or manufacturer's written requirements under which terrazzo products can be installed.
 - 2. Comply with more restrictive of following or manufacturer's written requirements under which terrazzo cleaning products can be applied.
- B. Existing Conditions:
 - 1. Field verify existing conditions prior to fabricating work of this Section.

2.0 PRODUCTS

2.1 EXISTING TERRAZZO

- A. Existing terrazzo is unknown, verify in field.
- B. Existing terrazzo has polished appearance.
- C. Existing terrazzo includes terrazzo flooring.
- D. Existing Matrix Color: Beige.
- E. Existing Divider Strip Material: Zinc.
- F. Existing Aggregate Colors: Black, red.
- G. Existing aggregate includes "Mother of Pearl."

2.2 CLEANING PRODUCTS

- A. Regulatory Requirements: Ensure flammable components comply with applicable portions of local, state, and federal codes, laws, and ordinances for flame spread and smoke developed indices.
- B. Cleaning Agents for Built-Up Floor Coatings:
 - 1. Non-ammoniated liquid wax stripper/floor cleaner.
 - 2. Acceptable Manufacturer and Product: General Paint and Chemical Company; Chicago IL: Tru-Test Floor Stripper FS10.
- C. Cleaner for Stripping and Cleaning Dirty or Discolored Terrazzo Floors:
 - 1. Description: Liquid, neutral chemical cleaner, with Ph factor between 7 and 10 of formulation recommended by terrazzo sealer manufacturer, and complying with NTMA TS requirements.
 - 2. Acceptable Manufacturer and Product: ProSoCo; Kansas City, KS: Sure Klean 859.
- D. Interior Floor Sealer: Colorless, non-yellowing, non-color-changing, slip resistant and stain resistant penetrating sealer with Ph factor between 7 and 10, that does not affect color or physical properties of terrazzo surface.
- E. Compound Cleaner:
 - 1. Description:
 - a. Mildly abrasive phosphate-free cleaning compound containing no caustic or harsh fillers.
 - b. Manufactured specifically for restorative cleaning of terrazzo surfaces.
 - 2. Acceptable Manufacturers and Products:

- a. BASF-Wyandotte Corporation Chemical Specialties Division; Wyandotte, MI: Wyandotte Detergent.
- b. ProSoCo; Kansas City, KS: Sure Klean Grout and Tile Cleaner.

2.3 TERRAZZO MATERIALS

- A. Portland Cement:
 - 1. ASTM C150, Type I, modified to comply with NTMA TS requirements for compressive strength.
 - 2. Obtain cement from single source for each color.
 - 3. Provide nonstaining white cement for terrazzo matrix.
- B. Sand: ASTM C33.
- C. Clean, potable water.
- D. Aggregate:
 - 1. Natural, sound, crushed marble chips without excessive flats or flakes, complying with NTMA TS requirements.
 - 2. Colors and gradation of aggregate sizes to match original existing intact materials and patterns.
 - 3. Match existing after cleaning or taking core samples of existing floor.
- E. Matrix Pigments:
 - 1. Pure mineral or synthetic pigments.
 - 2. Resistant to alkalis.
 - 3. Non-fading.
 - 4. Mix pigments with matrix to provide specified colors.
 - 5. Match existing after cleaning or taking core samples of existing floor.
- F. Curing Compound: Liquid-membrane-forming compound, ASTM C1315.
- G. Grout: Cement/acrylic grout with color added to match matrix of original terrazzo.
- H. Patching Resin:
 - 1. Manufacturer's standard 2-component epoxy resin, designed specifically for patching of terrazzo materials.
 - 2. Tint to match color of existing terrazzo matrix following manufacturer's recommendations.

2.4 CONCRETE PATCH MATERIALS

- A. Comply with requirements of Section 03•30•00, and following requirements.
- B. Compressive Strength: 3500 lb/in².
- C. Maximum Slump: 4 inches.
- D. Thickness: 4 inches, minimum.

2.5 EQUIPMENT

- A. Hand sander, small grinding tools.
- B. Grinding and Polishing Stones: Fine grit emery stones manufactured specifically for restorative type grinding and surfacing of terrazzo surfaces (#24 and #80 grit stones, or as recommended by NTMA).
- C. Resurfacing Screens: Fine grit screen manufactured specifically for restorative type grinding and polishing of terrazzo surfaces.
- D. Soft natural bristle brushes.
- E. Circular buffing machine (for floors) with grinding and polishing screens as recommended by NTMA.
- F. Use conventional terrazzo grinding equipment rather than lighter type machines.

2.6 ACCESSORIES:

- A. Divider Strips:
 - 1. Depth and style for terrazzo type and thickness to match existing.
 - 2. Solid composition and match existing size, color, and material.
- B. Control Joint Strips: Double or split units, 1/8 inch wide, of same material and color as divider strips with 1/8 inch wide full-depth filler, laminated between strips.

- C. Abrasive Strips: Carborundum.
- D. Adhesive Bonding Agent: Epoxy or polyester resin.
- E. Waterproof Membrane: 15 pound roofing felt.
- F. Epoxy Patch Primer: As instructed by epoxy resin manufacturer.
- G. Kraft paper or plastic sheeting.

2.7 MIXES

- A. Underbed: One part Portland cement to 4-1/2 parts sand and sufficient water to provide workability with minimal low slump.
- B. Portland Cement Terrazzo Topping:
 - 1. One 94 pound bag of Portland cement per 200 pounds of marble chips and approximately 5 gallons of water.
 - 2. Add color pigment to match existing color. Do not exceed, however, 2 pounds of pigment per bag of cement.
- C. Plastic Matrix Terrazzo Topping: Comply with manufacturer's instructions.
- D. Epoxy Patching Cracks in Terrazzo Floors: Blend resin materials to match color matrix by adding marble dust or pigment.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Removal of Coatings, Dirt, and Stains: Examine terrazzo surface carefully to determine cause of staining before proceeding with cleaning operations.
- C. Patching:
 - 1. Examine terrazzo to determine type of terrazzo topping used.
 - 2. Match marble chips and matrix for existing terrazzo by size, mineral content, and colors.
 - 3. Take samples for matching after cleaning.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•35•91.
- B. Removal: Perform floor coating and stain removal tests on inconspicuous surface to determine current conditions, and appropriate steps and materials necessary for stripping terrazzo surfaces.
- C. Concrete Placement:
 - 1. Comply with Section 03•30•00, and following requirements.
 - 2. Moist cure concrete; do not use curing compounds.
 - 3. Control Joints:
 - a. Maximum Spacing Distance Between Joints: 15 to 20 feet to not create panels having area exceeding 300 square feet.
 - b. Intersections:
 - 1) Create cross-shaped intersections.
 - 2) Do not create T-Shaped intersections.
- D. Patching:
 - 1. Clean and prepare substrate to comply with NTMA TS for type of terrazzo application indicated.
 - 2. Clean substrate of loose chips and deleterious matter.
 - 3. Grind concrete substrate to provide surfaces within tolerances required by NTMA TS for type of terrazzo application.
- E. Protection of In-Place Construction:
 - 1. Protect existing materials from damage that might be incurred during:
 - a. Selective demolition.
 - b. Removal of floor coatings and stains.
 - c. Terrazzo rehabilitation.

2. Rehabilitate damaged materials to condition before rehabilitation or cleaning started.
- F. Demolition / Removal:
 1. Where Floor Is Cut for Patches at Deteriorated Terrazzo:
 - a. Remove entire panels of terrazzo between dividers strips, unless otherwise directed by Architect.
 - b. Salvage removed dividers for reinstallation.
 2. Where Floor Is Cut for Utility Trenches:
 - a. Remove entire panels of terrazzo between dividers strips.
 - b. Salvage removed dividers for reinstallation.
 3. Store removed precast terrazzo items for reinstallation.

3.3 REMOVAL OF COATINGS, DIRT, AND STAINS

- A. Proceed with work in accordance with Section 01•35•91.
- B. Built-Up Floor Coatings:
 1. Strip built-up floor coatings from terrazzo flooring by applying dilute cleaner.
 2. Let dwell for 5 to 20 minutes depending on test trial results.
 3. Manually or mechanically scrub with non-metallic fiber bristle brush or white nylon pad.
 4. Rinse with low pressure cold water applied at pressure less than 100 lb/in².
 5. Do not allow cleaner to dry on floor.
 6. Repeat process until build-up is no longer noticeable.
 7. Apply penetrating type sealer in accordance with manufacturer's instructions to reduce porosity of terrazzo and increase its resistance to acid and alkalis.
- C. Stripping And Cleaning Dirty or Discolored Terrazzo Floors:
 1. Strip Existing Sealers and Coatings from Floor:
 - a. Apply chemical floor cleaner with paint roller and let dwell for 5 to 10 minutes.
 - b. Apply in areas no more than four feet wide to insure that cleaning personnel always stand on dry floor.
 - c. Using low pressure tank sprayer, apply mist of water over cleaner already on floor.
 - d. Water to emulsify old sealer and dilute thixotropic cleaner.
 - e. Pick up remaining residues with wet vacuum.
 - f. Using power scrubber with scrub brush attachment, scrub floor until coating material has been removed.
 - g. Pick up liquid residues with wet vacuum.
 - h. Thoroughly rinse surface with clean clear water.
 - i. Pick up remaining liquid residues with wet vacuum and allow to dry.
 2. If dirt and scratches have become so severe that normal stripping and cleaning no longer restore floor to its original luster, surface may be stripped using fine grit stones and resurfacing screens.
 3. If Floor Is Still Dirty, Clean Using Compound Cleaner:
 - a. Perform upon Architect's direction when determination has been made that preceding procedures have been ineffective.
 - b. Dilute three to four parts water to one part compound cleaner.
 - c. Pre-wet area to be cleaned.
 - d. Apply cleaning solution with floor scrub brushes.
 - e. Let dwell two to three minutes while lightly agitating with stiff, natural bristle brush, broom, or nylon brush.
 - f. Thoroughly rinse surface with clean clear water.
 - g. Pick up remaining liquid residues with wet vacuum and allow to dry.
 4. Seal terrazzo surface with sealer according to manufacturer's instructions.

3.4 REHABILITATION

- A. Proceed with work in accordance with Section 01•70•00.
- B. Patching Minor Chips And Cracks in Terrazzo With Cement Grout:
 1. With power saw or hand tools, cut vertical perimeter wall around area to be patched.
 2. If patch is smaller than one inch square, slightly undercut edges.

3. Clean surface of debris.
 4. Saturate void with water to prevent quick surface drying.
 5. Ensure that water penetrates into surface to achieve specified bond.
 6. Clean surfaces until obstructing materials have been removed.
 7. Patch Placement:
 - a. Apply cement paste and work into surface.
 - b. Do not allow cement paste to dry before placing terrazzo composition.
 - c. Match marble chips and matrix for existing terrazzo by size, mineral content and color.
 - d. Mix two parts blended marble chips with one part Portland Cement and add enough water to make this mix plastic.
 - e. Place mixture over chip or crack and level with trowel.
 - f. Seed additional marble chips of same blend over patch, to establish uniform coverage.
 - g. Compact patch, removing excess water and cement from surface.
 - h. Cover patch with paper or polyethylene sheeting to prevent quick hydration.
 - i. Cure until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding.
 8. Polishing:
 - a. Sand surface with hand sander or small grinding tool, using fine stones to achieve desired finish.
 - b. Use #40 or finer grit stone for initial grinding, exposing marble chips.
 - c. Follow with fine #80 grit stone before grouting with cement to fill pinholes.
 - d. Do not grind coated divider strips.
 - e. Cover grouted surface with paper or polyethylene for at least 72 hours.
 - f. Thoroughly rinse surface with clean clear water.
 - g. Remove excess rinse water and machine or hand apply grout using identical Portland cement, color and pigments as used in topping taking care to completely fill voids.
 - h. Final polish with #80 or finer grit stone.
 - i. Take care to limit grinding and polishing to small distance beyond patch perimeter.
 - j. Exercise extreme care to ensure fluids from polishing operations do not react with divider or control joint strips to produce stain on aggregate or discolor strips.
 9. Seal patch with penetrating type terrazzo sealer.
- C. Patches:
1. Provide terrazzo bases, thresholds, stair treads and landings, without interruptions of seams, except where divider strips, control joints, and expansion joints are required.
 2. Place and finish terrazzo around obstructions to achieve continuous color, pattern and finish.
 3. Provide control joints by installing angle-type divider strips back-to-back with neoprene rubber filler cemented between strips, flush with finish floor.
 4. Install control joints over existing control joints or cracks in concrete substrate.
 5. Match existing terrazzo character and pattern in each space containing or contiguous with existing terrazzo.
 6. Cementitious Terrazzo: Comply with NTMA TS recommendations for proportioning mixes, installation of strips, and for placing, curing, grinding, grouting and finishing.
 7. Surfacing:
 - a. Grout cured terrazzo topping in accordance with NTMA TS.
 - b. Delay grinding and finishing until heavy trade work is completed and construction traffic through area is restricted.
 - c. Finish by fine grinding with abrasive grit of size specified by NTMA TS to match original intact material.

- d. Grind and polish new areas, patches, and entire floor to produce clean, smooth, and uniform finish, capable of being sealed and polished to match original installation.
 - e. Cover with plastic sheets to prevent quick hydration.
8. Exercise extreme care to ensure fluids from polishing operations do not react with divider or control joint strips to produce stain on aggregate or discolor strips.
- D. Epoxy Patching Cracks in Terrazzo Floors:
 1. Remove deleterious matter from void, followed by routing with power tool.
 2. With stripper or ammonia, remove sealer from surface adjacent to crack void.
 3. Apply primer to prepared crack.
 4. Force mixed resin into void, making sure it is pressured into crack as deep as possible.
 5. If void is large enough, and intent is to disguise line so it will blend into remainder of terrazzo floor: While patching resin is still in wet state, irregularly place marble chips matching existing terrazzo blend along line approximately one to two inches on center.
 6. Tool off surface and allow to cure.
 7. When material has hardened, sand surface with hand sander or small grinding tool, using fine stones.
 - a. Use #40 or finer grit stone for initial grinding, exposing marble chips.
 - b. Follow with fine #80 grit stone before grouting with epoxy matrix to fill pinholes.
 8. Thoroughly rinse surface with clean clear water.
 9. Remove excess rinse water and allow to dry.
 10. Final polish with #80 or finer grit stone.
 11. Limit grinding and polishing to small distance beyond perimeter of patch.
 12. For some time, rehabilitated area will be noticeable, however, with normal maintenance, patch area will blend into balance of floor.
- E. Grinding and Repolishing:
 1. Perform at indicated areas, or when directed by Architect.
 2. Grind and repolish terrazzo floor to produce clean, smooth, and uniform finish, capable of being sealed and polished to match existing.
 3. Exercise caution when grinding near coated divider strips to avoid removing coating.
 4. For small areas, sand surface with hand sander or small grinding tool, using fine stones to achieve desired finish.
 5. For larger areas (such as floors), use circular buffing machine with grinding and polishing pads as recommended by NTMA.
 6. Use #24 or finer grit stone/screen (or as recommended by NTMA) for initial grinding, exposing marble chips.
 7. Fine mesh sand may be used if necessary.
 8. Follow with fine #80 or finer grit stone/screen (or as recommended by NTMA).
 9. Do not grind coated divider strips.
 10. Rinse floor thoroughly with clean clear water.
 11. Remove excess rinse water.
 12. Machine or hand apply grout using identical Portland cement, color and pigments as used in topping taking care to completely fill voids.
 13. Cover grouted surface with paper or polyethylene for at least 72 hours.
 14. Final polish with #80 or finer grit stone (or as recommended by NTMA), until grout has been removed from terrazzo surface.
 15. Limit grinding and polishing to small distance beyond desired area.
 16. Wash surface with neutral cleaner and thoroughly rinse with clean clear water.
 17. Allow surface to thoroughly dry.
 18. Seal terrazzo with penetrating type sealer as recommended by manufacturer.

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Keep terrazzo free of acids and oils.
- C. Daily Cleaning:

1. Daily sweeping with cotton-wick floor brush, treated with non-oily dressing, to control dust and make maintenance easier.
2. Damp-mop surface free from dirt accumulations.
- D. Cleaning Prior to Substantial Completion:
 1. Clean terrazzo after installation and rehabilitation operations are completed, complying with sealer manufacturer's instructions.
 2. Machine buff to remove traffic marks and restore luster.
 3. Touch up with sealer in traffic areas to protect surface.
 4. Machine scrub to remove heavy accumulations of dirt.
 5. Seal and wax.
 6. Apply sealer to cleaned terrazzo surfaces to comply with sealer manufacturer's instructions.
 7. Normal stripping and buffing procedures are suitable.

3.6 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect terrazzo from damage and wear during subsequent construction operations.
- C. Do not walk on, or work on, newly rehabilitated terrazzo without using kneeling boards or equivalent protection of tiled surface.
- D. Keep traffic off horizontal installations for at least 72 hours after rehabilitation has been completed.
- E. Place large, flat boards in walkways and wheel-ways for 7 days where use of newly rehabilitated terrazzo is unavoidable.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\090166-71.wpd

SECTION 09•22•00
SUPPORTS FOR PLASTER AND GYPSUM BOARD

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
1. Conditions of the Contract.
 2. Drawings.
 3. Division 01 - General Requirements.
 4. Section 06•10•00 - Rough Carpentry.
 5. Section 09•30•00 - Tiling.

1.2 REFERENCES

- A. Reference Standards:
1. American Iron and Steel Institute (AISI)
 - a. AISI S202, Code of Standard Practice for Cold-Formed Steel Structural Framing.
 - b. AISI S220, Cold-Formed Steel Framing Nonstructural Members.
 2. ASTM International (ASTM):
 - a. ASTM A1003, Sheet Steel, Carbon, Metallic and Nonmetallic Coated for Cold-Formed Framing Members.
 - b. ASTM A641, Zinc-Coated (Galvanized) Carbon Steel Wire.
 - c. ASTM A653, Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - d. ASTM A924 Steel Sheet, Metallic Coated by the Hot-Dip Process.
 - e. ASTM C1002, Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - f. ASTM C1513, Steel Tapping Screw for Cold-Formed Steel Framing Connections.
 - g. ASTM C635, Metal Suspension Systems for Acoustical Tile and Lay In Panel Ceilings.
 - h. ASTM C636, Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - i. ASTM C754, Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - j. ASTM C840, Application and Finishing of Gypsum Board.
 - k. ASTM E119, Fire Tests of Building Construction and Materials.
 - l. ASTM E1190, Strength of Powder-Actuated Fasteners Installed in Structural Members.
 - m. ASTM E488, Anchors in Concrete and Masonry Elements.
 3. Association for Materials Protection and Performance (AMPP):
 - a. AMPP-SSPC-Paint 20, Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").
 4. Gypsum Association (GA):
 - a. GA 600, Fire Resistance Design Manual.
 5. International Code Council Evaluation Service (ICC-ES)
 - a. ICC-ES AC86, Acceptance Criteria for Cold-Formed Steel Framing Members — Interior Non-Load-Bearing Wall Assemblies.
 6. Steel Framing Industry Association (SFIA):
 - a. SFIA TG, Technical Guide for Cold-Formed Steel Framing Products.
 7. Steel Stud Manufacturers Association (SSMA):
 - a. SSMA PTI, Product Technical Information.
- B. Definitions:
1. Wall: A vertical building element used to enclosed or separate spaces. Walls include fixed partitions.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for:
 - 1) Framing members.
 - 2) Stud height limiting tables.
 - 3) Proprietary direct hung ceiling suspension system.
 - b. Include data to indicate framing member materials, product criteria, section properties, load charts, and limitations.
- C. Submittals for Architect's Information:
 - 1. Certifications specified in Quality Assurance article.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- C. Certifications:
 - 1. Submit manufacturer's or manufacturer's industry association's certification that products furnished for Project meet or exceed specified requirements.
 - a. Include Compliance With:
 - 1) AISI S220.
 - b. Indicate Compliance For:
 - 1) Mechanical properties.
 - 2) Coatings.
 - 3) Dimensions.
 - 4) Labeling.
 - 2. Submit certification for each Contractor-proposed fire rated assembly attesting compliance with indicated requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 01•60•00.
- B. Comply with AISI S202.
- C. Storage and Protection:
 - 1. Store in dry ventilated space off ground.
 - 2. Protect materials from surface contamination, soiling, corrosion, construction traffic, and damage.
 - 3. Support on level platform and fully protect from weather.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. In addition to requirements shown or specified, comply with applicable provisions of following for design, materials, fabrication, and installation of component parts.
 - 1. AISI S220.
- B. Comply with ASTM C754, under following conditions:
 - 1. Gypsum Board Walls: Use criteria specified in Schedules Article.
 - 2. Interior Suspended Ceilings and Soffits: Maximum deflection of 1/360th of distance between supports.

- C. Fire Resistance Ratings:
 - 1. Where assemblies with fire ratings are indicated, provide materials and installations which are identical to assemblies tested in accordance with ASTM E119 by testing laboratories acceptable to authorities having jurisdiction.
 - 2. Construct assemblies identical to those indicated by reference to GA 600 or to design designations listed by Factory Mutual, Underwriters Laboratories, Warnock Hersey, or listing of other agencies acceptable to authorities having jurisdiction.
- D. Accommodate live load upward and downward deflection of primary building structural frame; upward and downward movement of 1 inch.

2.2 STUD FRAMING MATERIALS

- A. Studs, runners (track), and furring channels complying with AISI S220, using ASTM A1003 structural quality sheet steel.
- B. Non-load-bearing roll formed galvanized steel.
- C. Protective Coating:
 - 1. Provide with galvanized coating, ASTM A924, G40 thickness.
 - 2. Coatings providing equivalent corrosion protection to specified galvanized coatings: Demonstrate equivalent corrosion protection in evaluation report Code Official.
 - 3. Galvannealed products are not permitted.
- D. Wall Studs: Channel-shaped design with punched web, manufacturer's standard return flange lip.
- E. Wall Runners (Track): Channel-shaped design of sheet metal thickness matching sheet metal thickness of studs using in wall.
- F. Stud Section Properties and Maximum Span:
 - 1. Wall Studs and Runner Track: As described in SFIA TG or SSMA PTI, in accordance ICC-ES AC86, Interior Non-Structural Non-Composite Limiting Wall Height Tables, using procedure described in Schedule Article at end of Section.
 - 2. Walls Which Support Wall Hung Items Such as Cabinets, Equipment, and Fixtures: Provide studs and tracking having minimum sheet metal thickness of 33 mils (20 gauge).
 - 3. Walls Which Support Tiling Specified in Section 09•30•00: Provide studs and tracking having minimum sheet metal thickness of 33 mils (20 gauge). Equivalent thickness studs are not permitted.
- G. Wall Stud Runners (Track):
 - 1. Channel type members, with 1-1/4 inch flanges, and same sheet metal thickness as wall studs.
- H. Top of Wall Runner (Track) Deflection Accommodation Options:
 - 1. Slotted Long-Leg Deflection Track:
 - a. Description:
 - 1) Channel type members with slots in track legs for fastener placement.
 - 2) Deflection Distance, Maximum: Plus to minus 1 inch.
 - 3) Provide 2 inches long deep leg top of wall deflection track (of same sheet metal thickness as wall studs) when clips are attached to top runner track legs.
 - 4) Same sheet metal thickness as wall studs.
 - b. Acceptable Manufacturer and Product:
 - 1) Clark-Dietrich Building Systems; West Chester, OH: MaxTrak, MaxTrak 2D, and BlazeFrame Slotted Deflection Track.
 - 2) MarinoWare; South Plainfield, NJ: Slotted Track; with Deflection Drift Angle.
 - 2. Stud to Runner Track Connector / Deflection Clip Angle:
 - a. Description:
 - 1) Deflection Distance, Maximum: Plus to minus 1 inch.
 - 2) Clip angle on stud web or flat clip on stud flanges for attaching top of wall runner track to wall studs.

- 3) Provide vertical clip angle leg with slots in track legs for fastener placement or slip-on design.
 - 4) Provide 2 inches long deep leg top of wall deflection track (of same sheet metal thickness as wall studs) when clips are attached to top runner track legs.
 - b. Acceptable Manufacturers and Products:
 - 1) Clark-Dietrich Building Systems; West Chester, OH: Fast Top Clip.
 - 2) Flex-Ability Concepts; Edmond, OK: Three Legged Dog.
 - 3) The Steel Network; Raleigh, NC: Verticlip Angle Connector.
 - 4) Super Stud Building Products; Astoria, NY: Top Track Clip Angle Connector.
 - I. At Contractor's option, provide wall stud ceiling runner track at underside of acoustical ceiling grid:
 - 1. Pro Products Manufacturing; Princeton, MN: Eliminator Track.
 - 2. Revoe Manufacturing; Calgary, Alberta.
 - J. Bracing Members: Same size as studs.
- 2.3 FURRING CHANNEL FRAMING
- A. Furring Channels: Hat-shape, 7/8 inch high, 0.0179 inches minimum base-steel thickness.
 - B. Provide with galvanized coating, ASTM A924, G40 thickness.
- 2.4 CEILING AND SOFFIT FRAMING
- A. Channel and Cross Furring System:
 - 1. Comply with ASTM C754.
 - 2. Provide with galvanized coating, ASTM A924, G40 thickness.
 - 3. Main Runner Channels:
 - a. Cold-rolled.
 - b. U-Shaped.
 - c. Size: 1-1/2 inch minimum.
 - d. Weight: 0.42 pounds per foot, minimum.
 - 4. Furring Anchorages: 16 gage thick galvanized wire ties, or wire-type clips.
 - B. Proprietary Direct Hung Suspension System:
 - 1. At Contractor's option, provide factory fabricated, proprietary system in lieu of channel and cross furring framing system.
 - 2. Provide interlocking cold-rolled sheet steel grid complying with ASTM C635, "Heavy Duty" structural classification.
 - 3. Acceptable Manufacturers and Products:
 - a. Armstrong World Industries; Lancaster, PA.
 - b. Rockfon; Chicago, IL: 640 Drywall Furring System.
 - c. USG Interiors; Chicago, IL: Rigid X.
 - C. Ceiling and Soffit Attachment Devices:
 - 1. General:
 - a. Size devices for 5 times load imposed by completed system as determined in accordance with ASTM E488.
 - b. Powder-Actuated Fasteners in Concrete: Size devices for 10 times load imposed by completed system as determined in accordance with ASTM E1190.
 - 2. Wire:
 - a. ASTM A641, soft, Class 1 galvanized.
 - 3. Hanger Anchorage Devices: Screws, clips, bolts, inserts or other devices applicable to indicated method of structural anchorage for ceiling hangers and whose suitability for use intended has been proven by certified test data.
 - 4. Hanger Wire Sound Isolators: Provide where indicated for sound-rated floor-ceiling assemblies.
 - 5. Hanger Wire Concrete Inserts: No. 6 galvanized wire loop and 0.0179 inch thick galvanized shell 0.0747 inch thick galvanized steel strap with 5/16 inch hole.

6. Hangers: Comply with requirements of ASTM C754 for maximum ceiling area and loads to be supported.

2.5 ACCESSORIES

- A. General: Provide auxiliary materials for framing construction that comply with referenced standards, listed fire-rated construction assembly designs, and recommendations of framing manufacturer.
- B. Backer Plates:
 1. Use is not permitted.
 2. Use steel stud blocking framing clip with steel stud for blocking.
- C. Sheet Steel Support Angles:
 1. Formed sheet steel angle.
 2. Minimum Dimensions: 1-1/2 by 1-1/2 inches.
 3. Sheet Steel Thickness: 0.0179 inches minimum base-steel thickness.
 4. Provide with galvanized coating, ASTM A924, G40 thickness.
 5. Provide full length of corners of multiple layer fire-rated gypsum board assemblies, as required by fire-rated design assembly.
- D. Fasteners:
 1. ASTM C1002.
 2. ASTM C1513.
 3. Size and type suited for intended purpose.
 4. Finish: Hot dip galvanized.
- E. Touch-Up Primer for Galvanized Surfaces:
 1. AMPP-SSPC-Paint 20, Type I, Inorganic.
 2. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Industrial Maintenance Coating — Zinc Rich.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Examine areas and substrates for conditions affecting work from:
 1. Cast-in anchors.
 2. Structural framing.
 3. Steel door frames.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Items Which Require Backer Plates or Blocking:
 1. Coordinate sizes and locations.
 2. Install additional studs for attachment of backer plates and blocking in locations to receive surface mounted accessories as indicated or as required by accessory manufacturer.
 3. Elimination of backer plates and blocking is not permitted.
 4. Direct attachment of items to studs is not permitted.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00.
- B. Install units plumb, level, square, and free from warp and twist while maintaining dimensional tolerances and alignment with surrounding construction.
- C. Control Joints:
 1. Do not bridge building control joints with metal framing systems.

2. Install independent framing on each side of joints.
3. Comply with manufacturer requirements for constructing control joints in fire-rated assemblies.
- D. Install in accordance with ASTM C754 and with requirements of ASTM C840 that apply to framing installation, except for more stringent requirements of manufacturer or these Specifications.
- E. Suspended Ceilings and Soffits:
 1. Install channel and cross-furring in accordance with ASTM C754.
 2. Install proprietary systems in accordance with ASTM C636.
 3. Coordinate location of hangers and framing with other construction above ceiling line.
 4. Install ceiling framing independent of walls, columns, and above ceiling non-structural construction, unless otherwise required by fire-rated assembly requirements.
 5. Install free from contact with insulation and other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system.
 6. Offset hangers only where required to miss obstructions; resist resulting horizontal forces by bracing, or other means.
 7. Where width of ducts and other construction within ceiling plenum produces interference with location of hangers required to support standard suspension system members:
 - a. Install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - b. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 8. Do not cut framing members to fit around interfering items without providing supplemental framing around the interfering item.
 9. Do not connect or suspend steel framing from pipes, ducts, and conduit.
 10. For proprietary grids, provide attachments and hangers from structural support above, spaced on a grid of 24 by 48 inches.
 11. Do not attach hangers to steel deck tabs. Provide supplementary framing to span between structural framing members when structural framing members are spaced more than 48 inches apart.
 12. Reinforce openings in framing which interrupt main runners, furring channels, and bracing. Extend reinforcing minimum of 24 inches past each end of each opening.
 13. Proprietary Direct Hung Framing: Tie direct to suspension; interconnect components in accordance with framing system manufacturer's instructions.
 14. Space main runners at maximum 48 inches on center, unless otherwise indicated.
 15. Space furring channels at maximum 16 inches on center, unless otherwise indicated.
 16. Provide additional framing to fulfill structural requirements and for support at recessed fixtures and similar items.
 17. Laterally brace entire suspension system.
- F. Studs and Runners (Track):
 1. Stud Spacing: 24 inches on center, unless otherwise indicated.
 2. Provide studs spaced at 16 inches on center at walls having:
 - a. Ceramic Tile.
 3. Maximum Span and Spacing: Based upon requirements specified in tables at end of Section, use stud type which achieves span requirements described in Drawings.
 4. Runner Tracks:
 - a. Provide continuous tracks to match studs size and sheet metal thickness.
 - b. Align runner track at top of wall with runner track at bottom of wall to produce aligned wall surface.
 - c. Securely anchor to substrate.
 5. Where walls are indicated to extend to overhead surfaces (ceilings, deck construction, and structural elements), to prevent deflection transfer of structural loads or movements to walls provide either:
 - a. Slotted Long-Leg Deflection Track.

- b. Stud to Runner Track Connector / Deflection Clip Angle.
- 6. Terminate top of walls at ceiling construction structure above ceiling construction unless otherwise indicated.
- 7. Where walls are indicated to have framing extend only to ceiling, attach ceiling runner securely to acoustical ceiling grid ceiling framing.
- 8. Brace stud framing rigid which is not clad on both sides with gypsum board. Fasten horizontal stud or 1-1/2 inch wide 0.0359 inch uncoated steel thickness galvanized steel straps vertically spaced no more than 36 inches apart with top strap not more than 6 inches from top of wall.
- 9. Horizontally align openings in stud webs.
- 10. When studs have punched openings, studs are to have minimum of 10 inches of unpunched web at ends.
- 11. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.
- 12. Use single-piece full-length studs vertically positioned between runner tracks.
- 13. Minimum Jamb Stud Framing at Door Openings:
 - a. Walls laterally braced by ceiling framing or structure at 9'-0" above finish floor:
 - 1) Single doors not larger than 3'-6" by 9'-0" and not weighing more than 275 pounds: Two 18 mil thick studs or one 33 mil thick stud.
 - 2) Paired doors not larger than 3'-6" by 9'-0" per leaf and not weighing more than 275 pounds per leaf: Two 33 mil studs or one 40 mil stud.
 - b. Walls laterally braced by ceiling framing or structure at 12'-0" above finish floor:
 - 1) Single doors not larger than 3'-6" by 9'-0" and not weighing more than 275 pounds: Two 33 mil studs or one 40 mil stud.
 - 2) Paired doors not larger than 3'-6" by 9'-0" per leaf and not weighing more than 275 pounds per leaf: Two 40 mil studs.
 - c. At welded frames with fixed anchor clips, secure studs to jamb anchor clips with not less than two self tapping screws per clip.
 - d. Provide wall framing above door openings to match wall framing adjoining the opening.
 - e. Provide one additional stud not more than 6 inches from jamb studs.
 - f. At fire-rated doors use minimum thickness of 33 mil studs, unless otherwise indicated.
- 14. Fabricate corners with a minimum of three studs.
- 15. Provide additional studs and framing to support wall intersections, termination of walls, at openings and cut-outs and to support built-in anchorage and attachment devices for other work.
- 16. Stud Framing Used as Free-Standing Furring Adjacent to Adjoining Walls:
 - a. Locate studs from adjoining walls:
 - 1) At distance indicated on Drawings.
 - 2) Smallest practical distance from adjoining wall surface to studs projects from wall surface.
 - b. When wall height exceeds maximum stud span from SFIA TG or SSMA PTI, Interior Non-Structural Non-Composite Limiting Wall Height Tables:
 - 1) Provide minimum 6 inch long sheet steel angles to secure stud framing to adjoining wall surface.
 - 2) Space sheet steel angles along stud length, spaced not more than maximum stud span distance:
 - a) From floor and overhead structure.
 - b) Along length of studs.
- 17. Locate studs no more than 2 inches from abutting walls, wall corners and other construction. Start typical wall studs 6 inches either side of stud reinforcing or frames.
- 18. Install electrical outlets and similar at indicated locations. Provide additional blocking and straps for proper locations; do not mount on "nearest" stud.

- G. Wall Furring:
1. Install furring channels either vertically or horizontally.
 2. Space furring at a maximum of 16 inches on center.
 3. Fasten furring to substrate with powder-driven fasteners or hardened concrete steel nail fasteners at 24 inches on center staggered through narrow flange of channel.
 4. Install corner furring channels in manner equivalent to furring on remainder of wall.
 5. Locate Z-furring channels at interior and exterior corners in accordance with manufacturer's printed erection instructions.
- H. Tolerances:
1. Provide framing members to be covered by finish materials such as gypsum board, plaster, or tile specified in Section 09•30•00 set in mortar setting bed, within following limits:
 - a. Layout of walls and partitions: 1/4 inch from intended position.
 - b. Plates and Runners (Track): 1/4 inch in 8 feet from straight line.
 - c. Studs: 1/4 inch in 8 feet out of plumb, not cumulative.
 - d. Face of Framing Members: 1/4 inch in 8 feet from true plane.
 2. Provide framing members to be covered by tile specified in Section 09•30•00 set in dry-set mortar or latex-portland cement mortar within following limits:
 - a. Layout of Walls and Partitions: 1/4 inch from intended position.
 - b. Plates and Runners (Track): 1/8 inch in 8 feet from straight line.
 - c. Studs: 1/8 inch in 8 feet out of plumb, not cumulative.
 - d. Face of Framing Members: 1/8 inch in 8 feet from true plane.

3.4 ADJUSTING

- A. Adjust and align metal framing to properly receive final finishes in accordance with required tolerances.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect metal framing so that it will be without evidence of damage which would be detrimental to finished work.

3.6 SCHEDULES

- A. For stud sizes indicated on Drawings, determine maximum stud span using SFIA TG or SSMA PTI, Interior Non-Structural Non-Composite Limiting Wall Height Tables:
1. Criteria:
 - a. Non-Load-Bearing Walls:
 - 1) Maximum Deflection:
 - a) Span/240, Except at Locations Having Plaster Finish Ceramic Tile Finish.
 - b) Those Having Ceramic Tile Finish: Span/360.
 - c) Those Having Plaster Finish: Span/360.
 - 2) Lateral Load: 5 lb/ft².
 - b. Maximum Span is maximum distance between supports, anchor locations, or bracing connections for studs.
 - c. At walls receiving Ceramic Tile (as defined in Section 09•30•00), use minimum 3-5/8 inch studs having minimum 33 mil sheet metal thickness, spaced not more than 16 inches apart.
 2. Procedure:
 - a. Enter "Stud Member" column.
 - b. Select member web depth equaling stud size indicated on Drawings.
 - c. Using "Limiting Height" equaling or exceeding height of wall to be constructed, resulting from maximum deflection and lateral load criteria specified above, determine combination of following for studs to be used in wall to be constructed:
 - 1) Flange width.

- 2) Flange lip return depth.
- 3) Sheet steel thickness (in mils).
- 4) Steel yield strength.
- d. If "Limiting Height" equals or exceeds height of wall, stud member flange width, sheet steel thickness (in mils), and steel yield strength can be used.
- e. If "Limiting Height" is less than height of wall, select thicker sheet steel thickness (in mils) or lesser spacing; verify acceptability of studs size and type by repeating Steps "a" through "d".

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\092200.wpd

SECTION 09•23•00
GYPSUM PLASTERING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 07•84•00 - Firestopping.
 - 5. Section 07•92•00 - Joint Sealants.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C1002, Steel Drill Screws for Application of Gypsum Board or Metal Plaster Bases.
 - b. ASTM C1032, Woven Wire Plaster Base.
 - c. ASTM C1047, Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - d. ASTM C28, Gypsum Plasters.
 - e. ASTM C29, Unit Weight and Voids in Aggregate.
 - f. ASTM C35, Inorganic Aggregates For Use in Gypsum Plaster.
 - g. ASTM C472, Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete.
 - h. ASTM C631, Bonding Compounds for Interior Gypsum Plastering.
 - i. ASTM C841, Installation of Interior Lathing and Furring.
 - j. ASTM C842, Application of Interior Gypsum Plaster.
 - k. ASTM C843, Application of Gypsum Veneer Plaster.
 - l. ASTM C847, Metal Lath.
 - m. ASTM C954, Steel Drill Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inches to 0.112 inches in Thickness.
 - n. ASTM E119, Fire Tests of Building Construction and Materials.
 - 2. Association for Materials Protection and Performance (AMPP):
 - a. AMPP-SSPC-Paint 20, Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").
 - 3. Gypsum Association (GA):
 - a. GA 600, Fire Resistance Design Manual.
- B. Definitions:
 - 1. Wall: Vertical building element used to enclosed or separate spaces. Walls include fixed partitions.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Coordinate sealing of penetrations in fire-rated assemblies with Section 07•84•00, special construction systems, mechanical systems, and electrical systems.
 - 3. Commence application only after area scheduled for plaster is completely weathertight.
 - 4. Heating, ventilating, and air-conditioning systems should be complete and in operation prior to application of plaster. If mechanical system cannot be activated before plaster application is begun, plaster application may proceed in accordance with approved plan to maintain specified environmental conditions.
 - 5. Apply plaster prior to installation of finish flooring and acoustical ceilings.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.

- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for:
 - 1) Plaster materials.
 - b. Include data to indicate materials, product criteria, and limitations.
 - c. Include information for factory finishes, and fire resistance ratings.
 - 2. Engineering Judgements:
 - a. Submit for substitutions of specified fire-rated assemblies.
 - b. Submit for variations from third-party tested and classified fire-rated assemblies.
- C. Submittals for Architect's Information:
 - 1. Certifications specified in Quality Assurance article.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- C. Certifications:
 - 1. Submit certification for each proposed fire rated assembly attesting compliance with indicated requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 01•60•00.
- B. Storage and Protection:
 - 1. Store in dry ventilated space off ground.
 - 2. Protect materials from surface contamination, soiling, corrosion, construction traffic, and damage.
 - 3. Support on level platform and fully protect from weather and direct sunlight exposure.
 - 4. Protect materials to keep them dry. Remove wet gypsum products from Project site.
 - 5. Stored under weathertight cover and away from sweating walls and other damp surfaces until ready for use.
 - 6. Do not bend or damage metal trim.
 - 7. Remove from project site damaged or deteriorated materials.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Comply with more restrictive of ASTM C842, or manufacturer's written requirements under which products can be installed.
 - 1. Maintain temperature between 50°F and 80°F evenly in building for period of not less than 1 week prior to application of plaster, while applying plaster, while plaster is drying, and after plaster is dry until normal occupancy heating conditions are established.
 - 2. Distribute heat throughout areas which have plaster finish.
 - 3. When building is exposed to hot dry winds or day-to-night temperature differentials of 20°F or more, cover openings that are not glazed.
 - 4. Provide regulated ventilation to prevent "sweatouts" or "dry-outs."
 - 5. Protection from Sun and Dry Winds:
 - a. During finish coat application, and for period of 48 hours following completion of finish coat application, protect plaster surface from direct sunlight and direct winds.
 - b. Use of tarpaulins or other temporary means are acceptable.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Fire Resistance Ratings:

1. Where assemblies with fire ratings are indicated, provide materials and installations which are identical to assemblies tested in accordance with ASTM E119 by testing laboratories acceptable to authorities having jurisdiction.
 2. Construct assemblies identical to those indicated by reference to GA 600 or to design designations listed by Factory Mutual, Underwriters Laboratories, Warnock Hersey, or listing of other agencies acceptable to authorities having jurisdiction.
- B. Single Source Responsibility: Except where specified otherwise, obtain gypsum plaster products, trim, and accessories from single manufacturer or from manufacturers recommended by prime manufacturer of gypsum plaster products.

2.2 OWNER-FURNISHED PRODUCTS

- A. Existing Products:
1. Provide same products or types of construction as existing structure, as needed to patch, extend, or match existing work.
 2. Generally, Contract Documents do not define products or standards of application present in existing construction.
 3. Determine products by inspection and testing, and application by use of existing as sample of comparison.
 4. Patching, extending, and matching of existing work and systems to result in complete, finished system.
 5. Presence of product, finish, or type of construction, requires that patching, extending, or matching to be performed as necessary to make work complete and consistent.

2.3 METAL LATH

- A. Woven Wire Lath:
1. ASTM C1032.
 2. Type: Flat base, Self-furring when placed on solid backup surface.
 3. Provide without stiffeners.
 4. Provide without backing.
 5. Fabricate from copper-bearing, cold-drawn, galvanized steel wire not less than 0.0548 inches thick.
 6. Fabricate with openings not to exceed 2 by 2 inches.
 7. Wires welded to each other.

2.4 GYPSUM PLASTER

- A. Existing Plaster:
1. Employ services of testing laboratory to perform petrographic and chemical analysis of existing plaster.
 2. Take samples from existing plaster to determine mix for new plaster.
 3. Sampling Procedure:
 - a. Notify Architect 72 hours prior to taking samples.
 - b. Perform under Architect's on-site direction.
 - c. Take samples of existing plaster at locations directed by Architect.
 4. Submit laboratory test report to Architect for review. Report to Indicate:
 - a. Ingredients.
 - b. Mix proportions.
 - c. Admixture limitations.
 5. Prepare new plaster in accordance with results of petrographic and chemical analysis of existing plaster.
 6. Plaster matching existing plaster to use products complying with requirements for new plaster materials specified below.
- B. Ready-Mixed Gypsum Plaster for Use over Metal or Concrete or Masonry Bases:
1. ASTM C28.
 2. Factory-mixed plaster to provide minimum compressive strength of not less than 1000 lb/in² when tested in accordance with ASTM C472.
- C. Gypsum Neat Plaster: ASTM C28.
- D. Gypsum Gauging Plaster: ASTM C28.

- E. Aggregate:
 - 1. ASTM C35.
 - 2. Determine unit weight of aggregates in accordance with ASTM C29.
 - 3. Natural color.
 - 4. Size: Appropriate to achieve specified finish texture.
 - 5. Provide sand in base and finish coats, except provide vermiculite or perlite for plaster used in fire-rated assemblies.
 - 6. Gradation of Silica Sand or Perlite Fines For Use in Gypsum Gauged Finish:
 - a. 10 percent maximum retained on Number 30 sieve.
 - b. 4 percent minimum and 70 percent maximum retained on Number 100 sieve.
 - c. 70 percent minimum and 100 percent maximum retained on Number 200 sieve.
- F. Water: Clean, fresh, potable, and free from deleterious amounts of oils, acids, alkalis, minerals, and organic matter injurious to plaster or to metals embedded in system.
- G. Mixes:
 - 1. Comply with ASTM C842.
 - 2. Measure in containers which ensure specified proportions to be controlled and accurately maintained during progress of work.
 - 3. Measuring materials with shovels (shovel count) is not permitted.
 - 4. Perform mixing sequence and cycle of operations in accordance with manufacturer instructions.
 - 5. Prepare ready-mix plaster by addition of water only.
 - 6. Plaster Grout: Scratch-coat material mixed to non-fluid consistency.
 - 7. Hand mixing not permitted, except that finish coats containing lime may be hand mixed.
 - 8. Mix materials in mechanical mixers of type in which quantity of water can be controlled accurately and uniformly, except that finish coats containing lime may be hand mixed.
 - 9. Mix dry materials to uniform color before adding water.
 - 10. While mixer is in continuous operation, add approximately 90 percent of estimated quantity of water, half of aggregate, and entire amount of cementitious materials.
 - 11. Add quantity of water which produces stiff workable mix.
 - 12. Introduce remaining aggregate into mixer and mix thoroughly with remainder of water until mixture is uniform in color and consistency.
 - 13. Thoroughly mix components.
 - 14. Avoid excessive mixing and agitation.
 - 15. Do not use frozen, caked, lumpy, or partially set materials.
 - 16. Use of re-tempered partially set plaster is not permitted.
 - 17. Empty mixers and mixing boxes after each batch is mixed, and keep free of old plaster.
 - 18. Separately mix each batch.
 - 19. Discard plaster which has begun to set before it is used.

2.5 METAL TRIM

- A. General:
 - 1. ASTM C1047.
 - 2. Material: Zinc alloy, galvanized steel, or rigid polyvinyl chloride plastic.
 - 3. Do not use plastic components in fire-rated assemblies.
 - 4. Uncoated Sheet Metal Thickness: 0.0179 inches minimum.
 - 5. Flange width to suit installation requirements.
 - 6. Flanges to be free of dirt, grease, or other materials which may adversely affect bond to plaster.
- B. Arch, Flexible Corner Beads:
 - 1. Flanges:
 - a. Minimum Width: 1-1/4 inches.
 - b. Minimum Thickness: 1/8 inches.
 - 2. Designed to bend without buckles, kinks, or breaks in nose.
- C. Expanded Flange Corner Bead Flanges:
 - 1. Minimum Width: 2-1/2 inches.
 - 2. Bead Width: 1/8 inches.
- D. Bullnose Corner Beads:

1. Minimum Thickness: 0.030 inches.
2. Flanges:
 - a. Minimum Width: 2-1/2 inches.
 - b. Bead Width: 3/4 inches.
- E. Cornerites:
 1. ASTM C847.
 2. Form angle of at least 100 degrees, with outstanding legs of not less than 2 inches.
- F. Striplath:
 1. ASTM C847.
 2. Fabricate of galvanized steel sheet, 2.5 pounds per square yard.
- G. Base or Parting Screed:
 1. Thickness: 0.0210 inches.
 2. Depth: 1/2 inch.
 3. Expansion Flange Width: Not less than 2 inches.
- H. Casing Beads:
 1. Minimum Thickness: 0.030 inches.
 2. Depth: 3/4 inches.
 3. Expansion Wing Width: Not less than 2 inches.
 4. Front edge of face flange shaved for intended use.
 5. Back slightly arched to provide spring effect.
- I. Expansion and Control Joints:
 1. Design for expansion and contraction of plaster due to thermal exposure.
 2. Minimum Thickness: 0.030 inches.
 3. Perforated or expanded-metal wings.

2.6 ACCESSORIES

- A. Wood Grounds and Fastening Strips:
 1. Any species; utility grade.
 2. Sizes:
 - a. Grounds: 1-1/2 inches by thickness of plaster.
 - b. Fastening Strips: 1x4 nominal.
- B. Fasteners:
 1. Metal Lath Fasteners:
 - a. Self-drilling, self-tapping, bugle head screws conforming to ASTM C954 and ASTM C1002, length to suit application.
 - b. Type S screws for 0.0329 to 0.0179 inches thick metal framing and furring.
 - c. Type S-12 screws for 0.1046 to 0.0359 inches thick metal framing and furring.
- C. Bonding Agent for New to Existing Plaster:
 1. Description:
 - a. ASTM C631.
 - b. Vinyl acetate liquid surface primer and bonding agent.
 2. Acceptable Manufacturer and Product: Larsen Products; Jessup. MD: Plaster Weld.
- D. Touch-Up Primer for Galvanized Surfaces:
 1. AMPP-SSPC-Paint 20, Type I, Inorganic.
 2. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Industrial Maintenance Coating — Zinc Rich.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify rough-in utilities and blocking are in proper position.
- C. Where Plaster is Direct-Bonding to Substrate, Verify Surface is:
 1. Dry.

2. Free of dust, oil, form release agents, or other bond-inhibiting materials.
3. Free of protrusions or voids.
- D. Verify that masonry is solid at corners and at changes in thickness.
- E. Verify that masonry surfaces sufficient to provide bond required for plaster.
- F. Verify that adequate supports are available for suspension of lath.
- G. Verify that lath and plaster accessories are secured in place prior to commencement of plaster application.
- H. Verify that plaster accessories are of proper dimension to correspond to plaster thickness.
- I. Verify that lath and plaster accessories are free of rust. Replace rusted items.
- J. Verify that metal grounds, corner beads, screeds, and other accessories are aligned before starting plaster application.
- K. Verify expansion and control joints, and supporting metal structures, can move unrestrained.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00, ASTM C842.
- B. Items Which Require Backer Plates or Blocking:
 1. Coordinate sizes and locations.
 2. Install additional studs for attachment of backer plates and blocking in required locations to receive surface mounted accessories as indicated or as required by accessory manufacturer.
 3. Elimination of backer plates or blocking is not permitted.
 4. Direct attachment of items to studs is not permitted.
- C. Protection of In-Place Construction:
 1. Protect surfaces of other construction materials during plaster application; with non-staining kraft paper or polyethylene with joints sealed with tape.
 2. Protect metal and wood frames with removable masking.
- D. Clean surfaces to receive plaster of projections, dust, loose particles, grease, bond breakers, and deleterious matter.
- E. Do Not Apply Plaster Directly to Following Surfaces Without Using Lath:
 1. Masonry or concrete that have been coated with bituminous compound or other waterproofing agents.
 2. Painted or previously plastered surfaces.
- F. Demolition / Removal:
 1. At Holes Created:
 - a. Remove additional existing plaster, yet retain existing metal lath.
 - b. Enlarge perimeter of hole until encountering existing plaster which is not broken, cracked, chipped, or friable.
 - c. Enlarge perimeter of hole to provide solid base against which to apply new plaster.
 2. Remove sufficient plaster to permit installation of new metal lath with minimum lap of 1 inch over existing metal lath.
 3. Remove loose plaster, plaster dust, and loose lath.
 4. Remove plaster which is cracked, deteriorated, stained, fractured, separated, blistered, bubbled, or hollow.
 5. Enlarge cracks and crazes to permit installation of plaster patches.
 6. Cut plaster back to sound substrate.
 7. Cut plaster and leave square corners.
 8. When cutting plaster, leave flat surface.
 9. Thoroughly remove following materials by non-metallic bristle brush application of trisodium phosphate compound:
 - a. Dust.
 - b. Loose material.
 - c. Efflorescence.
 - d. Organic growth.
 10. Leave plaster patch areas clean and dry.

3.3 RESTORATION

- A. Lath and Accessories:

1. Replace deteriorated wood lath with new metal lath.
 2. Wood Lath:
 - a. Replace deteriorated wood lath with new wood lath for areas larger than 12 inches in diameter.
 - 1) When replacing patches of wood lath surrounded by existing lath, cut plaster to expose entire lath piece.
 - 2) Remove deteriorated lath and replace with new wood lath.
 - 3) New lath piece is to span three studs for walls and three joists for ceilings.
 - 4) Do not re-use old lath.
 - b. For deteriorated wood lath and patches smaller than 12 inches in diameter, cut new lath patches to conform to shape of holes created by removal of existing plaster.
 3. Comply with requirements specified for new lath and accessories.
 4. Install lath support wires and straps, attached to existing structure, for new lath and for unsupported ends of existing lath.
 5. Cut new lath patches to conform to shape of holes created by removal of existing plaster.
 6. Tie new lath to existing lath.
 7. Install new screeds to replace deteriorated screeds.
 8. Align new accessories with existing accessories to form true lines.
- B. Plaster:
1. Prior to application of new plaster, moisten existing plaster which will come in contact with new plaster.
 2. Comply with requirements specified for new plaster.
 3. Thickness of patch coats to match thickness of existing coats.
 4. Align face of patch coats with respective face of existing coats.
 5. Apply scratch coat where existing scratch coat has been removed.
 6. Apply brown coat where existing brown coat has been removed.
 7. Apply finish coat where existing finish coat has been removed.
 8. Application of patch coats to comply with requirements for applying new plaster.
 9. Align surface of finish coat with existing plaster.
 10. Match texture of finish coat to texture of existing finish.

3.4 INSTALLATION

- A. General:
1. Install in accordance with Section 01•70•00.
 2. Install units plumb, level, square, and free from warp and twist while maintaining dimensional tolerances and alignment with surrounding construction.
- B. Lath:
1. Comply with ASTM C841.
 2. Wood Lath:
 - a. Install new wood lath in areas with deteriorated or missing lath.
 - b. Wood Lath on Vertical Surfaces:
 - 1) Apply with long dimension across supports, with true even surfaces, and without sags or buckles.
 - 2) Span minimum of three studs.
 - 3) Orient to provide maximum mechanical bond with plaster.
 - 4) Use nails to secure lath to wood supports.
 - 5) New laths to not exceed 3/8 inch spacing between pieces.
 - 6) Place laths in groups of six in single row, one above each other, then move lath over two stud spaces and install group of six more, creating staggered joint at lath ends.
 - 7) Space lath ends 1/4 inch apart.
 - 8) Install cornerite on outside corners.
 - c. Wood Lath on Vertical Surfaces:
 - 1) Apply with long dimension across supports, with true even surfaces, and without sags or buckles.
 - 2) Wood lath to span minimum of three joists.

- 3) Orient to provide maximum mechanical bond with plaster.
 - 4) Use nails to secure lath to wood supports.
 - 5) New laths to not exceed 3/8 inch spacing between pieces.
 - 6) Nails laths six in a row, one above the other, then move lath over two stud spaces and install six more, creating a staggered joint at lath ends.
 - 7) Lath ends are to be spaced 1/4 inch apart.
 - 8) Turn lath on restrained ceilings down at junction with wall, or apply to cornerite or corner bead.
 - 9) Fasten cornerite to wood lath on wall and ceiling.
3. Metal Lath:
- a. Metal Lath on Vertical Surfaces:
 - 1) Apply with long dimension across supports, with true even surfaces, and without sags or buckles.
 - 2) Orient to provide maximum mechanical bond with plaster.
 - 3) Attach upper sheet to overlap lower sheet.
 - 4) When paper-backed lath is used, attach upper sheet to overlap lower sheet.
 - 5) Secure to supports at intervals not exceeding 6 inches.
 - 6) Use nails or staples to secure lath to wood supports.
 - 7) Use tie wires, rings, clips, or other approved fasteners having equivalent holding power of tie wires for securing plaster base to metal supports and to concrete or masonry.
 - 8) Tie or otherwise secure side-laps or junction of sides of plaster base at intervals not exceeding 9 inches between supports, in addition to being secured to supports.
4. Chases and Recesses:
- a. Lath chases and recesses to receive plaster.
 - b. Bridge openings over 12 inches wide with furring channels spaced 12 inches on centers.
 - c. Openings 12 inches wide and less do not need to be bridged.
 - d. Extend lath 3 inches beyond edges of opening.
 - e. Secure lath by fastening with screws or wire ties.
5. Openings:
- a. Corners of Openings:
 - 1) Provide reinforcement at corners of openings in plastered areas extending 12 inches or more in each dimension by securing striplath diagonally at corners.
 - 2) Striplath Minimum Size: 6 inches wide by 16 inches long.
 - 3) Use shorter lengths to preclude lapping striplath.
 - 4) Secure striplath to lathing without extending fastenings into or around supporting members.
 - 5) Where plaster is applied directly to concrete or masonry surfaces, secure striplath to concrete or masonry.
 - b. Steel Frames:
 - 1) Securely attached through built-in anchors to nearest stud on each side of opening with tie wire, bolts, screws, or welding or bracing where bracing is specified.
 - 2) Grout frames solid with plaster grout and form groove within frame returns to receive lath and plaster.
 - c. Ceiling Openings:
 - 1) Provide framing for ceiling openings and supplemental supporting members for items mounted in ceiling or attached to ceiling suspension system.
 - 2) Secure frames for openings to lath support members.
 - 3) Secure frames provided with expanded metal flanges to lath.
 - 4) Provide intermediate structural members for attachment or suspension of support members.

- d. Openings in Hollow Walls: Additionally brace hollow wall door openings by tying together each set of double-jamb studs with not less than four solid metal column clips evenly spaced along each jamb.
 - e. Openings in Walls Not Running to Overhead Structure: Strengthen walls not extending to structural ceiling or structural supports or frame at openings with angle bracing from each jamb location anchored to structural ceiling or supports.
 - f. Cross bracing between walls or similar bracing may be substituted for angle bracing.
 - g. Minor frames such as those required for access panels may be provided with expanded metal flanges which are to be attached to lath.
- C. Trim, Moldings, and Accessories:
- 1. General:
 - a. Install in standard lengths level and plumb to straight lines, and as indicated on drawings.
 - b. Space fastenings not over 12 inches apart for single-flanged accessories and not over 24 inches apart on each flange of double-flanged accessories.
 - c. Miter or cope at corners, or use prefabricated corners.
 - d. Form joints in straight runs formed with splice or tie plates.
 - 2. Base Screeds: Install approximately 3 inches above finished floor elevation, unless indicated otherwise.
 - 3. Corner Beads:
 - a. Install in standard lengths at external plastered corners.
 - b. Secure to furring members or supports.
 - 4. Cornerites:
 - a. Install at internal angles formed by abutting surfaces of lath not turned down at horizontal corners or returned around vertical corners.
 - b. Secure to lathed surfaces.
 - c. Secure to concrete or masonry where plaster is applied directly to concrete or masonry surfaces.
 - d. Do not install at unrestrained ceilings.
 - 5. Casing Beads:
 - a. Install at joints of dissimilar base materials in same plane.
 - b. Install at exposed edges of plaster including junctions of walls and ceilings.
 - c. Do not install at restrained ceilings abutting plastered surfaces.
 - d. At perimeter of unrestrained suspended ceilings, secure to ceiling to provide 3/8 inch opening between abutting surfaces.
 - e. Prior to plastering, seal openings with sealant as specified in Section 07•92•00.
 - 6. Expansion and Control Joints: Coordinate placement and locations with Architect prior to commencement of work. Install control joints in accordance with following:
 - a. Locate at joints of maximum stress, at points of natural weak planes, such as at openings and at corners of offsets in walls exceeding 30'-0" in length.
 - b. Extend control joints from both corners of door frames to top of wall where doors occur in long runs of wall.
 - c. Where gypsum plaster is vertically continuous, as at stairwells and other long vertical wall areas, provide horizontal control joints at each floor level at top runner of shaftwall, at slip joints in shaftwall framing, and breaks in shaftwall framing.
 - d. Locate in ceilings with area exceeding 900 ft², where framing or furring changes direction, and spaced apart not more than 30'-0".
 - e. Locate in ceilings where wings of "L", "U", and "T" shaped areas are joined.
 - f. Provide mineral fiber acoustical insulation or gypsum panel backing at control joints in fire-rated assemblies to maintain fire rating.
 - 7. Trim: Install where indicated and as required to complete plaster work.
- D. Plaster Thickness and Surface Evenness:
- 1. Control plaster thickness and surface evenness by grounds or screeds of metal, wood, or plaster.
 - 2. Grounds and Screeds:

- a. Use grounds for securing trim items, and for finished corners and terminations.
 - b. Install screeds for base screeds when wood or metal grounds are not required.
 - c. Install temporary screeds when permanent screeds or grounds cannot be used.
 - d. On completion of base coats, remove temporary screeds and immediately fill voids with plaster.
 - 3. Plaster Screeds: Use plaster screeds within plastered areas to supplement wood and metal grounds and screeds.
- E. Gypsum Plaster:
- 1. General:
 - a. Comply with more stringent requirements of ASTM C842, manufacturer, and these Specifications.
 - b. Install gypsum plaster in accordance with GA 600 for fire-rated assemblies.
 - c. Machine Application:
 - 1) May be used for application of scratch and brown coats.
 - 2) Use plaster compounded and packaged by manufacturer for use in plaster application machine
 - 3) Do not add water to mix to allow pumping through extended hose lines to plastering nozzle.
 - 4) Amount of water added to each batch of plaster to result in plaster slump of not more than 3 inches using standard plaster slump cone or 6 inches using concrete slump cone.
 - d. Moderately moisten or fog spray base coat of plaster that has become dry before finish coat is applied.
 - e. Accelerate plaster, if necessary, to provide setting time of not more than 4 hours from time plaster is mixed.
 - f. Do not apply continuous across expansion and control joints occurring in walls, walls, and ceilings.
 - g. Finish plaster level, plumb, square, and true, within tolerance of 1/8 inch in 8 feet, without waves, cracks, blisters, pits, crazing, discoloration, projections, or other imperfections.
 - h. Form plaster carefully around angles and contours, and well-up to screeds.
 - i. Take care to prevent sagging and consequent dropping of applications.
 - 2. Base Coats:
 - a. Apply not less than following thicknesses:
 - 1) Metal Lath or Masonry Base: 5/8 inch thick from face of base.
 - 2) Gypsum Lath: No less than 1/2 inch thick from face of lath.
 - b. Gypsum Three-Coat Work:
 - 1) Scratch Coat:
 - a) Plaster: Gypsum neat plaster or Ready-Mixed plaster.
 - b) Apply 3/16 to 1/4 inch thick.
 - c) Rake or scratch to set firm and hard.
 - 2) Brown Coat:
 - a) Plaster: Gypsum neat plaster or Ready-Mixed plaster.
 - b) Apply to bring base coat out to screeds.
 - c) Compact and straighten to true surface without application of water.
 - d) Float entire surface to receive finish coat.
 - c. Apply with sufficient pressure and ensure plaster is sufficiently plastic to provide strong bond to bases.
 - d. Work into screeds spaced at intervals of from 5 to 8 feet.
 - 3. Finish Coat:
 - a. General:
 - 1) Plaster: Gypsum gauging plaster.
 - 2) Apply finish over base coat.
 - 3) Finish coat may be omitted at back of projecting bases, wainscots, structural-glass wall finish, cabinets, chalkboards, tackboards, bulletin boards, acoustic treatments, fixed equipment, and other locations where indicated.

- 4) Do not apply finish coat above wainscots until wainscots have been installed.
- 5) Apply trowel finish coats of gypsum-gaged plaster as thin as possible and 1/16 to 1/8 inch thick for conventional plaster system, except in spots to level out hollows in base coat.
- 6) Apply with no visible junction marks in finish coat where one day's work adjoins another.
- 7) Scratch in thoroughly.
- 8) Lay on well, double back, and fill out to true, even surface.
- 9) Allow finish to dry few minutes, then trowel well with water.
- 10) Apply maximum pressure in order to compact finish coat.
- 11) Provide smooth finish free from blemishes and irregularities.
- b. Finish Texture: Match existing plaster.
- c. Do not use gypsum sand float finish in bathrooms, kitchens, and other similar places requiring constant cleaning cycle.

3.5 ADJUSTING

- A. Adjust and align metal framing to properly receive final finishes in accordance with required tolerances.
- B. Correct damages, defects, and leave work ready for decoration. Clean compounds from trim. Visible cracks, nail heads, tool marks, waves, distortions, or other similar defects shall not appear in finished work.

3.6 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
 1. Comply with Section 01•45•00.
 2. Contractor provided.
 3. Test machine-applied plaster.
 4. Test fluidity or stiffness of plaster with standard 2 by 4 by 6 inch plaster slump testing cone or with 4 by 8 by 12 inch concrete slump testing cone.
 5. Procedure:
 - a. Place cone on center of dry base plate located on level, firm surface.
 - b. Hold cone tightly against plate.
 - c. Fill cone with plaster obtained from hose or nozzle, without air on nozzle, puddling with tamping rod during operation to eliminate air bubbles or voids.
 - d. Screed plaster level with top of cone.
 - e. Lift cone straight up from base plate in slow and uniform motion.
 - f. Place cone on base plate next to plaster sample, using care not to jiggle base plate.
 - g. Lay straightedge across top of cone, being careful not to disturb or jostle plate.
 - h. Measure slump in inches from bottom of straightedge to top of plaster sample.

3.7 REPAIR

- A. Plaster showing oversanding, cracks, blisters, pits, checks, discoloration or other defects is not acceptable and is considered to be defective.
- B. Repair defective surfaces to specified surface finish.
- C. Replace loose, cracked, damaged, or defective plaster.
- D. Match patching to existing work in texture and color.
- E. Patches to be finished flush with existing work.

3.8 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Correct surface defects and damage to achieve specified level of finish.
- C. At end of each day's work, dry brush or wipe excess plaster from surfaces.
- D. Remove protection devices upon completion of plaster application operations.
- E. Remove plaster droppings or spatters from surfaces.
- F. Leave clean, exposed plastered surfaces, in condition ready to receive paint or other finish.

- G. Remove protective covering from floors and other surfaces, and rubbish and debris from building.

3.9 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Protect metal framing so that it will be without evidence of damage which would be detrimental to finished work.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\092300.wpd

SECTION 09•29•00
GYPSUM BOARD

1.0 GENERAL

1.1 SUMMARY

A. Related Requirements:

1. Conditions of the Contract.
2. Drawings.
3. Division 01 - General Requirements.
4. Section 07•84•00 - Firestopping.
5. Alternate Number 092900—2:
 - a. Provide Repairs to Gypsum Board during course of construction.
 - b. Rate of Repairs to be Included in Alternate Price:
 - 1) Air Bubble Pockets: One square foot per 200 square feet of surface.
 - 2) Cracks: One 8-foot long crack per 400 square feet of surface.
 - 3) Dent Marks in Surfaces: One per 200 square feet of surface.
 - 4) Divots in Surfaces: One per 200 square feet of surface.
 - 5) Distortions: One linear foot per 800 square feet of surface.
 - 6) Nail Pops and Screw Pops: One per 200 square feet of surface.
 - 7) Patches for Puncture Holes: One per 800 square feet of surface.
 - 8) Pin Holes: One square foot per 200 square feet of surface.
 - 9) Scratches: One linear foot per 200 square feet of surface.
 - 10) Split Seams: One 8-foot long crack per 400 square feet of surface.
 - 11) Tool Marks: One linear foot per 400 square feet of surface.
 - 12) Wave Marks in Finishing Compound: One linear foot per 400 square feet of surface.

1.2 REFERENCES

A. Reference Standards:

1. ASTM International (ASTM):
 - a. ASTM C1002, Steel Drill Screws for Application of Gypsum Board or Metal Plaster Bases.
 - b. ASTM C1047, Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - c. ASTM C1396, Gypsum Board.
 - d. ASTM C475, Joint Treatment Materials for Gypsum Wallboard Construction.
 - e. ASTM C840, Application and Finishing of Gypsum Board.
 - f. ASTM C954, Steel Drill Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inches to 0.112 inches in Thickness.
 - g. ASTM E119, Fire Tests of Building Construction and Materials.
2. Gypsum Association (GA):
 - a. GA 225, Repair of Fire-Rated Gypsum Panel Product Systems.
 - b. GA 600, Fire Resistance Design Manual.

B. Definitions:

1. Wall: A vertical building element used to enclosed or separate spaces. Walls include fixed partitions.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Sequencing:

1. Sequence work under provisions of Section 01•10•00.
2. Coordinate sealing of penetrations in fire-rated assemblies with Section 07•84•00; fire protection systems; plumbing systems; heating, ventilation, and air conditioning systems; electrical systems; and electronic safety and security systems.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for:
 - 1) Gypsum board/panel.
 - b. Include data to indicate product criteria and limitations.
 - c. Include information for factory finishes, and fire resistance ratings.
 - 2. Engineering Judgements:
 - a. Submit for substitutions of specified fire-rated assemblies.
 - b. Submit for variations from third-party tested and classified fire-rated assemblies.
- C. Submittals for Architect's Information:
 - 1. Certifications specified in Quality Assurance article.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- C. Certifications:
 - 1. Submit certification for each Contractor-proposed fire rated assembly attesting compliance with indicated requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 01•60•00.
- B. Storage and Protection:
 - 1. Store in dry ventilated space off ground.
 - 2. Protect materials from surface contamination, soiling, corrosion, construction traffic, and damage.
 - 3. Support on level platform and fully protect from weather and direct sunlight exposure.
 - 4. Store and support gypsum board and gypsum panels in flat stacks to prevent sagging.
 - 5. Protect materials to keep them dry. Remove wet gypsum board and gypsum panels from Project site.
 - 6. Protect gypsum board and gypsum panels to prevent damage to edges, ends, and surfaces.
 - 7. Do not bend or damage metal trim.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Comply with more restrictive of ASTM C840, or manufacturer's written requirements under which products can be installed.
 - 1. Maintain minimum uniform 55°F temperature in building for one week before and continuously until applied joint treatment and bonding adhesives are thoroughly dry.
 - 2. Do not allow ambient temperature to exceed 95°F.
 - 3. Provide ventilation to remove moisture in excess of that required for drying of joint treatment materials after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

A. Fire Resistance Ratings:

1. Where assemblies with fire ratings are indicated, provide materials and installations which are identical to assemblies tested in accordance with ASTM E119 by testing laboratories acceptable to authorities having jurisdiction.
2. Construct assemblies identical to those indicated by reference to GA 600 or to design designations listed by Factory Mutual, Underwriters Laboratories, Warnock Hersey, or listing of other agencies acceptable to authorities having jurisdiction.

2.2 PANEL PRODUCTS

A. Gypsum Board and Gypsum Panels:

1. ASTM C1396.
2. Type:
 - a. Fire-Rated Assemblies:
 - 1) Type X or manufacturer's proprietary fire rated core for fire rated assemblies and locations where indicated.
 - 2) Use Type X or manufacturer's proprietary fire rated core as specified in fire-rated assembly listing description.
 - b. Non-Fire-Rated Assemblies: Regular type.
3. Facing: Paper
4. Maximum available lengths to minimize end-to-end butt joints, square cut ends, tapered edge.
5. Thickness: 5/8 inch, except where indicated otherwise.

B. Fabricated Panels:

1. Description:
 - a. At Contractor's option, shop-fabricate panels with corners using equipment which produces precise miters, corner profiles, and column wraps without use of corner bead.
 - b. Route panels to remove one face and core material to enable panel to be folded using opposite face material to hold panel together.
 - c. When folded, apply adhesive to core material to glue core material together.
 - d. Panels may be singly folded to L-Shape or multiply folded to form C-Shapes and Z-Shapes.
2. Acceptable Sources:
 - a. Kamco Supply; Boston, MA.
 - b. Self-perform using Panelmax router from Grabber Construction Products.

2.3 METAL TRIM

A. General:

1. ASTM C1047.
2. Material: Zinc alloy, galvanized steel, or rigid polyvinyl chloride plastic.
3. Do not use plastic components on fire-rated assemblies.
4. Uncoated Sheet Metal Thickness: 0.012 inches minimum.
5. Flanges designed for concealment in joint compound, flange width to suit installation requirements.
6. Flanges to be free of dirt, grease, or other materials which may adversely affect bond of joint treatment.
7. Accessories manufactured with paper flanges are permitted.

B. Corner Beads at Straight Surfaces:

1. Clark-Dietrich; West Chester, OH: 103 Corner Bead.
2. Clinch-On Division of COC Industries; Orange, CA: Cornerbead.
3. Phillips Manufacturing; Omaha, NE: Cornerbead.
4. SEMCO Southeastern Metals; Jacksonville, FL: Drywall Cornerbead.
5. Telling Industries; Willoughby, OH: Truebead.
6. United States Gypsum Company; Chicago, IL: 100 Series Dur-A-Bead.

- C. Edge Trim Beads:
 - 1. Clark-Dietrich; West Chester, OH: L-Bead and U-Bead.
 - 2. Clinch-On Division of COC Industries; Orange, CA: L-Bead and U-Bead.
 - 3. Phillips Manufacturing; Omaha, NE: L-Bead and U-Bead.
 - 4. SEMCO Southeastern Metals; Jacksonville, FL: L-Bead and U-Bead.
 - 5. Stockton Products; North Las Vegas, NV: L-Bead.
 - 6. United States Gypsum Company; Chicago, IL: 200 Series.
- D. Control Joints:
 - 1. V-Shaped slot.
 - 2. Acceptable Manufacturers and Products:
 - a. Clark-Dietrich; West Chester, OH: 093 Zinc Control Joint.
 - b. Phillips Manufacturing; Omaha, NE: 093 Control Joint.
 - c. Telling Industries; Willoughby, OH: 093 Control Joint.
 - d. United States Gypsum Company; Chicago, IL: 093.

2.4 JOINT TREATMENT AND ADHESIVE MATERIALS

- A. Joint Compound:
 - 1. ASTM C475.
 - 2. Lime compound.
 - 3. Contain inert fillers and natural binders.
 - 4. Little or no volatile organic compound or formaldehyde emissions.
 - 5. Free of antifreeze, vinyl adhesives, preservatives, biocides, or other slow releasing compounds.
 - 6. Board manufacturer's standard ready-mixed joint compounds.
 - 7. Compounds specifically manufactured for topping coats are not permitted for first coat on metal trim and taping.
 - 8. Acceptable Types:
 - a. Drying (Ready-Mixed) Type.
 - b. Setting (Chemical Hardening) Type; Use Locations:
 - 1) Exterior soffit panels.
 - 2) Where required by gypsum panel manufacturer.
 - 9. Mix compounds in strict accordance with manufacturer's directions.
 - 10. Mix only enough at one time to be used during recommended pot life of compound.
- B. Joint Reinforcement Tape for Gypsum Board:
 - 1. Paper reinforcing tape complying with ASTM C475.
 - 2. Width: 2 inches nominal.
- C. Repairs:
 - 1. Repair Tape: Glass fiber non-woven non-mesh joint tape.
 - 2. Acceptable Finishing Compounds:
 - a. Non-shrink pre-mixed patching compound.
 - b. Chemical hardening and setting powder compound to be mixed with water to create varying consistencies appropriate for filling various patch depths.

2.5 ACCESSORIES

- A. General: Provide auxiliary materials for gypsum board/panel construction that comply with referenced standards and recommendations of gypsum board/panel manufacturer.
- B. Gypsum Board/Panel Fasteners:
 - 1. Self-drilling, self-tapping, bugle head screws conforming to ASTM C954 and ASTM C1002, length to suit application.
 - 2. Type S screws for 0.0329 to 0.0179 inches thick metal framing and furring.
 - 3. Type S-12 screws for 0.1046 to 0.0359 inches thick metal framing and furring.
- C. Repairs:
 - 1. Repair Fasteners: Same as specified for new construction.
 - 2. Patch Panel Support Clips:
 - a. Galvanized steel clips to hold gypsum board/panel patch panels and allow for securing to surrounding gypsum board/panel.

- b. Listed for use in fire-rated assemblies.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify rough-in utilities and blocking are in proper position.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Demolition / Removal:
 - 1. Remove existing wall covering and sizing; wherever located.

3.3 INSTALLATION

- A. General:
 - 1. Install in accordance with Section 01•70•00.
 - 2. Install units plumb, level, square, and free from warp and twist while maintaining dimensional tolerances and alignment with surrounding construction.
- B. Gypsum Board:
 - 1. Comply with more stringent requirements of ASTM C840, manufacturer, and these Specifications.
 - 2. Install gypsum board in accordance with GA 600 for fire-rated assemblies.
 - 3. Install gypsum board/panels with face side out.
 - 4. Use boards of maximum length to minimize end joints.
 - 5. Abut boards/panels without forcing; neatly fit ends and edges of board and do not place butt ends against tapered edges with gap between adjacent panels no greater than 1/16 inch. Hold bottom of board 1/4 inch above floor.
 - 6. Support ends or edges of boards/panels directly on framing or furring members.
 - 7. Joint Staggering:
 - a. Ceilings: Stagger end joints not less than one framing member.
 - b. Walls: Stagger vertical joints on opposite side of walls to occur on alternate framing members.
 - c. Fire-Rated Assemblies: Comply with fire-rated assembly design requirements for joint staggering.
 - 8. Do not locate gypsum board/panel joints within 12 inches of external corners of windows, doors, or other such openings, except when control joints are installed at corners.
 - 9. Cut openings in board/panel with no greater than 1/4 inch gap around electrical outlets, plumbing, light fixtures, piping and other similar penetration items and small enough to be covered by plates and escutcheons; coordinate size of gap around penetrations in fire-rated assemblies with firestop requirements of Section 07•84•00.
 - 10. Do not install imperfect, damp, and damaged boards/panels.
 - 11. In concealed spaces above ceilings where designated walls extend full height to structure above, install boards/panels in full coverage on both faces of framing system for:
 - a. Fire-rated walls.
 - b. Air barrier walls.
 - c. Smoke-rated walls.
 - 12. Fit gypsum panels around ducts, pipes, and conduits.
 - 13. Where walls intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4 to 1/2-inch wide joints to install sealant.

14. Attach gypsum panels to steel studs so that leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
 15. Do not attach gypsum boards/panels to top runner of wall framing.
 16. Attach gypsum panels to framing provided at openings and cutouts.
 17. Isolate perimeter of non-load-bearing walls at structural abutments, except floors, as detailed. Provide 1/4 to 1/2-inch wide spaces and trim edges with LC-bead edge trim where edges of gypsum panels are exposed.
 18. Control and Expansion Joints:
 - a. Do not bridge building control and expansion joints with gypsum board/panel.
 - b. Terminate gypsum board/panel on each side of joints.
 - c. Comply with manufacturer requirements for constructing control and expansion joints in fire-rated assemblies.
 19. Fasteners:
 - a. Attachment Methods:
 - 1) Attach boards/panels to framing and furring with screws.
 - 2) Attach board to board with screws.
 - 3) Attach board to panel with screws.
 - 4) Attach panel to panel with screws.
 - b. Except where indicated otherwise or where required for fire rated assemblies, space fasteners in compliance with more restrictive requirements of referenced installation standards or manufacturer's requirements.
 - c. Attach boards/panels to supplementary framing and blocking which provide additional support at openings and cutouts.
 20. Ceilings:
 - a. Place with long edge perpendicular to orientation of furring or framing members.
 21. Single Layer Wall Installation:
 - a. Install in manner which will minimize end-butt joints.
 - b. Unless specific orientation is required by fire-rating design, install for:
 - 1) Steel Framing: Vertically.
 22. Fire-Rated Assemblies at Bathtubs, Bathtub Enclosures, Shower Bases, Shower Enclosures, and Similar Plumbing Fixtures with Flashing Lips Intended to be Encased within Wall:
 - a. Extend gypsum boards/panels layers providing indicated fire-rating to floor behind plumbing fixture.
 - b. Apply additional layer of gypsum boards/panels over fire-rating layers of gypsum boards/panels to cover plumbing fixtures' flashing lips.
- C. Trim Installation:
1. Install trim flush using longest practical length; miter corners and intersections.
 2. Fasten flanges by screws, stapling, or clinching in accordance with manufacturer's instructions.
 3. Install corner beads at visually-exposed external corners, unless otherwise indicated.
 4. Install edge trim where edge of board/panel would be exposed or semi-exposed and where board/panel abuts dissimilar materials.
 5. Control Joints: Coordinate placement and locations with Architect prior to commencement of work. Install control joints in accordance with following:
 - a. Locate at joints of maximum stress, at points of natural weak planes, such as at openings and at corners of offsets in walls exceeding 30'-0" in length.
 - b. Extend control joints from both corners of door frames to top of wall where doors occur in long runs of wall.
 - c. Locate in ceilings with area exceeding 900 ft², where framing or furring changes direction, and spaced apart not more than 30'-0".
 - d. Locate in ceilings where wings of "L", "U", and "T" shaped areas are joined.
 - e. Provide mineral fiber acoustical insulation or gypsum panel backing at control joints in fire-rated assemblies to maintain fire rating.

D. Gypsum Board/Panel Treatments:

1. Apply joint treatment to gypsum board/panel joints (both directions); flanges of corner beads, edge trim, and control joints; penetrations; fasteners; surface defects; and elsewhere to prepare surfaces for decoration and specified levels of gypsum board/panel finish.
2. Comply with manufacturer requirements for hardening and drying of joint treatment prior to application of succeeding coats.
3. Prefill: Fill open joints, rounded and beveled edges, and damaged areas, flush with adjoining surfaces using prefill compound.
4. Apply joint tape over gypsum board/panel joints.
5. Levels of Finish:
 - a. Comply with ASTM C840.
 - b. Locations to Receive Level 4 Finish: Areas to be painted.
 - c. Locations to Receive Level 2 Finish:
 - 1) In Ceiling Plenums and Concealed Areas:
 - a) Fire-rated assemblies.
 - b) Smoke-rated assemblies.
6. Following conditions are not permitted:
 - a. Air bubble pockets.
 - b. Dent marks in surfaces.
 - c. Divots in surfaces.
 - d. Distortions.
 - e. Nail heads and nail pops.
 - f. Pin holes.
 - g. Split panel joint seams.
 - h. Screw heads and screw pops.
 - i. Tool marks.
 - j. Visible cracks.
 - k. Wave marks in finishing compound.
 - l. Other defects where gypsum board/panel surface is not smooth.

3.4 REPAIR

- A. Repairs apply to existing gypsum board/panel surfaces.
- B. Assume Following Are Fire-Rated Assemblies:
 1. Corridor walls.
 2. Ceilings.
 3. Pipe and conduit chases and shafts.
 4. Stair walls.
- C. Indentations Which Do Not Puncture Through Gypsum Board/Panel:
 1. Apply finishing compound in same manner as specified for new construction.
 2. Fill with finishing compound and sand smooth after finishing compound has cured:
 - a. Air bubble pockets.
 - b. Dent marks in surfaces.
 - c. Divots in surfaces.
 - d. Distortions.
 - e. Nail heads and nail pops.
 - f. Pin holes.
 - g. Scratches.
 - h. Split panel joint seams.
 - i. Screw heads and screw pops.
 - j. Tool marks.
 - k. Visible cracks.
 - l. Wave marks in finishing compound.
 3. Indentations more than 1/4 inch deep:
 - a. Apply in multiple layers.

- b. Allow to preceding layer to dry prior to sanding and applying succeeding layers.
- D. Nail Pops and Screw Pops:
 - 1. Reset fastener to be recessed minimum 1/16 inch from gypsum board/panel surface.
 - 2. Replace nails which will not hold into framing with screws or with nails having screw-shanks or rink-shanks.
 - 3. Repair as specified for indentations which do not puncture gypsum board/panel.
- E. Split Joint and Delaminated Joint Tape and Finishing Compound:
 - 1. Remove joint compound from joint area.
 - 2. Remove joint tape for entire length of split or delaminated joint.
 - 3. Apply joint repair tape and finishing compound to joint in same manner as specified for joint treatment of new construction.
- F. Cracks:
 - 1. Cracks up to 1/16 Inch Wide: Fill with finishing compound, using brush application of finishing compound.
 - 2. Cracks Greater than to 1/16 Inch Wide:
 - a. Rout-out crack to depth of 1/8 inch.
 - b. Fill with finishing compound, pressed into crack with putty knife.
 - c. Apply joint repair tape and finishing compound to joint in same manner as specified for new construction.
 - 3. In addition to cracks indicated on Drawings to be Repaired, Repair Cracks:
 - a. Radiating from corners of:
 - 1) Doors.
 - 2) Windows.
 - 3) PTAC units.
 - 4) HVAC air inlets and outlets.
 - b. Radiating from corners of gypsum board/panel cased openings in walls and ceilings.
 - c. Radiating from intersections of suspended gypsum board/panel "bulkhead" walls and walls which are floor-supported.
- G. Patches for Puncture Holes Through Gypsum Board/Panel:
 - 1. Comply with GA 225.
 - 2. Area Greater than 1 in² and Less than 100 in²:
 - a. In Fire-Rated Assemblies:
 - 1) Patch area may not exceed 100 in² in 100 ft² of surface.
 - 2) When need for patches exceeds 100 in² in 100 ft² of surface, patch hole in accordance with requirements specified below for hole patches exceeding 100 in².
 - 3) Mechanically attach to surrounding gypsum board/panel.
 - 4) Patches attached only using joint finishing compound are not permitted.
 - 5) Use Gypsum Board/Panel of:
 - a) Same thickness of gypsum board/panel used in wall.
 - b) Proprietary fire rated core (Type C) type. Do not use non-proprietary Type X core, since surfaces may have proprietary fire rated core (Type C) type.
 - 6) Patch Panel: Same shape as hole or larger to not more than 100 in² in area.
 - 7) Enlarge hole to exactly match patch size.
 - 8) Multi-Layer Gypsum Board/Panel: Remove face layers to minimum 3 inches beyond perimeter of hole of inner layers to maintain fire-rated assembly's staggering of gypsum board/panel joints between layers.
 - 9) Install Runner Track:
 - a) Install for full perimeter of hole.
 - b) Fasten runner track web to cavity face of gypsum board/panel with screws spaced not more than 8 inches apart.
 - 10) Proprietary Patch Fastener Clips:
 - a) May be used in place of perimeter runner track.

- b) Space not less than 8 inches apart along perimeter of patch.
 - 11) If present, replace damaged insulation with new insulation of same type and thickness as existing insulation.
 - 12) If present at hole, screw attach framing members to patch with screws spaced not more than 8 inches apart.
 - 13) Install gypsum board/panel patch and fasten to back-up gypsum board/panel strips, runner track, or proprietary patch fastener clips.
 - 14) Multi-Layer Gypsum Board/Panel Application: Apply layers to maintain fire-rated assembly staggering of gypsum board/panel joints between layers.
 - 15) Apply joint tape and finishing compound to joint in same manner as specified for joint treatment of new construction.
- b. Holes Less than 1-1/2 Inches in Diameter In Non-Fire-Rated Assemblies:
 - 1) Apply finishing compound to edges of hole.
 - 2) Coat hole with finishing compound.
 - 3) Apply joint repair tape in crisscross pattern across hole.
 - 4) Applying finishing compound over joint repair tape in same manner as specified for joint treatment of new construction.
- c. Holes Larger than 1-1/2 Inches in Diameter In Non-Fire-Rated Assemblies:
 - 1) Install Gypsum Board/Panel Strips or Runner Track:
 - a) Install for full perimeter of hole.
 - b) Fasten to cavity face of gypsum board/panel with screws spaced not more than 8 inches apart.
 - c) Fasten runner track web to cavity face of gypsum board/panel with screws spaced not more than 8 inches apart.
 - 2) Install gypsum board/panel patch and fasten to back-up gypsum board/panel strips.
 - 3) Proprietary patch fastener clips may be used in place of perimeter runner track.
 - 4) If present, replace damaged insulation with new insulation of same type and thickness as existing insulation.
 - 5) If present at hole, screw attach framing members to patch with screws spaced not more than 8 inches apart.
 - 6) Install gypsum board/panel patch and fasten to back-up gypsum board/panel strips, runner track, or proprietary patch fastener clips.
 - 7) Apply joint tape and finishing compound to joint in same manner as specified for joint treatment of new construction.
- 3. Area Greater than 100 in²:
 - a. In Fire-Rated Assemblies:
 - 1) Remove existing gypsum board/panel to framing members.
 - 2) Parallel to framing members, remove gypsum board/panel to not less than dimension equal to framing member spacing
 - 3) Replace existing damaged framing, or supplement with additional new framing of same material and size as existing framing.
 - 4) Multi-Layer Gypsum Board/Panel: Remove face layers to minimum 3 inches beyond perimeter of hole of inner layers to maintain fire-rated assembly's staggering of gypsum board/panel joints between layers.
 - 5) At edges of removed gypsum board/panel area, where there is no framing:
 - a) Provide runner track perpendicular to and fastened to framing to ensure there is framing for full perimeter of repair area.
 - b) Fasten runner track web to cavity face of gypsum board/panel with screws spaced not more than 8 inches apart.
 - 6) If present, replace damaged insulation with new insulation of same type and thickness as existing insulation.
 - 7) Install layer next to wall cavity and fasten to back-up runner track or proprietary patch fastener clips.

- 8) Attach framing members to patch with screws spaced not more than 8 inches apart.
 - 9) Install gypsum board/panel patch and fasten to back-up gypsum board/panel strips, runner track, or proprietary patch fastener clips.
 - 10) Multi-Layer Gypsum Board/Panel Application: Apply layers to maintain fire-rated assembly staggering of gypsum board/panel joints between layers.
 - 11) Apply joint tape and finishing compound to joint in same manner as specified for joint treatment of new construction.
- b. Non-Fire-Rated Assemblies:
- 1) Install gypsum board/panel strips or runner track:
 - a) Install for full perimeter of hole.
 - b) Fasten to cavity face of gypsum board/panel with screws spaced not more than 8 inches apart.
 - c) Fasten runner track web to cavity face of gypsum board/panel with screws spaced not more than 8 inches apart.
 - 2) Proprietary patch fastener clips may be used in place of perimeter gypsum board/panel strips or runner track.
 - 3) If present, replace damaged insulation with new insulation of same type and thickness as existing insulation.
 - 4) If present at hole, screw attach framing members to patch with screws spaced not more than 8 inches apart.
 - 5) Install gypsum board/panel patch and fasten to back-up gypsum board/panel strips, runner track, or proprietary patch fastener clips.
 - 6) Apply joint repair tape and finishing compound to joint in same manner as specified for joint treatment of new construction.
4. Sand finishing compound to prepare for subsequent painting or other finishing.

3.5 ADJUSTING

- A. Correct damages, defects, and leave work ready for decoration. Clean compounds from trim.

3.6 CLEANING

- A. Clean as recommended by manufacturer. Do not use materials or methods which may damage finish or surrounding construction.
- B. Correct surface defects and damage to achieve specified level of finish.
- C. Promptly remove joint compound from surfaces not intended to receive compound.

3.7 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 Towson Ct House ADA\11_Specifications\11.01_Working\CD\092900.wpd

SECTION 09•30•00
TILING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.

1.2 REFERENCES

- A. Reference Standards:
 - 1. American National Standards Institute (ANSI):
 - a. ANSI A108.02, General Requirements: Materials, Environment, and Workmanship.
 - b. ANSI A108.10, Installation of Grout in Tilework.
 - c. ANSI A108.13, Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
 - d. ANSI A108.19, Interior Installation of Gauge Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by Thin-Bed Method Bonded with Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar.
 - e. ANSI A108.5, Installation of Ceramic Tile with Latex-Modified Cement Mortar.
 - f. ANSI A137.1, Ceramic Tile
 - 2. ASTM International (ASTM):
 - a. ASTM D87, Melting Point of Petroleum Wax (Cooling Curve)
 - 3. International Standards Organization (ISO):
 - a. ISO 13007, Ceramic Tiles — Grouts and Adhesives.
 - 4. Tile Council of North America (TCNA):
 - a. TCNA HB, Handbook for Ceramic Tile Installation.
- B. Definitions:
 - 1. Coverage: Area where setting bed makes contact between tile and substrate.
 - 2. Large Format Tile: Tile with minimum face dimensions of 8 by 8 inches or more.
 - 3. Wet Area: Tiles surfaces that are either soaked, saturated, or subject to moisture or liquids (usually water). Includes tile installed at:

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 - 1. Conduct pre-installation conference in accordance with Section 01•31•00.
 - 2. Review locations of expansion joints.
- B. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Coordinate surface tolerances required for tile with respective substrate installation.
 - 3. Coordinate with installation of products mounted on or through tile.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for:
 - 1) Cleaning materials.
 - 2) Glass fiber faced and glass fiber reinforced gypsum board.
 - 3) Grout materials.
 - 4) Setting materials.

- 5) Tile.
 - b. Submit color charts for finish indicating manufacturer's colors available for selection.
- 2. Samples:
 - a. Materials proposed for use, for approval and color selection.
- C. Submittals for Architect's Information:
 - 1. Certifications specified in Quality Assurance article.
- D. Maintenance Material Submittals:
 - 1. Extra Materials:
 - a. Furnish under provisions of Section 01•70•00.
 - b. Furnish extra tile in quantity equal to 2 percent of each type, color, and size from same color run as original tile.
 - c. Keep tile cartons dry.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
 - 3. Company Options:
 - a. National Tile Contractors Association five star member.
 - b. Tile Contractors Association of America Trowel of Excellence member.
 - 4. Individual Installation Workers; Options:
 - a. Ceramic Tile Education Foundation Certified Installers. Advanced Certifications for Tile Installers for:
 - 1) Membranes.
 - 2) Mud (mortar) walls.
 - 3) Grouts.
 - b. United States Department on Labor Journeyman Tile Layers.
 - c. Crew Leader or Superintendent, if Installing Company is signatory to International Union of Bricklayers and Allied Craftworkers: International Masonry Institute's Foreman's Certification.
- C. Certifications:
 - 1. Place manufacturer's certificate mark on each label or carton of tile.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Deliver to site and store products in manufacturer's unopened containers, with grade seals unbroken and labels intact, until time of use.
- C. Keep tile and setting materials dry.
- D. Handle tile to prevent chipping.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Comply with more restrictive of following or manufacturer's written requirements under which products can be installed.
 - 1. Close spaces, in which tile is being set, to traffic and other work.
 - 2. Maintain minimum temperature of 50°F during tile installation and for 7 days after completion.
 - 3. Vent temporary heaters to outside to avoid carbon dioxide damage to new tiling.
 - 4. Do not apply tile setting materials to surfaces that contain frost.
 - 5. Ensure temperature of substrate, air, tile, and setting materials is 40°F and rising for application of portland cement based setting materials, unless otherwise specifically authorized by setting material manufacturer.

6. Protect work areas from direct sunlight, radiant heat, or forced ventilation during installation to prevent rapid evaporation caused by excessive heat or dryness.
7. Illuminate work area during installation, grouting, and cleaning providing same level and angle of illumination as will be available for final inspection.

2.0 PRODUCTS

2.1 CERAMIC WALL TILE

- A. Description:
 1. ANSI A137.1.
 2. Grade: Decorative Thin Wall.
 3. Finish: Unglazed.
 4. Size (Nominal): 1 inch by 1 inch.
 5. Colors: Match existing.
 6. Shape: Square.
 7. Require manufacturer to blend tile at factory.
 8. Trim:
 - a. Furnish bases, caps, stops, returns, trim, and other shapes in sizes, colors, and finishes to match field tile.
 - b. Wainscot Cap: Match existing.
 - c. Base:
 - 1) Cove required.
 - 2) Top: Square..
 - d. In-corners: Square.
 - e. Out-corners: Bullnose.
 - f. Jambs: Bullnose where tiling projects from jamb.
- B. Acceptable Manufacturers:
 1. AHF Flooring — Crossville; Mountville, PA.
 2. Architessa; Rockville, MD.
 3. Dal-Tile; Dallas, TX.
 4. Florida Tile; Lakeland, FL.
 5. Garden State Tile; Wall Township, NJ.
 6. Jeffrey Court; Norco, CA.
 7. Marrazzi USA; Sunnyvale, TX.
 8. Mosaic Tile Company; Chantilly, VA.
 9. Roca Tile Group; Miami, FL.
 10. Spartan Surfaces — Umore; Bel Air, MD.
 11. Summitville Tiles; Summitville, OH.
 12. Trinity Tile; Ocala, FL.

2.2 PANEL PRODUCTS

- A. Glass-Fiber Faced Gypsum Board or Glass Fiber Reinforced Gypsum Board: Product specified in Section 09•29•00.

2.3 MEMBRANES

- A. Single Source Responsibility: Furnish individual membranes from one manufacturer, unless otherwise acceptable to Architect.
- B. Temporary Surface Protection for Tile:
 1. Material Options:
 - a. Wax:
 - 1) Hot-applied tasteless, odorless, fully refined petroleum paraffin wax.
 - 2) Melting point between 120°F and 140°F when tested in accordance with ASTM D87.
 - b. Proprietary grout protection materials.
 2. May be applied to face of units by manufacturer or installer.

3. Apply to absorptive, abrasive, non-slip, non-glazed, or rough texture surface tile.
 4. After applying coating, handle and store in manner to keep coating off sides and backs of units.
 5. Units may be stacked, after application, either back-to-back or face-to-face, but not coated-surface to uncoated-surface.
- C. Protection Material: Heavy-duty, non-staining 40-pound kraft paper with compatible masking tape.

2.4 SETTING MATERIALS

- A. Single Source Responsibility: Furnish setting materials from one manufacturer, unless otherwise acceptable to Architect.
- B. Cement Mortars:
1. Use manufactured products with polymer additive integrally mixed with cement; mixing separate polymer additive liquid into cement is not permitted.
 2. Do not use site-mixed Portland cement, sand, and water, except for mortar bed bond coat of portland cement slurry.
 3. Water: Clean and potable.
- C. Thin Set Polymer-Modified Portland Cement Mortar:
1. ISO 13007:
 - a. Cement or Gypsum Substrates: C1F or better.
 - b. Cementitious Bond Coats: C2 or better.
 - c. Use Class E for:
 - 1) Intricate tile patterns.
 - 2) Porous substrates.
 - 3) Porous tiles.
 - 4) When ambient temperatures are above limits of non-Class E products.
 - d. Use Class F:
 - 1) At Contractor's discretion, at no additional cost to Owner.
 - e. Use Class T for:
 - 1) Wall tile.
 2. Flexible and capable of adhering tile to slabs having deflection of 1/240 of span.
 3. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Adhesives.
 - b. Maximum Value: As stated in Section 01•41•00 under Adhesives for Ceramic Tile Adhesive.
 4. Use Polymer-Modified Portland Cement Mortar for Large and Heavy Tile for:
 - a. Tile with non-uniform thickness.
 - b. Heavy tile.
 - c. Tile with side dimension of 15 inches or greater tile.
- D. Primers: As instructed by mortar or adhesive manufacturer.

2.5 GROUT MATERIALS

- A. Single Source Responsibility: Furnish grout materials from one manufacturer, unless otherwise acceptable to Architect.
- B. Polymer-Modified-Portland Cement Grout:
1. ISO 13007:
 - a. Use Class CG1 for areas not specified to have Class CG2.
 - b. Use Class E for:
 - 1) Intricate tile patterns.
 - 2) Porous substrates.
 - 3) Porous tiles.
 - 4) When ambient temperatures are above limits of non-Class E products.
 - c. Use Class F:
 - 1) At Contractor's discretion, at no additional cost to Owner.
 - d. Use Class W at:
 - 1) Interior wall tile in wet areas.

2. Sanded and Unsanded Grout Locations:
 - a. Unsanded Grout:
 - 1) Joints with 1/8 inch width or less.
 - 2) Tile whose manufacturer does not recommend being grouted with sanded grout.
 - b. Sanded Grout:
 - 1) Joints with more than 1/8 inch width.
 - 2) Do not use at tile whose manufacturer does not recommend being grouted with sanded grout.
 - c. Universal grouts may be used at locations for unsanded grout and sanded grout.
3. Colors: Match existing.

2.6 CLEANING MATERIALS

- A. Description:
 1. Neutral, non-acidic, non-alkali, cleaner.
- B. Acceptable Manufacturers and Products:
 1. Bostik; Wauwatosa, WI: Texspar Plus.
 2. Custom Building Products; Huntington Beach, CA: Grout Haze Remover.
 3. Laticrete International; Bethany, CT: Stonetech KlenzAll Cleaner.
 4. Mapei; Garland, TX: Keraclean.
 5. ProSoCo; Kansas City, KS: EnviroKlean Klean 'N Release Cleaner.

2.7 MIXES

- A. Proportion mixes in accordance with manufacturer's instructions, and ANSI Specifications or ISO 13007.
- B. Mix grout to achieve no-slump consistency using minimum amount of liquid to achieve workable mix.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify that surfaces are free of curing membranes, oil, grease, wax, dust, or sealers.
- C. Verify surfaces are suitable to receive tile.
- D. Verify that concrete and masonry surfaces have cured for at least 28 days.
- E. Verify that grounds, anchors, plugs, recessed frames, and similar items in or behind tile have been installed.
- F. Verify steel studs (Section 09•22•00) at walls to receive tile are minimum 39 mil thick steel studs spaced not more than 16 inches apart.
- G. Verify surfaces comply with flatness tolerances specified in ANSI A108.02.
- H. Verify modular substrate units (plywood, gypsum board, cementitious backer units, and unit masonry) do not have adjacent edges greater than 1/32 inch different in plane.
- I. Execute measures necessary to render surfaces suitable to receive tile.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Prepare surface to be within following tolerances, maximum acceptable surface deviations from true in specified plane:
 1. Tile Other than Stone:
 - a. Thin Set Polymer-Modified Portland Cement Mortar:
 - 1) Tile with No Edges Longer than 15 Inches Long: 1/4 inch in 10 feet; with no more than 1/16 inch variation in 12 inches.
 - 2) Tile with at least One Edge More than 15 Inches Long: 1/8 inch in 10 feet; with no more than 1/16 inch variation in 24 inches.

- C. Prepare surface in accordance with TCNA HB installation method and ANSI installation specifications.
- D. Floor Flatness: Where substrate is not within flatness tolerances specified in ANSI A108.02, provide Portland cement underlayment specified in Section 03•54•16.
- E. Wall Flatness: Where substrate is not within flatness tolerances specified in ANSI A108.02, apply setting bed material to wall surface to achieve specified flatness.
- F. Tile Soaking:
 - 1. Tiles to be Soaked: Tile other than porcelain tile.
 - 2. Wetting Units:
 - a. Soak units in vat or box of clean water for one hour or more just prior to installation.
 - b. Ensure units are noticeably damp at time of setting.
 - c. Drain units sufficiently to eliminate surface water.
- G. Protection of In-Place Construction:
 - 1. Protect adjacent surfaces during progress of tile installation.
 - 2. Provide protection to keep grouting, cement, or other materials from entering existing floor drains and causing clogging or damage.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00, TCNA HB installation methods, approved submittals, and ANSI installation specifications, as modified by Schedules at end of Section.
- B. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with adjacent surfaces.
- C. Setting Materials:
 - 1. Mortar Coverage:
 - a. Ceramic Tile:
 - 1) Non-Wet Areas: Minimum average of 80 percent of tile.
 - 2) Wet Areas: Minimum average of 95 percent of tile.
 - b. Edges and Corners of Tiles: Evenly distribute to support tile edges and corners.
 - c. Back-butter tiles if necessary to obtain specified coverage.
- D. Tile Layout:
 - 1. Determine locations of movement joints before starting tiling.
 - 2. Lay tile to grid pattern unless otherwise indicated on Drawings.
 - 3. Lay tile to minimize cuts less than one-half tile in size.
 - 4. If less than one-half tiles occur at opposite walls, adjust tile layout so tile is not centered in room and greater than one-half tiles occur at opposite walls.
 - 5. Locate cuts in both walls and floors to be least conspicuous.
 - 6. Lay tile wainscots to next full tile beyond dimension shown.
 - 7. Do not interrupt tile pattern around openings.
 - 8. Extend tile into recesses and under equipment or fixtures to form complete covering without interruptions.
 - 9. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.
 - 10. Cut and fit tile tight to penetrations through tile.
 - 11. Fit tile carefully against trim and accessories.
 - 12. Fit tile around pipes, electric boxes, and other built-in fixtures so that escutcheons, plates, and collars, will completely overlap cut edges.
 - 13. Where Piping Penetrates Tile:
 - a. Drill the tile and fit tile over the pipe stub and sleeve.
 - b. Do not cut and piece tile around pipe, unless authorized by Architect.
 - 14. When using glazed tile sheets, minimize tearing sheets apart by drilling pipe holes.
 - 15. Form corners and bases neatly.
 - 16. Wall Base:
 - a. Where Wall Tile or Wall Base Tile Is Available with Cove Shape: Flush.
 - b. Thin-up installation is not permitted.

- E. Joints:
 - 1. Place tile joints straight and uniform in width, subject to variance in tolerance allowed in tile size.
 - 2. Align wall, base, and floor joints when tile are same size.
 - 3. Joint Width: Match existing.
 - 4. Joint width value can be increased to be not more than three times actual variation of facial dimensions of supplied tile.
- F. Expansion Joints:
 - 1. TCNA HB Method: EJ171.
 - 2. Provide expansion joints as indicated on Drawings, and comply with following requirements.
 - 3. Interior: 24 to 36 feet apart.
 - 4. Interior Locations Exposed to Direct Sunlight or Moisture: 12 to 16 feet apart.
 - a. Provide not more than 8 feet apart at tile having reflectance value less than 25 percent and which is located within 15 feet of window walls, storefronts, or curtain walls.
 - 5. Joint length to width layout is not to exceed ratio of 2:1.
 - 6. Locate where tile abuts restraining surfaces such as perimeter walls, dissimilar floor surfaces, curbs, columns, pipes, ceilings, and where changes occurring in backing substrate.
 - 7. Locate on each side of tile spanning across cracks in substrate.
 - 8. Locate at perimeter walls in rooms larger than 12 feet in size on one side.
- G. Tile Installation:
 - 1. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
 - 2. Form internal angles coved and external angles bullnosed.
 - 3. Sound tile and ceramic accessories after setting. Replace hollow sounding units.
 - 4. Provide special shapes, or accurately scribe and cut tile for radial joints, to abut vertical obstructions.
 - 5. Remove sharp, jagged, or rough edges with dressing stone.
 - 6. Smooth exposed cut edges.
 - 7. Cut edges clean before installing tiles.
 - 8. Chipped, cracked, or split tile, exposed tile edges, or exposed cut tile edges are not permitted
 - 9. Gauged Porcelain Tile and Gauged Porcelain Tile Slabs/Panels:
 - a. Interior Locations: ANSI A108.19.
 - 10. Accessory Mounting Heights:
- H. Grouting:
 - 1. Do not begin grout installation until tiles are firmly set, and in no case less than 48 hours after they have been installed.
 - 2. Remove spacers, ropes, glue, and similar materials from joints.
 - 3. Sponge or wipe dust and dirt off tile faces.
 - 4. Remove standing water.
 - 5. Keep concrete floor expansion and control joints free of mortar or grout.
 - 6. Fill joints to following depths:
 - a. Cushion Edge Tile: Fill to depth of cushion.
 - b. Square Edge Tile: Fill to flush with surface.
 - 7. Fill gaps and skips.
 - 8. Do not permit mortar or mounting mesh to show through grouted joints.
 - 9. Provide hard finished grout which is:
 - a. Uniform in color.
 - b. Smooth and without voids.
 - c. Without pin holes or low spots.
- I. Sealant:
 - 1. Product specified in Section 07•92•00.
 - 2. Apply to junction of tile and dissimilar materials.
 - 3. Apply at junction of dissimilar planes.

4. Apply sealant at expansion joints.
 5. Apply sealant at annular space around penetrations of tile, even if covered by escutcheons. In fire-rated assemblies, use firestopping sealant specified in Section 07•84•00.
- J. Site Tolerances:
1. Do not exceed following deviations from plumb, level, elevations, locations, slopes, and alignments:
 - a. Walls: 1/8 inch in 8 feet in each direction.
 2. Maximum Lippage between Adjoining Tiles:
 - a. At Ramps and Floor Drains:
 - 1) Lippage excludes transitions.
 - 2) Grind edges of tiles to minimize lippage to not more than twice specified limit.
 - 3) After consultation with Architect, cut tile not smaller than 6 inches square.
- K. Curing:
1. Damp cure tile for minimum of 72 hours.
 2. Extend curing time when temperature is below 60°F or relative humidity is above 70 percent due to retarded speed of curing.
 3. Cover with protection paper.
 4. Do not use polyethylene sheet over tile on horizontal surfaces.

3.4 FIELD QUALITY CONTROL

- A. Architect's Inspection at Substantial Completion:
1. Inspection Viewing Distances:
 - a. Walls:
 - 1) In Spaces with Minimum Dimensions of 4 Feet: 3 Feet.
 - 2) In Spaces with Minimum Dimensions less than 4 Feet: 2 Feet.
 - b. Floors: Not less than 4 feet nor more than 6 feet.
 2. Lighting:
 - a. When Space Has Permanent Lighting: Permanent light will be used for inspection
 - b. When Space Does Not Have Permanent Lighting: Architect will implement lighting as specified in Section 01•70•00 for inspections of gypsum board and painted surfaces.

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Do not use materials or methods which may damage finish or surrounding construction.
- C. Clean excess setting and grouting material from tile surface as installation progresses. Perform while setting and grouting materials are fresh and before they harden.
- D. Remove grout haze, observing both tile and grout manufacturer's recommendations for use of cleaners.
- E. Thoroughly clean tile as instructed by:
 1. Tile manufacturer.
 2. Grout manufacturer.
 3. Cleaning agent manufacturer.
- F. Thoroughly rinse tiling with clean water before and after use of chemical cleaners.
- G. Polish surface of ceramic tile with soft cloth.
- H. Tile to be free of grout film upon completion.
- I. Replace tile if tile surfaces show mars, scratches, cracks, or other imperfections, which cannot be removed by cleaning.

3.6 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.

3.7 WALL APPLICATION SCHEDULE

A. Interior Walls:

1. Thin Set Mortar Bed over Glass Fiber-Faced Gypsum Board or Fiber Reinforced Gypsum Panels over Steel Studs; Cement Grout:
 - a. Use at wet use locations where studs are spaced not more than 24 inches apart.
 - b. TCNA HB Method: W245 or W247.
 - c. TCNA Environmental Class: Com 1.
 - d. Components from Tile to Substrate:
 - 1) Tile.
 - 2) Grout: Polymer-modified portland cement grout.
 - 3) Cementitious Bond Coat: Thin set polymer-modified portland cement mortar.
 - 4) Full coverage of waterproofing membrane between cementitious bond coat and gypsum board or gypsum panels.
 - 5) Gypsum Board or Gypsum Panels: Comply with Section 09•29•00.
 - e. ANSI Installation Specifications:
 - 1) Waterproofing Membrane: ANSI A108.13.
 - 2) Tile: ANSI A108.5.
 - 3) Grout: ANSI A108.10.
 - f. Use Location:
 - 1) Men's Restroom 289.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\093000.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 09•51•00
ACOUSTICAL CEILINGS

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
1. Conditions of the Contract.
 2. Drawings.
 3. Division 01 - General Requirements.

1.2 REFERENCES

- A. Reference Standards:
1. ASTM International (ASTM):
 - a. ASTM A641, Zinc-Coated (Galvanized) Carbon Steel Wire.
 - b. ASTM C1311, Solvent Release Sealants.
 - c. ASTM C423, Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - d. ASTM C635, Metal Suspension systems for Acoustical Tile and Lay-In Panel Ceilings.
 - e. ASTM C636, Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - f. ASTM C834, Latex Sealants.
 - g. ASTM E1264, Acoustical Ceiling Products.
 - h. ASTM E1414, Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
 - i. ASTM E84, Surface Burning Characteristics of Building Materials.
- B. Definitions:

Following terms are used to describe acoustical ceiling units edge conditions			
Generic Edge Term	Manufacturer and Manufacturer Edge Name		
	Armstrong	Certainteed	USG
Square Cut	Square	Trim	Square
Square Rabbeted	Square Tegular	Reveal	Shadowline
Angled Rabbeted	Angled Tegular	Tapered Reveal	Tapered Shadowline
Square Rabbet with Bevel	Beveled Tegular	Narrow Reveal	Fineline Beveled and Shadowline Beveled

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
1. Sequence work under provisions of Section 01•10•00.
 2. Coordinate with installation of above ceiling and ceiling mounted products.
 3. Furnish layouts for inserts, clips, or other required supports, to be installed by other trades for support of acoustical ceiling.
 4. Coordinate installation to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.

B. Submittals for Review by Architect:

1. Product Data:
 - a. Manufacturer's product specifications.
 - b. Manufacturer's installation instructions for:
 - 1) Ceiling units.
 - 2) Suspension system.
 - c. Manufacturer's instructions for cleaning and refinishing ceiling units, including precautions against materials and methods which may be detrimental to acoustical performance and finishes.
2. Samples:
 - a. Ceiling Units:
 - 1) Quantity of Each Type: 2.
 - 2) Size: 4 by 12 inches.
 - 3) Indicate full color and texture range.
 - b. Suspension System:
 - 1) Quantity of Each Type: 1.
 - 2) Length: 6 inches.
 - 3) Include:
 - a) Exposed runner.
 - b) Edge molding.

C. Maintenance Material Submittals:

1. Extra Materials:
 - a. Furnish under provisions of Section 01•70•00.
 - b. Furnish extra ceiling units in quantity equal to 2 percent of total material furnished but not less than 1 unopened carton of each type, color, and size.
 - c. Furnish full size units matching units installed, packaged with protective covering for storage.
 - d. Identify with appropriate labels.
 - e. Furnish one unopened carton of each type and size of tile/panel.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.

1.7 FIELD CONDITIONS

- A. Environmental Conditions. Comply with more restrictive of following or manufacturer's written requirements under which products can be installed:
1. Maintain uniform temperature of minimum 60°F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.
 2. Do not install acoustical ceilings until:
 - a. Wet work in space is completed and nominally dry.
 - b. Items to be installed above ceilings are completed.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

A. Design Requirements:

1. Manufacturer is responsible for designing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
2. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
3. Provide concealed fastening wherever possible.
4. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between components.
5. Flame Spread Compliance Options:
 - a. Flame spread index to not exceed 25 when tested in accordance with ASTM E84 or UL723.
 - b. Determine in accordance with NFPA 265 Test, Method B, and comply with following:
 - 1) During the 40 kW exposure, flames shall not spread to ceiling.
 - 2) Flame shall not spread to outer extremities of sample non 8 by 12 foot walls.
 - 3) Flashover, as defined in NFPA 265, shall not occur.
 - 4) Peak heat release rate throughout test shall not exceed 800 kW.
 - 5) Total smoke released throughout test shall not exceed 1000 m².

B. Interface With Adjacent Systems:

1. Integrate design and connections with adjacent construction.
2. Accommodate allowable tolerances and deflections for structural members in installation.

C. Single Source Responsibility:

1. Furnish ceiling suspension system components from one manufacturer, unless otherwise acceptable to Architect.
2. Furnish ceiling units from one manufacturer, unless otherwise acceptable to Architect.

2.2 ACOUSTICAL CEILING SUSPENSION SYSTEM

A. Description:

1. ASTM C635, as applicable to type of suspension system required for type of ceiling units indicated.
2. Structural Class: Heavy duty.
3. System Type: Direct hung.
4. Exposed grid.
5. Color: White.
6. Material: Galvanized steel or aluminum.
7. Runner:
 - a. Shape: Tee with flat flange.
 - b. Face Width: 15/16 inches.
 - c. Coordinate with acoustical ceiling tile/panel edges.
8. Wall Surface Edge Molding:
 - a. Finish to match grid system, unless otherwise indicated.
 - b. Use for edges and penetrations.
 - c. Shape: Manufacturer's standard channel molding with single flange exposed.
 - d. At bullnosed radius wall corners, provide edge molding trim shape conforming to shape of bullnosed radius wall corner.

B. Acceptable Manufacturers:

1. Armstrong World Industries; Lancaster, PA.
2. Rockfon; Chicago, IL.
3. USG Interiors; Chicago, IL.

2.3 DIRECTIONAL FISSURED PERFORATED MINERAL FIBER ACOUSTICAL PANEL CEILING UNITS

- A. Description:
 - 1. Size: 24 by 48 inches.
 - 2. Material: Felted mineral fiber.
 - 3. Thickness: 5/8 inch.
 - 4. Color: White.
 - 5. Texture and Pattern: Directional fissured with perforations.
 - 6. ASTM E1264 Classification:
 - a. Type: III.
 - b. Form: 2.
 - c. Pattern: C or D.
 - 7. Light Reflectance, Not Less Than: 81 percent.
 - 8. Minimum Noise Reduction Coefficient: 0.50 to 0.60.
 - 9. Minimum Noise Reduction Coefficient, Determined in Accordance with ASTM C423: 0.55.
 - 10. Minimum Ceiling Attenuation Class, Determined in Accordance with ASTM E1414: 30.
 - 11. Edge: Square cut.
 - 12. Product name listed below is only for specifying panel texture; coordinate edge condition with size of specified ceiling grid.
- B. Acceptable Manufacturers and Products:
 - 1. Armstrong World Industries; Lancaster, PA: Fissured. Prior to ordering, verify with Owner that this is existing product in building.
 - 2. Substitutions: Not permitted.

2.4 ACCESSORIES

- A. General: As instructed by manufacturer for functional and visually complete ceiling system, and to incorporate related components within system.
- B. Hangers:
 - 1. Provide hangers and attachment capable of supporting a minimum 300 lbf ultimate vertical load without failure of supporting material or attachment.
 - 2. Wires:
 - a. ASTM A641, Class 1, 0.08 inch (12 gauge) in diameter.
 - 3. Masonry Anchorage Devices: Comply with ASTM C636 for anchorage devices for eyebolts, machine screws, and wood screws.
- C. Hold Down Clips:
 - 1. Standard spring steel clips.
 - 2. Accessible type spring steel clips at locations indicated.
- D. Acoustical Sealant - Concealed Locations:
 - 1. Description:
 - a. ASTM C1311.
 - b. Non-hardening, non-drying, non-skinning, non-staining, non-bleeding, non-sag synthetic rubber.
 - c. Capable of maintaining air-tight seal.
 - d. For use in concealed locations not exposed to view.
 - e. Specifically manufactured as acoustical sealant.
 - f. Volatile Organic Compound Limits:
 - 1) Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - 2) Maximum Value: As stated in Section 01•41•00 under Sealants for Architectural Sealant.
 - 2. Acceptable Products:
 - a. Pecora Corporation, Harleysville, PA: BA-98 Acoustical Sealant.
 - b. Tremco Corporation, Cleveland, OH: Acoustical Sealant.

- E. Acoustical Sealant - Exposed Locations:
 - 1. Description:
 - a. ASTM C834.
 - b. Non-sag, non-staining, non-bleeding, and paintable.
 - c. Joint movement range without cohesive/adhesive failure: Plus 7.5 percent to minus 7.5 percent of joint width.
 - d. Color: As selected by Architect from manufacturer's standard colors.
 - e. Volatile Organic Compound Limits:
 - 1) Determine in accordance standard specified in Section 01•41•00 for Sealants.
 - 2) Maximum Value: As stated in Section 01•41•00 under Sealants for Architectural Sealant.
 - 2. Acceptable Products:
 - a. Pecora Corporation, Harleysville, PA: AC-20 + Silicone.
 - b. Sika Corporation; Lyndhurst, NJ: SikaTile-880 Unsanded Caulk.
 - c. Tremco Corporation, Cleveland, OH: Tremflex 834.
 - d. United States Gypsum Company; Chicago, IL: USG Acoustical Sealant.
- F. Touch-up Paint:
 - 1. Type and color to match acoustical ceiling units and grid units.
 - 2. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Paints, Flat — Interior.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Prior to installation, verify that products to be hidden by acoustical ceiling have been installed.
- C. Verify that layout of hangers will not interfere with other work.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Layout:
 - 1. Measure each ceiling area.
 - 2. Establish layout of ceiling units to balance border widths at opposite edges of each ceiling.
 - 3. Unless otherwise indicated, lay out system to balanced grid design with edge units no less than 50 percent of ceiling unit size to avoid use of less-than-half width units at borders.
 - 4. Comply with reflected ceiling plans whenever possible.
- C. Prior to commencement of ceiling installation, coordinate layout of ceiling suspension grid with locations of new and existing mechanical and electrical systems. Prior to commencement of installation, contact Architect should conflicts become apparent. Commencement of installation indicates acceptance of conditions.
- D. Maintain environmental conditions of temperature and humidity at values near those indicated for final occupancy continuously from time that ceilings were installed until time of final occupancy to prevent sagging of ceiling units. Replace sagged ceiling units at no additional expense to Owner.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00, and ASTM C636.
- B. Install units plumb, level, square, and free from warp, dents, or twist while maintaining dimensional tolerances and alignment with surrounding construction.

- C. Provide acoustic ceiling work complete with necessary fastenings, clips, and other accessories required for complete installation.
- D. Suspension System:
 - 1. Support runners only from building's structural framing.
 - 2. Do not attach to steel roof or floor decking units.
 - 3. Hang suspension system independent of walls, columns, ducts, pipes, and conduit.
 - 4. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
 - 5. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest affected hangers to span extra distance.
 - 6. Do not eccentrically load system, or produce rotation of runners.
 - 7. Orient main runners to run parallel to long dimension of rectangular recessed light fixtures.
 - 8. Do not expose mechanical fastenings in the finished work
 - 9. Keep main runners and carrying channels clear of abutting walls and partitions.
 - 10. Provide at least two main runners for each ceiling span.
 - 11. Hangers:
 - a. Lay out hangers for each individual room or space.
 - b. Provide hangers to support framing around beams, ducts, columns, grilles, and other penetrations through ceilings.
 - c. Wherever required to bypass an object with the hanger wires, install subsuspension system so that hanger wires are plumb.
 - d. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
 - e. Support fixture loads independently of suspension system supports.
 - f. Locate hangers near each end and space 4 feet along each direct hung runner, unless otherwise indicated.
 - g. Secure wire hangers by looping and wire tying, either directly or to inserts, eye screws, or other devices which are secure and appropriate for substrates, and which will not deteriorate or fail with age or elevated temperatures.
 - h. Tightly secure to hangers to prevent vertical displacement and rotation of directly suspended main runners or carrying channels or indirectly hung systems.
 - i. Level with hangers taut, to prevent subsequent downward movement under ceiling loads.
 - j. Do not kink or bend hangers as means of leveling.
 - k. Replace kinked, dented or bent units.
 - l. Plumb Hangers:
 - 1) Install hangers plumb and not pressing against insulation covering ducts and pipes.
 - 2) Light Fixtures supported from the suspended ceiling system:
 - a) Provide hangers at a minimum of four hangers per fixture.
 - b) Located not more than 6 inch from each corner of each fixture.
 - m. Splayed Hangers:
 - 1) Where hangers are splayed (sloped or slanted) around obstructions, offset resulting horizontal force by bracing, countersplaying, or other acceptable means.
 - 12. Edge Moldings:
 - a. Install edge molding at intersection of ceiling and vertical surfaces.
 - b. Install where ceilings meet walls or other vertical elements.
 - c. Use longest practical lengths.
 - d. Apply continuous ribbon of acoustical sealant, concealed on back or vertical leg before installing moldings.
 - e. Secure moldings to building construction by fastening through holes drilled in web.
 - f. Install edge moldings at perimeter of ceiling area and at locations where necessary to conceal edges of ceiling units.

- g. Screw attach to substrate at intervals not over 16 inches on center and not more than 3 inches from ends.
 - h. Draw-up fasteners for tight set against vertical surfaces.
 - i. Masonry and Concrete:
 - 1) Fasten with powder-driven fasteners into substrate.
 - 2) Do not use wood plug anchors.
 - j. Accurately miter corners or install corner caps.
 - k. Provide wall molding springs at each acoustical unit in semi-exposed or concealed systems.
- E. Ceiling Units:
- 1. Install units after above ceiling work is complete.
 - 2. Install in coordination with suspension system.
 - 3. Install ceiling units in uniform plane.
 - 4. Scribe and cut to fit accurately at borders and penetrations.
 - 5. Set straight in alignment with exposed surfaces flush and level.
 - 6. Fit ceiling units in place, free from damaged edges or other defects detrimental to appearance and function.
 - 7. Lay directional patterned units to extend current pattern into new area.
 - 8. Fit border trim neatly against abutting surfaces.
 - 9. Ensure that edges of acoustical units are in close contact with metal supports, with each other, and in true alignment.
 - 10. Arrange acoustical units so that units less than one-half width are minimized.
 - 11. Cut units to fit irregular grid and perimeter edge trim.
 - 12. On rabbeted units, provide field cut unit rabbet edges with finish painted to match surface color.
 - 13. Double cut and field paint exposed edges of rabbeted units.
 - 14. Hold Down Clips:
 - a. Provide at Ceilings Within:
 - 1) If ceiling units weigh less than 1 lb/ft².
 - b. Space as instructed by tile/panel manufacturer, unless otherwise indicated or required.
- F. Sealant Application:
- 1. Seal annular space joints around pipes, ducts, or electrical outlets penetrating ceiling.
 - 2. Apply continuous ribbon of acoustical sealant on vertical web of wall or edge moldings.
- G. Tolerances:
- 1. Level: 1/8 inch in 10 feet.
 - 2. Install intersecting grid members perpendicular to each other, unless otherwise indicated.
 - 3. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2°.
 - 4. Align ends between sections to form smooth tight joints.
 - 5. Vertical and horizontal tolerances not to exceed 0.015 inch between exposed horizontal flanges.
 - 6. Gaps of not more than 0.02 inch between exposed surfaces of abutting sections.
- 3.4 CLEANING
- A. Clean exposed surfaces of ceilings, including trim, edge moldings, and suspension members.
 - B. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage.
 - C. Remove and replace work which cannot be successfully cleaned/repaired to permanently eliminate evidence of damage.
- 3.5 PROTECTION
- A. Protect finished work in accordance with Section 01•70•00.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\095100.wpd

SECTION 09•66•23
RESINOUS MATRIX TERRAZZO FLOORING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Section 07•26•00 - Vapor Retarders.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM C131, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in Los Angeles Machine.
 - b. ASTM C1315, Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
 - c. ASTM D1308, Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
 - d. ASTM D2240, Rubber Property — Durometer Hardness.
 - e. ASTM D4060, Abrasion Resistance of Organic Coatings by Taber Abraser.
 - f. ASTM D412, Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers- Tension.
 - g. ASTM D56, Flash Point by Tag Closed Tester.
 - h. ASTM D570, Water Absorption by Plastics.
 - i. ASTM D635, Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
 - j. ASTM D638, Tensile Properties of Plastic.
 - k. ASTM D695, Compressive Properties of Rigid Plastic.
 - l. ASTM D696, Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C.
 - m. ASTM D790, Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - 2. Military Standards (MIL):
 - a. MIL D3134, (Navy) Deck Covering Materials.
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 253, Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
 - 4. National Terrazzo and Mosaic Association (NTMA):
 - a. NTMA TS, Terrazzo Specifications.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 - 1. Conduct in accordance with Section 01•31•00.
 - 2. Review subfloor conditions and procedures for remedying unacceptable conditions.
 - 3. Review environmental conditions during and after installation.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for plastic matrix terrazzo.

- b. Include resin manufacturer's descriptive data, mixing, and proportioning instructions.
 - 2. Samples:
 - a. Terrazzo: Submit 6 by 6 inches in size illustrating aggregate colors, matrix color, surface finish.
 - b. Divider Strips: Submit 6 inches in length illustrating material color, size, and thickness.
- C. Submittals for Architect's Information:
 - 1. Test and Evaluation Reports:
 - a. Submit written results of testing specified as part of Field Quality Control articles.
- D. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
 - 2. Operation and Maintenance Data: NTMA TS and manufacturer's maintenance recommendations.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
 - 3. Member of NTMA.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- C. Field Samples:
 - 1. Comply with Section 01•45•00.
 - 2. Sample Installation:
 - a. Construct sample panel 1 foot long by 1 foot wide.
 - b. Perform at inconspicuous location to determine current conditions and appropriate steps and materials necessary for replication and replacement of select areas of existing terrazzo surfaces.
 - c. Show:
 - 1) Surface texture.
 - 2) Aggregate colors.
 - 3) Aggregate pattern.
 - 4) Joint material.
 - 5) Matrix color.
 - 6) Construction techniques.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Store materials in clean, dry location
- C. Storage location to have temperature between 50°F and 90°F.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Comply with more restrictive of following or manufacturer's written requirements under which products can be installed.
 - 1. Provide sufficient water, temporary heat and light, and adequate electric with suitable outlets connected and distributed for use within 100 feet of working space.
 - 2. Maintain ambient and subfloor temperature minimum of 50°F for 2 days prior to installation and for 7 days following installation.
 - 3. Maintain lighting at minimum uniform level of 50 Footcandles in areas where terrazzo flooring system is being installed.

2.0 PRODUCTS

2.1 EPOXY MATRIX TERRAZZO

A. Description:

1. Primer:
 - a. Capable of penetrating substrate pores and bond with topping to form permanent monolithic bond between substrate and topping.
 - b. As instructed by resin supplier.
2. Epoxy Resin Without Aggregate:
 - a. Test Sample Preparation:
 - 1) Mix according to manufacturers instructions and test without aggregate added.
 - 2) Cure specimens for 7 days at 75°F ± 2°F and 50 percent ± 2 percent relative humidity.
 - b. Performance Requirements:
 - 1) Hardness, Determined in Accordance with ASTM D2240, Using Shore D Durometer: 60 to 85.
 - 2) Tensile Strength, Determined in Accordance with ASTM D638, Run at 2 inches per Minute Specimen Made Using "C" Die Listed in ASTM D412: 3,000 lb/in² minimum.
 - 3) Compressive Strength, Determined in Accordance with ASTM D695, Specimen B Cylinder: 10,000 lb/in² minimum.
 - 4) Flexural Strength, Determined in Accordance with ASTM D790, Specimen B Cylinder: 10,000 lb/in² minimum.
 - 5) Water Absorption, Determined in Accordance with MIL D3134 or ASTM D570: 0.3 percent maximum.
 - 6) Chemical Resistance, Determined in Accordance with ASTM D1308: 7 days at room temperature by immersion method; have no deleterious effects by following contaminants:
 - a) Distilled Water.
 - b) 1 Percent Soap Solution.
 - c) 0.025 Detergent Solution.
 - d) Mineral Water.
 - e) Isopropanol.
 - f) Ethanol.
 - g) 10 percent Sodium Hydroxide.
 - h) 10 percent Hydrochloric Acid.
 - i) 30 percent Sulfuric Acid.
 - j) 5 percent Acetic Acid.
3. Epoxy Resin with Aggregate:
 - a. Test Sample Preparation:
 - 1) Mix according to manufacturers recommendation and blended with 3 volumes of Georgia White marble blended 60 percent Number 1 chips and 40 percent Number 0 chips.
 - 2) Grind surface to produce terrazzo sample 1/4 inch thick.
 - 3) Grout with epoxy resin according to specified finishing requirements.
 - 4) Cure specimens for 7 days at 75°F ± 2°F and 50 percent ± 2 percent relative humidity.
 - b. Performance Requirements:
 - 1) Impact Resistance, Indentation determined in accordance with MIL D3134, Paragraph 3.15: 0.005 inch with no cracking and no loosening.
 - 2) Indentation Resistance, Determined in Accordance with MIL D3134, Paragraph 3.16: No Indentation.
 - 3) Resistance to Elevated Temperature, Determined in Accordance with MIL D3134, Paragraph 3.6: No flow, no slip.

- 4) Abrasion Resistance, Determined in Accordance With ASTM D4060: 0.07 gm loss, maximum.
 - 5) Flammability, Determined in Accordance with ASTM D635:
 - a) Self-extinguishing.
 - b) Extent of Burning: 0.25 inches maximum.
 - 6) Critical Radiant Flux:
 - a) Test Method: NFPA 253.
 - b) Value: Not less than 0.22 0.45 watts per square centimeter.
 - 7) Thermal Coefficient of Linear Expansion, determined in accordance with ASTM D696: 25×10^{-6} inches per inch per degrees to 140°F maximum, temperature range -12°F to +140°F.
 - 8) Bond Strength, Determined in Accordance with Field Test Method For Surface Soundness and Adhesion as Described in ACI 403: 100 percent concrete failure minimum, with 300 lb/in² minimum tensile strength.
4. Regulatory Requirements: Ensure flammable components comply with applicable portions of local, state, and federal codes, laws, and ordinances for flame spread and smoke developed indices.
 5. Single Source Responsibility:
 - a. Furnish each component of terrazzo flooring, including primers, resins, hardening agents, joint fillers, grouts, and sealing coats from one manufacturer, unless otherwise acceptable to Architect.
 - b. Furnish marble chip aggregates and metal dividing strips from terrazzo manufacturer.
 - B. Acceptable Manufacturers:
 1. Crossfield Products; Roselle Park, NJ: Dex-O-Tex Cheminert Terrazzo.
 2. Key Resin; Batavia, OH.
 3. Sherwin Williams; Cleveland, OH: General Polymers Epo-Flex.

2.2 AGGREGATES AND COLORANTS

- A. Marble Chips:
 1. Abrasion and Impact Resistance: Not exceed 40 percent loss, when testing in accordance with ASTM C131.
 2. 24-Hour water absorption rate not to exceed 0.75 percent.
 3. Contain no deleterious or foreign matter.
 4. Dust content less than 1 percent by weight.
 5. Chip Size for 1/4 inch Thick Terrazzo: NTMA TS Standard Number 0 and Standard Number 1.
- B. Colorants:
 1. Alkali-resistant color stable pigments.
 2. Pure mineral or synthetic pigments.
 3. Resistant to alkalis.
 4. Non-fading.
 5. Mix pigments with matrix to provide specified colors.
 6. Comply with manufacturer's requirements.
- C. Fillers:
 1. Inert mineral material as recommended by manufacturer and suited for resin binder.
 2. Furnished in quantity necessary to impart specified color and physical characteristics.
- D. Grout: As instructed by resin manufacturer.

2.3 ACCESSORIES

- A. Abrasive Strips:
 1. Material: Carborundum.
 2. Strip Channel:
 - a. Width: 1/2 inch.
 - b. Depth: 1/2 inch.

- c. Material: Match divider strips.
- B. Adhesive Bonding Agent: Resin matching plastic matrix terrazzo resin.
- C. Curing Compound: Liquid-membrane-forming compound, ASTM C1315.
- D. Divider Strips:
 - 1. Stop and Divider:
 - a. "K" or "L" strips:
 - b. Thickness: 1/8 inches, verify in field.
 - c. Material: Unknown, verify in field.
 - d. Depth to match thickness of thinset terrazzo.
 - e. Provide with heavy top.
 - 2. Control Joints:
 - a. Double "L" strips.
 - b. Thickness, material, and depth to match divider strips.
 - c. Provide with heavy top.
 - d. Provide with 1/8 inch wide neoprene strip between double L strips.
 - 3. Epoxy Adhesive: As instructed by epoxy resin manufacturer.
- E. Epoxy Patch Primer: As instructed by epoxy resin manufacturer.
- F. Terrazzo Cleaner:
 - 1. Ph factor between 7 and 10, where applicable.
 - 2. Biodegradable and phosphate free.
 - 3. Free of crystalline salts or water soluble alkalies.
 - 4. Flash Point, Determined in Accordance with ASTM D56: 80°F minimum.
- G. Sealer:
 - 1. pH factor between 7 and 10.
 - 2. No discoloring and non-color-changing.
 - 3. Does not affect color or physical properties of terrazzo surface.
 - 4. Penetrating type specially prepared for use on terrazzo.
 - 5. Flash Point, Determined in Accordance with ASTM D56: 80°F minimum.
 - 6. UL listed as "Slip Resistant."
 - 7. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Primers, Sealers, and Undercoaters.

2.4 MIXES

- A. Plastic Matrix Proportions: Comply with resin supplier's recommendations.
- B. Terrazzo Topping: Proportion and mix marble chips, filler, pigments, and resin in accordance with manufacturer's instructions.
- C. Terrazzo Mix: Match color of existing terrazzo.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify there are no defects in substrate that may adversely affect installation of terrazzo.
- C. Verify substrate flatness does not vary more than 1/4 inch from true plane in 10 feet.
- D. Verify that concrete has cured minimum of 28 days.
- E. Test concrete substrates to verify that moisture content does not exceed levels recommended by manufacturer of terrazzo materials.
- F. Verify that substrate is sloped to drains and that drains are properly installed at correct elevation for finished terrazzo thickness.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.

- B. Repair non-moving cracks in substrate with manufacturer's semi-rigid epoxy filler.
- C. Repair damaged and deteriorated concrete.
- D. Provide clean, dry, and neutral substrate for flooring application.

3.3 INSTALLATION

- A. Install in accordance with Section 01•70•00, and approved submittals.
- B. Install level while maintaining dimensional tolerances and alignment with surrounding construction.
- C. Subfloor:
 - 1. Install control joints back to back above control joints in subfloor.
 - 2. Install divider strips as shown on drawings.
 - 3. Set dividers in epoxy adhesive and mechanically fasten dividers to subfloor.
 - 4. Dampen concrete subfloor.
- D. Placing Terrazzo:
 - 1. Prime subfloor in accordance with manufacturer's recommendations.
 - 2. Install topping to produce finished thickness of 3/8 inches.
 - 3. Place terrazzo mixture in panels formed by divider strips.
 - 4. Trowel mixture to top of strips.
 - 5. Bases:
 - a. Cove type cast-in-place.
 - b. Radius Cove: 1 inch.
 - c. Height: 4 inches, verify in field.
 - 6. Roll surface to remove excess slurry.
 - 7. Trowel to uniform surface disclosing lines of divider strips.
 - 8. Additional marble chips may be sprinkled on surface prior to rolling at installer's option.
 - 9. Abrasive Strips:
 - a. Install at stair nosings.
 - b. Space at 12 inch centers along length of ramps.
 - c. Abrasive strips may be either prefabricated or field-mixed.
 - d. Mask terrazzo on each side of abrasive channel to protect finished terrazzo.
 - e. Clean channel free of deleterious materials.
 - f. Trowel abrasive mix into channel with top of abrasive strip 1/16 inch higher than terrazzo surface.
 - g. Remove masking material and allow abrasive mix to cure.
- E. Curing:
 - 1. Comply with manufacturer's recommendations.
 - 2. Prevent contamination during application stages and before completing curing process.
 - 3. Close application area for minimum of 24 hours.
- F. Rough Grinding:
 - 1. Grind with 24 or finer grit stones or with comparable diamond plates.
 - 2. Follow initial grind with 80 or finer grit stones.
- G. Grouting:
 - 1. Clean terrazzo with clean water and rinse.
 - 2. Remove excess rinse water.
 - 3. Hand apply grout using identical mix as used in topping, taking care to fill voids.
 - 4. Cure grout.
 - 5. Grout may be left on terrazzo until heavy and messy construction operations in project are completed.
- H. Fine Grinding: Grind with 80 or finer grit stones until grout is removed from surface.
- I. Upon completion, terrazzo to show minimum of 70 percent of marble chips.

3.4 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
 - 1. Comply with Section 01•45•00.
 - 2. Contractor provided.

3. Floor Thickness Verification Test:
 - a. At Owner's discretion and upon direction by Architect, take 1 inch diameter cores at locations indicated to verify system thickness, at rate not to exceed 1 per 1,000 ft².
 - b. Remove terrazzo in areas where cores indicate less than specified thickness, and replace with new material at Contractor's expense.
 - c. Patch cored areas where cores indicate specified thickness has been achieved, matching appearance of surrounding area.
- B. Manufacturer's Services:
 1. Comply with Section 01•43•00.

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Do not use materials or methods which may damage surface or surrounding construction.
- C. Wash surfaces with neutral cleaner.
- D. Clean with fine abrasive to remove stains or cement smears.
- E. Rinse with clean water and allow surface to dry.
- F. Immediately after drying, apply sealer in accordance with manufacturer's instructions.

3.6 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Cover and protect from damage until Project completion.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\096623.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 09•67•00
FLUID-APPLIED FLOORING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.

1.2 REFERENCES

- A. Reference Standards:
 - 1. American Concrete Institute (ACI):
 - a. ACI 503R, Use of Epoxy Compounds with Concrete.
 - 2. ASTM International (ASTM):
 - a. ASTM C307, Tensile Strength of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing.
 - b. ASTM C413, Absorption of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing.
 - c. ASTM C531, Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing, Polymer Concretes.
 - d. ASTM C579, Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
 - e. ASTM C580, Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing and Polymer Concretes.
 - f. ASTM D1044, Resistance of Transparent Plastics to Surface Abrasion.
 - g. ASTM D1308, Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
 - h. ASTM D1360, Fire Retardancy of Paints (Cabinet Method).
 - i. ASTM D2047, Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
 - j. ASTM D2240, Rubber Property — Durometer Hardness.
 - k. ASTM D4060, Abrasion Resistance of Organic Coatings by Taber Abraser.
 - l. ASTM D570, Water Absorption of Plastics.
 - m. ASTM D638, Tensile Properties of Plastics.
 - n. ASTM D695, Compressive Properties of Rigid Plastics.
 - o. ASTM D790, Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
 - p. ASTM D905, Strength Properties of Adhesive Bonds in Shear by Compression Loading.
 - q. ASTM E303, Measuring Surface Frictional Properties Using the British Pendulum Tester.
 - r. ASTM E84, Surface Burning Characteristics of Building Materials.
 - s. ASTM E96, Water Vapor Transmission of Materials.
 - t. ASTM F1869, Measuring Moisture Vapor Emission rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 - u. ASTM F2170, Determining Relative Humidity in Concrete Floor Slabs Using in Situ Probes.
 - 3. International Concrete Repair Institute (ICRI):
 - a. ICRI 310-2, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Overlays.

4. National Fire Protection Association (NFPA):
 - a. NFPA 253, Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting:
 1. Conduct in accordance with Section 01•31•00.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 1. Product Data:
 - a. Submit product data for seamless aggregate flooring describing physical and performance characteristics.
 - b. Submit color charts for finish indicating manufacturer's colors available for selection.
 2. Samples:
 - a. Submit 4 by 4 inches in size illustrating color and pattern for each floor material for each color specified.
- C. Submittals for Architect's Information:
 1. Test and Evaluation Reports:
 - a. Submit written results of tests indicating performance in specified product performance tests.
 - b. Submit written results of tests indicating results of tests specified in Field Quality Control Article.
 - c. Test reports to be dated within 6 months of Project Bid date.
 - d. Test report to be original on test agencies letterhead.
 2. Certifications specified in Quality Assurance article.
 3. Manufacturer's field reports.
- D. Closeout Submittals:
 1. Submit under provisions of Section 01•78•00.
 2. Maintenance Data: Include maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 1. Comply with Section 01•43•00.
 2. Member of National Terrazzo and Mosaic Association.
 3. Minimum duration of experience 10 years.
- B. Applicator Qualifications:
 1. Comply with Section 01•43•00.
 2. Minimum duration of experience 10 years.
 3. Applicator to not be product manufacturer nor product distributor.
- C. Certifications:
 1. Submit manufacturer's written certificate accepting applicator.
- D. Field Samples:
 1. Comply with Section 01•45•00.
 2. Sample Installation:
 - a. Construct sample panel 1 foot by 1 foot wide as directed.
 - b. Show:
 - 1) Color.
 - 2) Patterns.
 - 3) Surface texture.
 - 4) Joint treatments.
 - 5) Edge detailing.
 - 6) Construction techniques.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Store resin materials in dry, secure area.
- C. Maintain products within temperature range of 55 to 90°F.
- D. Store materials, other than aggregates, away from fire, sparks, or smoking areas.
- E. Store materials for three days prior to installation in area of installation to achieve temperature stability.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Comply with more restrictive of following or manufacturer's written requirements under which products can be applied.
 - 1. Maintain ambient temperature required by manufacturer three days prior to, during, and 24 hours after installation of materials.
 - 2. Maintain ambient room and floor temperatures at 65°F, or above, for period extending from 48 hours before installation until one week after installation.
 - 3. Concrete Surfaces:
 - a. Cure concrete to receive surfacing for at least 28 days.
 - b. Be free of water for at least 7 days.

1.8 WARRANTY

- A. Comply with Section 01•78•00.
- B. Warrant installed flooring to be free from defects in material and workmanship for 3 years.
- C. Include coverage against flooring delamination from substrate and degradation of surface finish.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. Fire Resistance Ratings:
 - 1. Provide flooring which complies with fire resistance ratings for exit stairs, locations scheduled on drawings, and corridors.
 - 2. Critical Radiant Flux:
 - a. Test Method: NFPA 253.
 - b. Value: Not less than 0.22 watts per square centimeter.
 - 3. Smoke Generated:
 - a. Test Method: ASTM E84.
 - b. Index: 450 or less.
 - 4. Flame Spread Index, determined in accordance with ASTM E84: 25, maximum.
- B. Slip Resistance; Options:
 - 1. Static Coefficient of Friction, Determined in accordance with ASTM D2047; Minimum Value:
 - a. Level Surfaces: 0.6.
 - b. Ramps: 0.8.
 - 2. Dynamic Coefficient of Friction, Determined in Accordance with ASTM E303; Minimum Value: 0.36.
- C. Single Source Responsibility: Obtain each type, color, and pattern of resilient flooring products from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

2.2 SEAMLESS AGGREGATE FLOORING

- A. Description:
 - 1. Primer and Adhesives:
 - a. Waterproof.

- b. Type recommended by manufacturer to penetrate into pores of substrate and bond with floor surfacing matrix to form permanent monolithic bond between substrate and surfacing matrix.
- 2. Aggregate:
 - a. Angular translucent quartz with colored inorganic coating.
 - b. Quantity of Colors: More than 2.
- 3. Binder:
 - a. Two-part epoxy.
 - b. Thermosetting.
 - c. Volatile Organic Compound Limits:
 - 1) Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - 2) Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Industrial Maintenance Coating.
- 4. Filler:
 - a. Inert mineral as recommended by manufacturer for use with binder.
 - b. Contain sufficient fines to provide even-textured, nonslip type of surface on finished topping.
- 5. Top Coat:
 - a. Epoxy.
 - b. Thermosetting.
 - c. Clear.
 - d. Ultraviolet light resistant.
- 6. Compressive Strength:
 - a. Determined in accordance with ASTM C579: 10,000 lb/in² minimum at 7 days.
 - b. Determined in accordance with ASTM D695: Minimum 10,000 lb/in².
- 7. Tensile Strength:
 - a. Determined in accordance with ASTM C307: 600 lb/in² minimum at 7 days.
 - b. Determined in accordance with ASTM D638: Minimum 3000 lb/in².
- 8. Flexural Modulus of Elasticity, determined in accordance with ASTM C580: 250,000 lb/in² minimum at 7 days.
- 9. Flexural Strength, Determined in Accordance with ASTM D790: 4000 lb/in² minimum.
- 10. Bond Strength:
 - a. Determined in accordance with ACI 503R: 300 lb/in² minimum with 100 percent concrete failure (using 2500 lb/in² compressive strength concrete).
 - b. Determined in accordance with ASTM D905: 300 lb/in² minimum.
- 11. Abrasion Resistance:
 - a. Determined in accordance with ASTM D1044: Maximum Weight loss of 0.70 gm/1000 cycles.
 - b. Determined in accordance with ASTM D4060: 15 mg maximum weight loss.
- 12. Hardness, Determined in Accordance with ASTM D2240 using Shore D Durometer: 60 to 85.
- 13. Impact Resistance, determined in accordance with ASTM Gardner Impact Tester at 160 in/lb: No cracking, chipping or delamination.
- 14. Thermal Coefficient of Expansion, determined in accordance with ASTM C531: 0.00004 in/in•°F maximum.
- 15. Shrinkage, determined in accordance with ASTM C531: 0.5 percent, maximum.
- 16. Moisture Absorption
 - a. Determined in accordance with ASTM C413: 1.0 percent maximum.
 - b. Determined in accordance with ASTM D570 after 24 hours: 0.1 percent, maximum.
- 17. Moisture Vapor Permeability, determined in accordance with ASTM E96: 0.06 perms.
- 18. Fire Resistance, determined in accordance with ASTM D1360: Weight loss not to exceed limit for non-combustibility.

19. Stain Resistance When Exposed for 24 Hours to Staining Agent, Determined in Accordance with ASTM D1308: No permanent stain retained.
 20. Chemical Resistance, determined in accordance with ASTM D1308: No effect when exposed to following reagents for 7 days:
 - a. Acetic acid: 5 percent solution.
 - b. Ammonium Hydroxide: 10 percent solution.
 - c. Citric Acid: 5 percent solution.
 - d. Coffee.
 - e. Coca Cola Syrup.
 - f. Isopropyl Alcohol.
 - g. Mineral Oil.
 - h. Sodium Hydroxide: 5 percent solution.
 - i. Tri-Sodium Phosphate: 5 percent solution.
 - j. Urea: 6.6 percent solution.
 21. Regulatory Requirements: Ensure flammable components comply with applicable portions of local, state, and federal codes, laws, and ordinances for flame spread and smoke developed indices.
 22. Single Source Responsibility:
 - a. Furnish each product from one manufacturer, unless otherwise acceptable to Architect.
 - b. Provide fluid-applied flooring system as complete unit, including joint treatments, edge detailing, and accessory items necessary for proper function.
- B. Acceptable Manufacturers:
1. Dur-A-Flex; East Hartford, CT: Dur-A-Chip. ⌚E2024rs⌚
 2. Sika USA; Shakopee, MN.
 3. Stonhard; Maple Shade, NJ: Stonshield HRI. ⌚E2024re⌚
 4. Substitutions: Not permitted.

2.3 ACCESSORIES

- A. Control Joint Strips:
 1. Material: Extruded aluminum.
 2. Width: 1/8 inch.
 3. Height to match flooring thickness.
 4. Provide with anchoring features.
- B. Divider Strips:
 1. Material: Extruded aluminum.
 2. Width: Match existing.
 3. Height to match flooring thickness.
 4. Provide with anchoring features.
- C. Subfloor Filler:
 1. White premix latex; type recommended by flooring material manufacturer.
 2. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for Primers, Sealers, and Undercoaters.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify that surfaces are smooth and flat with maximum variation of 1/4 inch in 10 feet.
- C. Verify surfaces are ready to receive work.
- D. Verify Concrete Floors:
 1. Have cured minimum 28 days.

2. Are dry to maximum moisture content of 7 percent.
3. Exhibit negative alkalinity, carbonization, or dusting.
- E. Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

3.2 PREPARATION

- A. Prepare conditions and proceed with work in accordance with Section 01•70•00.
- B. Remove sub-floor ridges and bumps.
- C. Remove materials from subfloor which may inhibit adhesion of fluid-applied flooring to subfloor.
- D. Demolition / Removal:
 1. Completely remove existing wall base.
- E. Filler:
 1. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.
 2. Apply, trowel, and float filler to achieve smooth, flat, hard surface.
 3. Prohibit traffic until filler is cured.
- F. Grind irregularities above surface level.
- G. Remove dirt, dust, debris, and other loose particles by vacuum cleaning.
- H. Mixing: Proportion and mix floor surfacing components in accordance with manufacturer's instructions.

3.3 APPLICATION

- A. Apply in accordance with Section 01•70•00.
- B. Apply flooring plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with adjacent surfaces.
- C. Strips:
 1. Accurately saw cut substrate to install divider strips.
 2. Mechanically fasten strips to substrate, and adhere strips to substrate with epoxy adhesive.
 3. Install strips straight and level to locations indicated.
 4. Install access panel recess frames.
 5. Install base divider strips to match floor pattern.
 6. Install at control joints in substrate.
 7. Install terminating cap strip at top of base; attach securely to wall substrate.
- D. Primer:
 1. Apply primer to surfaces unless not required by manufacturer.
 2. Apply primer uniformly over entire area to receive floor surfacing using clean rubber squeegees or clean steel trowels.
 3. Do not allow primer to collect in depressions.
 4. Allow primer to dry thoroughly before next coat is applied.
 5. Reprime porous areas or areas where primer has dried.
- E. Flooring:
 1. Apply to minimum thickness of 3/16 inch.
 2. Finish to smooth level surface.
 3. Install flooring in pan type floor access covers.
 4. Fillet and cove at vertical surfaces; height: 4 inches.
 5. Apply decorative aggregate by broadcast method; do not trowel-apply decorative aggregate.
 6. Place entire surfacing in single rooms or areas in one continuous operation except for placement of divider strips at structural floor control joints or as indicated.®
 7. Place entire surfacing in single rooms or areas in one continuous operation without use of cold joints or divider strips.®
 8. Surfaces Tolerance: Flush, true to plane and line, and level within 1/4 inch in 10 feet.
- F. Seal Coat: Apply uniformly covering surfaces after floor surfacing has cured and as recommended by manufacturer.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Services: Comply with Section 01•43•00.

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.

3.6 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Prohibit traffic on floor finish for 48 hours after installation.
- C. Barricade area to protect flooring until cured.
- D. After initial 48 hour traffic prohibition period has ended, protect finished flooring from traffic by covering with 30 pound building paper or other equally effective means until final acceptance of project.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\096700.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 09•91•00
PAINTING

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Division 01 - General Requirements.
 - 3. Section 02•83•00 - Lead Remediation.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM D16, Terminology for Paint and Related Coatings, Materials and Applications.
 - b. ASTM D523, Specular Gloss.
 - c. ASTM E84, Surface Burning Characteristics of Building Materials.
 - 2. Association for Materials Protection and Performance (AMPP):
 - a. AMPP-SSPC SP-1, Solvent Cleaning.
 - b. AMPP-SSPC SP-2, Hand Tool Cleaning.
 - c. AMPP-SSPC SP-3, Power Tool Cleaning.
 - 3. Commercial Item Description (CID):
 - a. CID A-A-1272, Plaster, Gypsum (Spackling Compound).
- B. Definitions:
 - 1. Use definitions in ASTM D16.
 - 2. Paint:
 - a. Coating applied to decorate, protect, or perform specialized function on surface or substrate.
 - b. Includes primers, emulsions, enamels, sealers, fillers, and other applied materials used as surface preparation, primer coat, intermediate coat, or finish coat.
 - 3. Sheen: Degree of luster as measured with specular gloss meter in accordance with ASTM D523:
 - a. Flat:
 - 1) Measured with 85° meter: 0 to 15.
 - 2) Measured with 60° meter: 0 to 10.
 - b. Eggshell, Velvet, Low Lustre:
 - 1) Measured with 85° meter: 5 to 25.
 - 2) Measured with 60° meter: 2 to 15.
 - c. Satin:
 - 1) Measured with 85° meter: 10 to 40.
 - 2) Measured with 60° meter: 5 to 25.
 - d. Semi-Gloss:
 - 1) Measured with 60° meter: 45 to 65.
 - 2) Measured with 20° meter: 5 to 45.
 - e. Gloss:
 - 1) Measured with 60° meter: 70 to 95+.
 - 2) Measured with 20° meter: 20 to 90.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.

- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit Paint Product Schedule:
 - 1) Organize by substrates to be painted.
 - 2) Indicate prime coat product name for each substrate.
 - 3) Indicate finish coat product name for each substrate and gloss level.
 - b. Submit Product Data for Paint Indicating:
 - 1) Name of manufacturer and products to be used.
 - 2) Brand name or number designation.
 - 3) Color designations.
 - 4) Product description, performance data, and solids content by volume.
 - 5) Mixing, thinning, surface preparation, application instructions and methods.
 - 6) Compatible primers and topcoats.
 - 7) Recommended wet and dry film thicknesses.
 - 8) Location of application area.
 - 2. Samples:
 - a. Provide samples of Paint.
 - b. Full range of manufacturer's sample colors for selection.
 - c. Paint-Outs:
 - 1) Size: Not less than 8 inches by 10 inches.
 - 2) Identify with color name and number; product name and number; location of application area.
 - 3) Indicate each coat of paint on primed cardboard, with sheen, color, and texture duplicated to simulate actual conditions.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
- D. Maintenance Material Submittals:
 - 1. Extra Materials:
 - a. Furnish under provisions of Section 01•70•00.
 - b. Furnish extra paint in quantity equal to 2 percent of total material furnished but not less than 2 quarts of each type, color, and size.
 - c. Label containers with room location manufacturer's name, brand, batch number, custom color mix formula, and texture.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 20 years.
- B. Applicator Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.

1.6 DELIVERY, HANDLING, AND STORAGE

- A. Comply with Section 01•60•00.
- B. Deliver to site in manufacturer's sealed containers, marked with brand name, product description by generic type, color name and number, brand code, content by volume of pigment and vehicle constituents, volatile organic compound content, date of manufacture, coverage, surface preparation, drying time, mixing instructions, reducing instructions, and application instructions.
- C. Deliver to site ready mixed, unless paint manufacturer requires field mixing of product.
- D. Store paint materials in safe, clean, and dry location.
- E. Store paint materials within temperature range instructed by manufacturer.
- F. Store painting materials not in use in tightly covered and sealed containers.
- G. Maintain containers used in storing, mixing, and applying paint in clean condition free of deleterious materials or residue.

1.7 FIELD CONDITIONS

A. Ambient Conditions:

1. Air and surface temperatures to be within range instructed by paint manufacturer.
2. Meet or exceed ventilation requirements of paint manufacturer.
3. Enclose and maintain interior spaces being painted free from dust and other airborne particulates.
4. Surfaces to be clean, dry, smooth, free from:
 - a. Frost.
 - b. Other materials which may adversely affect physical performance or aesthetic appearance of paint.
5. Do not apply paint to surfaces:
 - a. Which are frozen.
 - b. While they are exposed directly to direct sunlight.
6. Do not apply paint to exterior surfaces:
 - a. During windy weather conditions.
 - b. In damp, misty, foggy, rainy, or snowy weather.
 - c. When humidity level exceeds 85 percent.
 - d. When humidity level exceeds requirements of paint manufacturer.
 - e. When surface temperature is within 5°F of dew point.
 - f. When precipitation is probable.
7. Do not apply paint to interior surfaces:
 - a. When humidity level exceeds 85 percent.
 - b. When humidity level exceeds requirements of paint manufacturer.
 - c. When surface temperature is within 5°F of dew point.

2.0 PRODUCTS

2.1 PAINT MATERIALS

A. Description:

1. Primers and Top Coats:
 - a. Acrylic.
 - b. Alkyd products may be used for primer when manufacturer does not have acrylic product.
2. Binder:
 - a. 100 percent acrylic.
 - b. Vinyl acrylic is not permitted.
 - c. Styrenated acrylic is not permitted.
3. Solids (Pigment and Binder) Content, by Volume: 30 to 45 percent.
4. Products to be manufacturer's top line product.
5. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for following coatings:
 - 1) Flat Gloss Level Coating Excluding Colorant:
 - a) Interior Locations: Zero grams per liter.
 - 2) Eggshell, Satin, or Semi-Gloss Gloss Level Coating Excluding Colorant:
 - a) Interior Locations: Zero grams per liter.
 - 3) High-Gloss Level Coating Excluding Colorants:
 - a) Interior Locations: Zero grams per liter.
 - 4) Colorants: Colorant — Architectural Coating, Excluding Industrial Maintenance Coatings.
6. Type and grade specified, factory-mixed, ready for application.
7. Non-yellowing white and light tints.

8. Paint colors include
 - a. Custom colors.
 9. Designate material for each coat, location, and usage for intended purpose by manufacturer, as specifically stated in manufacturer's published specifications.
 10. Where shop-primed materials are to be finish painted or prime coat materials are by different paint manufacturer, verify compatibility of primers with manufacturer of finish coat paints. If existing coating is unknown, apply barrier coating.
 11. Primer for gypsum board surfaces to be high solids content, undiluted, and capable of equalizing absorption differences between gypsum board surface and joint compound surfaces.
 12. Flame Spread Index, when determined in accordance with ASTM E84: Not exceed 25.
 13. Single Source Responsibility: Furnish each paint product from one manufacturer, unless otherwise acceptable to Architect.
 14. Match colors chosen by Architect, from paint manufacturer of Architect's choice, by Contractor's submitted paint manufacturer. If 3 successive color samples do not match specified color, provide specified color from specified manufacturer.
- B. Acceptable Paint Manufacturers and Products:
1. Benjamin Moore; Montvale, NJ:
 - a. Gypsum Board and Gypsum Plaster:
 - 1) Interior:
 - a) Prime Coating:
 - 1] Eco-Spec Interior Latex Primer Sealer.
 - 2] Dry Film Thickness per Coat: 1.0 to 1.2 mils.
 - b) Finish Coating:
 - 1] Eco-Spec Interior Latex Paint.
 - 2] Dry Film Thickness per Coat: 1.4 to 1.6 mils.
 - b. Ferrous Metal (Not Galvanized):
 - 1) Interior:
 - a) Prime Coating:
 - 1] Ultra Spec HP Acrylic Metal Primer.
 - 2] Dry Film Thickness per Coat: 1.7 to 2.3 mils.
 - b) Finish Coating:
 - 1] Eco-Spec Interior Latex Paint.
 - 2] Dry Film Thickness per Coat: 1.4 to 1.6 mils.
 2. McCormick Paints; Rockville, MD:
 - a. Gypsum Board and Gypsum Plaster:
 - 1) Interior:
 - a) Prime Coating:
 - 1] 1st Step Latex Enamel Undercoater and Primer Sealer at Gypsum Board; Underlok interior/Exterior Acrylic Latex Multipurpose Primer at Gypsum Plaster.
 - 2] Dry Film Thickness per Coat: 1.1 mils.
 - b) Finish Coating:
 - 1] Generation XR Interior or Revo Premium Interior Latex Paint.
 - 2] Dry Film Thickness per Coat: 1.3 to 1.6 mils.
 - b. Ferrous Metal (Not Galvanized):
 - 1) Interior:
 - a) Prime Coating:
 - 1] 1st Step Interior/Exterior White Metal Rust Inhibitive Primer.
 - 2] Dry Film Thickness per Coat: 2.4 mils.
 - b) Finish Coating:
 - 1] Interlok Interior/Exterior Acrylic Urethane Direct to Metal Paint.
 - 2] Dry Film Thickness per Coat: 1.3 to 1.6 mils.

3. PPG Architectural Coatings — PPG Paints; Pittsburgh, PA:
 - a. Gypsum Board and Gypsum Plaster:
 - 1) Interior:
 - a) Prime Coating:
 - 1] Pure Performance (9-900) or Speedhide Zero (6-4900XI) Interior Latex Primer.
 - 2] Dry Film Thickness per Coat: 1.4 to 1.7 mils.
 - b) Finish Coating:
 - 1] Pure Performance or Speedhide Zero Interior Latex.
 - 2] Dry Film Thickness per Coat: 1.5 to 1.8 mils.
 - b. Ferrous Metal (Not Galvanized):
 - 1) Interior:
 - a) Prime Coating:
 - 1] PPG Pitt-Tech Plus One Pack Industrial Primer, 90-912 Series.
 - 1] Dry Film Thickness per Coat: 2.5 to 3.0 mils.
 - b) Finish Coating:
 - 1] Pure Performance or Speedhide Zero Interior Latex.
 - 2] Dry Film Thickness per Coat: 1.5 to 1.8 mils.
 2. Sherwin Williams; Cleveland, OH:
 - a. Gypsum Board and Gypsum Plaster:
 - 1) Interior:
 - a) Prime Coating:
 - 1] ProMar 200 Zero VOC Interior Latex Primer.
 - 2] Dry Film Thickness per Coat: 1.1 mils.
 - b) Finish Coating:
 - 1] Harmony Interior Latex — Odor Eliminating Technology or ProMar 200 Zero VOC Interior Latex.
 - c) Dry Film Thickness per Coat: 1.6 mils.
 - b. Ferrous Metal (Not Galvanized):
 - 1) Interior:
 - a) Prime Coating:
 - 1] Pro Industrial Pro-Cryl Universal Water Based Primer.
 - 2] Dry Film Thickness per Coat: 2 to 4 mils.
 - b) Finish Coating:
 - 1] Harmony Interior Latex — Odor Eliminating Technology or ProMar 200 Zero VOC Interior Latex.
 - c) Dry Film Thickness per Coat: 1.6 mils.

3.2 ACCESSORIES

- A. Gypsum Board and Gypsum Plaster Surface Patching Compounds: CID A-A-1272.
- B. Metal Patching Compound:
 1. Description:
 - a. Two-part epoxy metal filler, putty grade.
 - b. Compose of metal alloy blended with high molecular weight polymer.
 - 1) Metal alloy to match base metal of item being repaired.
 - 2) Use steel based alloy for repairing cast iron.
 - c. Machinable after curing.
 - d. Paste consistency having negligible slump at 1 inch thickness or less.
 - e. Show no evidence of measurable shrinkage from plastic state to hardened state.
 2. Acceptable Manufacturers and Products:
 - a. Abatron; Kenosha, WI:
 - 1) Steel and Cast Iron: Ferrobond.
 - b. Belzona; Miami, FL: Super Metal. Use only on steel or cast iron items.
 - c. Bondo/Mar-Hide; Medina, OH: Bondo. Use only on steel or cast iron items.
- C. Fillers, Thinners, Oils: Comply with paint manufacturer's requirements.

3.3 MIXES

- A. Perform intermixing or thinning in accordance with manufacturer's directions.
- B. Factory mix colors and exactly match Architect-accepted samples. Site tinting is not permitted.
- C. Do not use mixed material beyond manufacturer's recommended pot life.
- D. Stirring Materials:
 - 1. Perform before application to produce mixture of uniform density.
 - 2. Perform in accordance with manufacturer's requirements as materials are applied.
 - 3. If film forms on surface of material in container:
 - a. Do not stir film into material.
 - b. Remove film and strain material to remove solidified liquid components.
- E. Mix paste, powder, or catalyzed paints in accordance with manufacturer's directions.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Perform moisture meter tests of surfaces prior to commencement of application.
- C. Verify, by use of an electronic moisture meter, that substrate moisture does not exceed following values:
 - 1. Gypsum Board and Gypsum Plaster: 12 percent.
- D. Do not apply materials when moisture levels exceed specified amounts and manufacturer instructed levels.
- E. Examine surfaces scheduled to receive paint for conditions that will adversely affect application, permanence, and aesthetic appearance; rectify unacceptable conditions.
- F. Paint of surfaces with textures not complying with specified requirements indicates acceptance of surfaces and costs for refinishing and repainting are to be borne by Contractor.
- G. Previously Painted Surfaces:
 - 1. Apply samples and perform in-place test to determine compatibility, adhesion, and film integrity of new materials to existing paint.
 - 2. Apply barrier coat when conditions exist which may adversely affect application, appearance, or performance of paint.
 - 3. Test compatibility of existing coatings, including shop applied primers and previously applied coatings, by applying specified coating to small, inconspicuous area.
 - a. If specified coating lifts or blisters existing coating, apply barrier or tie coat as recommended by coating manufacturer.
 - b. If no compatible barrier or tie coat exists, remove existing coating completely and apply specified coating.

3.2 PREPARATION

- A. General:
 - 1. Prepare surfaces in accordance with Section 01•70•00.
 - 2. Free surfaces and coatings of following items before applying succeeding coatings:
 - a. Asphalt spatters.
 - b. Chalk.
 - c. Dirt.
 - d. Dust.
 - e. Efflorescence.
 - f. Form release agents.
 - g. Grease.
 - h. Oil.
 - i. Laitance.
 - j. Mildew.
 - k. Moisture.

- l. Mortar spatters.
 - m. Rust.
 - n. Scuff marks.
 - o. Water soluble materials.
 - p. Wax.
 - q. Other substances which would adversely affect:
 - 1) Physical performance of paint.
 - 2) Aesthetic appearance of paint.
 - 3. Clean surface before application of first coat.
 - 4. Apply barrier coats over previously painted surfaces or primed surfaces, where the existing coating is not compatible with specified coating system.
 - 5. Thoroughly dry surface before applying primer.
 - 6. Fill cracks, holes, and blemished areas; finish smooth and flush with adjacent surfaces, then spot prime with finish coating.
 - 7. Remove stains caused by weathering or corroded metals by thorough washing with sodium metasilicate solution after thoroughly wetting with clean water.
 - 8. Scrape or grind protrusions flush with adjoining surface.
 - 9. Surface defects to not be visible when surface is viewed from distance of 3 feet from surface.
- B. Previously Painted Surfaces:
- 1. Remove loose and split caulking (joint sealant); prime as instructed by paint manufacturer.
 - 2. Remove blistered, peeling, chalking, or scaling paint to sound substrate by scraping, sanding, or wire brushing.
 - a. Existing paint is suspected to contain lead.
 - b. Coordinate with Section 02•83•00 for containment, removal, and disposal of lead paint.
 - 3. When Using Paint Removal Compounds:
 - a. Treat surface after use of paint removal compound to neutralize paint removing chemicals.
 - b. Perform tests before using on entire surface to verify that paint will adhere to surface.
 - 4. Thoroughly clean surfaces that exhibit moderate to heavy chalk deposits to sound substrate by wire brushing, sanding, or by power wash; prime surfaces.
 - 5. Sand Surfaces Smooth to Remove:
 - a. Air bubbles.
 - b. Alligatoring.
 - c. Brush hairs.
 - d. Bush marks.
 - e. Cracks.
 - f. Crawls.
 - g. Dry spray.
 - h. Dust.
 - i. Lap marks.
 - j. Pin holes.
 - k. Roller marks.
 - l. Ropiness.
 - m. Runs.
 - n. Sags.
 - o. Skips.
 - p. Streaks.
 - q. Touch marks.
 - r. Other marks and other imperfections which may adversely affect physical performance or aesthetic appearance.
 - 6. Glossy Surfaces:
 - a. Dull by sanding or use of liquid deglossers.

- b. Do not use liquid deglossers on surfaces to be coated with acrylic enamels.
- 7. Repair holes, crevices, and cracks with finishing compound.
- 8. Aggressively sand scarred or chipped spots to feather them flush with surface.
- 9. Thoroughly wash surface with strong detergent solution to remove grease, oil, and soap residue; thoroughly rinse with clean water.
- 10. Sand areas thoroughly to feather edges smooth with adjacent surface.
- 11. Solvent wash surfaces that have been defaced with marking pens, crayons, or lipsticks; then spot prime to control residual "bleeding".
- 12. Thoroughly wash walls and ceilings in kitchens and bathrooms with detergent solution.
- 13. Seal ceilings and walls that exhibit water stains.
- 14. Apply spot primer of "stain killer" compounds to marks which may bleed through surface finishes.
- C. Mildew Removal:
 - 1. Scrub or power wash using commercial mildew removing solution, or solution of trisodium phosphate, water, and bleach.
 - 2. Rinse with clean water.
 - 3. Permit surface to thoroughly dry before commencement of preparation and painting.
- D. Ferrous Metals (Not Galvanized):
 - 1. Clean, in accordance with AMPP-SSPC SP-1, metal surfaces to remove dirt or grease before applying materials.
 - 2. Existing coating may be removed by blasting with dry ice, followed by abrasive wire brushing or sanding.
 - 3. Surfaces with Rust and Scale: Wire brush or sand to bright metal in accordance with AMPP-SSPC SP-2 or AMPP-SSPC SP-3.
 - 4. Remove welding flux, slag, and fume deposit by blast cleaning, washing with water, phosphate rinsing, or power tool cleaning.
 - 5. Remove weld splatters and burrs.
 - 6. Apply primer coats, immediately after preparation, before rust reappears.
 - 7. Clean and touch up marred shop coats of paint with primer.
 - 8. Shop Primed Surfaces:
 - a. Apply primer to shop-primed products where primer does not exist.
 - b. Sand and scrape to remove rust and loose primer.
 - c. Feather edges to make touch up patches inconspicuous.
 - d. Clean surfaces with solvent.
 - e. Prime bare steel surfaces.
 - 9. Factory Finished Surfaces to Be Painted:
 - a. Abrade surface with wet or dry production paper.
 - b. Remove residue with water moistened rags.
- E. New Gypsum Plaster:
 - 1. Cure newly plastered walls and ceilings for at least 30 days under good drying conditions.
 - 2. Spackle cracks, voids, and abrasions in same wall texture, and finish flush to adjoining surfaces.
 - 3. Spot prime repair surfaces before applying overall coat.
- F. New Gypsum Board:
 - 1. Free surfaces of sanding dust.
 - 2. Joint treatment to be thoroughly dry.
 - 3. Fill nicks, scratches, holes and uneven spots with patching compound, sand flush with surface after patching compound dries.
 - 4. Repair damaged and defective surfaces by spackling or by other measures approved by Architect.
 - 5. Apply primer to metal corner bead before applying water-based coatings.
- G. After surface treatment, keep traffic off surface for painting operations.
- H. Protection of In-Place Construction:
 - 1. Protect adjoining surfaces not to be painted against damage or soiling.
 - 2. Mask adjacent areas not to be painted.

3.3 APPLICATION

- A. Apply in accordance with Section 01•70•00.
- B. Use clean uncontaminated paint application tools and equipment.
- C. Factory Primed Items:
 - 1. Certain items will be primed at factories before arriving at job.
 - 2. Factory primed items need not again be primed under this Section, but spot prime areas damaged in transportation and on Project site before applying finish coats of paint.
 - 3. Refer to respective specification sections where extent of priming and preparation is specified.
- D. Items to Remain Unfinished:
 - 1. Metals: Anodized aluminum, brass, bronze, copper, chromium-plated metal, lead, lead-coated copper, Monel metal, stainless steel, plated metals, and factory coated metals.
 - 2. Ceramic tile.
 - 3. Concealed ducts, pipes, and conduit.
 - 4. Decorative laminate surfaces.
 - 5. Door hardware, except primed steel hinges.
 - 6. Electric switch plates, cover plates, and outlet plates.
 - 7. Glass.
 - 8. Light fixtures.
 - 9. Mechanical and electrical equipment, unless specifically indicated to be painted.
 - 10. Operating parts of mechanical and electrical equipment, including valve operators, damper operators, linkages, fusible links, sensing devices, motor shafts, fan shafts, labels and nameplates.
 - 11. Sprinkler heads.
- E. Coats:
 - 1. Quantity of coats specified is minimum quantity acceptable.
 - 2. Quantity of coats specified in this Section is in addition to coats specified under other sections.
 - 3. Apply primer to surfaces, and allow to dry, prior to applying finish coats.
 - 4. Apply primer to prepared surfaces to prevent flash-rusting, rusting, or surface contamination.
 - 5. Apply top coats to primed surfaces with in time frame instructed by manufacturer.
 - 6. Allow each coat of paint to thoroughly dry before applying succeeding coats.
 - 7. Comply with manufacturer's requirements regarding recoat time.
 - 8. Apply each successive coat tinted slightly darker than preceding coat.
 - 9. Vary color of each coat to allow verification and approval of each coat.
 - 10. Coats to be free of:
 - a. Air bubbles, alligatoring, brush hairs, brush marks, cloudiness, cracks, crawls, dry spray, dust, holidays, laps, missed areas, overspray, pin holes, roller marks, ropiness, runs, sags, skips, spotting, streaks, touch marks, other marks, and other imperfections which may adversely affect physical performance or aesthetic appearance.
 - b. Thin spots at fastener heads, plate edges, lap joints, crevices, pockets, corners, and re-entrant angles.
 - c. Damage caused by application on moist surfaces.
 - d. Damage caused by inadequate protection from weather.
 - e. Damage or contamination of paint from wind-borne contaminants, including but not limited to dust, surface blasting materials, and salt spray.
 - 11. Cut in and make edges of paint sharp, with no overlapping, where paint adjoins other materials and where paint colors and gloss levels change.
 - 12. Apply to natural break points, such as corners. Do not stop application in middle of planar surface.

13. Where door frame colors are different on opposite sides of door, change colors at intersection of frame's stop and rabbet where door is mounted to door frame.
 14. Apply material into surface voids and hairline cracks.
 15. Minimum Quantity of Coats, Unless Otherwise Indicated:
 - a. Primer: 1.
 - b. Finish Coats: 2.
 16. Deep Tone Colors, Dark Colors, or Bright Colors: Apply minimum of 4 finish coats to provide complete hide.
- F. Brush, Roll, and Spray Application:
1. Evenly spread and thoroughly brush or roll on, without runs, materials as specified below.
 2. Brush coats on:
 - a. Steel.
 3. Brush or Roll Coats on:
 - a. Exterior surfaces.
 - b. Gypsum plaster.
 4. Exposed structural and other metal at ceilings such as framing members, roof deck, ducts, conduit, and pipes, may be spray painted unless otherwise specified.
 5. Apply to consistent sheen of gloss.
- G. Application Rates and Film Thickness:
1. Apply primer, intermediate, and finish coats to not less than manufacturer instructed wet film thickness and spreading rate for each type of specified material.
 2. Before Applying Succeeding Coats:
 - a. Primers and undercoats to be completely integral and to perform function for which they are specified.
 - b. Prepare and touch up scratches, abrasions, and other disfigurements.
 - c. Feather edge spot priming and spot coating into adjacent coatings to produce smooth and level surface.
 - d. Clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.
 3. Do not double back with spray or paint roller building up film thickness of two coats in one pass.
 4. Apply additional coats where required to obtain manufacturer instructed coverage.
 5. Apply additional coats where undercoats, stains, or other conditions create nonuniform finish, color, or appearance.
- H. Temporary Removal and Re-Installation of Hardware and Miscellaneous Factory Finished Items:
1. Remove:
 - a. Electrical outlet and switch plates.
 - b. Mechanical diffusers, escutcheons, registers, and grilles.
 - c. Surface hardware, fittings, and fastenings.
 - d. Trim for mechanical and electrical equipment and fittings.
 - e. Other factory finished items in areas to be painted.
 - f. Disconnect equipment adjacent to walls, where wall behind equipment is to be painted, and move equipment to permit painting of wall.
 2. Mask:
 - a. Items which cannot be removed.
 - b. Fire-rating labels.
 3. Carefully store and clean each item; do not use cleaning agent detrimental to permanent finishes.
 4. Reinstall and reconnect items upon completion of paint application.
- I. Finish tops, bottoms, and edges of doors and windows same as balance of doors and windows after they are installed.
- J. Paint semi-concealed areas, including but not limited to:
1. Insides of light troughs.
 2. Insides of valances.

3. Ducts behind grilles.
4. Projecting surfaces and edges above and below sight lines.
- K. Finish closets same as adjoining rooms, unless otherwise indicated. Finish other surfaces same as nearest or adjoining surfaces, unless otherwise indicated.
- L. Paint surfaces hidden by movable equipment or furnishings same as adjoining surfaces not hidden by movable equipment or furnishings.

3.4 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Remove from premises rubbish and accumulated materials caused by Work done under this section and leave work area in clean, orderly, and acceptable condition.
- C. Clean up spots, slashes, spatters, drips, stains, and over painting.
- D. Remove masking, drop cloths, signs, and other temporary protective measures.
- E. Touch up holidays, defective areas, and over painted areas.
- F. Touch up application method on particular surface is to match original application method on respective surface.
- G. If paint is applied to an unsatisfactory surface, re-prepare surface to rectify unsatisfactory finish to originally specified surface requirements.
- H. Remove paint not complying with Contract Documents and repainted at no additional expense to Owner.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Install "Wet Paint" signs; remove when paint has dried.
- C. Provide drop cloths in areas where painting is being done.
- D. Protect surrounding areas and surfaces to preclude damage during application of materials.
- E. Replace mechanical and electrical identification labels or nameplate if they are accidentally painted.
- F. Repair damage done to building, or existing building and site, as result of painting operations, repairing or replacing same to condition existing prior to damage.
- G. During progress of materials application, keep premises free from accumulations of unused tools, unused equipment, surplus materials, and debris.
- H. When stopping for end of day, protect painted surfaces by erection of barriers and posting warning signs.
- I. Repair damage caused by failure to provide protection.
- J. Protect completed painted surfaces from marring and damage.
- K. Restore damaged and defective surfaces by recoating surface.

3.6 SCHEDULE OF ITEMS TO BE PAINTED

- A. Surfaces and items as scheduled or indicated on Drawings.
- B. Primed Door Hinges and Hardware; and Other Items, in Painted Areas: Match adjoining surface color.
- C. Shop Primed Items to be Field Finished:
 1. Prime painted metal fabrications.
 2. Steel rails.
 3. Steel stairs.
- D. Doors:
 1. Paint doors different color from door frames, trim, and adjoining wall.
 2. Paint door frames and trim different color from adjoining wall.
- E. Elevator Hoistways:
 1. Elevator Pits: Paint walls below level of lowest landing floor and pit floor in white color.
 2. Elevator Overhead: Where elevator machine is located in top of hoistway, paint walls above level of highest landing floor and underside of overhead structure and deck in white color.
- F. Windows and Fixed Glass Frames:
 1. Paint window sash same color as window frames, trim, and adjoining wall.

2. Paint window frames and trim same color as adjoining wall.
- G. Paint steel stairs, stair railings, and ramp railings different color from adjoining wall.

3.7 SCHEDULE OF GLOSS LEVELS

- A. Interior Locations:
 1. Walls and Ceilings in Following Spaces to Receive Semi-Gloss Paint:
 - a. Toilet rooms.
 2. Walls Not Indicated to Receive Semi-Gloss Paint: Eggshell.
 3. Ceilings Not Indicated to Receive Semi-Gloss Paint: Eggshell.
 4. Painted Door Frames: Semi-Gloss.
 5. Painted Metal Fabrications: Semi-Gloss.
- B. Primed Door Hinges and Hardware; and Other Items, in Painted Areas: Match adjoining surface gloss level.

3.8 COLOR SCHEDULE

- A. Colors: As selected by Architect in following proportions:
 1. Primary Color:
 - a. Quantity of Colors: One.
 - b. Percent of Surfaces to Be Painted: 65.
 2. Accent Colors:
 - a. Quantity of Colors: One
 - b. Percent of Surfaces to Be Painted: 35 percent of surfaces to be painted.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\099100.wpd

SECTION 09•93•00
STAINING AND TRANSPARENT COATINGS

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Division 01 - General Requirements.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM D16, Terminology for Paint and Related Coatings, Materials and Applications.
 - b. ASTM D360, Shellac Varnishes.
 - c. ASTM D523, Specular Gloss.
 - d. ASTM E84, Surface Burning Characteristics of Building Materials.
 - 2. Commercial Item Description (CID):
 - a. CID A-A-378, Putty: Linseed Oil Type, (for Wood Sash Glazing).
- B. Definitions:
 - 1. Use definitions in ASTM D16.
 - 2. Paint:
 - a. Coating applied to decorate, protect, or perform specialized function on surface or substrate.
 - b. Includes primers, emulsions, enamels, sealers, fillers, and other applied materials used as surface preparation, primer coat, intermediate coat, or finish coat.
 - 3. Sheen: Degree of luster as measured with specular gloss meter in accordance with ASTM D523:
 - a. Flat:
 - 1) Measured with 85° meter: 0 to 15.
 - 2) Measured with 60° meter: 0 to 10.
 - b. Eggshell, Velvet, Low Lustre:
 - 1) Measured with 85° meter: 5 to 25.
 - 2) Measured with 60° meter: 2 to 15.
 - c. Satin:
 - 1) Measured with 85° meter: 10 to 40.
 - 2) Measured with 60° meter: 5 to 25.
 - d. Semi-Gloss:
 - 1) Measured with 60° meter: 45 to 65.
 - 2) Measured with 20° meter: 5 to 45.
 - e. Gloss:
 - 1) Measured with 60° meter: 70 to 95+.
 - 2) Measured with 20° meter: 20 to 90.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Before installation by other trades, prime and back prime wood products with wood primer.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:

- a. Submit Stain Product Schedule:
 - 1) Organize by substrates to be stained.
 - 2) Indicate prime coat product name for each substrate.
 - 3) Indicate finish coat product name for each substrate and gloss level.
- b. Submit Product Data for Stain Indicating:
 - 1) Name of manufacturer and products to be used.
 - 2) Brand name or number designation.
 - 3) Color designations.
 - 4) Product description, performance data, and solids content by volume.
 - 5) Mixing, thinning, surface preparation, application instructions and methods.
 - 6) Compatible primers and topcoats.
 - 7) Recommended wet and dry film thicknesses.
 - 8) Location of application area.
- 2. Samples:
 - a. Provide samples of Stain.
 - b. Full range of manufacturer's sample colors for selection.
 - c. Paint-Outs:
 - 1) Size: Not less than 8 inches by 10 inches.
 - 2) Identify with color name and number; product name and number; location of application area.
 - 3) Indicate each coat of stain/transparent finish on wood, with sheen, color, and texture to simulate actual conditions.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
- D. Maintenance Material Submittals:
 - 1. Extra Materials:
 - a. Furnish under provisions of Section 01•70•00.
 - b. Furnish extra stain/transparent finish in quantity equal to 2 percent of total material furnished but not less than 2 gallons of each type, color, and size.
 - c. Label containers with room location manufacturer's name, brand, batch number, custom color mix formula, and texture.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 20 years.
- B. Applicator Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- C. Field Samples:
 - 1. Comply with Section 01•45•00.
 - 2. Sample Installation:
 - a. Apply stain/transparent finish sample panel 1 by 1 foot as directed.
 - b. Wood Stain/Transparent Finish:
 - 1) Apply to sample wood trim.
 - 2) Show colors, coat layers, sheen, and application techniques.

1.6 DELIVERY, HANDLING, AND STORAGE

- A. Comply with Section 01•60•00.
- B. Deliver to site in manufacturer's sealed containers, marked with brand name, product description by generic type, color name and number, brand code, content by volume of pigment and vehicle constituents, volatile organic compound content, date of manufacture, coverage, surface preparation, drying time, mixing instructions, reducing instructions, and application instructions.
- C. Deliver to site ready mixed, unless stain/transparent finish manufacturer requires field mixing of product.

- D. Store stain/transparent finish materials in safe, clean, and dry location.
- E. Store stain/transparent finish materials within temperature range instructed by manufacturer.
- F. Store stain/transparent finishing materials not in use in tightly covered and sealed containers.
- G. Maintain containers used in storing, mixing, and applying stain/transparent finish in clean condition free of deleterious materials or residue.

1.7 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Air and surface temperatures to be within range instructed by stain/transparent finish manufacturer.
 - 2. Meet or exceed ventilation requirements of stain manufacturer.
 - 3. Enclose and maintain interior spaces being stain/transparent finished free from dust and other airborne particulates.
 - 4. Surfaces to be clean, dry, smooth, free from:
 - a. Frost.
 - b. Other materials which may adversely affect physical performance or aesthetic appearance of stain/transparent finish.
 - 5. Do not apply stain/transparent finish to surfaces:
 - a. Which are frozen.
 - b. While they are exposed directly to direct sunlight.
 - 6. Do not apply stain/transparent finish to exterior surfaces:
 - a. During windy weather conditions.
 - b. In damp, misty, foggy, rainy, or snowy weather.
 - c. When humidity level exceeds 85 percent.
 - d. When humidity level exceeds requirements of paint manufacturer.
 - e. When surface temperature is within 5°F of dew point.
 - f. When precipitation is probable.
 - 7. Do not apply stain/transparent finish to interior surfaces:
 - a. When humidity level exceeds 85 percent.
 - b. When humidity level exceeds requirements of paint manufacturer.
 - c. When surface temperature is within 5°F of dew point.

2.0 PRODUCTS

2.1 STAINS AND TRANSPARENT FINISHES FOR WOOD

- A. Materials:
 - 1. Interior Finish:
 - a. Water-based polyurethane.
 - b. Gloss Level: Satin.
 - c. Clear finish over stain.
 - d. Stain Color: Match existing stained wood doors.
 - e. Quantity of Coats:
 - 1) Stain: One coat.
 - 2) Clear Finish: 2 coats.
 - 2. Factory-mixed, ready for application.
 - 3. Match colors chosen by Architect, from stain/transparent finish manufacturer of Architect's choice, by Contractor's submitted stain/coating manufacturer.
 - 4. Designate material for each coat, location, and usage for intended purpose by manufacturer, as specifically stated in manufacturer's published specifications.
 - 5. Where shop-primed materials are to be finish stained/transparent finished or prime coat materials are by different stain/transparent finish manufacturer, verify compatibility of primers with manufacturer of finish coat stain/coatings.
 - 6. Flame Spread Index, Determined in Accordance with ASTM E84: Not exceed 25.
 - 7. Volatile Organic Compound Limits:

- a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for:
 - 1) Interior Location: Interior Stain.
 - 2) Colorants: Colorant — Architectural Coating Excluding Industrial Maintenance Coatings.
- 8. Single Source Responsibility: Furnish each stain and transparent coating product from one manufacturer, unless otherwise acceptable to Architect.
- B. Acceptable Manufacturers and Products for Interior Surfaces:
 - 1. Benjamin Moore; Montvale, NJ:
 - a. Prime Coating: Benwood Waterborne Interior Wood Stain.
 - b. Finish Coating: Benwood Stays Clear Polyurethane Finish.
 - 2. McCormick Paints; Rockville, MD:
 - a. Prime Coating: Interior Penetrating Alkyd Wood Stain.
 - b. Finish Coating: McPolythane Clear Polyurethane Finish.
 - 3. Minwax; Upper Saddle River, NJ:
 - a. Surface Conditioner: Pre-Stain Wood Conditioner.
 - b. Finish Coating: PolyShades 275 VOC Compliant.
 - 4. PPG Architectural Coatings — Deft; Pittsburgh, PA:
 - a. Prime Coating: 300 Interior Water Based Wood Stain.
 - b. Finish Coating: Polyurethane Interior Water-Based Acrylic.
 - 5. Samuel Cabot and Sons; Newburyport, ME:
 - a. Prime Coating: Polystain.
 - b. Finish Coating: Waterborne Polyurethane.
 - 6. Sherwin Williams; Cleveland, OH:
 - a. Prime Coating: Wood Classics 250 VOC Interior Oil Stain.
 - b. Finish Coating: Wood Classics Waterborne Polyurethane Varnish.

2.2 ACCESSORIES

- A. Wood Putty:
 - 1. CID A-A-378.
 - 2. Whiting putty.
- B. Shellac Varnish:
 - 1. ASTM D360.
 - 2. Volatile Organic Compound Limits:
 - a. Determine in accordance standard specified in Section 01•41•00 for Architectural, Industrial, and Maintenance Coatings.
 - b. Maximum Value: As stated in Section 01•41•00 under Architectural, Industrial, and Maintenance Coatings for:
 - 1) Clear: Shellac — Clear.
 - 2) Pigmented: Shellac — Pigmented.
- C. Plastic Wood:
 - 1. Commercial Grade wood filler with color to match wood specie.
 - 2. Blended silica and wood fibers in latex resin.
- D. Fillers, Thinners, Oils: Comply with paint manufacturer's requirements.

2.3 MIXES

- A. Perform intermixing or thinning in accordance with manufacturer's directions.
- B. Factory mix colors and exactly match Architect-accepted samples. Site tinting is not permitted.
- C. Do not use mixed material beyond manufacturer's recommended pot life.
- D. Stirring Materials:
 - 1. Perform before application to produce mixture of uniform density.
 - 2. Perform in accordance with manufacturer's requirements as materials are applied.
 - 3. If film forms on surface of material in container:

- a. Do not stir film into material.
- b. Remove film and strain material to remove solidified liquid components.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Perform moisture meter tests of surfaces prior to commencement of application.
- C. Verify, by use of an electronic moisture meter, that substrate moisture does not exceed following values:
 - 1. Common Stock Wood Boards and Dimension Lumber: 19 percent.
 - 2. : 7 percent average with 5 percent to 10 percent range permitted in individual pieces.
- D. Do not apply materials when moisture levels exceed specified amounts and manufacturer instructed levels.
- E. Examine surfaces scheduled to receive stain/transparent finish for conditions that will adversely affect application, permanence, and aesthetic appearance; rectify unacceptable conditions.
- F. Stain/Transparent finishing of surfaces with textures not complying with specified requirements indicates acceptance of surfaces and costs for refinishing and repainting are to be borne by Contractor.
- G. Staining/Coating of surfaces with textures not complying with specified requirements indicates acceptance of surfaces and costs for refinishing, restaining, and coating are to be borne by Contractor.

3.2 PREPARATION

- A. General:
 - 1. Prepare surfaces in accordance with Section 01•70•00.
 - 2. Free surfaces and coatings of following items before applying succeeding coatings:
 - a. Asphalt spatters.
 - b. Chalk.
 - c. Dirt.
 - d. Dust.
 - e. Efflorescence.
 - f. Form release agents.
 - g. Grease.
 - h. Oil.
 - i. Laitance.
 - j. Mildew.
 - k. Moisture.
 - l. Mortar spatters.
 - m. Rust.
 - n. Scuff marks.
 - o. Water soluble materials.
 - p. Wax.
 - q. Other substances which would adversely affect:
 - 1) Physical performance of paint.
 - 2) Aesthetic appearance of paint.
 - 3. Clean surface before application of first coat.
 - 4. Thoroughly dry surface before applying primer.
 - 5. Sand wood surfaces smooth.
 - 6. Fill cracks, holes, and blemished areas; finish smooth and flush with adjacent surfaces, then spot prime with finish coating.
 - 7. Remove stains caused by weathering or corroded metals by thorough washing with sodium metasilicate solution after thoroughly wetting with clean water.
 - 8. Scrape or grind protrusions flush with adjoining surface.

9. Surface defects to not be visible when surface is viewed from distance of 3 feet from surface.
- B. Mildew Removal:
 1. Scrub or power wash using commercial mildew removing solution, or solution of trisodium phosphate, water, and bleach.
 2. Rinse with clean water.
 3. Permit surface to thoroughly dry before commencement of preparation and stain/transparent finishing.
- C. Wood:
 1. New Construction:
 - a. Interior Locations:
 - 1) Surfaces to be Stain/transparent Finished:
 - a) Putty nail holes, cracks, and blemishes after prime coat has been applied.
 - b) Coat knots before overall coat is applied.
 - c) Remove dust, dirt, and surface contaminants prior to priming.
 2. Previously Stained/Coated:
 - a. Interior:
 - 1) Stained:
 - a) Aggressively clean previously stained, or unstained weathered surfaces with stiff non-metallic fiber brush to remove "dead" wood fibers.
 - b) Nail loose or warped wood flush with surface using coated nails.
 - D. After surface treatment, keep traffic off surface for painting operations.
 - E. Protection of In-Place Construction:
 1. Protect adjoining surfaces not to be stain/transparent finished against damage or soiling.
 2. Mask adjacent areas not to be stain/transparent finished.
 3. Protect surrounding landscaping and adjacent surfaces from overspray or residue run-off.

3.3 APPLICATION

- A. Apply in accordance with Section 01•70•00.
- B. Use clean uncontaminated stain/transparent finish application tools and equipment.
- C. Factory Primed Items:
 1. Certain items will be primed at factories before arriving at job.
 2. Factory primed items need not again be primed under this Section, but spot prime areas damaged in transportation and on Project site before applying finish coats of stain/transparent finish.
 3. Refer to respective specification sections where extent of priming and preparation is specified.
 4. ; Door Frames; Doors: May be pre-finished or dipped in stain. Refer to respective specification sections.
- D. Items to Remain Unfinished:
 1. Metals: Anodized aluminum, brass, bronze, copper, chromium-plated metal, lead, lead-coated copper, Monel metal, stainless steel, plated metals, and factory coated metals.
 2. Ceramic tile.
 3. Concealed ducts, pipes, and conduit.
 4. Decorative laminate surfaces.
 5. Door hardware, except primed steel hinges.
 6. Electric switch plates, cover plates, and outlet plates.
 7. Glass.
 8. Light fixtures.
 9. Mechanical and electrical equipment, unless specifically indicated to be stain/transparent finished.

10. Operating parts of mechanical and electrical equipment, including valve operators, damper operators, linkages, fusible links, sensing devices, motor shafts, fan shafts, labels and nameplates.
11. Sprinkler heads.
- E. Wood Filler Application:
 1. Tint filler to match stain when clear finish is specified.
 2. Work filler well into grain.
 3. Before filler has set, work surface perpendicularly to grain.
 4. Wipe off excess filler.
 5. Filling Open Grain Wood Product Surfaces:
 - a. Fill surfaces to reflect grain contours, for following items:
 - 1) Wood doors.
- F. Priming and Back Priming Wood Products:
 1. Before installation by other trades, prime and back prime wood products with wood primer stain/transparent finish.
 2. After doors are fitted are fitted to frames, but prior to installation by other trades, apply not less than one coat of wood primer stain/transparent finish and one coat of finish stain/transparent finish to top and bottom of each door.
 3. After windows and sash are fitted to frames, but prior to installation by other trades, apply not less than one coat of wood primer stain/transparent finish to concealed ends and edges.
 4. Surfaces to Receive Transparent Stain Finish: Prior to installation by other trades, prime and back prime with first coat of finish stain/coating to faces, edges, and ends.
 5. Surfaces to Receive Stain Finish:
 - a. Before installation by other trades, prime and back prime wood products:
 - 1) At Exterior Surfaces:
 - a) With stain.
 - 2) At Interior Surfaces:
 - a) With stain.
 - b. After doors are fitted are fitted to frames, but prior to installation by other trades, apply to top and bottom of each door of following options:
 - 1) Two coats of slightly pigmented stain.
 - 2) Architect accepted resin based sealer.
 - 3) Interior Doors Only: Two coats of resin or lacquer sealer, as applicable to systems specified for finish coat.
 - c. After windows and sash are fitted to frames, but prior to installation by other trades, apply not less than one coat of raw linseed oil, or Architect accepted resin based sealer, to concealed ends and edges.
- G. Coats:
 1. Quantity of coats specified is minimum quantity acceptable.
 2. Quantity of coats specified in this Section is in addition to coats specified under other sections.
 3. Apply primer to surfaces, and allow to dry, prior to applying finish coats.
 4. Apply top coats to primed surfaces with in time frame instructed by manufacturer.
 5. Allow each coat of stain/transparent finish to thoroughly dry before applying succeeding coats.
 6. Comply with manufacturer's requirements regarding recoat time.
 7. Apply each successive coat tinted slightly darker than preceding coat.
 8. Vary color of each coat to allow verification and approval of each coat.
 9. Coats to be free of:
 - a. Air bubbles, alligatoring, brush hairs, brush marks, cloudiness, cracks, crawls, dry spray, dust, holidays, laps, missed areas, overspray, pin holes, roller marks, ropiness, runs, sags, skips, spotting, streaks, touch marks, other marks, and other imperfections which may adversely affect physical performance or aesthetic appearance.

- b. Thin spots at fastener heads, plate edges, lap joints, crevices, pockets, corners, and re-entrant angles.
 - c. Damage caused by application on moist surfaces.
 - d. Damage caused by inadequate protection from weather.
 - e. Damage or contamination of stain/transparent finish from wind-borne contaminants, including but not limited to dust, surface blasting materials, and salt spray.
- 10. Cut in and make edges of stain/transparent finish sharp, with no overlapping, where stain/transparent finish adjoins other materials and where stain/transparent finish colors and gloss levels change.
- 11. Apply to natural break points, such as corners. Do not stop application in middle of planar surface.
- 12. Where door frame colors are different on opposite sides of door, change colors at intersection of frame's stop and rabbet where door is mounted to door frame.
- 13. Apply material into surface voids and hairline cracks.
- 14. Make edges of stain/coating sharp, with no overlapping, where stain/coating adjoins other materials and where colors change.
- 15. Deep Tone Colors, Dark Colors, or Bright Colors: Apply minimum of 4 finish coats to provide complete hide.
- H. Brush, Roll, and Spray Application:
 - 1. Evenly spread and thoroughly brush or roll on, without runs, materials as specified below.
 - 2. Brush coats on:
 - a. Wood trim.
 - 3. Brush or Roll Coats on:
 - a. Exterior surfaces.
 - 4. Apply to consistent sheen of gloss.
- I. Application Rates and Film Thickness:
 - 1. Apply primer, intermediate, and finish coats to not less than manufacturer instructed wet film thickness and spreading rate for each type of specified material.
 - 2. Before Applying Succeeding Coats:
 - a. Primers and undercoats to be completely integral and to perform function for which they are specified.
 - b. Prepare and touch up scratches, abrasions, and other disfigurements.
 - c. Feather edge spot priming and spot coating into adjacent coatings to produce smooth and level surface.
 - d. Sand surfaces lightly between coats to achieve anchor for succeeding coat. Remove sanding dust prior to application of succeeding coat.
 - e. Clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.
 - 3. Do not double back with spray or paint roller building up film thickness of two coats in one pass.
 - 4. Apply additional coats where required to obtain manufacturer instructed coverage.
 - 5. Apply additional coats where undercoats, stains, or other conditions create nonuniform finish, color, or appearance.
- J. Temporary Removal and Re-Installation of Hardware and Miscellaneous Factory Finished Items:
 - 1. Remove:
 - a. Electrical outlet and switch plates.
 - b. Mechanical diffusers, escutcheons, registers, and grilles.
 - c. Surface hardware, fittings, and fastenings.
 - d. Trim for mechanical and electrical equipment and fittings.
 - e. Other factory finished items in areas to be stain/transparent finished.

- f. Disconnect equipment adjacent to walls, where wall behind equipment is to be stain/transparent finished, and move equipment to permit stain/transparent finishing of wall.
- 2. Mask:
 - a. Items which cannot be removed.
 - b. Fire-rating labels.
- 3. Carefully store and clean each item; do not use cleaning agent detrimental to permanent finishes.
- 4. Reinstall and reconnect items upon completion of stain/transparent finish application.
- K. Finish tops, bottoms, and edges of doors and windows same as balance of doors and windows after they are installed.
- L. Stain/transparent finish semi-concealed areas, including but not limited to:
 - 1. Insides of light troughs.
 - 2. Insides of valances.
 - 3. Ducts behind grilles.
 - 4. Projecting surfaces and edges above and below sight lines.
- M. Finish closets same as adjoining rooms, unless otherwise indicated. Finish other surfaces same as nearest or adjoining surfaces, unless otherwise indicated.
- N. Stain/transparent finish surfaces hidden by movable equipment or furnishings same as adjoining surfaces not hidden by movable equipment or furnishings.

3.4 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Remove from premises rubbish and accumulated materials caused by Work done under this section and leave work area in clean, orderly, and acceptable condition.
- C. Clean up spots, slashes, spatters, drips, stains, and over stain/transparent finishing.
- D. Remove masking, drop cloths, signs, and other temporary protective measures.
- E. Touch up holidays, defective areas, and over stain/transparent finished areas.
- F. Touch up application method on particular surface is to match original application method on respective surface.
- G. If stain/transparent finish is applied to an unsatisfactory surface, re-prepare surface to rectify unsatisfactory finish to originally specified surface requirements.
- H. Remove stain/transparent finish not complying with Contract Documents and refinished at no additional expense to Owner.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.
- B. Install "Wet Paint" signs; remove when stain/transparent finish has dried.
- C. Provide drop cloths in areas where stain/transparent finishing is being done.
- D. Protect surrounding areas and surfaces to preclude damage during application of materials.
- E. Replace mechanical and electrical identification labels or nameplate if they are accidentally stain/transparent finished.
- F. Repair damage done to building, or existing building and site, as result of stain/transparent finishing operations, repairing or replacing same to condition existing prior to damage.
- G. During progress of materials application, keep premises free from accumulations of unused tools, unused equipment, surplus materials, and debris.
- H. When stopping for end of day, protect stain/transparent finished surfaces by erection of barriers and posting warning signs.
- I. Repair damage caused by failure to provide protection.
- J. Protect completed stain/transparent finished surfaces from marring and damage.
- K. Restore damaged and defective surfaces by recoating surface.

3.6 SCHEDULE OF ITEMS TO BE STAINED/COATED

- A. Wood Items to be Stained:
 - 1. Wood doors.

3.7 COLOR SCHEDULE

A. Wood Stain Colors:

1. Interior Locations:

- a. Wood Door: Match existing wood doors.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\099300.wpd

SECTION 10•14•00
SIGNAGE

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.

1.2 REFERENCES

- A. Reference Standards:
 - 1. United States Department of Justice (ADAAG):
 - a. ADAAG, 28 CFR Part 36, Appendix A. Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit for Fire-Rated Wall Signs:
 - 1) Indicate units and designs selected.
 - 2) Color chart for finish indicating manufacturer's colors available for selection.
 - b. Submit for Wayfinding Signs:
 - 1) Indicate units and designs selected.
 - 2) Color chart for finish indicating manufacturer's colors available for selection.
 - 3) Sign list based upon sign location requirements specified in Schedule at end of Section. Sign room number and room name in submitted list to be room number and room name indicated on Drawings.
 - 2. Shop Drawings:
 - a. Submit for Wayfinding Signs Indicating:
 - 1) Indicate units and designs selected.
 - 2) Color chart for finish indicating manufacturer's colors available for selection.
 - 3) Sign list based upon sign location requirements specified in Schedule at end of Section. Sign room number and room name in submitted list to be room number and room name indicated on Drawings.
 - 4) Typography sample for copy.
 - 3. Samples:
 - a. Submit for Room Identification Signs:
 - 1) One Full Size Sample of:
 - a) Directional sign.
 - b) Wayfinding sign.
 - 2) Illustrate font style, size, border, and color, in addition to background color and method of attachment.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.
- B. Package room signs separately or in like groups of names, labeled as to names enclosed. Include installation template, attachment system, and installation instructions.

1.7 FIELD CONDITIONS

- A. Ambient Conditions: Do not install interior room signs until ambient temperature has reached that recommended by sign manufacturer and will be maintained at that temperature during and after installation of signs.

1.8 WARRANTY

- A. Comply with Section 01•70•00.
- B. Warrant installed units to be free from defects in material and workmanship for 3 years.

2.0 PRODUCTS

2.1 FIRE-RATED AND SMOKE BARRIER WALL SIGNS

- A. Plastic laminate sheet with permanent letters. Handwritten letters or numbers are not permitted
- B. Text Style: Helvetica or other sans serif style.
- C. Text Height: Minimum 3 inches.
- D. Text Stroke Width: Minimum 3/8 inch.
- E. Color: Red letters on white background or white letters on red background.
- F. Wall rating text value to equal to respective wall's hourly fire-rating.
- G. Text Message for Fire-Rated Wall Signs; 3 Lines per Sign:
 - 1. FIRE-RATED WALL.
 - 2. WALL RATING IN HOURS: 1.
 - 3. FIRESTOP ALL PENETRATIONS.
- H. Text Message for Smoke-Rated Wall Signs; 3 Lines per Sign:
 - 1. SMOKE-RATED WALL.
 - 2. WALL RATING IN HOURS: 1.
 - 3. FIRESTOP ALL PENETRATIONS.

2.2 WAYFINDING SIGNAGE

- A. Plastic Sign Materials:
 - 1. Base Material:
 - a. Solid Acrylic.
 - 2. Base Thickness: 1/8 inch.
 - 3. Face Material: Matte acrylic or polycarbonate, back painted.
- B. Manufactured Units:
 - 1. Size:
 - a. Face: Minimum width and height to contain sign text, graphic, and text free border.
 - b. Sign Text:
 - 1) Content as specified for each sign.
 - 2) Size as specified for each sign.

- c. Graphic: None.
- d. Text Free Border:
 - 1) Provide around sign panel edge.
 - 2) Width: 1 inch.
- e. Line Border: None.
- 2. Corners: Square.
- 3. Mounting:
 - a. Flush mounted on wall.
 - b. Methods:
 - 1) Double-sided foam tape, with permanent adhesive as recommended by sign manufacturer for applicable substrates.
- 4. Colors:
 - a. Border and Insert Colors: As selected by Architect from manufacturer's standard colors.
 - b. Tactile Letters, Numbers, and Symbols Color: As selected by Architect.
- 5. Typeface:
 - a. Type Style: Helvetica.
 - b. Type Code: Uppercase.
 - c. Type Size:
 - 1) Caution Signs:
 - a) Text Signs: 4 inches.
 - b) Graphic Signs: As indicated on graphic image for sign.
 - 2) Wayfinding Signs:
 - a) Text Signs: 4 inches.
 - b) Graphic Signs: As indicated on graphic image for sign.
- 6. Fabricate units to configurations indicated on approved submittals.
- 7. Tactile Letters, Symbols, and Pictograms:
 - a. Copy: Laser or machine-cut precise characters with square cut edges free from irregularities.
 - b. Comply with ADAAG Paragraph 703.2 for raised characters, symbols, and pictograms.
 - c. Bond copy securely to signs.
- 8. Braille: Computer-generated precision embossed Grade 2 Braille conforming to ADAAG Paragraph 703.3.
- 9. Seal each individual sign unit in polyethylene bag.
- 10. Plastic Signs:
 - a. Plastic back panel with separate back painted plastic face, integral raised Braille on face, and tactile letters and symbols.
 - b. Graphics: Precision-cut graphics applied to subsurface of lens set in backing panel.
 - c. Edge Treatment: Plain.
 - d. Apply border colors to second surface of face material using photographic screen printing process.
 - e. Provide copy indicated on approved submittals.
- 11. Provide each as complete unit, including accessory items necessary for specified function.
- C. Sign Schedule:
 - 1. Text:
 - a. As indicated on Drawings.
 - b. Spell out full words in place of abbreviations.
 - 2. Provide sign where indicated, with tactile and braille room name.
 - 3. Do not provide signs for areas not included in work scope.
 - 4. Caution Signs:
 - a. Provide at Men's Restroom 289.
 - b. Text:
 - 1) CAUTION.

- 2) STEP DOWN.
 - c. Pictograms: As indicated on Drawings.
 - D. Wayfinding Schedule:
 - 1. See Drawings for directional and informational signs.
 - 2. Directional Signs:
 - a. Show direction to the unisex accessible toilet room.
- 2.3 ACCESSORIES
- A. Accessories: Manufacturer's standard accessories for types of signs.
- 3.0 EXECUTION
- 3.1 EXAMINATION
- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
 - B. Verify that substrates are completely finished and ready to receive signage before beginning installation.
- 3.2 PREPARATION
- A. Prepare in accordance with Section 01•70•00 for specified attachment of signs.
 - B. Protection of In-Place Construction: Protect adjacent areas during interior room sign installation; take special precautions as necessary to prevent adhesives from coming into contact with finished surfaces.
- 3.3 INSTALLATION
- A. Install in accordance with Section 01•70•00, and approved submittals.
 - B. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with adjacent surfaces.
 - C. Install signs after surfaces to which they are to be mounted have been completely finished.
 - D. Install in locations indicated on drawings and in conformance to applicable regulatory requirements.
 - E. Masonry Walls:
 - 1. Place anchors into mortar joints.
 - 2. Do not anchor signs into masonry units.
 - F. Fire-Rated Wall Signs:
 - 1. Provide sign with fire-rating hour value equal to respective wall's hourly fire-rating.
 - 2. Locate on each side of fire rated walls:
 - a. Above accessible ceilings. Includes gypsum board ceilings with access panels within 5 feet of wall.
 - b. Below accessible flooring.
 - c. In attic spaces.
 - 3. Mount with bottom not more than 6 inches above top of ceiling framing.
 - 4. Mount so signs are not hidden by pipes, ducts, conduits, or cable trays.
 - 5. Provide on fire-rated walls at each room.
 - 6. Locate not further than 15 feet horizontally from end of each segment of wall within each room.
 - 7. Space not more than 30 feet horizontally apart along each segment of wall within each room.
 - 8. Sequence installation so signs are installed on walls prior to installing permanent inaccessible ceilings.
 - 9. Mechanically fasten to wall using screw fasteners suitable for anchoring to wall substrate.
 - 10. Adhering to wall with adhesive strips is not permitted.
 - G. Room Signs:
 - 1. Mounting Height, Unless Otherwise Specified:
 - a. Mount so bottom of bottom row of letters is at least 48 inches above floor surface.

- b. Mount so bottom of top row of letters is not more than 60 inches above floor surface.
 - 2. Directional and Wayfinding Signs:
 - a. Provide at locations indicated on Drawings.
 - 3. Room Signs:
 - a. Mount on entrance side of doorway opening to room.
 - b. Mount on strike jamb, readily visible when door is open.
 - c. Place in location where person can approach within 3 inches of sign without entering door swing area.
 - 4. Toilet Room Signs: Mount in same manner as room signs.
 - 5. Caution Sign:
 - a. Mount as indicated on Drawings.
- H. Other Signs: Mount where indicated on drawings.

3.4 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Replace signs that cannot be cleaned satisfactorily.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.

END OF SECTION

\\MGA.com\mga_files\Proj_Ball\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\101400.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 10•21•00
COMPARTMENTS AND CUBICLES

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for compartments, indicating:
 - 1) Panel construction
 - 2) Hardware
 - 3) Accessories
 - b. Submit color charts for finish indicating manufacturer's colors available for selection.
 - 2. Shop Drawings:
 - a. Submit shop drawings of compartments indicating:
 - 1) Partition plan.
 - 2) Partition elevation views.
 - 3) Dimensions.
 - 4) Details of supports.
 - 3. Samples:
 - a. Final Approval Sample Size: 6 by 6 inches.
 - b. Final Approval Sample Quantity: 2.
 - c. Final Approval Sample Illustrates Panel:
 - 1) Finish.
 - 2) Color.
 - 3) Sheen.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.

2.0 PRODUCTS

2.1 METAL COMPARTMENTS

- A. Description:
 - 1. Baked Enamel Finished or Powder Coated Sheet Steel:
 - a. ASTM A653 commercial quality, with ASTM A924 G90 zinc coating.
 - b. Panel and Door Faces: 0.034 inches (20 gauge).
 - c. Pilaster Faces: 0.045 inches (18 gauge).
 - d. Reinforcement: 0.102 inches (12 gauge).
 - e. Finish:
 - 1) Clean, degrease, and neutralize panels.
 - 2) Baked Enamel Finished: Follow with phosphatizing treatment, prime coat and two finish coats baked enamel or polyurethane paint.

- 3) Powder Coated: TGIC Polyester or Super-Durable Polyester powder coating.
 - 4) Colors as selected.
 - 2. Head Rails:
 - a. Hollow Tube Material: Aluminum.
 - b. Size: 1 by 1-5/8 inches.
 - c. Cast socket wall brackets.
 - d. Anti-grip strips.
 - 3. Attachment, Screws, and Bolts:
 - a. Stainless steel.
 - b. Tamper-proof type.
 - c. Heavy duty extruded aluminum brackets.
 - 4. Panels and Pilasters:
 - a. Form and close edges, miter and weld corners, grind smooth.
 - b. Sheet steel face, pressure bonded to sound deadening core.
 - c. Pilasters:
 - 1) Construct same as doors.
 - 2) Construct of sizes required to suit compartment width and spacing.
 - 5. Pilaster Shoes:
 - a. ASTM A240, UNS S30400 stainless steel.
 - b. Finish: Brushed; Number 4.
 - 6. Internal Reinforcement:
 - a. Provide in areas of attached hardware and fittings.
 - b. Mark locations of reinforcement for partition mounted washroom accessories.
- B. Acceptable Manufacturers:
 - 1. Accurate Partitions; Lyons, IL.
 - 2. ASI—Global Partitions; Eastanollee, GA.
 - 3. Hadrian, Inc.; Mentor, OH.
 - 4. Metpar Corporation; Westbury, NY.

2.2 FABRICATION

- A. Fabricate as floor mounted with headrail bracing.
- B. Urinal Screen Size:
 - a. Width: 24 inches; but not less than 6 inches beyond outermost front lip of urinal.
 - b. Height: 48 inches.
 - c. Bottom: Not more than 12 inches above floor.
 - d. Top: Not less than 60 inches above floor.
- C. Panel Joints:
 - 1. Fabricate without sight lines through gaps between:
 - a. Partition panels and pilasters.
 - b. Partition panels and walls.
 - 2. Fabricate with no sight line hardware.
- D. Single Source Responsibility:
 - 1. Furnish components from one manufacturer, unless otherwise acceptable to Architect.
 - 2. Provide each compartment as complete unit, including accessory items necessary for specified function.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.
- B. Verify that site conditions are ready to receive work and opening dimensions are as indicated on shop drawings.
- C. Verify correct spacing of plumbing fixture
- D. Verify correct location of built-in framing, anchorage, and bracing where required.

3.2 INSTALLATION

- A. Install in accordance with Section 01•70•00, and approved submittals.
- B. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
- C. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.
- D. Attach panel brackets securely to walls using anchor devices.
- E. Attach panels and pilasters to bracket with through sleeve tamper-proof bolts and nuts.
- F. Locate headrail joints at pilaster center lines.
- G. Urinal Screen Panels:
 - 1. Anchor urinal screen panels to wall with two panel brackets.
- H. Floor Mounted Partitions:
 - 1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.
 - 2. Conceal floor fastening with pilaster shoe.

3.3 ADJUSTING

- A. Adjust operable parts in accordance with Section 01•70•00.
- B. Adjust and align hardware to uniform clearance at vertical edge of doors not exceeding 3/16 inch.

3.4 CLEANING

- A. Clean in accordance with Section 01•70•00.
- B. Remove protective masking.
- C. Clean surfaces.
- D. Field touch up of scratches or damaged enamel finish will not be permitted.
- E. Replace damaged or scratched materials and with new materials.

3.5 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\102100.wpd

THIS PAGE IS INTENTIONALLY BLANK

SECTION 14•40•00
LIFTS

1.0 GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Conditions of the Contract.
 - 2. Drawings.
 - 3. Division 01 - General Requirements.
 - 4. Division 26 - Electrical.

1.2 REFERENCES

- A. Reference Standards:
 - 1. American Society of Mechanical Engineers (ASME):
 - a. ASME A18.1, Platform Lifts and Stairway Chairlifts.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Sequence work under provisions of Section 01•10•00.
 - 2. Coordinate electrical power connections with Division 26.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01•33•00.
- B. Submittals for Review by Architect:
 - 1. Product Data:
 - a. Submit product data for wheelchair lift.
 - b. Submit color charts for finish indicating manufacturer's colors available for selection.
 - 2. Shop Drawings:
 - a. Submit shop drawings for wheelchair lift.
- C. Closeout Submittals:
 - 1. Submit under provisions of Section 01•70•00.
 - 2. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.
- B. Installer Qualifications:
 - 1. Comply with Section 01•43•00.
 - 2. Minimum duration of experience 10 years.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01•60•00.

2.0 PRODUCTS

2.1 PERFORMANCE / DESIGN CRITERIA

- A. General: In addition to requirements shown or specified, comply with applicable provisions of ASME A18.1 for design, materials, fabrication, and installation of component parts.

- B. Design Requirements:
 - 1. Manufacturer is responsible for designing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.
 - 2. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
 - 3. Provide concealed fastening wherever possible.
 - 4. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between supporting construction and units.
- C. Interface With Adjacent Systems:
 - 1. Integrate design and connections with adjacent construction.
 - 2. Accommodate allowable tolerances and deflections for structural members in installation.
- D. Single Source Responsibility:
 - 1. Furnish each units from one manufacturer, unless otherwise acceptable to Architect.
 - 2. Provide each lift as complete unit, including accessory items necessary for specified operation.

2.2 WHEELCHAIR LIFT

- A. Acceptable Manufacturers and Products:
 - 1. AmeriGlide Inc.; Raleigh, NC: Hercules 750.
 - 2. Savaria; Brampton, ON: V1504.
 - 3. Bedco Mobility; Baltimore, MD: Genesis Opal.
- B. Basis of Design:
 - 1. Savaria; Brampton, ON: V1504.
- C. Description:
 - 1. Capacity: 750 pounds.
 - 2. Minimum Travel Speed: 10 ft/min.
 - 3. Motor: 115 volts, 10 amps, 1/2 horsepower with 1750 rpm instant reverse capability.
 - 4. Quantity of Stops: 2.
 - 5. Provide with manufacturer's standard structural frame, structural tube barrier frame, steel carriage, and side and front guard panels.
 - 6. Platform Surface: Non-slip finish.
 - 7. Provide with electro-mechanical brake.
 - 8. Drive: Ball screw or cable-hydraulic.
 - 9. Controls:
 - a. Grounded electrical system with upper, lower, and final limit switches.
 - b. Low voltage operating controls.
 - c. Platform: On/off key switch; constant pressure controls; emergency stop switch.
 - d. Landings: Call/send buttons.
 - e. Emergency stop switch which shuts off power to lift and sounds audio alarm.
 - f. Provide with manual lowering device capable of raising or lowering platform in event of power or component failure.
 - g. Provide with electric interlock to control opening of landing gates and to permit platform movement only when gates are closed and locked.
 - 10. Gates:
 - a. Size:
 - 1) Width: 36 inches.
 - 2) Height: 42 inches.
 - b. Provide with gate closer, hinges, and electric strike.
 - 11. Provide with grab rail for rider on platform.
 - 12. Provide with obstruction sensor on platform bottom.
 - 13. Metal Finish: Baked polyester paint finish; color selected by Architect.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with work in accordance with Section 01•70•00.

3.2 INSTALLATION

- A. Install in accordance with ASME A18.1, Section 01•70•00, and approved submittals.
- B. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
- C. Install system components and connect to building utilities.
- D. Accommodate equipment in space indicated.
- E. Coordinate lift installation with construction of hoistway walls.
- F. Grout sills in place.
- G. Adjust for smooth acceleration and deceleration of platform so not to cause passenger discomfort.
- H. Adjust leveling feature of platform at each landing to achieve alignment within $\pm 1/4$ inch of floor surface.

3.3 FIELD QUALITY CONTROL

- A. Field Tests and Inspections:
 - 1. Comply with Section 01•45•00.
 - 2. Contractor provided.
 - 3. Perform tests required by ASME A18.1.

3.4 ADJUSTING

- A. Adjust operable parts in accordance with Section 01•70•00..

3.5 CLEANING

- A. Clean in accordance with Section 01•70•00.

3.6 PROTECTION

- A. Protect finished work in accordance with Section 01•70•00.

END OF SECTION

\\MGA.com\mga_files\Proj_Bal\WSA\2024\WMD-24016-00 TowsonCtHouseADA\11_Specifications\11.01_Working\CD\144000.wpd

THIS PAGE IS INTENTIONALLY BLANK

DIVISION 22 00 00
PLUMBING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 01 Specification Sections, apply to this Division.

1.2 SCOPE:

- A. The plumbing contractor shall furnish all labor, material, tools, equipment and services necessary and incidental for installing all plumbing systems shown on the drawings, indicated in the specification, or necessary to provide a finished installation. The finished installation shall be in perfect working condition and be ready for continuous and satisfactory operation.

1.3 CODES AND REGULATIONS

- A. All materials furnished and all work installed shall comply with the codes and regulations adapted by the State of Maryland and recommendations of the following bodies:
 - 1. International Building Code (IBC)
 - 2. International Mechanical Code (IMC)
 - 3. International Plumbing Code (IPC)
 - 4. International Fuel Gas Code (IFGC)
 - 5. National Electric Code (NEC)
 - 6. Maryland State Health Department
 - 7. Underwriters Laboratories (UL)

1.4 RESPONSIBILITY

- A. The Construction Manager/General Contractor (CM/GC) shall be responsible for all work included in this Division. The delegation of work to the contractors shall not relieve him of this responsibility. Contractors who perform work under this Division shall be responsible to the CM/GC.

1.5 SITE VISIT

- A. Prior to preparing the bid, the mechanical subcontractor shall visit the site and become familiar with all existing conditions. Make all necessary investigations as to locations of utilities and existing field conditions that could affect the work. No additional compensation will be made to the contractor as a result of his failure to familiarize himself with the existing conditions under which the work must be performed.

1.6 OUTAGES

- A. For all work requiring an outage, the plumbing contractor shall submit an outage request to the Baltimore County Project Manager, using the Outage Form.
- B. The existing mechanical/electrical/fire protection systems shall remain operational unless turned off by County personnel during the construction of the project.
- C. Unless otherwise specified, outages of any services required for the performance of this contract and affecting areas other than the immediate work area shall be scheduled at least ten business days (10) days in advance with the County Design and Construction Department. Outages shall be performed during normal duty hours. If necessary, some outage work may be performed outside normal hours if approved by Baltimore County.
- D. All plumbing outages which will interfere with the normal use of the building in any manner shall be done at such times as shall be mutually agreed upon by the contractor and the Baltimore County Design and Construction Department.
- E. The plumbing contractor shall include in his price the cost of all premium time required for outages and other work which interferes with the normal use of the building, which will be performed, in most cases, during other than normal work time.
- F. The operation of plumbing valves or switches; required to achieve an outage must be operated by County personnel only. Unauthorized operation of plumbing valves, power switches, or other control devices by contractors and their personnel will result in extremely serious consequences for which the contractor will be held accountable.

1.7 SUBMITTALS

- A. General: For general requirements see Architectural Specification Division 01 Section "Submittal Procedures". Also comply with the following:
 - 1. Baltimore County requires all that all submittals, which includes shop drawings, product data, related equipment maintenance manuals, warranty documentation and all other pertinent information be submitted electronically by the manufacturer, trade contractors, and construction manager as a "pdf" file for review as required by Division 01. Partial submittals are not acceptable and will be returned without review.
 - 2. After contract award and before material is ordered submit electronically all product data, shop drawings and other such descriptive data as the Engineer may require to demonstrate compliance with the contract documents as required by the contract clauses for review and approval.
 - 3. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable publication references, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish.

4. Plumbing shop drawings must be developed by computer software. Any hand drawn shop drawings will be rejected and will not be reviewed.
5. Submittals will be reviewed for general compliance with design concept in accordance with contract documents, but dimensions, quantities, or other details will not be verified.
6. Product Submittals shall include the following items unless otherwise noted:
 - a. Article 2.2, Fire Stops & Smoke Seals for Wall and Floor Sleeve Applications
 - b. Article 2.3, Plumbing Piping Systems
 - c. Article 2.4, Pipe Sleeves
 - d. Article 2.5, Piping Specialties
 - e. Article 2.6, Plumbing Valves
 - f. Article 2.7, Hangers and Supports
 - g. Article 2.8, Identification System
 - h. Article 2.9, Plumbing Fixtures
 - i. Article 2.10, Plumbing Specialties
 - j. Article 2.11, Plumbing Equipment
 - k. Article 2.12, Pipe Insulation
 - l. Article 2.14, O&M Manual
 - m. Article 2.16, Grout
 - n. Warranties and maintenance instructions shall be included in the O & M Manual only. Do not include this data in the Product Submittals.
7. Submittal File Format: File formats and names for each submittal shall be electronically as follows:
 - a. File Formats:
 - 1) Product Data: "pdf" file format.
 - 2) Design Shop Drawings: "pdf" and "dwg" file formats.
 - 3) Coordinated Drawings: "pdf" or "dwg" file formats.
 - 4) Schedules: "xl" file format.

1.8 HAZARDOUS MATERIALS

- A. Identification and removal of hazardous materials (asbestos, lead paint, PCBs) is not part of this contract. If questionable material is encountered, notify the County Project Manager in writing immediately. The County shall then arrange for investigation and possible abatement of the material. Contractor shall schedule his work to accommodate hazardous material removal by the Owner.

1.9 FUNCTIONAL TESTING OF NEW PLUMBING SYSTEMS

- A. Summary: This article includes the requirements for functional testing of new Plumbing Systems, assemblies and equipment related to the project area.
- B. Description: The following equipment and/or accessories shall be tested as part of this project:

1. Plumbing Systems:
 - a. Plumbing Fixtures:
 - 1) Urinals.

1.10 WARRANTY/GUARANTEE

- A. All materials, equipment, etc. provided by the general contractor and/or his subcontractors shall be warranted and guaranteed to be free from defects in workmanship and materials for a period of two (2) years from the date of substantial of completion and acceptance of work by Baltimore County. Any defects in workmanship, materials, or performance which appear within the guarantee period shall be corrected by the contractor without cost to the owner, within a reasonable time, to be specified by Baltimore County. In default thereof, owner may have such work done and charge the cost of same to the contractor. In addition to the above statement the Warranty/Guarantee Period shall also include all labor cost related to all warranty work.

PART 2 – PRODUCTS

2.1 LISTED MANUFACTURERS

- A. Listed Manufacturers: The manufacturers indicated in Part 2 represent the basis for design and identify the minimum level of quality for materials and equipment, specified in this Division, that are acceptable. Unless “or equal” is included as an option, substitutions are not allowed, except under the following condition. During bid phase, contractors may submit material and equipment by non-listed manufacturers provided said submittals meet the requirements of these specifications. All submitted materials and equipment are subject to approval by the A/E and Baltimore County. Reference: Division 1 Substitution Section.

2.2 FIRE STOPS & SMOKE SEALS FOR WALL & FLOOR SLEEVE APPLICATIONS

- A. General: Provide fire stops, and smoke sealant materials for all plumbing services penetrating through rated assemblies. See Architectural Specification Division 07, Section “Penetration Firestopping” for sealant material requirements. Services include:
 1. Plumbing penetrations include all plumbing piping systems.
- B. New Construction: All new penetrations shall be provided with a pipe sleeve and sealant materials.
- C. Existing Construction: All new service penetrations through existing rated assemblies shall be provided with a pipe sleeve and sealant materials. All existing unsealed penetrations for services passing through existing rated assemblies within the project area shall be provided with sealant materials.
- D. Project Area: The project area shall include the finished spaces and related sections of the utility shafts within the project area footprint.
- E. Wall Pipe Sleeve Applications: Pipe sleeves shall be required for all new pipe penetrations through rated wall assemblies and non-rated CMU walls. Where pipe sleeves are installed

in non-rated CMU walls fire rated sealant materials are not required. Provide acoustical caulking to seal the annular spaces between the sleeve and the bare pipe or pipe insulation on each end with one half (1/2) inch caulking all around the annular space.

- F. Floor Pipe Sleeves Applications: Pipe sleeves are required for all new pipe risers passing through floor slabs.

2.3 PLUMBING PIPING SYSTEMS

- A. General: Provide all piping systems indicated on the drawings and as specified below, including all labor materials and equipment necessary for a complete installation.

- B. Plumbing Piping Systems: Plumbing piping systems includes sanitary and vent, domestic water piping systems as follows:

- 1. Sanitary & Vent Piping System: Pipe, fittings and couplings shall be as follows:

- a. Sanitary & Vent Piping Above Ground Inside the Building: Pipe and Fittings: Sanitary & vent piping shall be Schedule 40 cast iron no hub pipe and fittings. All Cast Iron Soil Pipe and Fittings shall be marked with the Collective Trademark of the Cast Iron Soil Pipe Institute (CISPI) and listed by NSF International.

- b. Pipe Couplings: comply with the following:

- 1) Husky SD 4000 Couplings: All couplings shall be a heavy-duty, all stainless steel coupling to join No-Hub pipe and fittings as engineered by Anaco. Each coupling shall include a super-duty corrugated shield of sufficient width to accommodate additional surface-bearing sealing clamps. All SD 4000 couplings shall be designed to be installed with a pre-set torque wrench calibrated at eighty (80) inch pounds to accommodate the 305 stainless steel three eights (3/8) inch Hex Head screws.
- 2) Waste and Vent Pipe Sizes One and One Half (1-1/2) Inch Through Four (4) Inch: The one and one half (1-1/2) inch through four (4) inch diameter couplings shall consist of three (3) inch wide corrugated 304 stainless steel shield in conjunction with four (4) stainless steel clamps, secured in place by means of an affixed and "floating" eyelet to allow clamp "travel" during tightening.
- 3) Waste and Vent Pipe Sizes Five (5) Inch Through Ten (10) Inch: The five (5) inch through ten (10) inch diameter couplings shall consist of four (4) inch wide corrugated 304 stainless steel shield in conjunction with six (6) stainless steel clamps, secured in place by means of an affixed and "floating" eyelet to allow clamp "travel" during tightening.

- c. Material Specifications:

- 1) Clamp: Type 304 AISI stainless steel
- 2) Screw: Type 305 AISI stainless steel 3/8 inch screws

- 3) Shield: Type 304 AISI stainless steel, corrugated. Shield thickness 0.015
 - 4) Gasket: The gasket shall be manufactured from a properly vulcanized virgin compound in which the primary elastomer is polychloroprene (neoprene) conforming to ASTM C 564. Oil Immersion test: 80% max. Volume Change after immersion in IRM 903 for seventy (70) hours at 212° F.
- d. Certifications & Standards: Tested & Certified to:
- 1) ASTM C1540
 - 2) ASTM C564
 - 3) FM 1680 Class 1
2. Domestic Water Piping Systems: Domestic water systems include cold, hot, and hot water return piping systems. Pipe, fittings and joints shall be as follows:
- a. Solder Connection: Heating water piping two (2) inch and smaller shall be type 'L' copper tubing assembled with wrought copper fittings and 95-5 solder.
 - b. Press End Connection: Domestic water piping two (2) inch and smaller shall be type 'L' copper tubing assembled with Viega ProPress copper fittings with EPDM seals and press connection with EPDM seals. (Contractors Option)
 - c. Press End Connection: Domestic water piping two and one half (2-1/2) inch to four (4) inch shall be type 'L' copper tubing assembled with Viega ProPress (press end) XL-C copper fittings with EPDM seals and press connection with EPDM sealing. (Contractor Option)
 - d. Victaulic Connections: Domestic water piping two and one-half (2-1/2) inch and larger shall be hard drawn type 'L' copper tubing conforming to CTS US Standards ASTM B88 and ASTM B306 using Victaulic rolled grooved ends with fittings and joints as follows: (Contractors Option)
 - 1) Fittings: Copper coated ductile iron grooved end fittings for elbows, tees, increasers, reducers, 'Y' fittings, conforming to ASTM A - 395, grade 65-45-15. (Contractors Option)
 - 2) Joints: Vic Style 606 – Copper coated ductile iron couplings with Grade 'E' EPDM gasket material, carbon steel nuts and bolts, conforming to ASTM A-563, Grade 65-45-12. Vic Flange Adapters: Vic Style 641, copper coated ductile iron, conforming to ASTM A-536, grade 65-45-12. (Contractors Option)

2.4 PIPE SLEEVES

- A. Steel Pipe Sleeves: Steel pipe sleeves shall be standard black steel pipe Type E, Grade B, with plain ends conforming to ASTM A53/A53M.

- B. Cast Iron Pipe Sleeves: Cast iron pipe sleeves shall be standard weight cast iron pipe with plain ends conforming to ASTM A74 and CISPI – 301.

2.5 PIPING SPECIALTIES

- A. General: Provide all piping specialties were indicated on the drawings, details, and as specified below complete with all supports, fittings, etc. for Plumbing Piping Systems.
- B. Piping Specialties:
 - 1. Flexible Connections: Metraflex flexible pipe connectors with stainless steel hose and braid, and copper end tubes, or schedule 40 IPS pipe ends.
 - 2. Pipe Alignment Guides: Metraflex style one (1) pipe alignment guide. Anchor guides to building structure.
 - 3. Pipe Anchors: Anchors shall be constructed of steel sections and plates, assembled by bolting or welding and secured to building structure.
 - 4. Dielectric Connections: Provide dielectric connections where nonferrous metal is joined to ferrous metal as follows:
 - a. Piping Two (2) Inch and Smaller: Provide Schedule 40 unlined type 316 stainless steel nipples, four (4) inched long with thread ends.
 - b. Piping Two and One Half (2-1/2) Inch and Larger: Provide Type 'E' Full Flanged Isolation Gasket Kits with Dialectic Insulators for the pipe flanges.

2.6 PLUMBING VALVES

- A. Shut Off, Drain and Specialty Valves: All Shut Off, Drain and Specialty Valves installed in Plumbing Piping Systems shall be as specified below. Gate Vales will not be permitted for installation in these systems. All valves labeled as lead free (LF) shall be Lead Free Certified per NSF/ANSI 61 and NSF/ANSI 372. Only listed manufacturers and model numbers below are acceptable.
 - 1. Shut Off Valves for Domestic Solder Joint Piping Systems:
 - a. Piping Systems One Half (1/2) Inch to Two (2) Inch: All valves used for shutoff duty shall be two (2) piece full port (FP) lead free ball valves with brass or bronze valve body with threaded end connections, solid tunnel bore 316 stainless steel ball and stem, RPTFE seats and seals, and valve lever type handle. Valve model numbers shall be as listed below:

Apollo: 77FLF-140* Series, Brass Body. (FP)
Milwaukee: UPBA400S* Series, Bronze Body. (FP)
Watts: LFB6080G2-SS*, Brass Body. (FP)

*Provide stem extensions on valves where pipe insulation affects the operation of the valve handle.

2. Shut Off Valves for Domestic Water ProPress (Press End) Piping Systems: (Contractor Option)

- a. Piping Systems One Half (1/2) Inch to Two (2) Inch: All valves used for shutoff duty shall be two (2) piece full (FP) port lead free ball valves with brass or bronze valve body with press end smart connections, solid tunnel bore 316 stainless steel vented ball and stem, EPDM or PTFE seats and seals, and valve lever type handle. Valve model numbers shall be as listed below:

Viega: 2971.3ZL, Bronze Body*
Apolloxpress 77WLF-140*, Bronze Body
Milwaukee: UPBA480S*, Brass Body

*Provide stem extensions on valves where pipe insulation affects the operation of the valve handle.

- b. Piping Systems Two and One Half (2-1/2) inch to Four (4) Inch: All butterfly valves in plumbing piping systems used for shut-off duty shall be lead free bi-directional dead end service general purpose butterfly valves with a lugged ductile iron valve body with full threaded lug connections, Nylon – 11 coated ductile iron disk, 416 stainless steel stem, EPDM double seal seats and seals, for gear operator, hand wheel or chain operation. All valves shall be ANSI Class 150, MSS-SP68 face to face dimension. Valve model numbers shall be as listed below:

Bray/McCannalok - Series 31H with Trim 390*
Milwaukee – HL Series*

*Extensions: where necessary provide shaft extensions to allow mounting of the valve operator outside of pipe insulation.

3. Shut Off Valves for Domestic Water Copper Victaulic Piping Systems: (Contractor Option)

- a. Piping Systems Two and One Half (2-1/2) Inch and Larger: All butterfly valves in plumbing piping systems used for shut-off duty shall be lead free bi-directional dead end service general purpose butterfly valves with a lugged ductile iron valve body with full threaded lug connections, Nylon – 11 coated ductile iron disk, 416 stainless steel stem, EPDM double seal seats and seals, for gear operator, hand wheel or chain operation. All valves shall be ANSI Class 150, MSS-SP68 face to face dimension. Valve model numbers shall be as listed below:

Bray - Series 31H with Trim 390*
Milwaukee – HL Series *

*Extensions: where necessary provide shaft extensions to allow mounting of the valve operator outside of pipe insulation.

4. Drain and Specialty Valves for Domestic Water Piping Systems:

- a. Drain Valves for Piping Systems One Half (1/2) Inch to Two (2) Inch: All valves used as low point drains or for system drain down duty shall be three quarter (3/4) inch two (2) piece full port (FP) lead free valves ball with brass or bronze valve body with threaded end connections, solid tunnel bore 316 stainless steel ball and stem, RPTFE seats and seals, valve lever type handle and three quarter (3/4) inch capped hosed connection. Valve model numbers shall be as listed below:

Apollo: 77FLF-140* Series, Brass Body. (FP)

Milwaukee: UPBA400S* Series, Bronze Body. (FP)

Watts: LFB6080G2-SS*, Brass Body. (FP)

*Provide stem extensions on valves where pipe insulation affects the operation of the valve handle.

- b. Drain Valves for Piping Systems Two and One Half (2-1/2) Inch and Larger: All valves used as low point drains or for system drain down duty shall be two (2) inch two (2) piece full port (FP) lead free ball valves with brass or bronze valve body with threaded end connections, solid tunnel bore 316 stainless steel ball and stem, RPTFE seats and seals, valve lever type handle and two and one half (2-1/2) inch capped hosed connection. Valve model numbers shall be as listed below:

Apollo: 77FLF-140* Series, Brass Body. (FP)

Milwaukee: UPBA400S* Series, Bronze Body. (FP)

Watts: LFB6080G2-SS*, Brass Body. (FP)

B. Check Valves:

1. Swing Check Valves, two and one half (2-1/2) inches (DN65) and Smaller: MSS SP-80; Class 125, 200-psi (1380-kPa) CWP, or Class 150, 300-psi (2070-kPa) CWP; horizontal swing, Y-pattern, ASTM B 62 cast-bronze body and cap, rotating bronze disc with rubber seat or composition seat, threaded connections for 60 psig steam condensate service.

2.7 HANGERS & SUPPORTS

- A. General: Provide all supports, identification, and testing for all piping systems indicated on the drawings, details and as specified below.

B. Interior Pipe System Hangers & Supports:

1. Hangers and supports shall be provided for all piping systems, as recommended by the hanger manufacturers for the existing structural elements. On piping systems requiring insulation, hangers and supports shall be installed external to the insulation material, and sheet metal saddles shall be provided. Hangers and supports shall be provided at all changes of direction and elevations on piping system. Spacing shall be as recommended by manufacturer, for each pipe size and material.

2. Hangers, Supports, and Components: Provide factory fabricated products according to MSS SP-58 as manufactured by B-Line, Fee and Mason, ITT Grinnel, Pipe Shields, Inc., Michigan Hanger, and Unistrut. Unless otherwise indicated, specified model numbers are manufactured by B-Line.
3. Components include galvanized coatings where installed for piping and equipment that will not have a field-applied finish.
4. Pipe attachments include nonmetallic coating for electrolytic protection where attachments are in direct contact with copper tubing.
5. Thermal Hanger Shield Inserts: 100-psi (690kPa) average compressive strength, waterproofed calcium silicate or treated lumber inserts, encased with sheet metal shield. Insert and shield cover entire circumference of pipe and are of length indicated by manufacturer for pipe size and thickness of insulation.
6. Horizontal Non-Insulated Waste, Vent and Storm Water Piping Hangers:
 - a. Two (2) inch and smaller: Figure No. B3170.
 - b. Two and one-half (2-1/2) inch and larger: Figure No. B3100.
7. Insulated Horizontal Piping Hangers: Cold and Hot Water (Domestic),:
 - a. Two (2) inch and smaller: Figure No. B3108, with metal shield, Figure No. B3151.
 - b. Two and one-half (2-1/2) inch and larger: Figure No. B3108, with metal shield, Figure No. B3151.
8. Vertical Piping Riser Clamps:
 - a. Copper Pipe: Figure No. B3373CT.
 - b. Steel Pipe: Figure No. B3136 and B3137.

2.8 IDENTIFICATION SYSTEM

- A. General Requirements: Do not use pipe labels or plastic tapes for bare pipes conveying fluids at temperatures of 125°F (52°C) or higher.
- B. Identification Products for Plumbing Systems: Identification products for Plumbing Systems shall include pipe markers, duct markers, valve tags and ceiling markers conforming to ANSI/ASME A 13.1 & OSHA requirements for letter/color combinations and as follows:
 1. Pipe Labels: Provide pretensioned, preformed semi-rigid vinyl or plastic pipe labels with flow arrows to partially cover or cover full circumference of pipe and to attach to pipe without adhesive. Pipe labels shall be SETMARK System as manufactured by Seton Name Plate Corporation or approved equal.
 - a. Label Material: Comply with the following:
 - 1) Vinyl Formed Labels:

- a) External diameters up to two (2) inches – 20 mil vinyl.
 - b) External diameters up to two and one half (2-1/2) inches – 30 mil vinyl.
- 2) Plastic Formed Labels: per manufacturer's recommendations.
- b. Label Contents: Text with Field/Letters color as noted below:
 - 1) "SANITARY" – Green/White
 - 2) "VENT" – Green/White
 - 3) "DOMESTIC COLD WATER" – Blue/White
 - 4) "DOMESTIC HOT WATER" – Blue/White
 - 5) "DOMESTIC HOT WATER RETURN" – Blue/White
- 2. Valve Tags:
 - a. Description: Stamped or engraved with one quarter (1/4) inch letters for piping system abbreviation and one half (1/2) inch numbers with:
 - 1) Brass Tag Material: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
 - 2) Fasteners: Brass wire-link chain.
 - 3) Astric (*): Indicates the valve is part of a renovation project in the building.
 - b. Plumbing: Service – Tag Data:
 - 1) Domestic Cold Water – *DCW
 - 2) Domestic Hot Water – *DHW
- 3. Ceiling Markers: Ceiling Grid and Access Panel Markers: Provide Kroy type clear adhesive printed labels with three sixteenth (3/16) inch high letters to identify the location of concealed valves and equipment.
 - a. Ceiling Marker Data: For Plumbing Systems include:
 - 1) System Valves: Identify as follows:
 - a) Domestic Cold Water – "Plumbing Valve – HWRS"
 - b) Domestic Hot Water – "Plumbing Valve – HWRR"
 - 2) Miscellaneous Items: Identify as follows:
 - a) Sanitary Waste Cleanout – "SANCO"

2.9 PLUMBING SPECIALTIES

A. Cleanouts:

- 1. General: Provide cleanouts in drainage piping were indicated on the drawings and where required by code, cleanouts shall be same size as pipe in which they are located. Cleanouts in acid waste piping systems shall match piping specified.

2. Cleanouts: Cleanouts for drainage piping, other than acid waste piping, shall be as follows:
 - a. Finished Floors: Zurn Series ZN - 1400 Dura Coated cast iron body with tapered threaded plug style to suit floor finish with recessed top for tile or carpet, or comparable product.
 - b. Walls: provide Zurn Model No. ZN-1440-1 style to suit all finishes with vandal proof screws, or comparable product.
 - c. Cast Iron Piping: provide Zurn Model No. ZN-1450-7 with bronze plug, or comparable product.
3. Access Covers / Doors: Where cleanouts are located either behind partitions or flush with finished floor provide access covers or access doors with smooth finish and securing screws.

2.10 PIPE INSULATION

A. General:

1. All pipe and duct systems shall be insulated with Owens Corning Insulation Products or approved equal by John Manville, Knauf Inc. or Pittsburgh Corning Corp. Foamglas.
2. Provide Tapes, Adhesives, Mastics and Sealants that are compatible with and approved by the insulation manufacturer.
3. Plumbing Piping Systems include the following:
 - a. Handicapped Fixtures: Sanitary Drains and Traps
 - b. Domestic Plumbing Systems: Cold Water, Hot Water & Hot Water Recirculating Systems (40°F to 110°F).

B. Piping Systems:

1. Domestic Water Piping Systems:
 - a. Concealed and Exposed Interior Domestic Water Piping: Insulation for pipe sizes one half (1/2) inch to one and one half (1-1/2) inches shall comply with the following:
 - 1) Material: Fiberglass
 - 2) Thickness: One (1) inch
 - 3) Vapor Barrier: Yes, cold water only.
 - 4) Field Applied Jacket – Concealed: None
 - 5) Field Applied Jacket – MER Exposed: Glass Cloth
 - 6) Field Applied jacket – Non MER Exposed: PVC
 - 7) Pipe Fittings: "Zeston" pre molded fittings.

- b. Concealed and Exposed Interior Domestic Water Piping: Insulation for pipe sizes two (2) inch and larger shall comply with the following:
 - 1) Material: Fiberglass
 - 2) Thickness: One and one half (1-1/2) inch
 - 3) Vapor Barrier: Yes, cold water only.
 - 4) Field Applied Jacket – Concealed: None
 - 5) Field Applied Jacket – MER Exposed: Glass Cloth
 - 6) Field Applied jacket – Non MER Exposed: PVC
 - 7) Pipe Fittings: “Zeston” pre molded fittings.

2.11 PROJECT OPERATION AND MAINTENANCE MANUAL ELECTRONIC FILES

- A. Project O & M Manual File: The project OM Manual shall include one (1) electronic copy of each approved submittal and any manufacturer's maintenance manuals, and all warranty certificates included this Division. Also include the address, phone number and contact person for each supplier. Using the Standard O&M Manual Template referenced in Division 01 Closeout Procedures insert the submittal files include both a book mark and tree structure for accessing each submittal file in the manual.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS – EXECUTION

- A. All construction work that creates excessive noise will not be permitted during normal business hours. See Division 01 Specification Section “Cutting and Patching” for requirements.

3.2 CONNECTIONS AND ALTERATIONS TO EXISTING WORK

- A. When existing plumbing work is removed, all pipes, valves, hangers etc. shall be removed back to the active pipe mains and capped.
- B. Removal and/or relocation of existing services shall be closely coordinated with Facilities Management if they impact adjacent areas which shall remain operational.
- C. While performing connections and alterations to existing plumbing work, the contractor shall take extreme care to protect all existing materials, equipment, casework etc. from dirt, debris, and damage. Any damage caused by the contractor to existing materials, equipment, casework, etc. shall be repaired to owner's satisfaction and specifications at the contractor's expense.

3.3 CUTTING AND PATCHING

- A. Cutting and patching associated with the work in the existing structure shall be performed a neat and workmanlike manner. Existing surfaces that are damaged by the contractor shall be repaired or provided with new materials to match existing.
- B. Structural members shall not be cut or penetrated. Holes cut through concrete and/or masonry to accommodate new work shall be cut by reciprocating or rotary, non-percussive methods.

- C. Patching of areas disturbed by installation of new work and/or required demolition shall match existing adjacent surfaces as to material, texture and color.

3.4 INSTALLATION – PLUMBING PIPING SYSTEMS

A. Waste and Vent and Storm Water Piping Systems:

1. Install all, horizontal and vertical, non waste and storm water piping systems level and parallel to the building walls, and partitions.
2. Install all, horizontal waste, vent and storm water piping systems parallel to the building walls, and partitions with the required minimum slope required by code to provide gravity drainage to the vertical waste, vent and rainwater leaders.
3. Install all, vertical waste, vent and storm water (rainwater leader) piping systems parallel to the building walls, and partitions with the required minimum slope required by code to provide gravity drainage to the vertical waste, vent and rainwater leaders.

B. Domestic Water Piping Systems:

1. Install domestic water piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.
2. Install domestic water piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
3. Install domestic water piping above accessible ceilings to allow sufficient space for ceiling panel removal and coordinate with other services occupying that space.
4. Install domestic water piping to permit valve servicing.
5. Install domestic water piping free of sags and bends.
6. Install fittings for changes in direction and branch connections.
7. Install branch pipe connections off the top of the main pipe or on a 45-degree upward angle. Branch connections off the bottom of the main pipes are not acceptable.

3.5 PIPING SPECIALTIES

A. Dielectric Connections:

1. Install dielectric connections when piping of dissimilar metals piping and tubing are joined.

2. Dielectric Connections for NPS 2 and Smaller: Use stainless steel threaded nipples.
3. Dielectric Connections for NPS 2-1/2 and Larger: Use dielectric flange kits.

B. Cleanouts (CO):

1. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:
 - a. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
 - b. Locate at each change in direction of piping greater than 45 degrees.
 - c. Locate at minimum intervals of fifty (50) feet for piping NPS 4 and smaller and one hundred (100) feet for larger piping.
 - d. Locate at base of each vertical sanitary and/or storm water stack.
2. Horizontal Piping above Ceilings: For cleanouts in concealed horizontal piping above a suspended ceiling provide one (1) of the following CO installations:
 - a. Where the CO location is not close a wall or partition on the floor above locate the cleanout at the floor slab above with a cover plate suitable for the floor finish.
 - b. Where the CO location is close a wall or partition on the floor above extend the piping into the wall or partition and locate the cleanout forty eight (48) inches above the finished floor with an access cover on the wall.
3. Horizontal Piping in Plumbing Chases: For cleanouts in concealed horizontal piping in plumbing chases serving wall mounted fixtures locate the cleanout forty eight (48) inches above the finished floor with an access cover on the wall.

3.6 INSTALLATION – PIPE SLEEVES

- A. Fire Rated Walls: Where new and/or existing plumbing piping passes through rated walls provide pipe sleeves with required fire sealant materials to maintain the rating of the wall assembly.
1. Use standard weight steel pipe or service weight cast iron pipe for pipe sleeves. Where sleeves are installed in floors and load bearing walls, use only standard weight steel pipe for pipe sleeves.
 2. Provide a minimum of one half (1/2) inch annular space clearance around the entire circumference of the pipe and/or insulation on cold piping passing through the sleeve and between the pipe sleeve and the surface of the core drilled hole.
 3. Center pipe passing through sleeve.
 4. Except for cold piping, do not continue insulation through sleeve.
 5. The entire annular spaces must be sealed with fire and waterproof sealant
Seal ends of pipe insulation and butt insulation ends up to fire stopping sealant in sleeve.
 6. Sleeves in walls must be installed flush with both finished wall surfaces.
 7. In finished areas provide an escutcheon plate around the bare pipe or insulated pipe passing through the assemblies to conceal the sleeve and sealant.

- B. Fire Rated Floors: Where new and/or existing plumbing piping passes through rated walls provide pipe sleeves with required fire sealant materials to maintain the rating of the wall assembly.
1. Use standard weight steel pipe or service weight cast iron pipe for pipe sleeves.
 2. Provide a minimum of one half (1/2) inch annular space clearance around the entire circumference of the pipe and/or insulation on cold piping passing through the sleeve and between the pipe sleeve and the surface of the core drilled hole.
 3. Center pipe passing through sleeve.
 4. Except for cold piping, do not continue insulation through sleeve.
 5. The entire annular spaces must be sealed with fire and waterproof sealant.
 6. Seal ends of pipe insulation and butt insulation ends up to waterproof sealant in sleeve.
 7. Sleeves must be installed with top of sleeve one (1) inch above the finished floor surface. The bottom of the sleeve must be flush with the finished surface of the underside of the floor assembly.
 8. In finished areas provide an escutcheon plate around the bare pipe or insulated pipe passing through the assemblies to conceal the sleeve and sealant. If a riser clamp is in place, omit the escutcheon.
- C. Sealant Requirements: Comply with requirements for sealants specified in Part 2.
- D. Fire-Barrier Penetrations: Comply with requirements for firestopping specified in Part 2.

3.7 INSTALLATION – VALVES

- A. Valves shall be placed in such manner as to be easily accessible for smooth and easy hand wheel operation and packing maintenance.
- B. Install valves in piping systems were shown on drawings, diagrams and details and were indicated below:
1. To Isolate:
 - a. Toilet rooms.
 - b. Pipe risers.
 - c. Branch piping.
- C. Where piping or equipment may be subsequently removed, provide valves with bodies, having integral flanges or full lugs drilled and tapped to hold valve in place so that downstream piping or equipment can be disconnected and replaced with blank-off plate while valve is still in service.
- D. Shut off valves serving equipment and/or control valves shall be installed full size at the equipment connection.
- E. Where there is no interference, shut-off valves shall be installed with hand wheel located up on the horizontal runs of pipe to prevent accumulation of foreign matter in working parts of valves.

- F. On valves, strainers, etc., installed in copper piping, provide a union on the discharge side of each valve, and threaded adapters where copper piping connects to valves, strainers, etc.
- G. Where valves are installed in piping systems for pressure gauges, P/T plugs, DP Switches etc, for each device provide a three quarter (3/4) inch tap in piping systems one (1) inch and larger and provide a one half (1/2) inch tap in piping systems less than one (1) inch.
- H. Install drain valves at low points of risers and at trapped/low points in mains, branch lines, and everywhere else required to permit drainage of the entire piping system.
- I. Where threaded ball valves are installed in brazed copper piping systems braze each threaded adapter on to the piping. After each adapter has cooled to the touch install the threaded ball valve. Do not connect the threaded adapter to the valve and then braze the adapter and valve to the piping as this will result in damage to the valve seals. If any valve, in the brazed piping systems are damaged due to faulty installation the damaged valves shall be replaced by the contractor at no cost to the owner.
- J. Where butterfly valves are installed in copper piping systems provide companion flanges and dielectric gasket kits for each flange. When valves and/or fittings are installed in piping where electrolysis may occur provide dielectric flange kits at each connection. In heating hot water systems where dielectric connections are required, provide connections rated for an operating temperature of at least 200°F minimum.

3.8 INSTALLATION – HANGERS AND SUPPORTS

- A. Piping Systems: Hangers and supports shall be provided for all piping systems, as recommended by the hanger manufacturers for the existing structural elements. Additional requirements are as follows:
 - 1. On piping systems requiring insulation, hangers and supports shall be installed external to the insulation material, and sheet metal saddles shall be provided.
 - 2. Hangers and supports shall be provided at all changes of direction and elevations on piping system.
 - 3. Spacing shall be as recommended by manufacturer, for each pipe size and material type.

3.9 INSTALLATION – PIPE INSULATION

- A. Fiberglass Pipe Insulation:
 - 1. All insulation shall be installed by a qualified insulation contractor. Insulation installed on cold surfaces shall have a vapor barrier and exposed ends shall be sealed. All insulation shall be installed and all seams, sealed, with Benjamin Foster sealant, according to manufacturer's recommendations.
 - 2. Bond insulation to pipe with lagging adhesive.
 - 3. Seal exposed ends with lagging adhesive.

4. Seal seams and joints with vapor barrier compound.
5. Where existing pipe insulation is disturbed for demolition work, and piping is capped, repair and seal damaged insulation.
6. Where existing pipe insulation is disturbed for demolition work, and new piping is connected at that location, butt new insulation up to the existing insulation and seal the joints as specified herein.
7. On new piping systems requiring insulation all pipe insulation shall be continuous through point of support. Provide sheet metal saddles between insulation and pipe hangers.
8. Where new piping connects to existing piping the new insulation shall match the thickness of the existing insulation.

3.10 INSTALLATION – PIPE LABELS

- A. General: Provide pipe labels with directional arrows every twenty five (25) feet on straight runs of horizontal and vertical pipes exposed in equipment rooms, utility shafts and above ceilings. In addition to the referenced spacing above comply with the following:
 1. Where pipes pass through floors, walls and partitions provide pipe labels on each side of the penetration.
- B. Exposed Piping: Install pipe labels in accessible locations on the piping systems so they are visible from the floor. Do not install pipe labels on sections of pipe that are not in a person's sight line.
- C. Concealed Piping: Install pipe labels in accessible locations on the piping systems so they are visible from the point of access through the ceiling tile or ceiling access door.
- D. Directional Arrows: Install directional arrows to indicate the correct flow direction.
- E. All pipe labels and flow arrows that are found to be incorrectly installed shall be replaced and corrected at no additional cost to the project.

3.11 CLEAN – UP

- A. Excessive debris and dirt, such as occurs from cutting through masonry or plaster walls shall be cleaned up from the equipment and removed immediately after the work of cutting through the walls.
- B. Debris shall be removed from the property.
- C. Ceiling panels shall be replaced as soon as work is finished in the area and shall be kept free of dirty fingerprints. Where work is being done in corridors used by patients and visitors, ceiling panels shall be replaced at the close of the day's work even if work is at the particular location is incomplete.

- D. All areas shall be left broom-clean at the end of the work period.
- E. Remove all mechanical clipping, wiring, nuts, bolts, etc. left on top of ceilings and ceiling tiles.

3.12 FUNCTIONAL TESTING OF PLUMBING SYSTEMS

A. Testing Preparation:

- 1. Certify in writing to the testing agent that new plumbing systems, subsystems, and equipment have been installed, and are operating according to the Contract Documents.
- 2. Certify in writing to the testing agent that new plumbing systems have been leak tested according to the Contract Documents.

B. New Plumbing Systems, Subsystems, and Equipment Testing Procedures:

- 1. Procedures: Where applicable follow manufacturer's written procedures. If no procedures are prescribed by the manufacturer, proceed as indicated.
- 2. Plumbing Piping Distribution Systems: Includes domestic water piping is installed in the project area.
 - a. Verify that all new valves and accessories have been installed correctly, are accessible and operate as intended.
 - b. Verify that specified tests of piping are complete.
 - c. Verify all new plumbing fixtures and accessories have been installed correctly and are operating as intended.

END OF SECTION

SECTION 26 00 10

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SCOPE

- A. General: The provisions of this section are general and are intended to apply to all electrical sections, to govern the quality of design, fabrication, workmanship and operation of materials, equipment and appurtenances to be furnished and/or installed thereunder.
- B. Equipment: All electrical equipment, including but not limited to, wiring devices, wiring materials and electrical construction materials shall be new and of the highest quality and latest improved design.
- C. Workmanship: Workmanship shall be of the highest grade and all installation work shall be performed by thoroughly qualified mechanics of the appropriate trade. All equipment shall be installed and connected in accordance with the best engineering practice. Manufacturer's instructions and recommendations shall be followed and all electric connections shall be provided.
- D. Completeness: The Contractor shall furnish all labor, materials, tools, equipment and services necessary for the complete electrical system ready for continuous operation. Provide all required mounting hardware and accessories to install all equipment and devices. Make all equipment and devices fully operational.
- E. Drawings: The drawings showing the layout of the electrical system indicate approximate locations of outlets, apparatus and equipment. The runs of feeders and branches as shown, the drawings are schematic only and are not intended to show the exact routing and location of conduits and conduit terminations. The final determination as to routing, location and termination shall be governed by structural conditions, obstructions and job conditions. This shall not be construed to mean that the design of the system may be changed without the written approval of the Engineer; it merely refers to the exact run of raceways and the exact placement of outlets, etc. It shall be the Contractor's responsibility to obtain all shop drawings affecting conduit terminations to the equipment specified in this or other sections or furnished by others, and to verify conduit locations before installation. The Contractor shall consult all contract drawings and specifications which may affect the location of any outlet, equipment or conduit run, to avoid improper locations of such items and to avoid interference with other trades.

- F. Accessibility: Electrical equipment such as junction and pull boxes, panelboards, switches, controls and such other apparatus as may require maintenance or operation from time to time, is made easily accessible. Although the equipment may be shown on the drawings in certain locations, in the course of building construction, it may develop that such locations do not afford proper accessibility, in which case the Contractor shall direct the Engineer's attention to the condition before advancing the construction.
- G. Site examinations: All bidders, prior to submitting a bid, shall thoroughly acquaint themselves with the conditions under which the work will be performed. No allowance shall be made subsequently in connection with this, for any error or negligence on the contractor's part.
- H. Unless noted as "existing" or "relocated", all construction is new and shall be furnished and installed by the contractor.

1.3 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Comply with electrical construction code requirements of State, City and such other local political subdivision specifications as may exceed the requirements of national codes, standards and approving bodies.
- B. All electrical equipment installed under this contract shall bear UL label. Equipment shall be installed in accordance with the requirements of UL and the manufacturer.
- C. Comply with the National Electrical Code.
- D. Certificates and Permits: Upon completion of work, and prior to final payment, furnish to the Engineer formal certification of final inspections from authorities having jurisdiction and secure required permits or certificates (if any) from such authorities. Additionally, prepare detailed diagrams and drawings which may be required by those authorities having jurisdiction. All the cost for obtaining certificates and permits will be paid by the Contractor.

1.4 REFERENCES AND DEFINITIONS

- A. Basic References: The following codes, standards, and approvals as referenced throughout the Sections of Division 26, shall serve as the minimum standards and quality requirements directly appropriate to the work and workmanship. References to catalogs, standards, codes, specifications and recommendations, etc., means latest edition of such publications in effect at the date of invitation to submit bid.
 - 1. American National Standards Institute (ANSI): ANSI C2; National Electrical Safety Code .
 - 2. National Electric Manufacturer's Association (NEMA) Standards as apply to specified Products.

3. National Fire Protection Association (NFPA): NFPA 70 (National Electrical Code), NFPA 72 (National Fire Alarm Code), NFPA 70E (Standard for Electrical Safety Requirements for Employee Workplaces), and other applicable NFPA codes
4. Underwriters' Laboratories, Inc. (UL) Listings, Labels, and Approvals shall govern the quality and performance of specified Products.
5. Americans with Disabilities Act (ADA)
6. Institute of Electrical and Electronics Engineers, Inc (IEEE)
7. National Electrical Contractor's Association (NECA)
8. International Electrical Testing Association (NETA)
9. Occupational Safety and Health Administration (OSHA)

B. Definitions

1. "Provide" - means "furnish and install"
2. "Indicated" - means "indicated in contract documents"
3. "Concealed" - means items referred to are hidden from normal sight, this includes items partly excavated or crawl spaces and in service tunnels used solely for repairs and maintenance
4. "Exposed" - means items are not "concealed"
5. "Feeder" - means "All circuit conductors between the service equipment, the source of a separately derived system, or other power supply source and the final branch-circuit overcurrent device"
6. "Feeder circuit breakers" - means circuit breakers protecting feeders.
7. NETA ATS - International Electrical Testing Association Acceptance Testing Specifications 2007 Edition
8. "Building" – A structure that stands alone or that is cut off from adjoining structures by fire walls with all openings therein protected by approved fire doors
9. "degrees C" – means "degrees Celsius"
10. "degrees F" – means "degrees Fahrenheit"

1.5 SUBMITTALS

A. Product Data: Submit Product Data applicable to items listed under Submittals in each Section of Division 26; and such items as may be indicated on the Drawings.

B. Shop Drawings

1. General: The Contractor shall submit to the Engineer for approval, before fabrication, detailed shop drawings for all electrical equipment and materials.
2. Shop drawings shall clearly indicate, using arrows and/or highlighting on all copies, which items are being submitted and that each item being submitted is in compliance with all requirements on the drawings and in these specifications. All pertinent specification and drawing requirements shall be indicated on the manufacturer's drawings. Complete model number of equipment shall be indicated.
3. Shop drawings of related equipment shall be submitted together.

C. "As-Built" Drawings:

1. Accurate project record drawings and specifications, showing in red ink on the working drawings and electrical drawings all changes from the original plans made during installation of the work. Upon completion of the work the contractor shall deliver to the Owner one neat set of drawings with alterations and notations made in red ink.

D. Operating and Maintenance Manuals

1. General: Upon completion of the work, the Contractor shall furnish Operating and Maintenance Manuals for use by the Owner. The manuals shall include operating and maintenance information on all systems and items of equipment. The data shall consist of catalogs, brochures, bulletins, charts, schedules and drawings describing location, operation, maintenance, lubrication, operating weight and other information necessary for the Owner to establish an effective operating and maintenance program.
2. Shop Drawings: Copies of appropriate shop drawings shall be included in the Operating and Maintenance Manuals. The requirements for manuals is a separate contractual item and in no way supersedes the requirements for shop drawings and vice-versa.
3. Approval: Completed manuals shall be submitted to the Engineer for review and approval. Incomplete or inadequate manuals will be returned to the Contractor for correction and resubmission.

4. Provide 3 copies of each operating and maintenance manual unless a greater quantity is specified elsewhere in the specifications, in which case the higher quantity will apply.
5. Equipment keys and passwords shall be provided to the Owner's authorized representative or representatives. A document shall be provided indicating who received the keys and what are the passwords. Document shall be neat and typewritten.
6. All factory and field test reports shall be included into the O&M Manuals.
7. Provide a separate section in the O&M Manuals for maintenance testing schedules of all equipment. A factory authorized representative of the equipment manufacturer shall certify the maintenance program. Include calendar schedule in table format to indicate all maintenance actions included during the warranty period with spaces for future testing.
8. Records of all factory and field tests by the contractor, manufacturer, or independent testing company shall be included in the O&M Manuals.
9. Wiring diagrams for all factory and field wiring shall be included in the O&M Manuals.

E. Spare Parts and Accessories List

1. A complete list of spare parts and Accessories for equipment shall be provided.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and equipment to the Project site in a clean condition with openings plugged or capped (or otherwise sealed by packaging) both during shipping and during temporary storage.
- B. Delivered electrical equipment crating and/or packaging shall clearly identify pick-points or lift-points. In the absence of crating or packaging, pick-points or lift-points must be identified on the equipment.
- C. When unloading materials and equipment provide special lifting harness or apparatus as may be required by manufacturers. Handle materials and equipment in accordance with manufacturer's written instructions.
- D. The Contractor shall determine the required equipment needed for unloading operations and have such equipment on site to perform unloading work on the date of equipment delivery.
- E. Store materials and equipment, both on and off site, in accordance with manufacturer's written instructions. Keep equipment in a dry location.

1. Temporary Heating: Apply temporary heat to materials and equipment, according to manufacturer's written instructions, throughout periods when environment is not controlled for temperature and humidity within manufacturer's stipulated service conditions.

1.7 WARRANTY

- A. The Contractor shall guarantee that all work performed and all materials and equipment installed by him are free from defects. He shall repair or replace any defective equipment, materials or workmanship, free of cost to the Owner for a period of two (2) years from date of acceptance. Where individual specification sections indicate a Special Warranty period longer than two (2) years, the longer warranty period shall apply.
- B. During this warranty period the Contractor shall:
 1. Correct and make good all electrical defects. Faulty equipment and materials shall be repaired or replaced as required to produce satisfactory results as directed by the engineer and without additional cost to the Owner. Contractor shall provide service within 24 hours after the call has been made by the Owner.

1.8 DAMAGE TO OTHER WORK

- A. Damage: Cutting or damage to existing structures, surfaces or installations shall be repaired at the expense of the Contractor. All such repairs or patching shall be done by mechanics of the appropriate trade and shall be neatly done by mechanics of the appropriate trade and shall be neatly done and in such a fashion as to leave no readily apparent joint or change in appearance, and to leave no structural or other weakness.

1.9 TEMPORARY POWER

- A. Contractor shall be entirely responsible for temporary power. All applications, fees, temporary connections, etc. shall be made by the contractor.

1.10 COORDINATION

- A. General: The Contractor shall coordinate the work performed and equipment furnished by the Electrical Contractor with work performed and equipment furnished by other trades to ensure a complete and satisfactory installation.
- B. In Maryland, contact "Miss Utility" prior to starting any site work.

1.11 INTERRUPTION OF ELECTRIC SERVICE

- A. Do not interrupt electric, telephone or cable TV service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Construction Manager no fewer than 10 days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without Construction Manager's written permission. Provide temporary power for the interruption of electric service.
3. When interruption of the power due to add and replace fuses and feeders, contractor shall provide the written power outage schedules to the project manager and facility manager for review and approval. Do not proceed with interruption of power without the project manager written permission. When the temporary power is required during the interruption of power, provide temporary power as mentioned on this section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 26 00 51

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Electrical equipment coordination and installation.
 - 2. Sleeves for raceways and cables.
 - 3. Sleeve seals.
 - 4. Grout.
 - 5. Touch up paint
 - 6. Common electrical installation requirements.

1.3 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

- A. Product Data: Provide product data for all items indicated in this specification section

1.5 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment:
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed.

- D. Coordinate sleeve selection and application with selection and application of firestopping.

PART 2 - PRODUCTS

2.1 SLEEVES FOR RACEWAYS AND CABLES

- A. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- B. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Metraflex Co.
 - d. Pipeline Seal and Insulator, Inc.
 - 2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 3. Pressure Plates: Carbon steel. Include two for each sealing element.
 - 4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.4 ACCESS DOORS

- A. Door and frame shall be constructed of steel, 16 gauge minimum. Access door shall have a continuous piano hinge. Door shall have a flush mounted lock. Finish shall be prime coat of rust inhibitive electrostatic powder, baked enamel. Access door shall be field painted to match the surrounding wall or ceiling.
- B. Provide fire rated access doors to maintain the fire rating of wall and ceiling assemblies, to restore original fire-resistance rating of assembly.

2.5 DUCT-SEALING COMPOUND

- A. Duct-Sealing Compound: Nonhardening, safe for contact with human skin, and not deteriorous to cable insulation. Capable of adhering to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals. Sealing compound will not flow up to 250 degrees F. Sealing compound will not become brittle at minus 30 degrees F. Duct-Sealing compound shall be O-Z Gedney DUX 1 or DUX 5, or approved equal.

2.6 TOUCH UP PAINT

- A. Provide touch up paint from the manufacturer of the electrical equipment. Paint shall match the finish of the equipment. At a minimum, provide touch up paint for the following equipment:
 - 1. Panelboards, electrical cabinets, and enclosures.
 - 2. Disconnect switches.
 - 3. Enclosed circuit breakers.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Comply with NFPA 70, National Electrical Code.
- C. Measure indicated mounting heights to bottom of unit for suspended items and to bottom of unit for wall-mounting items, unless otherwise noted.
- D. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- E. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

- F. Right of Way: Give to piping systems installed at a required slope.
- G. Where underground ducts or conduit enter the building, the inside of the ducts or conduit shall be sealed with Duct-Sealing Compound.
- H. Where underground ducts or conduit stub up at outdoor transformers, including utility transformers, the inside of the ducts or conduit shall be sealed with Duct-Sealing Compound.
- I. Provide touch up paint as required on equipment finishes that have been scratched, and provide touch up paint as directed by the engineer. Touch up paint shall be provided in accordance with the manufacturer's recommendations. Do not allow paint to come in contact with conductors, insulation or any live parts. All nameplates and labels shall remain visible and legible.
- J. Overcurrent devices shall be readily accessible and shall be installed so that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, is not more than 6 feet 7 inches above the floor or working platform.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

- I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
- J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials.
- K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
- L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.3 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated ceiling, floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.
- B. Install UL Listed Firestopping Material in accordance with the manufacturer's recommendations, and UL's requirements.

END OF SECTION

SECTION 26 00 60

GROUNDING AND BONDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes methods and materials for grounding systems and equipment.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise noted.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller (exception: conductors for vibrating equipment, such as transformers, motors and generators, shall use stranded conductors), and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

END OF SECTION

SECTION 26 00 73

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.3 DEFINITIONS

- A. RMC: Rigid metal conduit.
- B. MFMA: Metal Framing Manufacturer's Association

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel slotted support systems.

1.6 QUALITY ASSURANCE

- A. Comply with NFPA 70.

1.7 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.
- B. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. Thomas & Betts Corporation.
 - e. Unistrut; Tyco International, Ltd.
 - f. Hilti
 - 2. Indoors:
 - a. Steel Channel metallic Coatings: Pre-Galvanized Steel with mill galvanized coating designation G90.
 - b. Fittings and Accessories:
 - 1) Conduit hangers, conduit clamps, beam clamps, and wall brackets shall be pre-galvanized (designation G90) or electroplated zinc (ASTM B633).
 - 2) Threaded hardware shall be electroplated zinc (ASTM B633).
 - 3. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Mechanical-Expansion Anchors: Insert-wedge-type, steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

- a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
5. Toggle Bolts: All-steel springhead type.
6. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 1. To Wood: Fasten with lag screws or through bolts.

2. To New Concrete: Bolt to concrete inserts.
 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 6. To Light Steel: Sheet metal screws.
 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 26 00 75

ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with 29 CFR 1910.145.

1.4 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 RACEWAY AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Color for Printed Legend:
 - 1. Power Circuits: Black letters on an orange field.
 - 2. Instrumentation and Control Circuits: Black letters on a yellow field.
 - 3. Legend: Indicate system or service and voltage, if applicable.

- C. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

2.2 CONDUCTOR AND COMMUNICATION- AND CONTROL-CABLE IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- C. Write-On Tags: Polyester tag, 0.010 inch thick, with corrosion-resistant grommet and polyester or nylon tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag **manufacturer**.

2.3 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.

2.4 INSTRUCTION SIGNS

- A. Self-Adhesive Instruction Signs: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.

2.5 EQUIPMENT IDENTIFICATION LABELS

- A. Self-Adhesive, Engraved, Laminated Acrylic or Phenolic Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.6 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength: 50 lb, minimum.
 - 3. Temperature Range: Minus 40 to plus 185 deg F.
 - 4. Color: Black, except where used for color-coding.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use marker tape. Identify each ungrounded conductor according to source and circuit number.
- B. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.
 - 1. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.
- C. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
 - a. Indoor Equipment: Adhesive film label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where 2 lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Adhesive film label with clear protective overlay
 - 2. Equipment to Be Labeled:
 - a. Panelboards, electrical cabinets, and enclosures.
 - b. Access doors and panels for concealed electrical items.
 - c. Disconnect switches

3.2 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and

floors, at 100-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

- F. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.
1. Color shall be factory applied or, for sizes larger than No. 10 AWG if authorities having jurisdiction permit, field applied.
 2. Colors for 208/120-V and 240/120V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral: White
 3. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

END OF SECTION

SECTION 26 01 20

CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.
 - 3. Sleeves and sleeve seals for cables.

1.3 DEFINITIONS

- A. AWG: American Wire Gauge
- B. KCMIL: Thousand Circular Mil

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.6 COORDINATION

- A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. American Insulated Wire Corp.; a Leviton Company.

2. General Cable Corporation.
3. Senator Wire & Cable Company.
4. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation:

1. Comply with NEMA WC 70 for Types THHN/THWN-2. Suitable for operation at 600 volts or less in wet or dry locations.

2.2 CONNECTORS AND SPLICES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Tyco Electronics Corp

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

C. 600V Vinyl Insulating Tape: The tape is based on polyvinyl chloride (PVC) and/or its copolymers and has a rubber based, pressure-sensitive adhesive. The tape shall be 7 mils thick, and UL Listed and marked per UL Standard 510 as "Flame Retardant, Cold and Weather Resistant."

D. Screw-on Pressure Cable Connector: Connector shall be UL Listed. Voltage rating shall be 600 volts for building wire and 1000 volts for signs and fixtures.

E. Mechanical Connector: Connector shall be UL Listed. Connector shall be wrapped with electrical insulating tape in accordance with the NEC and the manufacturer's requirements. Connectors shall be dual rated (suitable for use with copper or aluminum conductors), unless other wise noted.

F. Compression Connector: Connector shall be UL Listed. Connector shall be wrapped with electrical insulating tape in accordance with the NEC and the manufacturer's requirements. Use compression tool recommended by manufacturer. Connectors shall be dual rated (suitable for use with copper or aluminum conductors), unless other wise noted.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper. Stranded.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller (exception: conductors for vibrating equipment, such as transformers, motors and generators, shall use stranded conductors); stranded for No. 8 AWG and larger.
- C. Class 1 and Class 2 Control Wiring: Copper. Stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway, unless otherwise noted.
- B. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway, unless otherwise noted.
- C. Exposed Branch Circuits: Type THHN/THWN-2, single conductors in raceway, unless otherwise noted.
- D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway, unless otherwise noted.
- E. Class 1 and Class 2 Control Wiring: Type THHN/THWN-2, single conductors in raceway unless otherwise noted.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Comply with the NEC.
- B. Comply with the manufacturer's recommendations and requirements.
- C. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- D. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- E. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- F. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

- G. Identify and color-code conductors and cables according to Specification Section "Electrical Identification."
- H. Use insulating bushings to protect ALL conductors, including conductors smaller than No. 4 AWG. Provide insulated grounding bushings where required by NFPA 70 or the Contract Documents.

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

END OF SECTION

SECTION 26 01 30

RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. FMC: Flexible metal conduit.
- B. LFMC: Liquidtight flexible metal conduit.
- C. RNC: Rigid nonmetallic conduit.
- D. EMT: Electrical metallic tubing.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Wire/Cable (power/telephone/data/coax) fill capacities for the Surface Metal Raceways
- C. Source quality-control test reports.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Allied Tube & Conduit; a Tyco International Ltd. Co.
 - 3. Anamet Electrical, Inc.; Anaconda Metal Hose.
 - 4. O-Z Gedney; a unit of General Signal.
 - 5. Wheatland Tube Company.

- 6. Robroy Industries Electrical Products Division
- B. Rigid Steel Conduit: ANSI C80.1.
- C. FMC: Zinc-coated steel
- D. EMT and Fittings: ANSI C80.3.
 - 1. Fittings: Compression type.
- E. LFMC: Flexible steel conduit with PVC jacket.
- F. Fittings for Conduit (Including all Types and Flexible and Liquidtight), and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
 - 1. Insulating Bushings: Plastic, 105 degree C minimum temperature rating.
 - 2. Insulated Grounding Bushings: Malleable Iron with plastic liner, 105 degree C minimum temperature rating.

2.2 METAL WIREWAYS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Cooper B-Line, Inc.
 - 2. Hoffman.
 - 3. Square D; Schneider Electric.
- B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, unless otherwise indicated.
- C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Wireway Covers: unless otherwise noted
- E. Finish: ANSI 61 gray polyester powder paint finish inside and out over phosphatized surfaces.

2.3 BOXES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
 - 2. EGS/Appleton Electric.
 - 3. Hoffman.

4. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
 5. O-Z/Gedney; a unit of General Signal.
 6. RACO; a Hubbell Company.
 7. Robroy Industries, Inc.; Enclosure Division.
 8. Spring City Electrical Manufacturing Company.
 9. Thomas & Betts Corporation.
 10. Walker Systems, Inc.; Wiremold Company (The).
- B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, aluminum, Type FD, with gasketed cover.
- D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- E. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

2.4 ENCLOSURES AND CABINETS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Hoffman.
- B. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
- C. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Indoors: Apply raceway products as specified below, unless otherwise indicated on the drawings.
1. Aboveground, Exposed: EMT, unless otherwise noted.
 2. Aboveground, concealed in Ceilings and Interior Walls and Partitions: EMT, unless otherwise noted.
 3. Aboveground, concealed in partly excavated or crawl spaces and in service tunnels: Rigid Steel Conduit, unless otherwise noted.
 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, unless otherwise noted and except as follows:
 5. Damp or wet locations: LFMC
 6. Damp or Wet Locations: Rigid Steel Conduit, unless otherwise noted.
 7. Where subject to physical damage: Rigid Steel Conduit, unless otherwise noted.
 8. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise noted.

- B. Wireways: All wireways shall be metal, with ANSI 61 gray polyester powder paint finish inside and out over phosphatized surfaces, unless otherwise noted.
- C. Minimum Raceway Size: 3/4-inch trade size, unless otherwise noted.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- E. Raceway Terminations: Use insulating bushings to protect ALL conductors, including conductors smaller than No. 4 AWG. Provide insulated grounding bushings where required by NFPA 70 or the Contract Documents.
- F. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.
- G. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2. Where otherwise required by NFPA 70.
- H. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 1. Use LFMC where required by the Contract Documents.
- I. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.
- J. Raceway shall run parallel or perpendicular to wall and ceiling structures (columns, joists, support beams, etc.) for a neat appearance.

K. All metallic raceways, boxes and enclosures shall be grounded.

3.3 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 2. Repair damage to paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

SECTION 26 01 40

WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Single and duplex receptacles, ground-fault circuit interrupters.
 - 2. Single- and double-pole snap switches.
 - 3. Device wall plates.

1.3 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. GFCI: Ground-fault circuit interrupter.
- C. PVC: Polyvinyl chloride.
- D. Heavy Duty Grade: Industrial Grade

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wiring device through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Wiring Devices:
 - a. Hubbell Incorporated; Wiring Device-Kellems.
 - b. Leviton Mfg. Company Inc.
 - c. Pass & Seymour/Legrand; Wiring Devices Div.
 - 2. Wiring Devices for Hazardous (Classified) Locations:
 - a. Crouse-Hinds/Cooper Industries, Inc.; Arrow Hart Wiring Devices.
 - b. EGS/Appleton Electric Company.
 - c. Killark Electric Manufacturing Co./Hubbell Incorporated.

2.2 RECEPTACLES

- A. Straight-Blade-Type Receptacles: Comply with NEMA WD 1, NEMA WD 6, DSCC W-C-596G, and UL 498.
- B. Straight-Blade and Locking Receptacles: Heavy-Duty grade.
- C. GFCI Receptacles: Straight blade, feed-through type with feed-through capacity equal to the ampere rating of the receptacle; heavy-duty grade, with ground fault protection, test and reset pushbuttons; NEMA WD 6, duplex receptacle; Complies with UL 498 and UL 943. Design units for installation in a 2-3/4 inch deep outlet box without an adapter.
- D. Tamper-Resistant Convenience Receptacles: Comply with NEMA WD 1, NEMA WD 6, and UL 498. UL Listed Shutter System complies with National Electrical Code requirements for tamper resistant receptacles. Shutters restrict access in closed position. Insertion of object in any one side will not open shutters. Insertion of two-bladed plug or grounding plug will open shutters.

2.3 SWITCHES

- A. Single- and Double-Pole Switches: Comply with DSCC W-C-896F and UL 20.
- B. Snap Switches: Heavy-Duty grade, quiet type.

2.4 WALL PLATES

- A. Single and combination types to match corresponding wiring devices.
 - 1. Plate-Securing Screws: Stainless steel screws.
 - 2. Material for Switches and Receptacles in Dry Locations: 0.035-inch-thick, satin-finished stainless steel, unless otherwise noted.

3. Material for Receptacles in Wet Locations and Outdoors, or where the drawings indicate that the receptacle cover shall be weatherproof:
 - a. Cast aluminum construction.
 - b. Mounting screws and gaskets included for fast, easy installation onto surface mounted outdoor type boxes or flush-mounted wall boxes.
 - c. Weatherproof while-in-unattended use with cover closed and plug inserted.
 - d. Cover shall have provisions for padlocks.
4. Material for Switches in Wet Locations and Outdoors, or where the drawings indicate that the switch cover shall be weatherproof:
 - a. Cast aluminum construction
 - b. Mounting screws and gaskets included for fast, easy installation onto surface-mounted outdoor type boxes or flush-mounted wall boxes.
 - c. Cover shall have provisions for padlocks.
 - d. Suitable for use in wet locations.
 - e. Switch cover shall be O-Z/Gedney FS-1-WSCA for single gang boxes and FS-2-WSCA for two gang boxes, or approved equal.

2.5 FINISHES

- A. Color:
 1. Wiring Devices Connected to Normal Power System: White, unless otherwise indicated or required by NFPA 70.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install devices and assemblies level, plumb, and square with building lines.
- B. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.
- C. Coordination with Other Trades:
 1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
 2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 4. Remove wall plates and protect devices and assemblies during painting.
- D. Conductors:
 1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.

2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
- E. Device Installation:
1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
 2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
 3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
 4. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
 5. When conductors larger than No. 10 AWG are installed on 15- or 20-A circuits, splice No. 10 AWG pigtails for device connections.
 6. Tighten unused terminal screws on the device.
 7. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.
- F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

3.2 CONNECTIONS

- A. Ground equipment according to Specification Section "Grounding and Bonding."
- B. Connect wiring according to Specification Section "Conductors and Cables."
- C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 1. After installing wiring devices and after electrical circuitry has been energized, test for proper polarity, ground continuity, and compliance with requirements.
 2. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions
- B. Remove malfunctioning units, replace with new units, and retest as specified above.

END OF SECTION

SECTION 26 04 10

ENCLOSED SWITCHES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following individually mounted, enclosed switches:
 - 1. Fusible switches.
 - 2. Enclosures.

1.3 DEFINITIONS

- A. GD: General duty.
- B. HD: Heavy duty.
- C. RMS: Root mean square.
- D. SPDT: Single pole, double throw.

1.4 SUBMITTALS

- A. Product Data: For each type of enclosed switch, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
 - 1. Enclosure types and details for types other than NEMA 250, Type 1.
 - 2. Current and voltage ratings.
 - 3. Short-circuit current rating.
 - 4. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Operation and Maintenance Data: For enclosed switches to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section "Operation and Maintenance Data," include the following:
 - 1. Manufacturer's written instructions for testing and adjusting enclosed switches.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:
 - 1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
 - 2. Altitude: Not exceeding 6600 feet.

1.7 COORDINATION

- A. Coordinate layout and installation of switches, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FUSIBLE AND NONFUSIBLE SWITCHES

- A. Available Manufacturers:
 - 1. Eaton Corporation; Cutler-Hammer Products.
 - 2. General Electric Co.; Electrical Distribution & Control Division.
 - 3. Square D/Group Schneider.
- B. Type HD, Heavy Duty Switch: NEMA KS 1, Type HD, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Type GD, General Duty Switch: NEMA KS 1, Type GD, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- D. Provisions for padlocks: Fusible and non-fusible switches shall include provisions for being padlocked in the open or closed position.
- E. Fusible switches shall be suitable for use with Class R fuses unless otherwise noted

- F. Fusible switches shall have clips or bolt pads to accommodate specified fuses.
- G. Short circuit rating of Type GD Fusible Switches when used with Class R or Class T fuses shall not be less than 100,000A.
- H. Short circuit rating of Type HD Fusible Switches when used with Class R, Class J, or Class L fuses shall not be less than 200,000A.
- I. Conductor Connectors: Suitable for use with conductor material and sizes.
- J. Accessories:
 - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded, and bonded; and labeled for copper and aluminum neutral conductors.
 - 3. Auxiliary Contact Kit: Auxiliary set of contacts arranged to open before switch blades open.

2.3 ENCLOSURES

- A. NEMA AB 1 and NEMA KS 1 to meet environmental conditions of installed location. See drawings for NEMA 250 enclosure type.

2.4 IDENTIFICATION

- A. Service Equipment Label: Service equipment shall be UL labeled for use as service equipment.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. All disconnects for elevators shall have an auxiliary contact to indicate switch position.
- B. Fusible and Nonfusible Switches shall be Type GD, General Duty Switches, unless otherwise noted and except as follows:
 - 1. Type HD, Heavy Duty Switches shall be provided if ANY of the following conditions apply:
 - a. Where the voltage rating of the switch exceeds 240VAC;
 - b. Where Class J fuses are specified;
 - c. Where NEMA 4X enclosures are specified;
 - d. Where a key switch, auxiliary contact, or electrical interlock is required;
 - e. Where the ampere rating of the switch exceeds 600A; OR
 - f. Where indicated on the drawings.

3.2 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches for compliance with installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. Comply with applicable portions of NECA 1, NEMA PB 1.1, and NEMA PB 2.1 for installation of enclosed switches.
- B. Mount individual wall-mounting switches with tops at uniform height, unless otherwise indicated. Anchor floor-mounting switches to concrete base.
- C. Provide UL Listed fuse reducers as required

3.4 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Specification Section "Electrical Identification."
- B. Enclosure Nameplates: Label each enclosure as specified in Specification Section "Electrical Identification."

3.5 CLEANING

- A. On completion of installation, vacuum dirt and debris from interiors; do not use compressed air to assist in cleaning.
- B. Inspect exposed surfaces and repair damaged finishes.

END OF SECTION

SECTION 26 51 19
LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior solid-state luminaires that use LED technology.
 - 2. Lighting fixture supports.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. LED: Light-emitting diode.
- F. Lumen: Measured output of lamp and luminaire, or both.
- G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Arrange in order of luminaire designation.
 - 2. Include data on features, accessories, and finishes.
 - 3. Include physical description and dimensions of luminaires.
 - 4. Include emergency lighting units, including batteries and chargers.
 - 5. Include life, output (lumens, CCT, and CRI), and energy efficiency data.
 - 6. Photometric data and adjustment factors based on laboratory tests, complying with IESNA Lighting Measurements Testing and Calculation Guides, of each lighting fixture type. The adjustment factors shall be for lamps and accessories identical to those indicated for the lighting fixture as applied in this Project, IES LM-79 and IES LM-80.

- a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
 - b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
- B. Shop Drawings: For nonstandard or custom luminaires.
 - 1. Include plans, elevations, sections, and mounting and attachment details.
 - 2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include diagrams for power, signal, and control wiring.
- C. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Lighting luminaires.
 - 2. Suspended ceiling components.
- B. Qualification Data: For testing laboratory providing photometric data for luminaires.
- C. Seismic Qualification Certificates: For luminaires, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
- D. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- E. Product Certificates: For each type of luminaire.
- F. Product Test Reports: For each luminaire, for tests performed by a qualified testing agency.
- G. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. At least 10 percent spare luminaires shall be provided.
 1. Lamps: Ten for every 100 of each type and rating installed. Furnish at least one of each type.
 2. Diffusers and Lenses: Ten for every 100 of each type and rating installed. Furnish at least one of each type.
 3. Globes and Guards: two for every 20 of each type and rating installed. Furnish at least one of each type.

1.8 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products, and complying with the applicable IES testing standards.
- C. Provide luminaires from a single manufacturer for each luminaire type.
- D. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.10 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE/SEI 7
- B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.
 - 1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified and the luminaire will be fully operational during and after the seismic event."

2.2 MANUFACTURES:

- A. Product: Subject to compliance with requirements, provide product indicated on drawings.

2.3 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.
- C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
- D. Recessed Fixtures: Comply with NEMA LE 4.
- E. Luminaires have LED modules and associated drivers. LED modules and associated drivers shall be fully compatible with control devices and room lighting control units.
- F. Luminaires shall have 0-10-volt linear dimming LED diming.
- G. Luminaires shall be 100 percent fully compatible with sensors and relays which are controlling the luminaires.
- H. Bulb shape complying with ANSI C79.1.
- I. Lamp base complying with ANSI C81.61 or IEC 60061-1.
- J. CRI of minimum 80. CCT of 4100 K, unless otherwise noted on drawings.
- K. Rated lamp life of 50,000 hours.
- L. Lamps dimmable from 100 percent to 0 percent of maximum light output.

- M. Internal driver.
- N. Nominal Operating Voltage: multi-voltage 120/277 V ac.
 - 1. Lens Thickness: At least 0.125 inch (3.175 mm) minimum unless otherwise indicated.
- O. Housings:
 - 1. Extruded-aluminum housing and heat sink.

2.4 MATERIALS

- A. Metal Parts:
 - 1. Free of burrs and sharp corners and edges.
 - 2. Sheet metal components shall be steel unless otherwise indicated.
 - 3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- C. Diffusers and Globes:
 - 1. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 - 2. Glass: Annealed crystal glass unless otherwise indicated.
 - 3. Lens Thickness: At least 0.125 inch (3.175 mm) minimum unless otherwise indicated.
- D. Housings:
 - 1. Extruded-aluminum housing and heat sink.
- E. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.
 - 1. Label shall include the following lamp characteristics:
 - a. "USE ONLY" and include specific lamp type.
 - b. Lamp diameter, shape, size, wattage, and coating.
 - c. CCT and CRI for all luminaires.

2.5 METAL FINISHES

- A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.6 LUMINAIRE FIXTURE SUPPORT COMPONENTS

- A. Comply with requirements in Section "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm).
- C. Rod Hangers: 1/4-inch minimum diameter, cadmium-plated, threaded steel rod.
- D. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before fixture installation. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 TEMPORARY LIGHTING

- A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

3.3 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Install lamps in each luminaire.
- D. Supports:
 - 1. Sized and rated for luminaire weight.
 - 2. Able to maintain luminaire position after cleaning and relamping.
 - 3. Provide support for luminaire without causing deflection of ceiling or wall.
 - 4. Luminaire mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and vertical force of 400 percent of luminaire weight.

- E. Ceiling-Grid-Mounted Luminaires:
 - 1. Secure to any required outlet box.
 - 2. Secure luminaire to the luminaire opening using approved fasteners in a minimum of four locations, spaced near corners of luminaire.
 - 3. Use approved devices and support components to connect luminaire to ceiling grid and building structure in a minimum of four locations, spaced near corners of luminaire.

3.4 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 - 2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Luminaire will be considered defective if it does not pass operation tests and inspections.
- C. Prepare test and inspection reports.

3.6 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to two visits to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.
 - 1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
 - 2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 - 3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION

SPECIAL PROVISIONS

Builder's Risk Insurance

- A. The Contractor shall, at his/her own cost, insure the work and keep it insured at all times during the period of construction, and until final acceptance of it by the County against loss of damage covered by an "All Risk" Builders Risk type of policy. The amount of insurance shall be the 100% estimated replacement cost of the work.
- B. The policies shall be made payable to the County and the Contractor, as their interest may appear, and the policies shall be left in the possession of the Engineer, prior to the start of construction.

S E C T I O N I I I

Permits

N/A

SECTION I V

Proposal

**This Section to be
Completed by Time of Bid**

SECTION-IV
PROPOSAL

DESCRIPTION OF WORK

Bid Opening via Teleconference WebEx: Tuesday, November 18, 2025 @ 10:30 a.m. EST.
WebEx Phone Number 1-415-655-0001, Access Code Number 2310 415 2346##.

Begin Work Within Fifteen (15) Days After NOTICE TO PROCEED

Calendar Days for Completion: One Hundred Twenty (120)

Liquidated and Other Damages: FIFTEEN HUNDRED DOLLARS (\$1500.00 PER CALENDAR DAY)

Cost Group “B” (\$100,001 to \$500,000) (Prequalified contractors with a Cost Group restriction must bid within the dollar amount stated on their Certificate of Prequalification)

Work Classification: I2

TO BALTIMORE COUNTY, MARYLAND: Provide and pay for labor, materials, equipment and services for the completion of the Baltimore County Historical Courthouse Handicap Lift. **Towson – District 9c6.**

The following listed Drawing Number(s) are collectively the “Drawings”, and are hereby incorporated in the Contract.

<u>Workday Number</u>	<u>Drawing Number(s)</u>
10000974	2025-2469 thru 2499

A pre-bid meeting will be held on Wednesday, November 5, 2025 at 10:00 a.m. EST via WebEx. *Phone-In (Audio Only)* – 1-415-655-0001, Meeting Number 2314 559 1941##. *Video Conference* – Meeting Number 2314 559 1941, **Password: mnJXmZV8E27**, go to <https://signin.webex.com/join>, or for the WebEx link go to www.baltimorecountymd.gov/departments/public-works/engineering/contracts/current-solicitations

NOTE: No successful bidder may withdraw their bid within NINETY (90) days after the opening thereof.

The Contractor hereby declares that it has carefully examined the solicitation, plans and specifications, form of contract, Special Provisions and Drawings (collectively the “Contract Documents”). The Contractor also hereby declares that it has carefully examined the September 2023 “Standard Specifications for Construction and Materials” and “Standard Details for Contraction”, collectively the “Applicable County Law” and any and all Department of Public Works and Transportation revisions thereto as of the date of advertisement. The Contract Documents, the Applicable County Law and the Department of Public Works and Transportation revisions thereto are collectively the “Specifications” and are incorporated herein. Copies of any and all Department of Public Works and Transportation revisions including but not limited to the General Conditions Building Projects, are available online at www.baltimorecountymd.gov/departments/public-works/standards. Also, the Contractor has, to its satisfaction, examined the locality of the proposed work and agrees to furnish all labor, tools, materials, machinery, equipment, and other means of construction called for in the manner provided in the Specifications for the prices shown on the next page(s) and as evidenced by Contractor’s signature on the last page thereof.

SCHEDULE OF PRICES

NOTE: The Bidder shall fill out this Proposal, write in the unit prices in clear numerals, and make the extensions.

For complete information concerning these items, see Specifications and contract forms.

CONTRACT PROPOSAL

Baltimore County Historic Courthouse Handicap Lift - 400 Washington Avenue, Towson, Maryland 21204

CONTRACT NUMBER: 25121 PO0

WORKDAY NUMBER: 10000974

JOB ORDER NUMBER: N/A

CALENDAR DAYS: 120

CONTRACTOR: _____
ADDRESS: _____
PHONE: _____

BID ITEM	COMM. CODE		DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
1	0	0000	BASE BID HISTORICAL COURTHOUSE HANDICAP LIFT	LS	1		\$
2	0	0000	ALTERNATE #1 - TERRAZZO FINISHES	LS	1		\$
TOTAL COST FOR CONTRACT							\$

TOTAL COST FOR CONTRACT IN WORDS

OFFICER SIGNATURE

TITLE

PROPOSAL AFFIDAVIT

1. AUTHORIZED REPRESENTATIVE

I HEREBY AFFIRM THAT:

I am the [title]_____ and the duly authorized representative of [business]_____ (the "Business") and that I possess the legal authority to make this Affidavit on behalf of myself and the Business for which I am acting.

2. PROPOSAL CERTIFICATION

THE UNDERSIGNED HEREBY ACKNOWLEDGES receipt of the following Addenda (list by number and date):

Accompanying this Proposal is a Bid Bond in an amount of 5% of the bid, the exact amount to be determined by the difference between the low bid and the next lowest bid, if two or more bids are received, or 5% of the bid if one bid is received. This guarantees payment to Baltimore County of the amount thus determined as liquidated damages in case of default in any matter specified as required before award or in any matter resulting in failure to execute and deliver an Agreement, together with Payment and Performance Bonds, after award.

3. AFFIRMATION REGARDING BRIBERY CONVICTIONS

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the Business, nor any of its officers, directors, partners, or any of its employees directly involved in obtaining or performing contracts with public bodies (as is defined in Section 16-101(f) of the State Finance and Procurement Article of the Annotated Code of Maryland), has been convicted of, or has had probation before judgment imposed pursuant to Section 6-225 of the Criminal Procedure Article of the Annotated Code of Maryland, or has pleaded nolo contendere to a charge of, bribery, attempted bribery, or conspiracy to bribe in violation of Maryland law, or of the law of any other state or federal law, except as follows [indicate the reasons why the affirmation cannot be given and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of person(s) involved, and their current positions and responsibilities with the Business]:

4. AFFIRMATION REGARDING OTHER CONVICTIONS

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the Business, nor any of its officers, directors, partners, or any of its employees directly involved in obtaining or performing contracts with public bodies, has:

(1) Been convicted under state or federal statute of a criminal offense incident to obtaining, attempting to obtain, or performing a public or private contract, fraud, embezzlement, theft, forgery, falsification or destruction of records, or receiving stolen property;

(2) Been convicted of any criminal violation of a state or federal antitrust statute;

(3) Been convicted under the provisions of Title 18 of the United States Code for violation of the Racketeer Influenced and Corrupt Organization Act, 18 U.S.C. §1961, et seq., or the Mail Fraud Act, 18 U.S.C. §1341, et seq., for acts arising out of the submission of bids or proposals for a public or private contract;

(4) Been convicted of a violation of the State Minority Business Enterprise Law, Section 14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland;

(5) Been convicted of conspiracy to commit any act or omission that would constitute grounds for conviction or liability under any law or statute described in subsection (1), (2), (3), or (4) above;

(6) Been found civilly liable under a state or federal antitrust statute for acts or omissions in connection with the submission of bids or proposals for a public or private contract;

(7) Admitted in writing or under oath, during the course of an official investigation or other proceedings, acts or omissions that would constitute grounds for conviction or liability under any law or statute described above, except as follows [indicate reasons why the affirmations cannot be given, and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of the person(s) involved and their current positions and responsibilities with the Business, and the status of any debarment]:

5. AFFIRMATION REGARDING DEBARMENT

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the Business, nor any of its officers, directors, partners, or any of its employees directly involved in obtaining or performing contracts with public bodies, has ever been suspended or debarred (including being issued a limited denial of participation) by any public entity, except as follows [list each debarment or suspension providing the dates of the suspension or debarment, the name of the public entity and the status of the proceeding, the name(s) of the person(s) involved and their current positions and responsibilities with the Business, the grounds of the debarment or suspension, and the details of each person's involvement in any activity that formed the grounds of the debarment or suspension]:

6. AFFIRMATION REGARDING DEBARMENT OF RELATED ENTITIES

I FURTHER AFFIRM THAT:

(1) The Business was not established and it does not operate in a manner designed to evade the application of or defeat the purpose of debarment pursuant to Sections 16-101, et seq., of the State Finance and Procurement Article of the Annotated Code of Maryland; and

(2) The Business is not a successor, assignee, subsidiary, or affiliate of a suspended or debarred business, except as follows: [you must indicate the reasons why the affirmations cannot be given without qualification]:

7. SUB-CONTRACT AFFIRMATION

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the Business, has knowingly entered into a contract with a public body under which a person debarred or suspended under Title 16 of the State Finance and Procurement Article of the Annotated Code of Maryland will provide, directly or indirectly, supplies, services, architectural services, construction related services, leases of real property, or construction.

8. AFFIRMATION REGARDING COLLUSION

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the Business, nor any of its officers, directors, members or partners, nor any of its employees, have in any way:

(1) Agreed, conspired, connived, or colluded to produce a deceptive show of competition in the compilation of the accompanying bid or offer that is being submitted;

(2) In any manner, directly or indirectly, entered into any agreement of any kind to fix the bid price or price proposal of the bidder or offeror or of any competitor, or otherwise take any action in restraint of free competitive bidding in connection with the contract for which the accompanying bid or offer is submitted;

(3) Colluded with anyone to obtain information concerning the bid that would give the Business an unfair advantage over others.

9. POLITICAL CONTRIBUTION DISCLOSURE AFFIRMATION

I FURTHER AFFIRM THAT:

The Business affirms that it is aware of, and will comply with, the provisions of Sections 14- 101 through 14-108 of the Election Law Article of the Annotated Code of Maryland, which require that every person who makes, during any 12-month period, one or more contracts, with one or more Maryland governmental entities involving cumulative consideration, or at least \$200,000.00, shall file with the State Board of Elections certain specified information to include disclosure of attributable political contributions in excess of \$500 during defined reporting periods.

10. CERTIFICATION OF CORPORATION REGISTRATION AND TAX PAYMENT

I FURTHER AFFIRM THAT:

(1) The Business is a _____(State) (Corporation), (LLC), (Partnership), (Sole Proprietor/Individual), (Other:_____), that it **is** registered in accordance with the Corporations and Associations Article of the Annotated Code of Maryland, that it **is** in good standing in the State of Maryland, and that it **has** filed all of its annual reports, together with filing fees, with the Maryland State Department of Assessments and Taxation, and that the name and address of its resident agent filed with the State Department of Assessments and Taxation is:

Name: _____

Address: _____

(If none, so state)

(2) Except as validly contested, the Business has paid, or has arranged for payment of, all taxes due the State of Maryland and Baltimore County, and has filed all required returns and reports with the Comptroller of the Treasury, the State Department of Assessments and Taxation, and the Employment Security Administration, as applicable, and will have paid all withholding taxes due the State of Maryland prior to final settlement.

11. CONTINGENT FEES

I FURTHER AFFIRM THAT:

The Business has not employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee or agent working for the Business, to solicit or secure the Contract, and that the Business has not paid or agreed to pay any person, partnership, corporation, or other entity, other than a bona fide employee or agent, any fee or other consideration contingent on the making of the Contract.

12. NONDISCRIMINATION IN EMPLOYMENT STATEMENT

I FURTHER AFFIRM THAT:

During the performance of any contract awarded of which this affidavit is a part:

(1) The Business will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin, marital status, sexual orientation, genetic information, or disability unrelated in nature and extent so as to reasonably preclude the performance of the employment, or because of the individual's refusal to submit to a genetic test or make available the results of a genetic test. The Business will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, age, national origin, marital status, sexual orientation, genetic information, or disability unrelated in nature and extent so as to reasonably preclude the performance of the employment, or because of the individual's refusal to submit to a genetic test or make available the results of a genetic test. Such action shall include, but not be limited to the following: employment, promotion, upgrading, demotion or transfer, rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Business agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the owner setting forth provisions of this nondiscrimination clause.

(2) The Business will, in all solicitations or advertisements for employees placed by or on behalf of the Business, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, national origin, marital status, sexual orientation, genetic information, or disability unrelated in nature and extent so as to reasonably preclude the performance of the employment, or because of the individual's refusal to submit to a genetic test or make available the results of a genetic test.

(3) The Business shall send to each labor union or representative of workers with which the Business has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the owner, advising the said labor union or workers' representative of these commitments, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Business shall furnish, if requested by the County, a compliance report concerning our employment practices and policies in order for the County to ascertain compliance with the special provisions of this affidavit concerning nondiscrimination in employment.

(5) In the event of the Business's noncompliance with the nondiscrimination clause of this affidavit, the contract may be canceled, terminated, or suspended in whole or in part, and the Business may be declared ineligible for further County work.

(6) The Business shall include the special provisions outlined herein pertaining to nondiscrimination in employment in every subcontract, so that such nondiscrimination in employment provisions shall be binding on each subcontractor or vendor.

13. FOREIGN CONTRACTS

I FURTHER AFFIRM THAT:

The Business affirms that it is aware of, and will comply with, the provisions of Sections 10-2-110 Article 10. Finance, Title 2 – Purchasing, Baltimore County Code 2003, which requires that prior to the award of a contract for services under the provisions of this title, and during the entire term of a contract award, the bidder or vendor shall disclose to the County whether any services covered by the bid or contract, including any subcontracted services, will be performed outside the United States. The disclosure shall be made to the Office of Budget and Finance, Purchasing Bureau.

14. MINORITY BUSINESS ENTERPRISE AND FEMALE CONTRACTORS

THIS BUSINESS INTENDS to affirmatively seek out and consider minority business enterprises to participate in this contract as subcontractors and/or suppliers of materials and services.

THE UNDERSIGNED UNDERSTANDS AND AGREES: that any and all subcontracting of supplies and services in connection with this contract, whether undertaken before or after award of contract, will be in accordance with the Minority Business Enterprise and Female Contractor requirement included in the Bid Proposal package and incorporated herein as if fully set forth; and

THE UNDERSIGNED ALSO UNDERSTANDS AND AGREES that no subcontracting will be approved until Baltimore County has reviewed and approved the affirmative actions taken by this firm.

15. REQUIREMENTS FOR EXECUTING AFFIDAVIT & PROPOSAL

The Affidavit must be signed in ink in order for the bid to be accepted and that the Proposal must be typewritten or filled out in ink.

THE UNDERSIGNED ALSO UNDERSTANDS that:

Proposals submitted by an INDIVIDUAL must be signed by an individual.

Proposals submitted by a PARTNERSHIP must be signed by the partner who is legally authorized authority to bind the partnership. Attach a copy of the Partnership Agreement and a duly certified resolution evidencing the authority of the partner so signing on behalf of the partnership.

Proposals submitted by a CORPORATION must be signed by a legally authorized officer of the corporation and attested to by the Corporate Secretary. Attach a copy of the Articles of Incorporation, By-Laws and a duly certified Board Resolution evidencing the authority of the officer so signing on behalf of the corporation.

Proposals submitted by a LIMITED LIABILITY COMPANY must be signed by a legally authorized member of the company and attested to. Attach a copy of the Operating Agreement, Articles of Organization and a duly certified resolution evidencing the authority of the member so signing on behalf of the limited liability company.

NOTE: The contractor may file with the County a list of the names of those officers, partners or members, as applicable, having legal authority to execute documents on behalf of and legally bind the contractor, duly certified, as applicable and legally required, together with the aforesaid corporate documents, which shall remain in full force and effect until such time as the County Department of Public Works and Transportation, Construction Contract Administration is advised in writing to the contrary.

16. ACKNOWLEDGMENT

I ACKNOWLEDGE THAT this Affidavit is to be furnished to the County and may be distributed to units of (1) Baltimore County; (2) the State of Maryland; (3) other counties or political subdivisions of the State of Maryland; (4) other states; and (5) the federal government. I further acknowledge that this Affidavit is subject to applicable laws of the United States and the State of Maryland, both criminal and civil, and that nothing in this Affidavit or any contract resulting from the submission of this bid or proposal shall be construed to supersede, amend, modify or waive, on behalf of Baltimore County, or the State of Maryland or any unit of the State of Maryland having jurisdiction, the exercise of any statutory right or remedy conferred by the Constitution and the laws of Maryland with respect to any misrepresentation made or any violation of the obligations, terms and covenants undertaken by the Business with respect to (a) this Affidavit, (b) the contract, and (3) other Affidavits comprising part of the contract.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

WITNESS/ATTEST:

_____	By: _____
Date: _____	Name: _____
	Title: _____
	(Authorized Representative and Affiant)

BID BOND

Principal

Business Address of Principal

Surety

Obligee: **BALTIMORE COUNTY, MARYLAND**
A body corporate and politic

A Corporation of the State of _____ and authorized to do business in Maryland

Five Percent of Bid Amount \$ _____ 5% of Bid

Penal Sum of Bond [shall be determined pursuant to latest revised Specification / G.P. 2.07 (2000 Ed.)]

Baltimore County Historical Courthouse Handicap Lift
25121 PO0

Contract Number/Proposal Item Number

KNOW ALL MEN BY THESE PRESENTS, that we, the Principal, above named, and Surety, above named, and authorized to do business in the State of Maryland, are held and firmly bound unto the Obligee, above named, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that if the aforesaid Principal is the apparent low bidder and complies with all specified matters required before award or if the aforesaid Principal is awarded the contract, the said Principal will, within the time required, execute and deliver to the Obligee a formal contract and good and sufficient payment and performance bonds in the form provided by the Obligee, then, this obligation to be void; otherwise the Principal and Surety will, upon demand, pay unto the Obligee the entire Penal Sum of this Bid Bond as liquidated damages.

THE SURETY FURTHER GUARANTEES No Proposal will be considered unless accompanied by a guaranty of the amount specified in the Proposal in the form of either a certified check, bank cashier's check or a Bid Bond on the form provided therein or an exact facsimile thereof. The Bid Bond must be executed by a Surety that is, as of the date of the Bid: (a) licensed in the State of Maryland, (b) rated "B" or better by the A.M. Best Company, (c) on federal funded projects, authorized by the underwriting limitation contained in the U.S. Department of the Treasury Circular 570, as amended, to guaranty the amount of the Bid, and (d) in good standing as determined by the County's Engineer. The Bid Bond must guaranty payment to the County of liquidated damages as follows: (a) if only one Bid is received, the guaranteed payment shall be five (5%) percent of the Bidder's Bid amount, (b) if two or more Bids are received, the guaranteed payment shall be the difference between the Bidder's Bid amount and the next lowest Bid amount, subject to the limitation that the guaranteed payment not be greater than five (5%) percent of the Bidder's Bid amount. This Bid Bond is required in case the successful Bidder, after issuance of notice of Award, fails to comply, timely and completely, with each of the requirements set forth under Section GP-3.04.

Signed and sealed _____
Date

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of:

Individual Principal

Witness: _____

as to: _____ (SEAL)

Print Name: _____

Print Name: _____

Corporate Principal

In Presence of:

(Name of Corporation)

Witness: _____

By: _____

Print Name: _____

Print Name: _____ (SEAL)

Title: _____

Surety

(Name of Surety)

Business Address: _____

Witness: _____

By: _____ Affix

Print Name: _____

Print Name: _____ Corporate

Title: _____ Seal

**BALTIMORE COUNTY
PREVAILING WAGE AND LOCAL HIRING**

AFFIDAVIT

(Project Name) _____

Proposal No.: _____

Project No.: _____

On behalf of _____, I do solemnly declare and affirm,
(Contractor)
under penalty of perjury, that to the best of my knowledge, information, and belief:

1. I have submitted all documentation in accordance with Baltimore County Code § 10-2- 506 and § 10-2-507 regarding the prevailing wage and local hiring laws and requirements of the prevailing wage guidelines located at ([Prevailing Wage and Local Hire Laws](#)), and acknowledge that I have read and agree to all provisions of said law, as amended, and have a continuing obligation to be compliant with the law and any changes to the law.

2. I shall not knowingly provide any false information relating to payroll documentation and/or hiring of local employees for capital improvement contracts that are subject to the prevailing wage and/or local hiring laws of Baltimore County. I further attest and certify that all documentation relating to the same will be accurate and complete and will remain accurate and complete on an ongoing basis, and will reflect the payroll and/or local hiring status of contractors, subcontractors, apprentices, and independent contractors performing work for the Contract (contract number _____). I acknowledge that I have been informed and am aware of the foregoing requirements and that I am authorized to make this certification on behalf of myself and all subcontractors and parties performing work pursuant to this Contract.

3. I certify and attest that I am an officer or agent of the Contractor or subcontractor who supervises the payment of employees. I understand and agree that all documentation related to prevailing wages and/or local hiring required by law shall be submitted to Baltimore County's Prevailing Wage Administrator or designee before any surety is released or final payment due under the terms of the Contract is made.

4. I further certify and attest that I will have personal knowledge of the wages paid to all employees of _____ for work performed on the Contract and of all of the hours worked, and that I am an authorized agent of the Contractor and assume responsibility for my actions.

5. I further certify and attest that _____ will comply with prevailing wage rates set by the State of Maryland as the same apply to the Contract and are a part of the bid documents and Contract, and that _____ will comply with applicable local hiring requirements.

6. I attest and certify that, if the Contract is subject to the local hiring requirement under §10-2-507 of the Baltimore County Code, _____ will make best efforts to ensure that residents of Baltimore County constitute at least 51% of the new hires made for the Contract, subject to all exceptions allowable by law.

7. I certify and attest that, if the Contract is subject to prevailing wage requirements, no rebates or deductions will be made, directly or indirectly, from any wages paid in connection with the Contract, other than those provided for by law.

8. I certify and attest that, if awarded the Contract and if the Contract is subject to prevailing wage law, I will submit certified payroll to the County through its electronic compliance system or as instructed by the Prevailing Wage and Local Hire Unit.

9. I certify that if awarded the Contract, I will provide a list of subcontractors who will participate as a beneficiary of this project to the agency and the Prevailing Wage and Local Hire Unit at PrevailingWage@baltimorecountymd.gov.

10. I understand that no funds will be dispersed by the County until an Employment Analysis has been issued to the Prevailing Wage and Local Hire Unit in compliance with the local hire law. The Employment Analysis will include how many jobs will be required to complete the project; how many current employees are available to complete the project, and how many of those jobs will require new hires.

Contractor/Bidder/Offeror

By

Printed Name

Printed Title

Date

Phone

License Number

Business Email

BALTIMORE COUNTY, MARYLAND

Prevailing Wage and Local Hiring Contract Requirements and Policies

The Contractor and all Subcontractors must comply with the Prevailing Wage and Local Hiring Laws, contained in Baltimore County Code § 10-2-506 and § 10-2-507, respectively, as amended. Prevailing wage means the wage rate paid by employers that is determined by a governmental authority, based upon a particular geographic area, for a given class of labor and type of project. The County will use the prevailing wage established by the State of Maryland (the "State") Department of Labor for state funded construction contracts in the County at the time of award. These rates include the basic hourly rate and fringe benefits. Apprentices must be paid at least the rate that the State's Apprenticeship and Training Council sets for an apprentice in the trade involved, based on a percentage of the prevailing wage rate in that trade. Any Contractor that is subject to the prevailing wage or local hiring law will be required to agree to the below provisions:

For the purposes of these requirements, an employee means an apprentice, laborer or mechanic employed by a contractor or subcontractor on a capital improvement project with a value of over \$300,000 or a County-subsidized capital project with a value over \$5,000,000.

Capital Improvement Project does not include blanket order or open-end agreements, capital improvement projects subject to a federal or state prevailing wage law, awarded without competition; with another governmental entity; to the extent the contractor is precluded from compliance by the terms of any federal or state law, contract or grant; entered into pursuant to Baltimore County Code § 10-2-310(e); entered into as a joint or cooperative purchase; or entered into as an emergency purchase.

The purpose of a prevailing wage is to ensure that contractors institute local hiring practices for Capital Improvement contracts and Capital Projects under certain circumstances as required by law, and that the Contractor's employees who work on capital improvement contracts are paid the going rate for their services. The prevailing wage rates are established by the State of Maryland Department of Labor and apply to all of the Contractor's employees and any and all Subcontractors. The Contractor and all Subcontractors must comply with all of the requirements of the Prevailing Wage Law including, but not limited to, the following:

1. Pay employees the prescribed rate as annually established by the State's Department of Labor; the prevailing wage rates in effect on the date a solicitation is issued and will apply throughout the term of a contract resulting from that solicitation. Contractor or subcontractors may NOT split or subdivide a capital improvement contract, pay an employee through a third party, treat an employee as a subcontractor or independent contractor to avoid any requirement of the County's prevailing wage law; or employ an individual classified as a helper or trainee to perform direct and measurable work on a capital improvement contract.

2. Pay employees at a rate equal to or more than the prevailing wage rate currently in effect for the type of work performed.

3. Pay employees overtime for work (I) more than eight hours in any single calendar day; (II) more than 40 hours in a work week; or (III) on a Sunday or a legal holiday.

4. Classify employees in their proper work classification in conformance with the schedule established by the State's Department of Labor.

5. May only make fair and reasonable deductions that are (a) required by law; (b) authorized in a written agreement between an employee and contractor or subcontractor signed at the beginning of employment (any deductions taken from employee paychecks including healthcare, pension, 401K, IRA, etc., child/spouse support, or tax levies); and submitted by the contractor or subcontractor to the Director of the County's Prevailing Wage Program; or required or allowed by a collective bargaining agreement between a bona fide labor organization and a contractor or subcontractor.

Electronically submit a certified copy of payroll records through the County's designated certified payroll and compliance system within 14 days after the end of payroll week ending date, to verify that Prevailing Wage rates have been paid to employees.

6. Backup documentation may be required upon demand from the County to be submitted for all 3rd party benefits being claimed, to include, but not limited to: *one month's healthcare transmittal showing employee name and amount company pays on their behalf, company vacation/sick policy, etc. or if Union, a Union transmittal for one month in which work has been performed.*

7. Retain records for a period of five (5) years after the work is completed and permit the Director of the County Prevailing Wage Program, or his/her designee, to inspect the payroll records at a reasonable time and as often as necessary.

8. Payroll records shall contain a statement signed by the contractor or subcontractor (including tiered subcontractors) certifying that the payroll records are complete and correct; the wage rates are not less than required by the Prevailing Wage Law; and the rate of pay and classification for each employee accurately reflects the work the employee performed.

9. All payroll records shall include the name, address, telephone number and email address of the contractor or subcontractor; the name and location of the job; and each employee's name, current address, unless previously reported; specific work classification; daily basic time and overtime hours; total basic time and overtime hours for the payroll period; rate of pay; fringe benefits by type and amount; and gross wages, and any deductions taken from employees' paychecks including, but not limited to, healthcare, pension/401K/IRA. Late submission of copies of any payroll records may be deemed deficient by the County until the required records are provided, and the County may postpone processing payments due under the Contract or under an agreement to finance the Contract.

10. Submit to random or regular audits and investigation of any complaint of a violation of the County's Prevailing Wage and Local Hiring Laws and requirements.
11. Make best efforts to fill at least 51% of new jobs required to complete the capital improvement contract or capital project with Baltimore County residents.
12. Submit monthly reports to the Director of the County's Prevailing Wage Unit relating to local hiring with respect to capital improvement contracts over \$300,00 or County-subsidized capital construction projects receiving assistance over \$5,000,000, that includes (a) the number of new hires needed for the contract or project, (b) the number of County residents hired during the reporting period, (c) the total number of all employees hired during the contract period, (d) best efforts made to fill open positions with County residents, and (e) 5) for new hires: name, last four (4) digits of the social security number, job title, hire date, address and referral source.
13. Agree that any and all disputes will be handled as set forth in the County's Prevailing Wage and Local Hire as a condition of award.
14. In the event the County determines that a provision of the Prevailing Wage and/or Local Hire Law has been violated, the County shall issue a written decision, including appropriate sanctions, and may withhold payment due the Contractor in an amount sufficient to pay each employee of the Contractor or any subcontractors the full amount of wages due under the Prevailing Wage Law, and an amount sufficient to satisfy a liability of the Contractor for liquidated damages as provided under the Prevailing Wage Law, pending a final decision on the violation by the County. The Contractor may appeal a written decision of the Director of the County's Prevailing Wage Unit that the Contractor violated a provision of the Prevailing Wage and/or Local Hire Law, to the Office of Administrative Hearings ("OAH"), within ten (10) working days after receiving a copy of the decision. OAH will conduct a hearing upon the receipt of a timely appeal. If no appeal, the decision of the Director of the County's Prevailing Wage Unit or his/her designee becomes final. A Contractor who is found to have violated the provisions of the Prevailing Wage or Local Hiring Laws intentionally, may not be awarded a County contract or work on any County project for a period of one year from the date of the OAH determination.
15. May not discharge, or otherwise retaliate against, an employee for asserting any right under the Prevailing Wage Law or for filing a complaint of a violation;
16. An aggrieved employee is a third-party beneficiary of the Contract and may by civil action recover the difference between the prevailing wage for the type of work performed and the amount actually received, with interest and a reasonable attorney's fee.
17. Each Contract subject to the Prevailing Wage and Local Hire Laws may specify the payment of liquidated damages to the County by the Contractor for any noncompliance with the Prevailing Wage and Local Law. Liquidated damages are:
 - a. \$10 for each calendar day that the payroll records are late (payrolls are to be submitted no later than 14 days after the week ending date shown on Certified Payroll Record CPR);
 - \$20 for each day that an employee is misclassified and/or paid less than the prevailing

wage rate; and a civil penalty of \$50 per violation of the requirement to post the prevailing wage rates at the work site.

- b. \$50 per month for each month the Local Hire report is not submitted by the last day of the existing month due.

These liquidated damages are solely related to prevailing wage and local hiring compliance and do not negate any other remedies available or set forth in the Contract, including delay damages or actual damages. These remedies are separate from, in addition to, and not in lieu of, any remedies available and set forth in the Contract, or at law, for other breaches or defaults under the Contract.

- 18. Where the initial Contract Sum is \$300,000 or below, but it is subsequently increased and exceeds \$300,000 due to an approved Contract Modification, the amount of any such Contract Modification that causes the Contract Sum to exceed \$300,000 is subject to the Prevailing Wage and Local Hiring Laws.
- 19. The Contractor and all subcontractors must post a clearly legible statement of each prevailing wage rate in a prominent and easily accessible place at the Work Site during the entire time Work is being performed, in English and any other language that is primarily spoken by the employees, at the Work Site.
- 20. A contract may include the actual cost of health and dental insurance, pension or retirement plan, paid time off such as vacation or sick days and life insurance. In calculating the cost per hour, divide the annual cost of benefits by 2,080 hours for each employee. Other benefits such as the use of a company vehicle, cell phones, lodging reimbursement, company owned tools **may not be credited towards the fringe benefit amount.**
- 21. All apprentices must be registered with the Maryland Apprenticeship and Training Council, V.A., or US DOL as well as be currently enrolled in, and attending appropriate classes, to which is considered “actively enrolled”. Only actively enrolled apprentices may be employed on the project at the apprentice prevailing wage rate.

Classification	Modification Reason	Basic Hourly Rate	Borrowed From	Fringe Benefit Payment
BALANCING TECHNICIAN	AD	\$47.92		\$24.44
BRICKLAYER	AD	\$37.50		\$14.78
CARPENTER	AD	\$34.41		\$14.49
CARPENTER - SHORING SCAFFOLD BUILDER	AD	\$34.41		\$14.49
CARPET LAYER	AD	\$34.12		\$14.86
CEMENT MASON	AD	\$25.00	510	\$1.94
COMMUNICATION INSTALLER TECHNICIAN	AD	\$36.37		\$12.89
DRYWALL - SPACKLING, TAPING, & FINISHING	AD	\$34.41		\$14.49
ELECTRICIAN	AD	\$47.13		\$21.94
ELEVATOR MECHANIC	AD	\$56.36		\$45.50
FIRESTOPPER	AD	\$29.81		\$10.08
GLAZIER	AD	\$35.60		\$14.41
INSULATION WORKER	AD	\$40.02		\$19.92
IRONWORKER - FENCE ERECTOR	AD	\$40.02		\$19.92
IRONWORKER - ORNAMENTAL	AD	\$31.17	510	\$24.38
IRONWORKER - REINFORCING	AD	\$29.20	510	\$23.57
IRONWORKER - STRUCTURAL	AD	\$33.12		\$25.63
LABORER - AIR TOOL OPERATOR	AD	\$24.46		\$9.69
LABORER - ASPHALT PAVER	AD	\$24.46		\$9.69
LABORER - ASPHALT RAKER	AD	\$22.63		\$4.88
LABORER - BLASTER - DYNAMITE	AD	\$24.46		\$9.69
LABORER - BURNER	AD	\$24.46		\$9.69
LABORER - COMMON	AD	\$22.63		\$4.88
LABORER - CONCRETE PUDDLER	AD	\$22.63		\$4.88
LABORER - CONCRETE SURFACER	AD	\$24.46		\$9.69
LABORER - CONCRETE TENDER	AD	\$22.63		\$4.88
LABORER - CONCRETE VIBRATOR	AD	\$22.63		\$4.88
LABORER - DENSITY GAUGE	AD	\$22.63		\$4.88
LABORER - FIREPROOFER - MIXER	AD	\$22.63		\$4.88
LABORER - FLAGGER	AD	\$22.63		\$4.88
LABORER - GRADE CHECKER	AD	\$22.63		\$4.88
LABORER - HAND ROLLER	AD	\$22.63		\$4.88
LABORER - HAZARDOUS MATERIAL HANDLER	AD	\$24.46		\$9.69
LABORER - JACKHAMMER	AD	\$22.63		\$4.88
LABORER - LANDSCAPING	AD	\$22.63		\$4.88
LABORER - LAYOUT	AD	\$22.63		\$4.88
LABORER - LUTEMAN	AD	\$22.63		\$4.88
LABORER - MASON TENDER	AD	\$24.46		\$9.69
LABORER - MORTAR MIXER	AD	\$22.63		\$4.88
LABORER - PIPELAYER	AD	\$24.46		\$9.69
LABORER - PLASTERER - HANDLER	AD	\$22.63		\$4.88
LABORER - SCAFFOLD BUILDER	AD	\$24.46		\$9.69
LABORER - TAMPER	AD	\$22.63		\$4.88
MECHANICAL SYSTEMS SERVICE TECH - ELECTRICAL SYSTEMS	AD	\$46.21	510	\$24.90

MECHANICAL SYSTEMS SERVICE TECH-HVAC SYSTEMS	AD	\$46.21		\$24.90
MECHANICAL SYSTEMS SERVICE TECH-PLUMBING SYSTEMS	AD	\$46.21		\$24.90
MECHANICAL SYSTEMS SERVICE TECH - REFRIGERATION SYSTEMS	AD	\$52.27	003	\$24.58
MILLWRIGHT	AD	\$38.61		\$17.21
PAINTER	AD	\$28.55		\$11.87
PAINTER-INDUSTRIAL	AD	\$35.55		\$15.28
PILEDRIIVER	AD	\$36.60		\$16.78
PLUMBER	AD	\$46.21		\$24.90
POWER EQUIPMENT OPERATOR - BACKHOE	AD	\$33.00	510	\$13.55
POWER EQUIPMENT OPERATOR - BROOM / SWEEPER	AD	\$32.23	510	\$14.62
POWER EQUIPMENT OPERATOR - BULLDOZER	AD	\$34.18		\$14.62
POWER EQUIPMENT OPERATOR - CONCRETE PUMP	AD	\$44.35		\$0.00
POWER EQUIPMENT OPERATOR - CRANE	AD	\$41.00		\$18.10
POWER EQUIPMENT OPERATOR - CRANE - TOWER	AD	\$41.00		\$18.10
POWER EQUIPMENT OPERATOR - DRILL - RIG	AD	\$33.16		\$14.15
POWER EQUIPMENT OPERATOR - EXCAVATOR	AD	\$34.18		\$14.62
POWER EQUIPMENT OPERATOR - FORKLIFT	AD	\$34.18		\$14.62
POWER EQUIPMENT OPERATOR - GRADALL	AD	\$34.00	510	\$13.55
POWER EQUIPMENT OPERATOR - GRADER	AD	\$34.18		\$14.62
POWER EQUIPMENT OPERATOR - GUARD RAIL POST DRIVER	AD	\$23.50		\$5.07
POWER EQUIPMENT OPERATOR - LOADER	AD	\$34.18		\$14.62
POWER EQUIPMENT OPERATOR - MECHANIC	AD	\$36.24		\$14.62
POWER EQUIPMENT OPERATOR - MILLING MACHINE	AD	\$30.58	510	\$13.55
POWER EQUIPMENT OPERATOR - PAVER	AD	\$32.10	510	\$13.55
POWER EQUIPMENT OPERATOR - ROLLER - ASPHALT	AD	\$32.10	510	\$13.55
POWER EQUIPMENT OPERATOR - ROLLER - EARTH	AD	\$28.60		\$14.62
POWER EQUIPMENT OPERATOR - SCREED	AD	\$30.00	510	\$11.80
POWER EQUIPMENT OPERATOR - SKID STEER (BOBCAT)	AD	\$32.23		\$14.62
POWER EQUIPMENT OPERATOR-VACUUM TRUCK	AD	\$37.50		\$14.85
RESILIENT FLOOR	AD	\$34.12		\$14.86
SHEETMETAL WORKER (INCLUDING METAL ROOFING)	AD	\$47.92		\$24.44
SPRINKLERFITTER	AD	\$42.32	510	\$26.05
SPRINKLERFITTER/PIPEFITTER	AD	\$46.21		\$24.90
STONE MASON	AD	\$44.30	510	\$21.22
TILE & TERRAZZO FINISHER	AD	\$28.09		\$12.59
TILE & TERRAZZO MECHANIC	AD	\$33.41		\$14.24
TRUCK DRIVER - DUMP	AD	\$17.64	510	\$1.92
TRUCK DRIVER - FLATBED	AD	\$20.94		\$7.63
TRUCK DRIVER - LOWBOY	AD	\$29.68	510	\$10.51
TRUCK DRIVER - TACK/TAR TRUCK	AD	\$27.35	510	\$8.97

BALTIMORE COUNTY, MARYLAND
USE OF MINORITY BUSINESS ENTERPRISES AND WOMEN'S BUSINESS ENTERPRISES
IN
COUNTY CONTRACTS
MWBE Plan Package



Division of Diversity, Equity and Inclusion
The Jefferson Building
105 West Chesapeake Avenue
Towson, Maryland 21204
410-887-3407

www.baltimorecountymd.gov/go/mwbe



PROSPECTIVE BIDDERS/OFFERORS

Baltimore County Executive Order 2022-005 Use of Minority Business Enterprises and Women's Business Enterprises states:

SECTION 6. BID REQUIREMENTS.

- (A)(1) *All bidders shall submit a list of all subcontractors contacted in preparation of their bid package or proposal.*
(2) *The list shall include the service to be performed, bid amount, and the race/ethnicity/gender of the business owner(s).*
(B)(1) *All bidders shall submit a list of all subcontractors to be used on a county contract in the bid package.*
(2) *This list shall include all subcontractors (both MWBE and non-MWBE) used, the service to be performed, the total amount to be paid, and the race/ethnicity/gender of the owner.*

If the solicitation includes a MWBE **subcontracting** goal, you **MUST** demonstrate “**Good Faith**” **effort** either by:

1. Complete and sign FORM A, FORM B (to include FORM B-Prime if MWBE Prime wishes to count towards the goal) and FORM C **listing all subcontractors** with the initial bid submission.
 - a. *All Forms must be completed and signed. However, FORM C **MUST** be completed and signed by both the prime and the MWBE subcontractor.*
- OR**
2. If you are unable to meet any portion of the goal, you **MUST** do one of the following:
 - a. If you are requesting a **partial waiver**, complete and sign FORM A with initial bid submission. FORM B (to include FORM B-Prime if MWBE Prime wishes to count towards the goal) and FORM C (**listing all subcontractors**). In addition, complete, sign and submit FORM D and FORM E **accompanied with all supporting documentation** for the portion of the goal that will not be achieved as specified on FORM A.
 - b. If you are requesting a **full waiver**, complete and sign FORM A indicating your intent to request a full waiver **accompanied with a completed and signed FORM C listing all subcontractors**, FORM D and FORM E **accompanied with all supporting documentation. This MUST be submitted with the initial bid as specified on FORM A.**
 - c. *All Forms must be completed and signed. FORM C and FORM D **MUST** be completed and properly signed by both the Prime AND the MWBE subcontractor(s).*

NOTE: The MWBE **subcontracting** goal applies to ALL prime/general contractors including certified and non-certified minority and women owned firms. **However, a Minority-owned or a Women-owned prime may self-perform up to 50% of MWBE subcontracting goal set in the solicitation. The MWBE primes that wish to count towards the goal must list themselves on all appropriate forms.**

12/2023

BALTIMORE COUNTY, MARYLAND

MWBE PARTICIPATION SUMMARY

Executive Order: Minority Business Enterprises and Women Business Enterprises (MWBE) shall have the maximum opportunity to participate in the performance of contracts financed in whole, or in certain circumstances, in part with County funds. Accordingly, on December 6, 2022, the County Executive adopted the EXECUTIVE ORDER No. 2022-005 addressing MWBE participation in County contracts. The December 6, 2022 Executive Order may be found on the Baltimore County website at www.baltimorecountymd.gov/go/mwbe.

Each Contract: The County shall establish a minimum MWBE participation amount for each contract, as applicable.

Bidder/Offeror Responsibility: The bidder/offeror shall ensure that MWBE participation occurs in accordance with the contract requirements and the County Executive's Executive Order. All bidder/offerors shall ensure that MWBE have the maximum opportunity to compete for and perform County contracts, as applicable. Baltimore County, Maryland, and/or its bidder/offerors and contractors shall not discriminate on the basis of race, color, national origin, disability or sex in the award and performance of any County contract.

Mobilization Payments: For subcontractors, project start-up costs can also be significant. A subcontractor that has limited resources and access to credit may find that start-up expenses inhibit its ability to bid County contracts. Under circumstances where mobilization payments are approved for the prime contractor, the subcontractor should be paid an amount equal to their participation percentage no later than five (5) business days before they are required to mobilize to perform the contracted work.

Mobilization costs represent pre-contract costs incurred by a contractor to prepare a job site before the actual commencement of the contract. These costs can include movement of personnel and equipment to the project site and for the establishment of the Contractor's offices, buildings, and other facilities necessary to begin work.

APPROVED MWBE LISTINGS

Published compilations of approved and certified MWBE, contractors, subcontractors, material suppliers, etc. include:

DIRECTORY OF MINORITY BUSINESS ENTERPRISE (MDOT):

<https://marylandmdbe.mdbecert.com>

MINORITY BUSINESS DIRECTORY OF THE CITY OF BALTIMORE:

<https://baltimorecity.diversitycompliance.com>

BIDDER/OFFEROR'S ACTIONS

Seeking Firms:

The bidder/offeror will seek commitments by subcontract or otherwise from MWBE firms for supplies and/or services, any combined value of which equals or exceeds the required percentage of MWBE participation goal for the County contract. However a MWBE Prime that affirms its MWBE status on the Minority and/or Women Prime Participation Affidavit may count up to 50% of the goal.

Expenditures for Materials and Supplies:

A bidder/offeror may count toward its MWBE contract requirements all expenditures for materials and supplies obtained from MWBE suppliers and manufacturers, provided that the MWBE firm is furnishing and installing the materials and is certified to perform these services. If the MWBE firm is only being used as a supplier, wholesaler and/or regular dealer or is not certified to install the supplies/materials, for purposes of achieving the MWBE participation goal, you may only count sixty percent (60%) of the value of the subcontract for these supplies/products (60% Rule). To apply the 60% Rule, first divide the amount of the subcontract for these supplies/products only (not installation) by the total Contract value. Then, multiply the result by sixty percent (60%) and insert the percentage in the Percent of Total Contract field of Form B Subcontractor Participation Schedule.

BALTIMORE COUNTY, MARYLAND **MWBE PARTICIPATION SUMMARY**

Information to be supplied: All bidder/offers shall submit the following information to the County at the time of bid submission:

1. The name of an employee designated as the bidder/offers's liaison to the County's Minority Business Enterprise Office.
2. The following forms shall be completed and submitted:
 - Certified MWBE Utilization and Fair Solicitation Affidavit (**Form A**); from among those names appearing in the Approved MWBE Listings (excepting Federal Highway Administration projects, which exclusively require DBE approved and certified by the Maryland Department of Transportation MBE Advisory Committee);
 - A Subcontractor Participation Schedule (**Form B**) completed by the prime contractor for each MWBE listed on the Form.
 - A MWBE Prime Participation Schedule (Form B-Prime) completed by a MWBE prime contractor if the firm wishes to self-perform up to 50% of the MBE/WBE goal.
 - A MWBE Disclosure and Participation Statement (**Form C**) completed and signed by the prime contractor and MWBE firm for each MWBE listed on the Form. Form C **must match** what is stated on Form B.
 - If applicable, MWBE Subcontractor Unavailable Certificate (**Form D**) completed and signed by the prime contractor and MWBE for each MWBE listed on the Form.
3. If applicable, MWBE Outreach Efforts - Compliance Statement (**Form E**) completed and signed by the Bidder/Offers. The prime shall submit a list of all subcontractors.
4. For DPW contracts, if the bidder/offers intends to fulfill the MWBE requirements by use of a joint venture, he/she must submit a Joint Venture Disclosure Affidavit (**Form D-EEO-006-A** and **B**) showing the extent of MWBE participation. If a bidder/offers intends to use a MWBE joint venture as a subcontractor to meet its MWBE requirements, the affidavit must be submitted through the bidder/offers by the proposed subcontractors and signed by all parties.
5. If the bidder/offers's proposed MWBE participation does not meet the MWBE contract requirements, information sufficient to demonstrate that the bidder/offers has made every effort to meet the requirements must be submitted. (See DETERMINATION OF BID RESPONSIVENESS hereafter)

RECORDS AND REPORTS

Returning Records: The bidder/offers must keep such records as are necessary to determine compliance with its MWBE utilization requirements:

1. The MWBE and non-minority contractors, type of work being performed, actual values of work and services.
2. Documentation of all correspondence, contacts, telephone calls, etc., to obtain MWBE services for the contract.
3. All prime contractors and MWBE sub-contractors are required to report monthly, by the 10th of each month, to the County through an online system called PRISM. If the contractor cannot submit his/her report on time, he/she will notify the County MWBE office and request additional time to submit the report. Failure of the contractor to report in a timely manner may result in a finding of noncompliance. The County in its sole discretion and/or upon written request may require additional reports regarding MWBE. In the event you are not able to enter your payments in PRISM, a spreadsheet is attached for your use. Please be sure to list the PO for each invoice/ payment reported and include in your submission any corresponding documentation (e.g. copies of invoices or cancelled checks).

Retaining Records: All MWBE records must be retained for 3 years following the expiration or any earlier termination of the contract and shall be available for inspection and photocopying by the County.

Investigation and Notification: Whenever the County believes the bidder/offers, contractor, or any subcontractor may not be operating in compliance with the MWBE requirements, the County may, in its sole discretion, conduct an investigation. If the County finds the bidder/offers, contractor, or any subcontractor is not in compliance with the MWBE requirements, the County may exercise any and all rights and remedies available to the County, under the contract, at law or equity, as deemed applicable and appropriate by the County in its sole discretion.

BALTIMORE COUNTY, MARYLAND **MWBE PARTICIPATION SUMMARY**

DETERMINATION OF BID RESPONSIVENESS

Request for Deviation: If the bidder/offeror is unable to procure from MWBE firms (by subcontract or otherwise), supplies and services, any combined value of which equals the required percentage of the total value of the contract, the bidder/ offeror may request, in writing, a deviation or waiver of the contract requirements. To obtain such a waiver, the bidder/ offeror must submit the following information at the time bids are due:

1. The request for waiver request shall include (1) a signed unavailability statement (Form D) executed by all MBEs and WBEs that the bidder/offeror solicited for participation and (2) Outreach Efforts/Compliance Statement (Form E) that demonstrates the bidder/offeror's good faith efforts to comply with the contract requirements, including copies of solicitation documentation to all potential subcontractors:
2. Emails, letters, facsimile transmittals and confirmations containing plans, specifications, and anticipated time schedule for portions of the work to be performed and meeting notes and agendas clearly identifying the certified MBE or WBE classification and dates that the bidder/offeror contacted each MWBE; and
3. Telephone logs containing names, addresses, dates, telephone numbers, work to be performed, anticipated time schedule and classification of certified MBEs and WBEs contacted.

Bid Rejection: The failure of any bidder/offeror (including the apparent low bidder/offeror) to provide a responsive MWBE Plan as required by the solicitation may result in the bidder/offeror being deemed non-responsive and the County's rejection of the bid.

Liquidated Damages If the County issues a notice of intent to awards contract to the apparent low bidder/offeror who provided a responsive MWBE Plan, but, if after said notice and before execution of Contract Documents, it is determined by the County that the apparent low bidder/offeror has failed to comply with the MWBE Plan, such failure may result in the recommendation by the appropriate Procurement Official to annul the award and forfeit the bidder/offeror's Proposal Guaranty to the County, not as a penalty, but as liquidated damages, it being acknowledged that actual damages will be difficult if not impossible to accurately measure. In addition, the County may proceed as it determines to be in its best interest, including but not limited to, the Notice of Award may be made to the next lowest responsive and responsible bidder/offeror or the work may be re-advertised.

Contract Breach: If, after execution of a County contract, the contractor becomes aware it may or will fail to fulfill the applicable MWBE requirements and/or may or will deviate from the contractor's bid response/contract terms, the contractor shall promptly advise the County of this in writing. Thereafter, the County will determine what action or remedy is appropriate on a case-by-case basis, in the County's sole discretion.

Approval Required for Changes: Any and all changes to the MWBE subcontractors or the type or amount of work to be performed by such subcontractors during the contract term must be mutually agreeable to the County and the contractor and shall be documented via a contract amendment, executed by legally authorized representatives of the County and the contractor.

Cooperation in Reviews: The bidder/offeror will cooperate with the County in any reviews of the contractor's procedures and practices with respect to MBE or WBE firms, which the County may from time to time conduct in its sole discretion.

Other: If the documents used to determine the contractor's efforts, achievement of, and/or the status of an MWBE requirement or fulfillment thereof contain false, misleading or misrepresented information, the contractor may be declared in breach of the contract and the County may take any and all actions and/or remedies available to the County under the contract, at law, or in equity. If an MWBE is disqualified by any public entity, including but not limited to, Baltimore City, the State or MDOT, at any time after award or during the term of the contract, the County may, in its sole discretion, require the prime contractor to promptly submit for County approval, the contractor's plans for fulfilling the required MWBE participation under the contract, and/or request such detail and additional information as the County, in its discretion deems appropriate.



PRIME CONTRACTOR MINORITY AND WOMEN PARTICIPATION AFFIDAVIT

A. AUTHORIZED REPRESENTATIVE

I HEREBY AFFIRM THAT:

I am the [title]_____ and the duly authorized representative of
[business]_____
_____ (the "Business") and that I possess the legal authority to make this
Affidavit on behalf of myself and the Business for which I am acting.

B. AFFIRMATION REGARDING MINORITY AND WOMEN PARTICIPATION

I FURTHER AFFIRM THAT:

I am aware that, pursuant to the December 6, 2022 Executive Order of Baltimore County, Maryland, the following words have the meanings indicated.

(A) "Minority Business Enterprise" or "MBE" means a business enterprise that is owned, operated and controlled by one or more minority group members (African American, Hispanic American, Asian American, or Native American) who have at least 51% ownership and in which the minority group members have operational and managerial control, interest in capital and earnings commensurate with their percentage of ownership.

(B) "Women's Business Enterprise" or "WBE" means a business enterprise that is owned, operated and controlled by one or more women who have at least 51% ownership and in which the women have operational and managerial control, interest in capital and earnings commensurate with their percentage of ownership.

____ The Prime is a MBE ☐ or WBE ☐

☐ Maryland State Department of Transportation (MDOT) # _____

☐ City of Baltimore # _____

☐ Name Other Jurisdiction: _____ # _____

☐ The ownership of the Noncertified MWBE business consists of _____ % minorities and _____ % women (for a total of _____ %), each of which has operational and managerial control, interest in capital and earnings commensurate with their percent ownership.

_____ % African American _____ % Hispanic American _____ % Women
_____ % Asian American _____ % Native American _____ % Disadvantaged (DBE)

____ The MWBE prime anticipates meeting up to 50% of the stated participation goal with its own workforce.

MWBE primes percentage must be stated on the MWBE PRIME PARTICIPATION SCHEDULE (FORM B-PRIME) to count towards the goal.

____ The prime anticipates ☐ does not anticipate ☐ utilizing subcontractors for _____ % of the work of the contract requirements, of which it anticipates _____ % will be MBEs and _____ % will be WBEs.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

Date: _____

By: _____

(Authorized Representative and Affiant's Name and Title)

BALTIMORE COUNTY, MARYLAND
Certified MWBE Utilization and Fair Solicitation Affidavit
(FORM A)

**This document must be completed and submitted with Bid/Proposal to Baltimore County.*

NOTE: If you do not complete and submit this form with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer NON-RESPONSIVE and accordingly the COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.

* * * * *

I acknowledge the goal for solicitation #25121 PO0 is a minimum of 23 %. This goal must be met by any combination of the MWBE subcontractors. However, for instances where the Prime is counting up to 50% of the goal, the remaining goal balance must be met by any combination of the MWBE subcontractors.

- The goal breakdown is as follows:
 - _____ % Minority/Women Prime
 - _____ % for certified MBE-owned businesses and/or
 - _____ % for certified WBE-owned businesses.

I have made a good-faith effort to achieve this MWBE solicitation requirement. If awarded the contract, I will comply with this MWBE contract requirement and will continue to use my best efforts to increase MWBE participation during the contract term.

PLEASE CHECK ONE BOX (EITHER 1, 2, OR 3)

- 1 ☐ Prime has met the MWBE contract requirements for this solicitation and contract. I submit the Subcontractor Participation Form B and Form C, along with this Affidavit, which details how the Prime will achieve the contract requirements. Submit a complete list of all additional subcontractors
- Or**
- 2 ☐ After having made a good-faith effort to achieve the MWBE requirements, the Prime can only achieve partial success. I submit the Subcontractor Participation Form B, Form C, Form D and Form E along with this Affidavit, which details how the Prime will partially achieve the contract requirements. Submit a complete list of all additional subcontractors

I request a partial waiver and will meet the following MWBE participation goals:

- Partial waiver of MWBE subcontract participation:
 - _____ % Minority/Women Prime
 - _____ % for certified MBE-owned businesses and/or
 - _____ % for certified WBE-owned businesses.

Or

- 3 ☐ After having made a good faith effort to achieve the MWBE requirements for this contract, the Prime is unable to achieve the requirements and/or sub requirements for this contract. I submit the MWBE Participation Form D and Form E, along with this Affidavit, which details the steps the Prime has taken in an attempt to achieve the contract requirements. Therefore, I request a full waiver.

IF YOU HAVE CHECKED BOX 2 OR 3, THE FOLLOWING IS APPLICABLE:

- 1) If a bidder is unable to comply with the goals established in a bid for a project, the bidder may submit a request for a waiver at the time of bid submission. However, occasions for granting waivers will be limited.

BALTIMORE COUNTY, MARYLAND
Certified MWBE Utilization and Fair Solicitation Affidavit
(FORM A)

- 2) The request for waiver shall include documentation that demonstrates the bidder's good faith efforts to comply with the goals, including:
- a. Signed unavailability statements from all MBEs and WBEs that the bidder solicited for participation; and
 - b. Copies of solicitation documentation to include the scope of services to be performed by the subcontractors accompanied with the following:
 - i. Emails, letters, facsimile transmittals and confirmations containing plans, specifications, and anticipated time schedule for portions of the work to be performed and meeting notes and agendas clearly identifying the certified MBE or WBE classification and dates that the bidder contacted each; and
 - ii. Telephone logs containing names, addresses, dates, telephone numbers, work to be performed, anticipated time schedule and classification of certified MBEs and WBEs contacted.
 - iii. Responses from MWBE firms contacted to fulfill the goal.

As I have checked Box 2 or 3 of this Affidavit, I understand I must submit the following supporting documentation with the bid:

- *Subcontractor Participation Schedule* (Form B)
- *MWBE Subcontractor Disclosure and Participation Statement* (Form C)
- *MWBE Subcontractors Unavailable Certificate* (Form D) (if applicable)
- *MWBE Outreach Efforts – Compliance Statement* (Form E) (if applicable)

I acknowledge that the MWBE subcontractors/suppliers listed on the *Subcontractor Participation Schedule* (Form B) will be used to accomplish the percentage of MWBE participation that the Prime shall achieve. A fully executed Form C must match Form B.

In the solicitation of subcontract quotations or offers, MWBE subcontractors were provided the same information and amount of time to respond, as were non-MWBE subcontractors.

The solicitation process was conducted in such a manner so as to not place MWBE subcontractors at a competitive disadvantage to non-MWBE subcontractors.

I solemnly affirm under the penalties of perjury that this Affidavit is true to the best of my knowledge, information, and belief.

Bidder/Offeror Name

Phone Number

Address

Affiant Signature

Address (continued)

Printed Name & Title

E-mail address

Date

BALTIMORE COUNTY, MARYLAND
SUBCONTRACTOR PARTICIPATION
SCHEDULE (FORM B)

**This document must be completed and submitted with Bid/Proposal to
Baltimore County.*

NOTE: If you do not complete and submit this form with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer NON-RESPONSIVE and accordingly the COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.

Prime Name 	Prime Address, Telephone Number and Email
Bid/Proposal Name and Number 	Project Location
	Base Bid \$ _____
1. Subcontractor Name and Tax ID 	Subcontractor Address
Telephone Number _____ Email Address _____ Select One: ☐ MBE ☐ WBE ☐ SBE ☐ N/A Provide if Applicable: ☐ MDOT ☐ Baltimore City # _____	Minority Status (If applicable): ☐ African American ☐ Asian American Pacific ☐ Asian American Sub-continent ☐ Supplier, Wholesaler and/or Regular Dealer - 60% Rule ☐ Female ☐ Native American ☐ Hispanic American
NAICS Code(s), Work to be Performed and Subcontract Dollar Amount 	Percent of Total Contract (See instructions on Page 1 of the MWBE PARTICIPATION SUMMARY for 60% rule) _____ %
2. Subcontractor Name and Tax ID 	Subcontractor Address
Telephone Number _____ Email Address _____ Select One: MBE ☐ WBE ☐ SBE ☐ N/A ☐ Provide if Applicable: ☐ MDOT ☐ Baltimore City # _____	Minority Status (If applicable): ☐ African American ☐ Asian American Pacific ☐ Asian American Sub-continent ☐ Supplier, Wholesaler and/or Regular Dealer - 60% Rule ☐ Female ☐ Native American ☐ Hispanic American
NAICS Code(s), Work to be Performed and Subcontract Dollar Amount 	Percent of Total Contract (See instructions on Page 1 of the MWBE PARTICIPATION SUMMARY for 60% rule) _____ %
3. Subcontractor Name and Tax ID 	Subcontractor Address
Telephone Number _____ Email Address _____ Select One: MBE ☐ WBE ☐ SBE ☐ N/A ☐ Provide if Applicable: ☐ MDOT ☐ Baltimore City # _____	Minority Status (If applicable): ☐ African American ☐ Asian American Pacific ☐ Asian American Sub-continent ☐ Supplier, Wholesaler and/or Regular Dealer - 60% Rule ☐ Female ☐ Native American ☐ Hispanic American
NAICS Code(s), Work to be Performed and Subcontract Dollar Amount 	Percent of Total Contract (See instructions on Page 1 of the MWBE PARTICIPATION SUMMARY for 60% rule) _____ %
Subcontractor Total Dollar Amount \$ _____	Total Subcontractor Percent of Entire Contract _____ %
Form Prepared by: Name/Date: _____ Title: _____ Email: _____	Reviewed and Accepted by Baltimore County Minority Business Enterprise Office Name _____ Title _____ Date _____

MBE or WBE Prime Participation Total	_____ %	\$ _____	
MBE Subcontracting Participation Total	_____ %	\$ _____	
WBE Subcontracting Participation	_____ %	\$ _____	
Total MWBE Participation	_____ %	\$ _____	
Total SBE Participation	_____ %	\$ _____	

BALTIMORE COUNTY, MARYLAND

**MWBE PRIME PARTICIPATION SCHEDULE
(Form B-Prime)**

PLEASE COMPLETE AND SUBMIT THIS FORM TO ATTEST EACH SPECIFIC ITEM OF WORK THAT YOU AS THE MWBE PRIME FIRM WILL PERFORM USING ITS OWN WORKFORCE PERTAINING TO THE PERCENTAGE STATED ON THE SUBCONTRACTOR PARTICIPATION SCHEDULE (FORM B) FOR PURPOSES OF MEETING THE MWBE PARTICIPATION GOALS.

**This document must be completed and submitted with Bid/Proposal to Baltimore County.*

NOTE: If you do not complete and submit this form with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer NON-RESPONSIVE and accordingly the COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.

Provided that _____ (Prime Contractor's Name) with Certification Number _____ is awarded the County contract in conjunction with Solicitation No. _____, such MWBE Prime Contractor intends to count the distinct, clearly defined portion of the work of the contract that the MBE/WBE Prime Contractor performs with its own forces toward fulfilling **up to fifty-percent (50%) of the MWBE participation goal**, at least \$ _____ which equals to _____% of the Total Contract Amount for performing the following products/services for the Contract:

NAICS CODE	WORK ITEM, SPECIFICATION NUMBER, LINE ITEMS OR WORK CATEGORIES (IF APPLICABLE). FOR CONSTRUCTION PROJECTS, GENERAL CONDITIONS MUST BE LISTED SEPARATELY.	DESCRIPTION OF SPECIFIC PRODUCTS AND/OR SERVICES	VALUE OF THE WORK

MWBE PRIME CONTRACTOR

Signature of Representative: _____

Printed Name and Title: _____

Firm's Name: _____

Federal Identification Number: _____

Address: _____

Telephone: _____

Email Address: _____

Certified Yes ☐ No ☐

Certifying Jurisdiction _____

Date: _____

MWBE PRIME CONTRACTOR

Minority Status:

☐ African American

☐ Hispanic American

☐ Women

☐ Asian American

☐ Native American

Reviewed and Accepted by Baltimore County Minority Business Enterprise Office

Name _____

Title _____

Date _____

BALTIMORE COUNTY, MARYLAND
MWBE SUBCONTRACTOR DISCLOSURE AND PARTICIPATION STATEMENT
(FORM C)

**This document must be completed and submitted with Bid/Proposal to Baltimore County.*

NOTE: If you do not complete and submit this form with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer NON-RESPONSIVE and accordingly the COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.

**NOTE: ANY INCONSISTENCY BETWEEN THIS FORM AND FORM B MWBE PARTICIPATION MAY
RENDER A BID/PROPOSAL NON-RESPONSIVE AND THE COUNTY WILL NOT CONSIDER YOU FOR
CONTRACT AWARD.**

Contract Name, Bid/Proposal Number: _____

Prime Contractor Name: _____

Name of MWBE Subcontractor: _____

Subcontractor Contact Name, Title

Subcontractor Email Address

☐ MDOT ☐ Baltimore City

_____ Certification Number

☐ MBE ☐ WBE ☐ SBE ☐ N/A

1. NAICS Code(s), Work/Services to be performed by MWBE Subcontractor: _____

**Percent of Total Contract (See instructions on Page 1 of the MWBE
PARTICIPATION SUMMARY for 60% rule)**

2. Subcontract Amount: \$ _____ or _____ % of the County contract cost.

3. Bonds - Amount and type required of Subcontractor if any: _____

4. MWBE Anticipated Commencement Date: _____ Completion Date: _____
Mobilization Cost Amount \$ _____

5. This is a MBE-Owned Business Firm: Yes _____ No _____

6. This is a WBE-Owned Business Firm: Yes _____ No _____

NOTE: If the Prime is notified that it will be awarded the above referenced contract, the undersigned MWBE subcontractor and Prime must enter into a subcontract for the work/service indicated above upon the Prime's execution of a contract for the above referenced project with Baltimore County, and provide a copy of the fully executed MWBE SUBCONTRACTOR PARTICIPATION NOTICE OF INTENT TO AWARD (FORM C-Subcontractor) accompanied with the anticipated Work Breakdown Schedule (providing the subcontractor's mobilization timeframe) to mwbe@baltimorecountymd.gov within 10 calendar days of receipt by the Prime of FORM C- Subcontractor from the County. The undersigned subcontractor is an MDOT or Baltimore City certified MWBE firm. The terms and conditions stated above are consistent with our agreements.

Signature of MWBE Subcontractor: _____ Date: _____

Prime's Printed Name and Title: _____ Email: _____

The terms and conditions stated above are consistent with our agreements.

Signature of Prime: _____ Date: _____

Revised 12/2024

BALTIMORE COUNTY, MARYLAND
MWBE –UNAVAILABILITY CERTIFICATE
(FORM D)

If applicable, this document must be completed and submitted with Bid/Proposal to Baltimore County.

NOTE: If you do not complete and submit this form with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer NON-RESPONSIVE and accordingly the COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.

1. It is hereby certified that the firm of _____
(Name of Minority firm)

located at _____
(Number) (Street)

(City) (State) (Zip)

was offered an opportunity to bid on the _____ contract.

2. The _____ (MWBE Firm), is either unavailable for the work/service or unable to prepare a bid for this project for the following reason(s):

Signature of Subcontractor MWBE Representative

Title

Date

MDOT/Baltimore City Certification #

Email Address #

Telephone #

3. PRIME'S SIGNATURE AND CERTIFICATION

I certify under oath that I contacted the Certified MWBE and they advised me that they are unavailable, unable to perform the work/services for the above-contract or failed to respond to repeated requests for a price proposal for the above-contract.

Signature of Prime

Title

Date

Rev 12/2024

BALTIMORE COUNTY, MARYLAND
MWBE - OUTREACH EFFORTS - COMPLIANCE STATEMENT
(FORM E)

****This document must be completed and submitted with Bid/Proposal to Baltimore County.***

NOTE: If you do not complete and submit this form with your bid or offer to the County, the County may, in its sole discretion, deem your bid or offer NON-RESPONSIVE and accordingly the COUNTY WILL NOT CONSIDER YOU FOR CONTRACT AWARD.

In conjunction with the bid or offer submitted in response to Solicitation Number _____, I state the following:

1. Bidder/Offeror identified opportunities to subcontract in these specific work categories:

2. Attached to this form are copies of the solicitation documentation in accordance with Section 6 (E) Bid Requirements of the Executive Order, used to solicit certified MWBEs for the subcontract opportunities accompanied with the signed MWBE Subcontractor Unavailability Certificate (Form D).

3. Bidder/Offeror made the following attempts to solicit MWBEs:

Signature – Bidder Offeror

Print or Type Name of Firm

Street Address

City State Zip Code

Date



JOHN A. OLSZEWSKI, JR.
County Executive

SEVETRA PEOPLES-BROWN
Executive Director
Chief of Diversity, Equity and Inclusion

To: Contractors/Consultants

From: Minority and Women Business Enterprise Office

Date: December 13, 2024

Subject: Compliance Reporting and Penalties

Baltimore County, Maryland (the "County") requires all Prime Contractors and all Subcontractors to submit payment reports by the 10th of each month through an online MWBE Compliance Portal (PRISM). The Portal can be found under Compliance Reporting for Primes and Subcontractors at www.baltimorecountymd.gov/go/mwbe. In the event you are not able to enter your payments in PRISM, a spreadsheet is attached for your use. Please be sure to list the PO for each invoice/ payment reported and include in your submission any corresponding documentation (e.g. copies of invoices or canceled checks).

The County has found that a number of companies are failing to file reports in a timely manner, which makes it difficult for the County to verify compliance. As a result, the County has determined to assess penalties for non-compliance, effective September 1, 2018, as follows:

- (a) For failure to file timely monthly reports:
 - a. Assessment of a late fee of \$10 per day per task, up to a maximum of \$1,500 per task; and/or
 - b. For multiple violations, termination of the contract for convenience or for default, with the contractor suspended from participating in County contracts for five (5) years.
- (b) For failure to meet MWBE requirements:
 - a. Assessment of a penalty of up to 10% of the contract value; and/or
 - b. Termination of the contract for convenience, with the contractor suspended from participating in County contracts for five (5) years together with assessment of a penalty of up to 10% of the contract value; and/or
 - c. Termination of the contract for default together with assessment of a penalty of 10% of the contract value.

Each action and/or remedy described above is at the sole discretion of the County, and is in addition to any damages which the County may be entitled to under the contract. This short video can be used as guidance on submitting the Prime to Subcontractor Payment Reporting:

http://stage.prismcompliance.com/etc/movies/vendor_contractpayment_tutorial.htm

If after contract expiration, it has been determined the MWBE firms named were not used or were under used, by the contractor and supporting documentation was not provided and approved by the County the contractor may be assessed a penalty of up to 10% of the contract value and/or suspended from participating in County contracts for 5 years.

Questions regarding this correspondence and/or the use of this system can be directed to the MWBE Office at mwbe@baltimorecountymd.gov or call (410) 887-3407.

Attachment: MWBE Payment Report Form
 MWBE Payment Acknowledgement Form

Cc: File

S E C T I O N V

POST AWARD DOCUMENTS

**This Section to be Completed
by Successful Bidder after Award**

CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (“Contract”), IS MADE THIS _____ day of _____ 20____, by and between Baltimore County, Maryland, a body corporate and politic (“County”), and _____, (“Contractor”).

WITNESSETH, that the Contractor, for and in consideration of the payment or payments herein specified and agreed to by the County, hereby covenants and agrees to furnish and deliver all the materials and to do and perform all the work, services, and labor in fulfillment of the requirements of Contract Number **25121 PO0** “Project”) in strict conformity with the solicitation, plans, specifications, special provisions, any and all addenda, and the proposal, at the prices named therein, and all of which are collectively the Proposal, and said Proposal is attached hereto and made a part thereof.

The Project shall be done in strict compliance with (i) the Proposal, (ii) the Baltimore County Department of Public Works and Transportation September 2023 “Standard Specifications for Construction and Materials” and “Standard Details for Construction” (iii) and any and all revisions thereto as of the date of advertisement, including but not limited to the General Conditions Building Projects, as applicable, and all of which (i-iii) are made a part hereof and incorporated herein (collectively, the “Specifications”). Contractor understands and agrees it is Contractor’s responsibility and obligation to obtain a copy of the “Specifications” and agrees the Specifications are incorporated herein. Copies are available on the County’s website at www.baltimorecountymd.gov/departments/public-works/standards.

The Project shall be subject to the inspection and approval of the Office of Budget and Finance – Property Management for Baltimore County, or his authorized representative, and in the event any portion thereof shall be rejected by said Director or his representative as defective or unsuitable, then the said portion shall be removed and replaced and be performed anew to the satisfaction and approval of the said Director or his representative at the cost and expense of the Contractor.

THE CONTRACTOR AFFIRMS that it is aware of, and will comply with, the provisions of Sections 14-101 through 14-108 of the Election Law Article of the Annotated Code of Maryland, as the same may be amended from time to time, which require that every person who makes, during any 12-month period, one or more contracts, with one or more Maryland governmental entities involving cumulative consideration, of at least \$200,000.00, to file with the State Board of Elections certain specified information to include disclosure of attributable political contributions in excess of \$500 during defined reporting periods.

THE CONTRACTOR FURTHER COVENANTS AND AGREES that all the Project shall be furnished, performed and delivered, in every respect, to the satisfaction and approval of the Office of Budget and Finance – Property Management, aforesaid, on or before the expiration of **One Hundred Twenty (120) CALENDAR DAYS** (the “Contract Period”) after written notice has been given by the Director or their authorized representative to begin the work.

IT IS AGREED THAT TIME IS OF THE ESSENCE. In the event the Contractor fails to achieve Final Completion and Final Acceptance of the Contract work within the Contract Period specified herein, plus any extensions thereto agreed to in writing by a legally authorized representative of the County pursuant to the terms of this Contract, then Contractor shall pay the County the sum of **FIFTEEN HUNDRED DOLLARS (\$1500.00)** as Liquidated Damages for each **CALENDAR DAY** after the expiration of the Contract Period, as may be extended by the County, until the Contractor achieves Final Completion and Final Acceptance of the Project.

Contractor’s Initials

Date

Rev. 09/2024

IT IS FURTHER AGREED that:

- (a) These Liquidated Damages are a reasonable estimate of the County's damages solely due to the public's loss of use of the Project during the delay period and is not a penalty.
- (b) It is very difficult, if not impossible, to accurately measure the damages to the County due to the public's loss of use of the Project during the delay period.
- (c) Notwithstanding GP 8.09 of the Baltimore County Standard Specification for Construction, in addition to the damages due to the public's loss of use of the Project during the delay period, the County is likely to incur additional direct costs during the delay period, including but not limited to, costs for construction management, consultants, architectural services, office trailer and supplies, utilities, County employees' time, County vehicles, and such other costs that the County will incur to continue administration of the construction and the Contract during the delay period, all of which will be monitored by the County, and if so required by the County, the Contractor shall pay such actual damages incurred during the delay period. THE PARTIES HERETO UNDERSTAND AND AGREE THAT CONTRACTOR'S OBLIGATION TO PAY THE COUNTY FOR ACTUAL DAMAGES DURING THE DELAY PERIOD SHALL BE IN ADDITION TO THE CONTRACTOR'S OBLIGATION TO PAY THE LIQUIDATED DAMAGES DUE TO THE PUBLIC'S LOSS OF USE OF THE PROJECT.
- (d) The County shall have the right, but not the obligation, to deduct the Liquidated Damages due to the public's loss of use of the Project, and the County's actual costs and costs to continue administration of the construction and the Contract, from any monies due or any monies that may become due to the Contractor.

IT IS DISTINCTLY UNDERSTOOD AND AGREED that no claim for extra work, material or overhead not specifically provided for in the Contract will be allowed by the County, nor shall the Contractor do any work or furnish any materials not covered by this Contract and the Specifications, unless the same is ordered in writing by a legally authorized representative of the Office of Budget and Finance – Property Management in accordance with the terms of the Contract. Any such work or materials which may be done or furnished by the Contractor without any such written order first being given shall be at said Contractor's sole risk, cost and expense and Contractor hereby covenants and agrees that without such written order, Contractor shall make no claim for compensation for work, materials, or overhead so done or furnished.

NOTWITHSTANDING GP 4.06 OF THE BALTIMORE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, IT IS SPECIFICALLY AGREED that the Contractor shall have no entitlement to damages arising out of delay, disruption, interference or hindrance from any cause whatsoever. However, this provision shall not preclude recovery or damages by the Contractor for hindrances or delays due solely to fraud or gross negligence on the part of the County or its agents.

IT IS FURTHER DISTINCTLY AGREED that the said Contractor shall not assign this Contract, nor any part thereof, nor any right to any of the monies to be paid hereunder, nor shall any part of the work to be done or material furnished under said Contract be sublet without the prior written consent of a legally authorized representative of the Office of Budget and Finance – Property Management in accordance with the terms of this Contract. Further, the acceptance of the final payment by the Contractor shall effectuate a release in full of all claims against County and its officials, employees, representatives, and agents arising out of, or by reason of the Project and this Contract.

The Contractor shall review government issued identification and badge all employees of the Contractor and its subcontractors. The Contractor shall also review all federal forms, including but not limited to I-9's, for compliance as well as copies of all employment eligibility and identity documentation maintained to the extent required by law.

The Bonds, given by the Contractor in a sum equal to the total contract price of the Project in compliance with the terms and provisions of this Contract, are hereby attached and incorporated herein.

IT IS AGREED that in the event that the County is delayed or prevented from timely execution of this Contract, the Contractor releases County and agrees Contractor shall have no action, claim or demand against County therefore.

Contractor's Initials

Date

Rev. 09/2024

THE CONTRACTOR HEREBY FURTHER AGREES to receive the prices set forth in the Proposal incorporated herein as full compensation for the completion of the Project and, in all respects, to complete said Contract to the satisfaction of the County.

THE CONTRACTOR REPRESENTS AND WARRANTS:

- (i) it is duly formed and validly existing under the laws of the State of _____;
- (ii) it is in good standing in the State of Maryland;
- (iii) it has the power and authority to consummate the obligations and responsibilities contemplated hereby, and has taken all necessary action to authorize the execution, delivery and performance required under this Contract;
- (iv) the Contractor and the person executing this Contract for the Contractor each warrant that he/she is duly authorized by the Contractor to execute and seal this Contract on the Contractor's behalf;
- (v) the warranties of merchantability and fitness for a particular purpose and use and warranties of title and against infringement, and all express warranties contained in this Contract, including but not limited to the Proposal (and any sample or model presented by Contractor and expressly accepted by the County) shall apply to the portion of this Contract pertaining to or for goods;
- (vi) all representations and warranties made in the Proposal and herein remain true and correct in all respects when made, as of the date of this Contract, and throughout the term of this Contract; and
- (vii) there exists no actual or potential conflict of interest between its performance under this Contract and its engagement or involvement in any other personal or professional activities and in the event such conflict or potential conflict arises during the term of this Contract, the Contractor shall immediately advise the County in writing thereof.

THE CONTRACTOR shall not disclose any documentation and information of any kind or nature disclosed to the Contractor in the course of its performance of duties hereunder without the express prior written consent of the County.

Those sections in this Contract which by their nature are intended to survive, including but not limited to, Contractor's representations and warranties, confidential information, and indemnification shall survive the termination of this Contract.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand and seal the day and year first above written.

CONTRACTOR NAME: _____

WITNESS FEDERAL TAX ID or SS #: _____

By: _____ (Seal)

Name: _____

Type (Print) Name

Title: _____ Date: _____

WITNESS: **BALTIMORE COUNTY, MARYLAND**

Executive Secretary By: _____ Date: _____
D'Andrea L. Walker, County Administrative Officer

Type (Print) Name

APPROVED FOR FORM AND LEGAL
AND SUFFICIENCY* (Subject to
execution by the duly authorized
Administrative official and Chairperson
of the County Council, as indicated).

APPROVED:

Kevin D. Reed, Director
Office of Budget and Finance Date: _____

Office of the County Attorney

*Approval of Form and Legal Sufficiency does not convey approval or disapproval of the substantive nature of this transaction. Approval is based upon typeset documents. All modifications require re-approval.

Rev. 09/2024

PERFORMANCE BOND

Bond No. _____

Principal _____

Business Address of Principal _____

Surety _____

Obligee: **BALTIMORE COUNTY, MARYLAND**
A body corporate and politic

A Corporation of the State of _____ and authorized to do business in Maryland

DOLLARS

\$ _____

Penal Sum of Bond (express in words and figures)

Baltimore County Historical Courthouse Handicap Lift

Contract Name

Date of Contract

20 _____

25121 PO0

20 _____

Contract Number

Date Bond Executed

KNOW ALL MEN BY THESE PRESENTS, that we, the PRINCIPAL, above-named, and SURETY, above-named, and authorized to do business in the State of Maryland, are held and firmly bound unto the OBLIGEE, above-named, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, THE PRINCIPAL entered into a certain contract with the OBLIGEE described and dated as shown above and is required to provide this bond pursuant to Maryland State law and/or County law and the contract.

NOW, THEREFORE, if the aforesaid PRINCIPAL shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the OBLIGEE with or without notice to the SURETY, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the SURETY being hereby waived, then, this obligation to be void; otherwise to remain in full force and effect.

THE SURETY FURTHER GUARANTEES That it is (a) licensed in the State of Maryland, (b) rated "B" or better by the A.M. Best Company, (c) on federal funded projects, authorized by the underwriting limitation contained in the U.S. Department of the Treasury Circular 570, as amended, to guaranty the amount of the Bid, and (d) in good standing as determined by the County's Engineer. A Performance Bond is required for each and every Contract in excess of twenty-five thousand (\$25,000). A Performance Bond shall be in the amount equal to at least one hundred (100%) percent of the Contract price. The fully executed Performance Bond shall be delivered by the Bidder to the Department's Division of Construction Contracts Administration no later than the time the Contract is to be executed by the Contractor.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals on the date indicated above, the name and seal of each party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of:**Individual Principal**

Witness: _____

as to: _____ (SEAL)

Print Name: _____

Print Name: _____

Attest:**Corporate Principal**

(Name of Corporation)

Witness: _____

By: _____ Affix

Print Name: _____

Print Name: _____ Corporate

Title: _____ Seal

Attest:**Surety**

(Name of Surety)

Business Address: _____

Witness: _____

By: _____ Affix

Print Name: _____

Print Name: _____ Corporate

Title: _____ Seal

Reviewed for Baltimore County Requirements

Office of the County Attorney

PAYMENT BOND

Bond Number _____

Principal _____

Business Address of Principal _____

Surety _____

Obligee: **BALTIMORE COUNTY, MARYLAND**
A body corporate and politic

A Corporation of the State of _____ and authorized to do business in Maryland

DOLLARS \$ _____

Penal Sum of Bond (express in words and figures) _____

Baltimore County Historical Courthouse Handicap Lift
Contract Name_____ 20 _____
Date of Contract**25121 PO0**
Contract Number_____ 20 _____
Date Bond Executed

KNOW ALL MEN BY THESE PRESENTS, that we, the PRINCIPAL, above-named, and SURETY, above-named, and authorized to do business in the State of Maryland, are held and firmly bound unto the OBLIGEE, above-named, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, THE PRINCIPAL entered into a certain contract with the OBLIGEE described and dated as shown above and is required to provide this bond pursuant to Maryland State law and/or County Law and the contract.

NOW, THEREFORE, the condition of this obligation is such that if the aforesaid PRINCIPAL shall promptly make payments to all persons supplying labor and/or material to the PRINCIPAL and to any subcontractor of the PRINCIPAL in the prosecution of the work provided for in said contract and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the SURETY being hereby waived, then, this obligation to be void; otherwise to remain in full force and effect.

THE SURETY FURTHER GUARANTEES That it is (a) licensed in the State of Maryland, (b) rated "B" or better by the A.M. Best Company, (c) on federal funded projects, authorized by the underwriting limitation contained in the U.S. Department of the Treasury Circular 570, as amended, to guaranty the amount of the Bid, and (d) in good standing as determined by the County's Engineer. A Payment Bond is required for each and every Contract in excess of twenty-five thousand (\$25,000). A Payment Bond shall be in the amount equal to at least one hundred (100%) percent of the Contract price. The fully executed Payment Bond shall be delivered by the Bidder to the Department's Division of Construction Contracts Administration no later than the time the Contract is to be executed by the Contractor.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals on the date indicated above, the name and seal of each party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of:

Individual Principal

Witness: _____

as to: _____ (SEAL)

Print Name: _____

Print Name: _____

Attest:

Corporate Principal

(Name of Corporation)

Witness: _____

By: _____ Affix

Print Name: _____

Print Name: _____ Corporate

Title: _____ Seal

Attest:

Surety

(Name of Surety)

Business Address: _____

Witness: _____

By: _____ Affix

Print Name: _____

Print Name: _____ Corporate

Title: _____ Seal

Reviewed for Baltimore County Requirements

Office of the County Attorney



INSURANCE PROVISIONS

1. GENERAL REQUIREMENTS

- 1.1 Coverages Required:
Unless otherwise required by the specifications or the contract, the Contractor/Vendor shall purchase and maintain the insurance coverage's listed herein.
- 1.2 Certificate of Insurance:
Before starting work on the contract, or prior to the execution of the Contract on those bid, the Contractor/Vendor shall provide Baltimore County, Maryland with verification of insurance coverage evidencing the required coverages.
- 1.3 Baltimore County as Insured:
The coverage required, excluding Workers' Compensation and Employers' Liability and Medical Malpractice Liability/Professional Liability/Errors and Omissions Liability, must include Baltimore County, Maryland and its agents, employees, officers, directors, and appointed and elected officials as an additional insured.
- 1.4 Contractor's/Vendor's Responsibility:
The providing of any insurance herein does not relieve the Contractor/Vendor of any of the responsibilities or obligations the Contractor/Vendor has assumed in the contract or for which the Contractor/Vendor may be liable by law or otherwise.
- 1.5 Failure to Provide Insurance:
Failure to provide and continue in force the required insurance shall be deemed a material breach of the contract. The Contractor/Vendor must maintain the insurance coverages required under the terms and conditions on this Contract while this Contract is in effect including renewal and extension terms.

2. INSURANCE COVERAGES

- 2.1 General Liability Insurance
- 2.1.1 Minimum Limits of Coverage:
Personal Injury Liability and Property Damage Liability
Combined Single Limit - \$500,000 each occurrence.
- 2.1.2 Such insurance shall protect the Contractor/Vendor from claims which may arise out of, or result from, the Contractor's/Vendor's operations under the contract, whether such operations be by the Contractor/Vendor, any subcontractor, anyone directly or indirectly employed by the Contractor/Vendor or Subcontractor, or anyone for whose acts any of the above may be liable.
- 2.1.3 Minimum Coverages to be Included:
(a) Independent Contractor's coverage;
(b) Completed Operations and Products Liability coverage;
(c) Contractual Liability coverage.

- 2.1.4 Damages not to be Excluded:
Such insurance shall contain no exclusions applying to operations by the Contractor/Vendor or any Subcontractor in the performance of the Contract including but not limited to:
(a) Collapse of, or structural injury to, any building or structure;
(b) Damage to underground property; or
(c) Damage arising out of blasting or explosion.

2.2 Automobile Liability Insurance

- 2.2.1 Minimum Limits of Coverage:
Bodily Injury Liability and Property Damage Liability
Combined Single Limit - \$500,000 any one accident.
- 2.2.2 Minimum Coverages to be Included:
Such insurance shall provide coverage for all owned, non-owned and hired automobiles.

2.3 Workers' Compensation and Employers' Liability Insurance

Such insurance must contain statutory coverage, including
Employers' Liability insurance with limits of at least:
Bodily Injury by Accident - \$250,000 each accident
Bodily Injury by Disease - \$500,000 policy limit
Bodily Injury by Disease - \$250,000 each employee

2.4 Valuable Papers and Records Coverage and Electronic Data Processing (Data and Media) Coverage

Minimum Limits of Coverage:
\$100,000 Per Claim and Each Occurrence
\$100,000 in the Aggregate

2.5 Other

Such other insurance in form and amount as may be customary for the type of business being under taken by the Contractor/Vendor.

2.6 Builder's Risk

See Special Provisions page 454 and General Conditions page 34,35, Article 33.