

Project Manual for

## MIDLANDS TECHNICAL COLLEGE

### DENTAL CLINIC RENOVATION - AIRPORT CAMPUS

PROJECT NUMBER            BD #2217-10            OWNER #H59-N177-CL

Richland, South Carolina

September 23, 2022

100% CD Set

#### Owner

**Midlands Technical College**  
P. O. Box 2408  
Columbia, SC 29202

#### Architect

**Boomerang Design**  
1070 South Lake Drive, Suite J  
Lexington, SC 29073  
803-356-0507

James S Golightly, II, AIA  
SC License #6880



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**SE-688**  
**TASK ORDER QUOTE FORM**

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**QUOTE SUBMITTED BY:** \_\_\_\_\_  
*(Task Order Contractor's Name)*

**QUOTE SUBMITTED TO:** Midlands Technical College  
*(Agency's Name)*

**FOR: PROJECT NAME:** MTC Dental Clinic Renovation - Airport Campus  
**PROJECT NUMBER:** H59-N177-CL

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**OFFER**

- § 1. In response to the solicitation for a Task Order Quote for the above Project, the undersigned **TASK ORDER CONTRACTOR** proposes and agrees, if this Quote is accepted, to enter into a Task Order with the Agency and to perform all Work as specified or indicated in the Solicitation Documents, for the prices and within the time frames indicated below.
- § 2. **TASK ORDER CONTRACTOR** agrees that the Date of Commencement of the Work shall be established in Construction Services Task Order to be issued by the Agency. Contractor agrees to substantially complete the Work within 45 Calendar Days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.
- § 3 **TASK ORDER CONTRACTOR** further agrees that from the compensation to be paid, the Agency shall retain as Liquidated Damages the amount of \$ 150.00 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the agreed upon date provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.
- § 4 **TASK ORDER CONTRACTOR** herewith submits its offer to provide all labor, materials, equipment, tools of trades and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fee, permits, licenses, and applicable taxes necessary to complete the following items of construction work:

§ 4.1 **TASK ORDER WORK** *(as indicated in the Solicitation Documents and generally described as follows):* \_\_\_\_\_

§ 4.2 **TASK ORDER QUOTE** \$ \_\_\_\_\_  
*(enter QUOTE in numbers only – must be between \$90,000 & \$350,000)*

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**This Quote is hereby submitted on behalf of the Task Order Contractor named above.**

**SIGNATURE:** \_\_\_\_\_  
*(Task Order Contractor's Representative)*

\_\_\_\_\_  
*(Print or Type Name of Task Order Contractor's Representative)* **DATE:** \_\_\_\_\_

# SE-355 PERFORMANCE BOND

**KNOW ALL MEN BY THESE PRESENTS**, that *(Insert full name or legal title and address of Contractor)*

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as “Contractor”, and *(Insert full name and address of principal place of business of Surety)*

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

hereinafter called the “surety”, are jointly and severally held and firmly bound unto *(Insert full name and address of Agency)*

Name: Midlands Technical College  
Address: 1260 Lexington Dr.  
West Columbia, SC 29170

hereinafter referred to as “Agency”, or its successors or assigns, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, Contractor has by written agreement dated \_\_\_\_\_ entered into a contract with Agency to construct

State Project Name: H59-N177-CL  
State Project Number: MTC Dental Clinic Renovation - Airport Campus  
Brief Description of Awarded Work: The project consists of renovating an existing sterilization area in the Dental Clinic. Some Electrical and Mechanical work will be required. The new areas to receive new casework, flooring, base and painting of walls.

in accordance with Drawings and Specifications prepared by *(Insert full name and address of A/E)*

Name: Boomerang Design  
Address: 1070 South Lake Drive, Suite J  
Lexington, SC 29073

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

**IN WITNESS WHEREOF**, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

**DATED this** \_\_\_\_\_ **day of** \_\_\_\_\_, **2** \_\_\_\_\_  
*(shall be no earlier than Date of Contract)*

**BOND NUMBER** \_\_\_\_\_

## CONTRACTOR

**By:** \_\_\_\_\_  
(Seal)

**Print Name:** \_\_\_\_\_

**Print Title:** \_\_\_\_\_

**Witness:** \_\_\_\_\_

## SURETY

**By:** \_\_\_\_\_  
(Seal)

**Print Name:** \_\_\_\_\_

**Print Title:** \_\_\_\_\_  
*(Attach Power of Attorney)*

**Witness:** \_\_\_\_\_

*(Additional Signatures, if any, appear on attached page)*

**SE-355****PERFORMANCE BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency for the full and faithful performance of the contract, which is incorporated herein by reference.
2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.
3. The Surety's obligation under this Bond shall arise after:
  - 3.1 The Agency has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Agency is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Agency, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Agency's right, if any, subsequently to declare a Contractor Default; or
  - 3.2 The Agency has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.
4. The Surety shall, within 15 days after receipt of notice of the Agency's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:
  - 4.1 Arrange for the Contractor, with consent of the Agency, to perform and complete the Contract; or
  - 4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Agency for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Agency and the contractor selected with the Agency's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Agency the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Agency resulting from the Contractor Default; or
  - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:
    - 4.4.1 After investigation, determine the amount for which it may be liable to the Agency and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Agency; or
    - 4.4.2 Deny liability in whole or in part and notify the Agency, citing the reasons therefore.
5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Agency shall pay the Balance of the Contract Sum to either:
  - 5.1 Surety in accordance with the terms of the Contract; or
  - 5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
  - 5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.
6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Agency to the Surety demanding that the Surety perform its obligations under this Bond, and the Agency shall be entitled to enforce any remedy available to the Agency.
  - 6.1 If the Surety proceeds as provided in paragraph 4.4 and the Agency refuses the payment tendered or the Surety has denied liability, in whole or in part, then without further notice the Agency shall be entitled to enforce any remedy available to the Agency.
  - 6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.
7. After the Agency has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Agency shall be those of the Contractor under the Contract, and the responsibilities of the Agency to the Surety shall be those of the Agency under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Agency of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Agency without duplication for:
  - 7.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract; and
  - 7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
  - 7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and
  - 7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. The Surety shall not be liable to the Agency or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Agency or its heirs, executors, administrators, or successors.
9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.
10. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. Definitions
  - 11.1 Balance of the Contract Sum: The total amount payable by the Agency to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Agency in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
  - 11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.



SE-357

LABOR & MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that (Insert full name or legal title and address of Contractor)

Name: \_\_\_\_\_
Address: \_\_\_\_\_

hereinafter referred to as "Contractor", and (Insert full name and address of principal place of business of Surety)

Name: \_\_\_\_\_
Address: \_\_\_\_\_

hereinafter called the "surety", are jointly and severally held and firmly bound unto (Insert full name and address of Agency)

Name: Midlands Technical College
Address: 1260 Lexington Dr.
West Columbia, SC 29170

hereinafter referred to as "Agency", or its successors or assigns, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated \_\_\_\_\_ entered into a contract with Agency to construct

State Project Name: H59-N177-CL
State Project Number: MTC Dental Clinic Renovation - Airport Campus
Brief Description of Awarded Work: The project consists of renovating an existing sterilization area in the Dental Clinic. Some Electrical and Mechanical work will be required. The new areas to receive new casework, flooring, base and painting of walls.

in accordance with Drawings and Specifications prepared by (Insert full name and address of A/E)

Name: Boomerang Design
Address: 1070 South Lake Drive, Suite J
Lexington, SC 29073

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Labor & Material Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ BOND NUMBER \_\_\_\_\_
(shall be no earlier than Date of Contract)

CONTRACTOR

By: \_\_\_\_\_ (Seal)

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Witness: \_\_\_\_\_

SURETY

By: \_\_\_\_\_ (Seal)

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_
(Attach Power of Attorney)

Witness: \_\_\_\_\_

(Additional Signatures, if any, appear on attached page)

**SE-357****LABOR & MATERIAL PAYMENT BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.
  2. With respect to the Agency, this obligation shall be null and void if the Contractor:
    - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
    - 2.2 Defends, indemnifies and holds harmless the Agency from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.
  3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
  4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety's obligation under this Bond shall arise as follows:
    - 4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
    - 4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
    - 4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
  5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
    - 5.1 Send an answer to the Claimant, with a copy to the Agency, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
    - 5.2 Pay or arrange for payment of any undisputed amounts.
    - 5.3 The Surety's failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
  6. Amounts owed by the Agency to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Agency accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Agency's prior right to use the funds for the completion of the Work.
  7. The Surety shall not be liable to the Agency, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Agency shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
  8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
  9. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Agency or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
  10. By the Contractor furnishing and the Agency accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
  11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
  12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.
- 13. DEFINITIONS**
- 13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien might otherwise be asserted.
  - 13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.
  - 13.3 Contract: The agreement between the Agency and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

**SE-690**

**CONSTRUCTION SERVICES TASK ORDER**

AGENCY: Midlands Technical College

TASK ORDER PROJECT NAME: MTC Dental Clinic Renovation - Airport Campus

TASK ORDER PROJECT NUMBER: H59-N177-CL

TOC CONTRACT NUMBER: H59-C002-CB

CONTRACTOR: \_\_\_\_\_

**COST INFORMATION:**

	<u>TASK ORDER</u>	<u>TOC CONTRACT</u>
1. Maximum Total Potential Amount of this TOC:		\$ 4,000,000.00
2. Maximum Total Amount Allowed for Task Order:	\$ 350,000.00	
3. Amount of this Task Order:	\$	
4. Total Amount of Previous Task Orders (including Modifications):		\$
5. Total Amount of TOC, Including this Task Order:		\$ 0.00
6. Balance Remaining for this TOC:		\$ 0.00

**SCHEDULE:**

1. Date of Commencement:	
2. Days Allowed to Complete the Task Order, including Alternates:	
3. Date of Substantial Completion:	

**DESCRIPTION OF TASK ORDER SCOPE OF WORK:** *(attach Contractor's Proposal)* The project consists of renovating an existing sterilization area in the Dental Clinic. Some Electrical and Mechanical work will be required. The new areas to receive new casework, flooring, base and painting of walls.

**LIST OF TASK ORDER DOCUMENTS:** *(refer to attachments as necessary)* Drawings and specifications dated September 9, 2022 prepared by Boomerang Design

The Agency and the Contractor hereby agree, as indicated by the signatures below, to the scope of work identified in the Contract Documents listed above, the Contractor's Quote dated the \_\_\_\_ day of \_\_\_\_, 20\_\_\_\_, and this Task Order which shall be assigned to the Task Order Contract identified above.

**NOTICE TO PROCEED** is hereby given on this the \_\_\_\_ day of \_\_\_\_, 20\_\_\_\_. The Dates of Commencement and Substantial Completion are as noted above and shall be used for determining completion and the applicability of Liquidated Damages. Liquidated Damages in the amount of \$ 150.00 per day will be assessed for failure to complete the Work by the agreed upon date of completion. Failure to commence actual work on this Task Order within seven (7) days from the Date of Commencement will entitle the Agency to consider the Contractor non-responsible, and may withdraw this Task Order and terminate the Contract in accordance with the Contract Documents.

TASK ORDER is within Agency Construction Contract Certification of: \$ 50,000.00 Yes  No

**IF "NO", ATTACH OSE APPROVAL EMAIL TO THIS SE-690 AND PLACE IN PROCUREMENT FILE.**

**AGENCY:**

BY: \_\_\_\_\_  
*(Signature of Representative)*  
 Print Name: \_\_\_\_\_  
 Print Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

**CONTRACTOR**

BY: \_\_\_\_\_  
*(Signature of Representative)*  
 Print Name: \_\_\_\_\_  
 Print Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

**COMPLETION CONFIRMATION BY AGENCY:**

ACTUAL COMPLETION DATE: \_\_\_\_\_ LIQUIDATED DAMAGES ASSESSED: \_\_\_\_\_  
 CONFIRMED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
*(Signature of Agency Representative)*  
 TITLE: \_\_\_\_\_

**SE-695**

MODIFICATION NO.: \_\_\_\_\_

**CONSTRUCTION SERVICES TASK ORDER MODIFICATION**

**AGENCY:** Midlands Technical College

**TASK ORDER PROJECT NAME:** MTC Dental Clinic Renovation - Airport Campus

**TASK ORDER PROJECT NUMBER:** H59-N177-CL

**TOC CONTRACT NUMBER:** H59-C002-CB

**CONTRACTOR:** \_\_\_\_\_

	<u>TASK ORDER</u>	<u>TOC CONTRACT</u>
<b><u>COST INFORMATION:</u></b>		
1. Maximum Total Potential Amount of this TOC:		\$ 4,000,000.00
2. Maximum Total Amount Allowed for Task Order:	\$ 350,000.00	
3. Current Amount of this Task Order:		
4. Amount of this Modification:		
5. Adjusted Amount of this Task Order	\$ 0.00	
6. TOC Total Prior to this Modification (Sum of all Task Orders, including this one):		
7. TOC Total Including this Modification (Sum of all Task Orders):		\$ 0.00
8. Balance Remaining for this TOC:		\$ 4,000,000.00

**SCHEDULE:**

1. Date of Commencement:	
2. Previous Days Allowed To Complete the Task Order:	
3. Additional Days Added with this Modification:	
4. Revised Date of Substantial Completion:	

**DESCRIPTION OF TASK ORDER SCOPE MODIFICATION:** *(attach Contractor's Proposal)* \_\_\_\_\_

**LIST OF TASK ORDER MODIFICATION DOCUMENTS:** *(refer to attachments as necessary)* \_\_\_\_\_

The Agency and the Contractor hereby agree, as indicated by the signatures below, to the revised scope of work identified in the Modification Documents listed above, the Contractor's Quote dated the \_\_\_\_ day of \_\_\_\_, 20 \_\_\_\_, and this Task Order Modification, which shall be assigned to the Task Order Contract identified above.

**TASK ORDER, including MODIFICATION, is within Agency Construction Contract Certification of:** \$ \_\_\_\_\_ Yes  No

**IF "NO", ATTACH OSE APPROVAL EMAIL TO THIS SE-695 AND PLACE IN PROCUREMENT FILE.**

**AGENCY:**

**BY:** \_\_\_\_\_  
*(Signature of Representative)*

**PRINT NAME:** \_\_\_\_\_

**PRINT TITLE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**CONTRACTOR**

**BY:** \_\_\_\_\_  
*(Signature of Representative)*

**PRINT NAME:** \_\_\_\_\_

**PRINT TITLE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**DIVISION 01**  
**GENERAL REQUIREMENTS**

## SECTION 01 00 00 - MTC GENERAL REQUIREMENTS

### 1. GENERAL

- 1.1. This document defines the general requirements that govern all work at Midlands Technical College (MTC). It is a part of the Contract and shall have full force and effect and shall be as a part thereof.
- 1.2. Scope of Work of this construction project includes: The renovation of an existing sterilization area in the Dental Clinic. Some Electrical and Mechanical work will be required. The new areas to receive new casework, flooring, base and painting of walls.
- 1.3. Contractor will provide construction work as described in this paragraph above, and the referenced drawings and specifications, as directed by Owner/Operations Department.

### 2. PERSONNEL

- 2.1. The Contractor is fully responsible for the performance and conduct of his employees at all times while on MTC campuses. The Contractor shall be responsible for selecting personnel who are well qualified to perform the required services, for supervising techniques used in their work and for keeping them informed of all improvements, changes, methods of operations.
- 2.2. The Contractor shall not allow any employee to perform work under this contract while under the influence of alcohol, drugs, or any other incapacitating agent. Use of any possession of alcoholic beverage and / or illegal drugs is prohibited on all State property. Violators will be dealt with according to law.
- 2.3. All personnel employed by the Contractor or any representative of the Contractor entering the site(s) shall comply with all security regulations which may be in effect during the contract period and shall be subject to such checks as may be deemed necessary. The Owner has authority to bar an individual from entry onto the site. Such action by the Owner shall not excuse the Contractor from fulfilling all requirements under this contract and shall not be the cause of any claim for additional compensation by the Contractor or claim by the individual.
- 2.4. No weapons of any type (guns, rifles, etc.) are brought on site or any MTC College property.

### 3. UTILITIES

- 3.1. When available, the Owner will provide utilities for use by the Contractor. The Contractor will provide for all connections, extensions, adaptations, and safety precautions needed in these connections. Utilities in this paragraph are limited to: (1) electrical, (2) water, (3) sanitary, and (4) storm sewer (if applicable). Contractor shall use all appropriate conservation measures. Temporary power, when needed, shall be the Contractor's responsibility.

### 4. SCHEDULES

- 4.1. If the scope of work or specifications require a schedule, a bar type progress chart will be submitted within 5 working days, identifying the proposed construction schedule. Thereafter a revised chart should be submitted as least every two weeks identifying the original schedule, amended schedule (if any) as well as completed work.

## **5. OWNER'S USE OF PREMISES**

- 5.1. The Owner may continue to use the areas adjacent to the Work site for their intended purpose. The walk paths, sidewalks, and parking areas in the area of the project must be kept clear of materials, dirt, debris, etc., to allow for College traffic. If this is not possible, an approved alternate route of travel must be provided by the Contractor.
- 5.2. Occupancy of buildings: The building(s) will remain occupied during the work. The Contractor is responsible for taking necessary precautions to protect building, contents and personnel from damage to injury from their operations and from water entry into building during operations.
- 5.3. Any requests received by the Contractor from occupants to change the sequence or work must be referred to the Owners project manager for determination. No changes will be made unless agree to in writing by both the contractor and Owner prior to the execution of any agreed upon changes to work sequence.

## **6. CONTRACTOR'S USE OF PREMISES**

- 6.1. No job sign is required. If indicated on the Campus Map, furnish and install material delivery signs as shown. Signs shall be of approved size and color with lettering of approved style and contrasting color so as to be easily visible and readable.
- 6.2. An on-site Construction Office is not required for this work.
- 6.3. Contractor's personnel shall use Contractor provided facilities (toilet, water, vending and break) for all workers.
- 6.4. See Campus Map for site access and Contractor parking. Trucks may not drive on campus sidewalks. Except for permitted deliveries to the facility, and vehicles used in pursuit of the work (as opposed to transport of personnel or materials), vehicles of Contractor and Contractor's personnel shall park only in the area designated.
- 6.5. Lay-Down Areas: Prior to beginning operations, Contractor shall obtain approval of Owner for areas to be used as material storage, hoisting, holding, dumping, porta-pots, etc. Work will be restricted to approved locations.
- 6.6. Dumpsters located on the College Campuses are not for the disposal of construction debris. The Contractor shall be responsible for the disposal construction materials unless specified otherwise in the scope of work.
- 6.7. Contractor may work on the premises at any time. The Owner will be notified in writing if work is planned after normal working hours, on weekends or on holidays. Normal work hours are 7:00 AM until 5:00 PM. Work bid on a lump sum price will include a scheduled completion date and the contractor

will be responsible for completing the work by the scheduled date at the bid price unless the Owner causes a delay which must be agreed in writing when a change or delay is made to the contractor.

- 6.8. Excessively noisy operations shall not be conducted between 8:00 am and 10:00 pm, and otherwise as required by the Owner from time to time. Work at times other than Owner's normal work hours shall be coordinated in advance so the Owner may notify appropriate parties.
- 6.9. The Contractor shall schedule utility interruptions with Owner at least 48 hours in advance. Scheduled interruptions shall be at the Owner's convenience. Do not interrupt any utility service without prior approval for each specific instance. Reschedule any interruption which must be handled other than as originally coordinated.
- 6.10. Before starting excavation, establish location and extent of underground utilities occurring in the area where digging will occur by careful hand excavation.
- 6.11. Immediately report damage to any existing utility encountered. Repair all damage to any active utility. Repair shall be handled as an emergency unless approved by the Owner for handling otherwise. The Contractor shall be responsible for all damage to all underground utilities.

## **7. DIFFERING SITE CONDITIONS:**

- 7.1. The Contractor must promptly and before the conditions are disturbed, notify the Owner in writing of any of the following:
- 7.2. Subsurface or latent physical conditions at the site differing materially from those indicated in this Contract document and the contract specifications and drawings.
- 7.3. Previously unknown physical conditions at the site of an unusual nature differing materially from those which may be ordinarily encountered and generally recognized as inherent in work of the character required in this Contract. The Contractor shall take proper measures to prevent damages to underground utilities located in the area of this project. The Contractor shall contact the Owner prior to penetrating the ground for a utility location check.
- 7.4. The Owner will promptly investigate the conditions. If the conditions are found to differ materially from those indicated or anticipated and will cause a change in the date of completion of the work quantity of materials called for in the work of this contract, the Contractor will be entitled to an equitable adjustment.
- 7.5. No claims for adjustment under the previous clause will be considered after completion of the work or following application for payment.
- 7.6. Parking Limitations: Contractor is to confine his operations at the site(s) to only those designed parking areas. There may not be adequate parking for Contractor and his personnel at each site(s).
  - 7.6.1. The Contractor shall not park on the grass or block entrances/exits to buildings. The Contractor will be held responsible for damage to shrubs, lawn and landscape damaged by their personnel. Temporary parking permits are required and will be provided by Operations or Campus Police.



## **8. EXIT DOOR ACCESS AND EMERGENCY EGRESS**

- 8.1. The Contractor shall keep fire exits free of obstructions at all time. When work occurs within the exit access corridors or within the exit itself, alternate routes for emergency exiting shall be identified by the Owner and appropriate temporary signage posted by the Contractor for the duration of exit access interruption.

## **9. INSURANCE**

- 9.1. Contractor shall add the following wording to their Liability Insurance as required by the State of South Carolina and Midlands Technical College. “Midlands Technical College, including its current and former trustees, officers, directors, employees, volunteer workers, agents, assigns and students.”

## **10. MATERIALS**

- 10.1. Unless specified otherwise, all materials incorporated into the work shall be new and of first quality.
- 10.2. The Contractor shall closely coordinate all deliveries. Owner will not be responsible for any material delivered to Owner or for any charges arising from Owner's acceptance or refusal of deliveries.
- 10.3. The Contractor shall coordinate deliveries of significantly large, dangerous or otherwise unusual materials with Owner beforehand.
- 10.4. The Contractor shall store materials in a manner that will properly protect them from all contamination and hazards until used or removed from site. Labeled materials shall be kept in original containers until used.
- 10.5. The Contractor shall handle materials in such a manner as to deliver them to the point of use free of all damage, contamination, corrosion, etc.
- 10.6. In handling, storing, and/or disposing of any materials or chemicals considered hazardous or dangerous by South Carolina Department of Health and Environmental Control (SCDHEC), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), or National Fire Protection Agency (NFPA) and where these governing bodies require special handling, storage, or disposal of the material or chemical, abide by the procedures set forth by the governing body. If the material or chemical is encountered by demolition, excavation, or accident, and the Bidding Documents did not indicate its presence, or probable presence, immediately notify the Owner and proceed as directed. In such an event compensation will be handled by Change order.
- 10.7. The Contractor shall not order/purchase materials, equipment or products that are required to be submitted for Owner/Architect review. Submittals will be specified by the Owner/Architect and must be approved in writing before the Contractor procures the items identified in the submittal listing. It is the Contractor’s responsibility to ensure the timeliness of the submittal process allowing adequate time for the Owner to review and approve the submittal documents.

## **11. SAFETY**

- 11.1. Vehicles are to be locked when parked and unattended. Do not leave vehicles or equipment unattended with motor running or ignition keys in place.
- 11.2. Do not leave tools, materials, or trash unattended, unless secured in a safe manner.
- 11.3. Open fires are prohibited.

## **12. SECURITY**

- 12.1. Contractor personnel are to limit fraternization with faculty, staff and students to the work of this Contractor only as necessary to coordinate activities of this Contract.
- 12.2. The Contractor is required to keep the site safe from intrusion(s) by public or College personnel. The Contractor shall notify the Owner immediately of unsafe conditions and incidents. Contractor's employees will not fraternize with occupants. If a problem occurs with a particular occupant the Contractor shall contact the Owner's designated representative.
- 12.3. The Owner and Occupants are not responsible for equipment, tools or materials lost from the result of being left unattended, misplaced or unsecured. Contractor's materials and tools are subject to theft. It is suggested that materials be kept in one location where practical and under lock and key.

## **13. SUBMITTALS**

- 13.1. Submittals will be required by the technical sections of the design documents issued to the Contractor by the Owner in the contract documents. This paragraph governs the form of the required submittals.
- 13.2. Make submittals of shop drawings, product data, samples and other items required by the Contract Documents in accordance with the provisions of this paragraph, and revise and resubmit as necessary to establish compliance with the specified requirements. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted. Verify that each item, and the submittal for it, conform in all respects with the specified requirements. Determine and verify field measurements, field construction criteria, catalog numbers and similar data, and conformance with specifications. By affixing the contractor's signature to each submittal, certify that this coordination has been performed.
- 13.3. Begin no fabrication or work which requires submittals until return of submittals with Architect's approval.

## **14. SHOP DRAWINGS**

- 14.1. Shop Drawings will be submitted for approval when required by the technical section(s) of the contract documents.
- 14.2. Shop Drawings will include fabrication, erection, and setting drawings, schedule drawings, manufacturer's scale drawings, wiring and control diagrams, cut sheets of products, entire catalogs, pamphlets, descriptive literature, and performance and test data.

- 14.3. Shop Drawing(s), other than printed materials, (i.e. catalogs, pamphlets, etc.) shall be submitted in form approved by Owner. Upon approval, any reproducible shop drawing will be returned to the Contractor, who will then distribute to subcontractor(s) and manufacturer(s) as necessary and two "approved" print copies to Owner.
- 14.4. The Contractor shall allow ten working days for approval of all shop drawings. Sprinkler shop drawings, if applicable to the project, should be submitted to the Division of State Fire Marshall for their review and approval as required by codes and laws.
- 14.5. Make shop drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
- 14.6. If not specified otherwise for a particular item or a particular division in the technical specifications submit shop drawings in the form of one sepia transparency of each sheet. Blueprints only will not be acceptable. Review comments by the Architect will be shown on the sepia transparency when it is returned to the Contractor. The Contractor may make and distribute such copies as are required for his purpose.

## **15. MANUFACTURERS' LITERATURE (PRODUCT DATA)**

- 15.1. The Contractor shall clearly show which portions of the data sheet contents are being submitted for review, especially when contents of submitted literature from manufacturers includes data not pertinent to the submittal.
- 15.2. The Contractor shall modify the manufacturer's standard schematic drawings and diagrams to delete information that is not applicable to the Work. Supplement standard information to provide information specifically applicable to the Work.
- 15.3. If not specified otherwise for a particular item or a particular division in the technical specifications, submit the number of copies that are required to be returned, plus two copies that will be retained by the Architect. Coordination Drawings: Coordination Drawings are required where work of trades involves scheduling sequences of materials, finishes or testing when necessary for proper coordination of trades, timely progress of the work or necessary sequencing of work by time, by area or by trade for the convenience of the occupants, if indicated by the Owner.

## **16. SAMPLES**

- 16.1. If not specified otherwise for a particular item or a particular division in the technical specifications, submit required samples, free of all charges and encumbrances, at the Architect's office, the Owner's office, the project site, or the Owner's warehouse, as arranged with the Architect in each instance. Sample shall be accurate in every detail as a representation of the finished article in the Work, and shall be retained by the Architect for duration of the Work. Upon completion, arrange to have the sample picked up at no expense to the Architect or to the Owner and removed from the Architect's or Owner's premises.
- 16.2. The Contractor shall accompany each submittal with a letter of transmittal showing all information required for identification and checking, and listing all deviations from the requirements of the Contract

Documents. Also list all changes in the Work required to accommodate any deviations proposed in the submittal.

- 16.3. Approval by the Architect does not relieve the Contractor from responsibility for errors that may exist in the submittal, or for deviations which are not specifically listed prior to approval.
- 16.4. Any changes in the Work required to accommodate deviations from the Contract Documents shall be made at no additional cost to the Owner unless specifically approved by a Change order issued in conjunction with approval of the deviation
- 16.5. The Contractor shall deliver all submittals to the Architect for consideration as soon as possible after award of Contract.
- 16.6. The Contractor shall make submittals of all related materials and equipment at the same time.

## 17. WORKMANSHIP

- 17.1. State design and construction must comply with the codes and standards, along with their published errata and other requirements listed in this Chapter. If there is any conflict between the codes, standards, and/or regulations listed herein, the more stringent requirement controls. Designers and Agency reviewers should ensure they have the latest errata for indicated editions to International Codes, other codes and standards.
- 17.2. Codes editions in force at the time of first submittal govern throughout the project, unless: (1) Otherwise permitted by OSE; or (2) Design is delayed for more than 6 months and OSE adopts editions that are more current in the interim. No project may use a code that is older than one previous adopted edition.
- 17.3. In accordance with SC Code Ann §§ 1-34-10 thru 70 & § 10-1-180, OSE has adopted the following codes:
  - A. International Building Code (IBC), 2018 Edition,
  - B. International Existing Building Code (IEBC), 2018 Edition,
  - C. International Fire Code (IFC), 2018 Edition,
  - D. International Energy Conservation Code (IECC), 2009 Edition,
  - E. International Fuel Gas Code (IFGC), 2018 Edition,
  - F. International Mechanical Code (IMC), 2018 Edition,
  - G. International Plumbing Code (IPC), 2018 Edition, with the following insertions:
    1. Section 305.4.1, insert “18” and insert “18”
    2. Section 903.1, insert “8”
  - H. International Private Sewage Disposal Code (IPSDC), 2018 Edition,
  - I. International Property Maintenance Code (IPMC), 2018 Edition,
  - J. International Residential Code for One and Two Family Dwellings (IRC), 2018 Edition, with the following insertions: 1. P2603.5.1, insert “12” and insert “24”
  - K. International Wildland – Urban Interface Code (IUWIC), 2018 Edition,  
Note: The IUWIC does not supersede existing statutory requirements.
  - L. International Code Council Performance Code (ICCPC), 2018 Edition, upon State Engineer’s approval.
  - M. International Swimming Pool and Spa Code (ISPSC), 2018 Edition,

- N. Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, ICC 300-2017 Edition
- O. National Electrical Code (NEC) [NFPA-70], 2017 Edition
- P. National Electrical Safety Code, IEEE-C2-2017 Edition
- Q. Latest edition of the ICC A117.1, Accessible and Useable Buildings and Facilities. Note that this is the standard adopted by the South Carolina Accessibility Act, but this requirement does not relieve the Agency or the design professional from the Federal Statutory requirements that design and construction comply with the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities. See <http://www.accessboard.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards>.
- R. State Fire Marshal rules, regulations, and policies. See <http://www.scfiremarshal.llronline.com>
- S. South Carolina Elevator, Code, & Regulations. [1]: See <http://www.llr.state.sc.us/Labor/ElevatorAmusement/index.asp?file=bungee.htm>
- T. State of SC Telephone Equipment Room and Communications/Data Systems Policies as formulated by the Division of State Information Technology (DSIT).
- U. Governors executive Order No. 82-19 (April 1982) – State of SC Building Standards in Floodplain Areas.
- V. The South Carolina Modular Buildings Construction Act S.C. Code § 23-43-10 et. Seq.
- 17.4. All items shall be installed in a workmanlike manner in accordance with best-recognized practice in the field concerned. Manufactured items shall be installed in strict accordance with manufacturer's printed directions, specifications, and/or recommendations for an installation of highest quality. All working parts shall be properly adjusted after installation and be left in perfect working order. Unless otherwise indicated, items exposed to weather, or subject to flooding or wetting shall be installed so as to shed and not hold water. Items shall in all cases be installed plumb and true and/or in a proper relationship to surrounding materials.
- 17.5. The State Engineer shall determine the enforcement and interpretation of all the codes and referenced standards on State Buildings.

## **18. PROGRESS INSPECTIONS**

- 18.1. The Contractor shall notify Architect prior to covering up any work. Provide adequate time notification for an inspection with the Architect's representative.
- 18.2. The Contractor shall provide labor, tools, and materials for immediate correction of any discrepancy noted at the time of the inspection.
- 18.3. The Contractor shall correct deficiencies and have the work found deficient re-inspected prior to covering up the work inspected.

## 19. RECORD DOCUMENTS

- 19.1. Contractor shall maintain one set of plans and specifications onsite in a secure area that is protected from deterioration or loss. Job set of blue or black line white-prints of contract drawings, shop drawings shall be kept clean and undamaged and presentable for scanning/reproduction. The Contractor shall provide access to the record documents for the Architect and Owner's reference during normal working hours.
- 19.2. Record Product data and Record Maintenance Manuals collectively shall show name, address and telephone number (if available) of the manufacturer and supplier of every non-generic item used in the Work, as well as the names, addresses, telephone number, and person to contact for every subcontractor, fabricator, and supplier used in the Work, together with the specific nature of the work performed or supplies furnished by each. One complete set of approved Record Product data submittals will be required. Three sets of Maintenance Manuals will be required; two shall be complete but the third need not duplicate submittals in the record product data submittal.
- 19.3. Mark the job set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where shop drawings are used, record a cross-reference at the corresponding location on the contract drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Post changes within 24 hours, or before work is covered up. Mark job sets with colored erasable pencil; use various colors to distinguish between variations in separate categories of the work. Mark new information that is important to the Owner, but was not shown on contract drawings or shop drawings. Note related change order numbers where applicable. As-built drawings include but are limited to; site work, civil, architectural, mechanical, electrical, plumbing, fire protection, communication, ventilation, etc.
- 19.4. Show job set of record drawings, by dimension accurate to within one inch, the actual location of all elements of the Work (such as but not limited to piping, conduit, terminal boxes, etc.) concealed underground or in construction, referenced to visible and accessible features of the structure or permanent surface improvements. Include items above ceilings. Clearly identify the item by accurate note.
- 19.5. The Architect and/or Owner will inspect the final as-built drawings for accuracy and neatness.
- 19.6. If changes to the as-built drawings are required, the Architect and/or Owner will return them to the Contractor with a list of the required changes. Make required changes and promptly deliver the final project record drawings to the Architect/Owner.
- 19.7. Maintain one complete copy of the project manual, including addenda, and one copy of other written construction documents such as change orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the rest of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawings information and product data. Upon completion of the Work, submit record Specifications to the Architect/Owner for the Owner's records.

- 19.8. Maintain one copy of each product data submittal. Mark these documents to show significant variations in the actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change orders and mark-up of record drawings and Specifications. Upon completion of mark-up, submit complete set of record Product data to the Architect/Owner for the Owner's records.
- 19.9. These requirements shall be observed as minimum requirements for maintenance manuals required in this and other sections of the specifications. Additional requirements imposed by other sections shall be observed as to the specific section by which imposed. The requirements imposed by this and other sections do not require separate sets of manuals in order to satisfy both; submit the minimum number of manuals required to comply with the most demanding and include all information needed to comply with both.
- 19.10. Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 3-ring vinyl-covered binders of proper capacity, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
- A) Manufacturer's name and address,
  - B) Supplier's name and address,
  - C) Model number of each item included,
  - D) All nameplate data for each item; identify item by use/location for each nameplate for multiple items; show for each nameplated component of item,
  - E) Spare parts list,
  - F) Copies of warranties,
  - G) Wiring diagrams,
  - H) Shop Drawings and Product data,
  - I) Fixture lamping schedule,
  - J) Filter schedule,
  - K) Inspection procedures,
  - L) All applicable maintenance procedures,
  - M) All recommended maintenance cycles,
  - N) All operating procedures, and
  - O) Emergency instructions.
- 19.11. Provide three copies of each maintenance manual including all such pertinent information as is applicable, collectively including each item of equipment or material installed in the Work which can be operated and/or maintained, or, if non-generic, replaced.

## **20. CLEANING**

- 20.1. Store items in an orderly arrangement and in a place suitable to the Owner. Daily, and more often if necessary, restack, tidy, or otherwise service stored materials to maintain orderly arrangement.

- 20.2. Maintain the site in a neat and orderly condition at all times. Do not allow accumulation of scrap, debris, waste material, or other items not required for this work.
- 20.3. Provide suitable containers for trash of any nature generated by the Contractor's operations or his personnel and dispose of said trash daily. Immediately recover any such trash carried or blown beyond the site of the work. Owner's trash cans and dumpsters are not for Contractor's use. All waste materials and trash shall be disposed of off-campus.
- 20.4. Contractor's personnel shall ensure their routes of travel and College-owned facilities, especially sidewalks, floors, door handles, fixtures, etc., are not inordinately fouled by substances such as grease, mud, tar, etc., which makes use of the facility less pleasant for others. Immediately clean up any such substances resulting from Contractor's presence. Cleaning by Owner, if necessary, will be done without further notice. Damage which requires a special effort on the Owner's part to clean up, repair, or replace will be at the Contractor's expense.
- 20.5. Remove all leftover materials, waste, scrap and debris generated by Contractor or his personnel.
- 20.6. Remove all traces of soil, grease, mastic, waste materials, adhesives, dust, dirt, and other foreign materials from sight-exposed surfaces.

## **21. PROTECTION OF EXISTING PROPERTY**

- 21.1. The Contractor shall be responsible for all damages caused by the Contractor, the Contractor's subcontractors, or the Contractor's or subcontractors' suppliers, suppliers' shippers, and/or delivery men to trees, shrubs, sod, soil, utilities, buildings, sidewalks, gates, roadways, bodies of water, or any other property of the Owner.
- 21.2. The Contractor shall remedy damages by returning the property to its "pre- construction" state. Any College property damaged shall be repaired, reconstructed, or replaced by the Contractor or at the Contractor's expense to quality standards set by the Architect.
- 21.3. Damages which disrupt the Owner's conduct of business or the usefulness of Owner's facilities which remain in use during the term of this Contract shall be repaired immediately, as an emergency, or as otherwise approved by the Owner,
- 21.4. If the Contractor does not diligently pursue repairs to damaged property, the Owner may pursue repairs by the Owner's own forces or by another contract. All costs incurred by the Owner pursuant to such repairs will be passed on to the Contractor by Change order.
- 21.5. The Architect shall make the final determination as to the acceptability of the results of any action necessary by the Contractor to return the property to its "pre- construction" state.
- 21.6. Guarantee under the Contractor's General Warranty any property replaced or repaired by the Contractor.

## **22. OPERATING AND MAINTENANCE INSTRUCTIONS**

- 22.1. Prior to Substantial Completion arrange for each installer of equipment that requires operation or regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's



representatives. Provide adequate time for proper instruction. Do not short-schedule too many too close together. Include a detailed review of each of the following items which is applicable:

- A) Maintenance manuals,
- B) Record documents,
- C) Spare parts and materials,
- D) Tools,
- E) Lubricants,
- F) Fuels,
- G) Identification systems,
- H) Control sequences,
- I) Hazards,
- J) Cleaning,
- K) Warranties and bonds,
- L) Maintenance agreements and similar continuing commitments, and
- M) Other items/matters applicable to the item in question.

22.2. As part of instruction for operating equipment, demonstrate each of the following procedures which is applicable:

- A) Start-up,
- B) Shut down,
- C) All operating adjustments and procedures,
- D) All maintenance procedures,
- E) All diagnostic procedures,
- F) Emergency operations,
- G) Safety procedures,
- H) Noise and vibration adjustments,
- I) Economy and efficiency adjustments,
- J) Effective energy utilization, and
- K) Other procedures applicable to the item in question.

### **23. SUBSTANTIAL COMPLETION**

23.1. Substantial Completion requires all materials and equipment to be installed and operational to the extent the Owner can use the Work for its intended purpose.

23.2. When the Contractor feels the project is substantially complete, the Contractor shall notify the Architect and the Owner in writing.

23.3. Within a reasonable time after receipt of the list, the Architect will inspect to determine status of completion.

23.4. Should the Architect determine that the work is not substantially complete the Architect promptly will so notify the Contractor.

23.4.1 The Contractor shall remedy the deficiencies and notify the Architect when ready for re-inspection.

- 23.4.2 The Architect will re-inspect the Work.
- 23.5. When the Architect concurs that the work is substantially complete:
  - 23.5.1 The Architect will prepare a "Certificate of Substantial Completion" on AIA Form G704, accompanied by the Contractor's list of items to be completed or corrected, as verified by the Architect.
  - 23.5.2 The Architect will submit the Certificate to the Owner and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

## 24. FINAL COMPLETION

- 24.1. Final Completion shall be achieved no later than thirty (30) days after Substantial Completion, unless a later date is established on the Certificate of Substantial Completion.
- 24.2. When the Contractor corrects all deficiencies on the punch list generated from the Substantial Completion Inspection Section above, the Contractor shall notify the Architect and Owner in writing.
- 24.3. Before notifying the Architect of Final Completion status, certify that:
  - 24.3.1 The Contract Documents have been reviewed.
  - 24.3.2 Work has been inspected for compliance with the Contract Documents.
  - 24.3.3 Work has been completed in accordance with the Contract Documents.
  - 24.3.4 All systems have been tested and are operational.
  - 24.3.5 Work is completed and ready for final inspection.
- 24.4. The Architect will make an inspection to verify status of completion.
- 24.5. Should the Architect determine that the work is incomplete or defective:
  - 24.5.1 The Architect promptly will so notify the Contractor.
  - 24.5.2 The Contractor shall remedy the deficiencies promptly, and notify the Architect when ready for re-inspection.
  - 24.5.3 The Architect will re-inspect the work.
- 24.6. When the Architect determines that the work is acceptable under the Contract Documents the Architect will request the Contractor to make closeout submittals.

## 25. CLOSEOUT SUBMITTALS

- 25.1. Before applying for final payment, furnish to the Owner:
- 25.2. A hard-backed binder (3-hole punch/tabbed binder) containing the following:
  - A) A typewritten materials list, in triplicate, showing every manufacturer item/material used in the job. Include catalog number, manufacturer's name and address, distributor's name and address. Type lists neatly and index according to respective specification sections of work,

- B) A list of all subcontractors, including fabricators, used in the work, and the nature of the work performed by each. Show company name, address, and telephone number. If Company has more than one office, show data for the office handling the work and the home office,
- C) A properly executed Contractor's General Warranty form, and
- D) All other warranties, forms, certifications, and other documents required by the technical specifications.

25.3. Project Record Documents described within these General Requirements.

25.4. All keys and control or security components that are not a permanent part of installed equipment.

## **26. WARRANTY**

- 26.1. The Contractor warrants to Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.
- 26.2. The period of the warranty shall be for one year (365 calendar days) from the date of Substantial Completion for all work described in the contract documents and any approved change orders. The Contractor is required to honor any special warranties which may be required in the scope of work as described in the specifications and contract documents.

**DIVISION 02  
EXISTING CONDITIONS**

**SECTION 02 41 19 – SELECTIVE DEMOLITION****PART 1 - GENERAL****1.1 Summary**

- A. This Section includes the following:
  1. Demolition and removal of selected portions of a building.
  2. Patching and repairs.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  1. Section 01 00 00 "General Requirements" for use of the building and phasing requirements.

**1.2 Definitions**

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
- B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

**1.3 Materials Ownership**

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.
  1. Verify with Owner whether Owner wishes to retain any materials indicated to be removed. Turn over requested items to Owner.

**1.4 Submittals**

- A. Proposed dust-control measures.
- B. Proposed noise-control measures.
- C. Inventory of items to be removed and salvaged.
- D. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- E. Record drawings at Project closeout according to Section 01 00 00 – General Requirements".
  1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
- F. Landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

**1.5 Quality Assurance**

- A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

**1.6 Project Conditions**

- A. Owner will occupy portions of the building immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner assumes no responsibility for actual condition of buildings to be selectively demolished.
- C. Asbestos: It is not expected that asbestos will be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Architect and the Owner.
- D. Storage or sale of removed items or materials on-site will not be permitted.

**1.7 Scheduling**

- A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

**PART 2 - PRODUCTS****2.1 Repair Materials**

- A. Use repair materials identical to existing materials.

1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.

**PART 3 - EXECUTION**

**3.1 Examination**

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.

**3.2 Utility Services**

- A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
    - a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.
- B. Utility Requirements: Refer to Plumbing and Electrical drawings for shutting off, disconnecting, removing, and sealing or capping utility services. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

**3.3 Preparation**

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
  1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- B. Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of building to be selectively demolished.
  1. Strengthen or add new supports when required during progress of selective demolition.

**3.4 Pollution Controls**

- A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
  1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

**3.5 Selective Demolition**

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
  1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition work above each floor or tier before disturbing supporting members on lower levels.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  5. Maintain adequate ventilation when using cutting torches.

6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
10. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.

**3.6 Patching and Repairs**

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- C. Patch and repair floor and wall surfaces in the new space where demolished walls or partitions extend one finished area into another. Provide a flush and even surface of uniform color and appearance.
- D. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

**3.7 Disposal of Demolished Materials**

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.

**3.8 Cleaning**

- A. Sweep the building broom clean on completion of selective demolition operation.
- B. Change filters on air-handling equipment on completion of selective demolition operations.

***END OF SECTION 02 41 19***

**DIVISION 07**  
**THERMAL AND MOISTURE PROTECTION**



**SECTION 07 90 00 – JOINT PROTECTION****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
  - 1. Joints between different materials listed above.
    - a. Perimeter joints between materials listed above and frames of doors, windows and louvers.
    - b. Control and expansion joints in ceiling and overhead surfaces.
    - c. Other joints as indicated.
  - 2. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
    - b. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - c. Joints between casework and equipment and adjoining walls and floors.
    - d. Other joints as indicated and as required by authorities having jurisdiction.
- B. Related Sections include the following:
  - 1. Division 09, Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
  - 2. Division 09, Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters of acoustical ceilings.

**1.2 PERFORMANCE REQUIREMENTS**

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

**1.3 SUBMITTALS**

- A. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- B. Samples for Verification: For each color of brick control joint selected by Architect, install up to six 18-inch samples in actual field conditions. Once Architect has selected color, remove any non-conforming colors.
- C. Warranties: Special warranties specified in this Section.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

**1.6 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
  - 2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below **40 deg F**.
  - 3. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

**1.7 WARRANTY**

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCTS AND MANUFACTURERS**

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each type in the sealant schedules at the end of Part 3.

### **2.2 MATERIALS, GENERAL**

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

### **2.3 ELASTOMERIC JOINT SEALANTS**

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.
- B. Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- C. Continuous-Immersion-Test-Response Characteristics: Where elastomeric sealants will be immersed continuously in water, provide products that have undergone testing according to ASTM C 1247, including initial six-week immersion period and additional immersion periods specified below, and have not failed in adhesion or cohesion when tested with substrates indicated for Project.
  1. Three additional four-week immersion periods.
- D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

### **2.4 SOLVENT-RELEASE JOINT SEALANTS**

- A. Acrylic-Based Solvent-Release Joint-Sealant Standard: Comply with ASTM C 1311 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3.

### **2.5 LATEX JOINT SEALANTS**

- A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex Joint-Sealant Schedule at the end of Part 3.

### **2.6 JOINT-SEALANT BACKING**

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to **minus 26 deg F**. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

### **2.7 MISCELLANEOUS MATERIALS**

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
    - a. Concrete.
    - b. Masonry.
    - c. Unglazed surfaces of ceramic tile.
  3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
    - a. Metal.
    - b. Glass.
    - c. Porcelain enamel.
    - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

**3.3 INSTALLATION OF JOINT SEALANTS**

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
  1. Place sealants so they directly contact and fully wet joint substrates.
  2. Completely fill recesses provided for each joint configuration.
  3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  1. Remove excess sealants from surfaces adjacent to joint.
  2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
  4. Provide flush joint configuration, per Figure 5B in ASTM C 1193, where indicated.
  5. Provide recessed joint configuration, per Figure 5C in ASTM C 1193, of recess depth and at locations indicated.
    - a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

**3.4 CLEANING**

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

**3.5 PROTECTION**

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

**3.6 ELASTOMERIC JOINT-SEALANT SCHEDULE**

- A. At glass-to-metal, metal-to-metal, metal-to-masonry.
  - 1. Medium-Modulus Neutral-Curing Silicone Sealant
  - 2. Products: Provide one of the following:
    - a. 756 H.P.; Dow Corning.
    - b. Silglaze II; GE Silicones.
    - c. Spectrum 2; Tremco.
    - d. Pecora Corporation.
  - 3. Type and Grade: S (single component) and NS (nonsag).
  - 4. Class: 25.
  - 5. Additional Movement Capability: 50 percent movement in extension and 50 percent movement in compression for a total of 100 percent movement.
  - 6. Uses Related to Exposure: NT (nontraffic).
  - 7. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: Aluminum coated with a high-performance coating and glass.
  - 8. Sealant Colors: As selected by Architect from manufacturer's full range of color.

**3.7 LATEX JOINT-SEALANT SCHEDULE**

- A. Interior non-movement painted joints
  - 1. Latex Sealant:
  - 2. Products: Provide one of the following:
    - a. Chem-Calk 600; Bostik Inc.
    - b. NuFlex 330; NUCO Industries, Inc.
    - c. LC 160 All Purpose Acrylic Caulk; Ohio Sealants, Inc.
    - d. AC-20; Pecora Corporation.
    - e. PSI-701; Polymeric Systems, Inc.
    - f. Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
    - g. Tremflex 834; Tremco.
  - 3. Applications: Interior, paintable non-movement joints not subjected to temperature change or differential movement of materials.

**END OF SECTION 07 90 00**

**DIVISION 08  
OPENINGS**

**SECTION 08 11 13 – HOLLOW METAL DOORS AND FRAMES****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Steel doors and frames, including side lights and borrowed light frames.
- B. Related Sections include the following:
  - 1. Division 08, Section "Prefinished Wood Doors" for wood doors installed in interior steel frames.
  - 2. Division 08, Section "Door Hardware" for door hardware and weather stripping.
  - 3. Division 09, Section "Gypsum Board Assemblies" for spot-grouting frames installed in steel-framed gypsum board partitions.
  - 4. Division 09, Section "Painting" for field painting factory-primed doors and frames.

**1.2 DEFINITIONS**

- A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI/SDI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

**1.3 SUBMITTALS**

- A. Shop Drawings: Show the following:
  - 1. Elevations of each door design.
  - 2. Details of doors including vertical and horizontal edge details.
  - 3. Frame details for each frame type including dimensioned profiles.
  - 4. Details and locations of reinforcement and preparations for hardware.
  - 5. Details of each different wall opening condition.
  - 6. Details of anchorages, accessories, joints, and connections.
  - 7. Coordination of glazing frames and stops with glass and glazing requirements.
- B. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

**1.4 QUALITY ASSURANCE**

- A. Steel Door and Frame Standard: Comply with ANSI/SDI A 250.8, unless more stringent requirements are indicated.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
  - 1. Test Pressure: Test at atmospheric pressure.
  - 2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
  - 3. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch- high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Hollow Metal Doors and Frames:
    - a. Black Mountain Door.
    - b. Ceco Door Products; an Assa Abloy Group company.
    - c. Curries Company; an Assa Abloy Group company.
    - d. Premier Products, Inc.
    - e. Mesker Door, Inc.

- f. Pioneer Industries Inc.
- g. Republic Doors and Frames.
- h. Steelcraft; an Allegion company.
- i. Fleming Door Products, Ltd.; an Assa Abloy Group company.
- j. Masonite.
- k. Metal Products, Inc.

## 2.2 MATERIALS

- A. Hot-Rolled Steel Sheets: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheets: ASTM A1008/A1008M, Commercial Steel (CS), Type B; stretcher-leveled standard of flatness.
- C. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A60 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.
- D. Supports and Anchors: Fabricated from not less than 18-gauge thick steel sheet; 18-gauge thick A-60 galvannealed steel where used with galvannealed steel frames.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.
- F. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.3 DOORS

- A. General: Provide doors of sizes, thicknesses, and designs indicated.
- B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI/SDI 250.8, for level and model and ANSI/SDI A250.4 for physical-endurance level:
  - 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 2 (Seamless).
  - 2. 18 gauge cold rolled steel face.

## 2.4 FRAMES

- A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI/SDI A250.8, and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Frames of 16-gauge steel sheet for:
  - 1. Level 2 steel doors.
  - 2. Wood doors, unless otherwise indicated.
- C. Supports and Anchors: Fabricated from not less than 18-gauge, electrolytic zinc-coated or metallic-coated steel sheet.
- D. Inserts, Bolts, and Fasteners: Manufacturer's standard units.

## 2.5 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
- B. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.
- C. Clearances for Fire-Rated Doors: As required by NFPA 80.
- D. Single-Acting, Door-Edge Profile: Beveled edge.
- E. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- F. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold- or hot-rolled or galvannealed steel sheet.
- G. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- H. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware.
  - 1. For concealed overhead door closers, provide space, cutouts, reinforcement, and provisions for fastening in top rail of doors or head of frames, as applicable.
- I. Frame Construction: Fabricate frames to shape shown.
  - 1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
  - 2. Provide welded frames with temporary spreader bars.

- J. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- K. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

## **2.6 FINISHES**

- A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI/SDI A250.10 for acceptance criteria.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions in ANSI/SDI A250.11, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
  - 1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
  - 2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on
  - 3. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
  - 4. Install fire-rated frames according to NFPA 80.

### **3.2 ADJUSTING AND CLEANING**

- A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

***END OF SECTION 08 11 13***



**SECTION 08 14 29 – PREFINISHED WOOD DOORS****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
  1. Solid-core doors with wood-veneer faces (stain finish).
  2. Factory finishing flush wood doors.
  3. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Sections include the following:

**1.2 SUBMITTALS**

- A. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
  1. Indicate dimensions and locations of mortises and holes for hardware.
  2. Indicate dimensions and locations of cutouts.
  3. Indicate doors to be factory finished and finish requirements.
  4. Indicate fire ratings for fire doors.

**1.3 QUALITY ASSURANCE**

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with the following standard:
  1. AWI Quality Standard: AWI's "Architectural Woodwork Quality Standards" for grade of door, core, construction, finish, and other requirements.
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
  1. Temperature-Rise Rating: At stairwell enclosures, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.
  2. Labeled wood for fire doors shall comply with UL 10C for positive pressure and smoke and draft control. Coordinate requirements of UL 10C with Division 08, Section "Door Hardware". Category B Doors with "S" label to be validated.
  3. Door producer shall certify the finish hardware schedule.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.
  1. Individually package doors in cardboard cartons and wrap bundles of doors in plastic sheeting.
- B. Mark each door with individual opening numbers used on Shop Drawings. Use removable tags or concealed markings.

**1.5 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet-work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

**1.6 WARRANTY**

- A. General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form, signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not comply with tolerances in referenced quality standard.
  1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  2. Warranty shall be in effect during the following period of time after the date of Substantial Completion:
    - a. Solid-Core Interior Doors: Life of installation.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Flush Wood Doors:
  - a. Fortress Door Company.
  - b. Eggers Industries.
  - c. Oshkosh Architectural Door Co.
  - d. V-T Industries Inc.
  - e. Marshfield Door Systems Inc.
  - f. Lambton Doors.
  - g. Mohawk Flush Doors Inc.; a Masonite company.
  - h. Graham; an Assa Abloy Group company.

## 2.2 DOOR CONSTRUCTION, GENERAL

- A. Doors for Transparent Finish: Comply with the following requirements:
  1. Grade: Custom (Grade A faces).
  2. Faces: white birch, rotary sliced.
  3. Match between Veneer Leaves: Book match.
  4. Match within Door Faces: Running match.
  5. Stiles: Same species as face.

## 2.3 SOLID-CORE DOORS

- A. Interior Veneer-Faced Doors: Comply with the following requirements:
  1. Core: Structural Composite Lumber (SCL) Core: SCL-5; or particleboard.
  2. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering.
  3. Particleboard: ANSI A208.1, Grade LD-1, made with binder containing no urea-formaldehyde resin.
  4. Blocking: Provide wood blocking in particleboard-core doors as follows:
    - a. 5-inch top rail blocking, in doors indicated to have closers.
    - b. 5-inch bottom-rail blocking, in doors indicated to have kick, mop, or armor plates.
    - c. 5-inch midrail blocking, in doors to have exit devices.
- B. Fire-Rated Doors: Comply with the following requirements:
  1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as required to provide fire rating indicated.
  2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated and as follows:
    - a. As necessary to eliminate need for through-bolting hardware.
  3. Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.
  4. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

## 2.4 FABRICATION

- A. Fabricate flush wood doors in sizes indicated for Project site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
  1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-rated doors.
- C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
  1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

## 2.5 FACTORY FINISHING

- A. General: Comply with referenced quality standard's requirements for factory finishing.
- B. Finish wood doors at factory.
- C. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
  1. Grade: Premium.
  2. Staining: As selected by Architect from manufacturer's full range of colors.
  3. Effect: Filled finish.
  4. Sheen: Satin.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine installed door frames before hanging doors.
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
  - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 INSTALLATION**

- A. Hardware: For installation, see Division 08, Section "Door Hardware."
- B. Manufacturer's Written Instructions: Install wood doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
  - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation, if fitting or machining is required at Project site.

**3.3 ADJUSTING AND PROTECTING**

- A. Operation: Re-hang or replace doors that do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at the time of Substantial Completion.

***END OF SECTION 08 14 29***

**SECTION 08 71 00 – DOOR HARDWARE****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Commercial door hardware for the following:
    - a. Swinging doors.
- B. Related Sections include the following:
  - 1. Division 08, Section "Hollow Metal Doors and Frames" for hollow metal frames.
  - 2. Division 08 Section "Flush Wood Doors".

**1.2 SUBMITTALS**

- A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
  - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
    - a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.
  - 3. Content: Include the following information:
    - a. Type, style, function, size, label, hand, and finish of each door hardware item.
    - b. Manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    - e. Explanation of abbreviations, symbols, and codes contained in schedule.
    - f. Mounting locations for door hardware.
    - g. Door and frame sizes and materials.
  - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
  - 5. Submittal Sequence: Submit initial draft of final schedule along with essential Product Data to facilitate the fabrication of other work that is critical in the Project construction schedule. Submit the final Door Hardware Schedule after Samples, Product Data, coordination with Shop Drawings of other work, delivery schedules, and similar information has been completed and accepted.
- C. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.
- D. Product Certificates: Signed by manufacturers of electrified door hardware certifying that products furnished comply with requirements.
  - 1. Certify that door hardware approved for use on types and sizes of labeled fire doors complies with listed fire door assemblies.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article.
  - 1. Include lists of completed projects with project names and addresses of architects and owners, and other information specified.
- F. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 01.
- G. Warranties: Special warranties specified in this Section.

**1.3 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
  - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.

- C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
- D. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
  - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, are acceptable.
- E. Regulatory Requirements: Comply with provisions of the following:
  - 1. Where indicated to comply with accessibility requirements, comply with the State Building Code and ANSI A117.1, and] Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," as follows:
    - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
    - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
      - 1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
      - 2) Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
      - 3) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
      - 4) Exception for fire-rated doors.
    - c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.
  - 2. NFPA 101: Comply with the following for means of egress doors:
    - a. Latches, Locks, and Exit Devices: For doors in the path of egress: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
    - b. Door Closers: Not more than 30 lbf to set door in motion and not more than 15 lbf to open door to minimum required width.
    - c. Thresholds: Not more than 1/2 inch high.
- F. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01, Section "Project Management and Coordination." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
  - 1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
  - 2. Preliminary key system schematic diagram.
  - 3. Requirements for key control system.
  - 4. Address for delivery of keys.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver keys to Owner by registered mail or overnight package service.

#### 1.5 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

#### 1.6 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of operators and door hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- C. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
- D. Warranty Period for Manual Closers: 10 years from date of Substantial Completion.
- E. Warranty Period for Locksets: 3 years from date of Substantial Completion.

**1.7 MAINTENANCE SERVICE**

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

**PART 2 - PRODUCTS**

**2.1 SCHEDULED DOOR HARDWARE**

- A. General: Provide door hardware for each door to comply with requirements in this Section, door hardware sets indicated in door and frame schedule, and the Door Hardware Schedule at the end of Part 3.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturer's products.
  - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule at the end of Part 3. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing the basis of design. Manufacturers' names are abbreviated in the Door Hardware Schedule.

**2.2 HINGES**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Hinges:
    - a. Hager Companies (HAG).
    - b. Lawrence Brothers, Inc. (LB).
    - c. McKinney Products Company; an Assa Abloy Group Company (MCK).
    - d. Stanley Commercial Hardware; Div. of The Stanley Works (SCH).
- B. Standards: Comply with the following:
  - 1. Butts and Hinges: BHMA A156.1.
  - 2. Template Hinge Dimensions: BHMA A156.7.
- C. Quantity: Provide the following, unless otherwise indicated:
  - 1. Two Hinges: For doors with heights up to 60 inches.
  - 2. Three Hinges: For doors with heights 61 to 90 inches.
  - 3. Four Hinges: For doors with heights 91 to 120 inches.
  - 4. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
- D. Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

Maximum Door Size (inches) x 1- 3/4- inches	Hinge height (inches)	Metal Thickness (inches)	
		Standard Weight	Heavy Weight
36	4-1/2	0.134	0.180
42	5	0.134	0.180
over 42	5		0.180

- E. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- F. Hinge Weight: Unless otherwise indicated, provide the following:
  - 1. Doors with Exit Devices (except where continuous barrel hinges are required): Heavy-weight ball bearing hinges.
  - 2. All other Interior Doors: Standard-weight ball bearing hinges.
- G. Hinge Base Metal: Unless otherwise indicated, provide the following:
  - 1. Exterior Hinges: Stainless steel, with stainless-steel pin.
  - 2. Interior Hinges: Steel, with steel pin.
  - 3. Hinges for Fire-Rated Assemblies: Steel, with steel pin.
- H. Fasteners: Comply with the following:
  - 1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
  - 2. Wood Screws: For wood doors and frames.
  - 3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
  - 4. Screws: Phillips flat-head screws; machine screws (drilled and tapped holes) for metal doors; wood screws for wood doors. Finish screw heads to match surface of hinges.

**2.3 LOCKS AND LATCHES**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Mechanical Locks and Latches:
    - a. Best Lock Corporation (BLC).
    - b. Corbin Russwin Architectural Hardware; An Assa Abloy Group Company. (CR), ML 2000 Series - LWA.
    - c. Sargent Manufacturing Company; An Assa Abloy Group Company. (SA), 8200 Series - LNJ.
    - d. Schlage Lock Company; an Ingersoll-Rand Company (SCH), L9000 Series – 03.
    - e. Yale Security Inc.; An Assa Abloy Group Company (YAL), 8800 FL – CRR.
- B. Standards: Comply with the following:
1. Bored Locks and Latches: BHMA A156.2.
  2. Mortise Locks and Latches: BHMA A156.13.
- C. Mortise Locks: Stamped steel case with steel or brass parts; BHMA Operational Grade 1, Security Grade 1, 2, or 3, as scheduled; Series 1000.
- D. Certified Products: Provide door hardware listed in the following BHMA directories:
1. Mechanical Locks and Latches: BHMA's "Directory of Certified Locks & Latches."
  2. Electromagnetic Locks: BHMA's "Directory of Certified Electromagnetic & Delayed Egress Locks."
- E. Lock Trim: Comply with the following:
1. Lever: Forged, or solid cast.
  2. Rose: Wrought.
  3. Dummy Trim: Match lever lock trim and rose.
  4. Lockset Designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:
    - a. Mortise Locks with Cast Lever:
      - 1) Yale, CRR.
      - 2) Best, 33.
      - 3) Corbin Russwin, LWA.
      - 4) Sargent, LNJ.
      - 5) Schlage, O3A.
- F. Lock Functions: Function numbers and descriptions indicated in the Door Hardware Schedule comply with the following:
1. Mortise Locks: BHMA A156.13.
- G. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:
1. Mortise Locks: Minimum 3/4-inch latchbolt throw.
  2. Deadbolts: Minimum 1-inch bolt throw.
- H. Backset: 2-3/4 inches, unless otherwise indicated.

**2.4 CYLINDERS AND KEYING**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Cylinders: Compatible with manufacturer for locks and latches.
    - a. Best; A Stanley Company.
    - b. Corbin Russwin; an Assa Abloy Company.
    - c. Sargent ; an Assa Abloy Company.
    - d. Schlage; an Ingersol Rand Company.
    - e. Yale Commercial; an Assa Abloy Company.
  2. Key Control Systems:
    - a. Key Control Systems, Inc. (KCS).
    - b. Major Metalfab Co. (MM).
    - c. Sargent Manufacturing Company; an Assa Abloy Company. (SA).
    - d. Sunroc Corporation (SUN).
- B. Standards: Comply with the following:
1. Cylinders: BHMA A156.5.
  2. Key Control System: BHMA A156.5.
- C. Cylinder Grade: BHMA Grade 1.
- D. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
1. Number of Pins: As scheduled.
  2. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
  3. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

4. Bored-Lock Type: Cylinders with tailpieces to suit locks.
5. Match and extend Owner's \_\_\_\_\_ keying system.
- E. Permanent Cores: Manufacturer's standard; finish face to match lockset.
- F. Keying System: Unless otherwise indicated, provide a factory-registered keying system complying with the Owner's approved keying schedule or the following requirements.
  1. Existing System: Master key or grand master key locks to Owner's existing system.
- G. Keys: Provide nickel-silver keys complying with the following:
  1. Stamping: Permanently inscribe each key and cylinder with a visual key control number not visible when installed, and include the following notation:
    - a. Notation: "DO NOT DUPLICATE."
  2. Quantity: Provide the following:
    - a. Cylinder Change Keys: Three.
  3. Supply change keys per Owner's instructions at Keying Conference. Change keys not to exceed 4 per cylinder.
  4. All master keys are to be sent via registered mail to Owner's representative.
- H. Key Control System: BHMA Grade 1 system, including key-holding hooks, labels, two sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers. Contain system in metal cabinet with baked-enamel finish.
  1. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.
  2. Capacity: Able to hold keys for 150 percent of the number of locks.
  3. Cross-Index System: Set up by key control manufacturer, complying with the following:
    - a. Computer Software: Furnish cross-index software for recording and reporting key-holder listings, tracking keys and lock and key history, and printing receipts for transactions. Include instruction manual.

## 2.5 STRIKES

- A. Standards: Comply with the following:
  1. Strikes for Bored Locks and Latches: BHMA A156.2.
  2. Strikes for Mortise Locks and Latches: BHMA A156.13.
- B. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
  1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  2. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
  3. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
- C. Dustproof Strikes: BHMA Grade 1.

## 2.6 OPERATING TRIM

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Baldwin Hardware Corporation (BH).
  2. Hager Companies (HAG).
  3. Hiawatha, Inc. (HIA).
  4. Ives: H. B. Ives (IVS).
  5. Rockwood Manufacturing Company (RO).
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate from [aluminum] [brass] [bronze] [stainless steel], unless otherwise indicated.

## 2.7 CLOSERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Surface-Mounted Closers:
    - a. Yale Security Inc.; an Assa Abloy Company (YAL), 4400 Series.
    - b. Corbin Russwin; an Assa Abloy Company (CR), DC 6000 Series.
    - c. LCN Closers; an Ingersoll-Rand Company (LCN), 4040 XP Series.
    - d. Norton Door Controls; an Assa Abloy Company (NO), 7500 Series.
    - e. Sargent, Div. of Assa Abloy, 281 Series.
- B. Standards: Comply with the following:
  1. Closers: BHMA A156.4.
- C. Surface Closers: BHMA Grade 1.
- D. Size of Units: Unless otherwise indicated, comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide multi-sized, non-handed closers, adjustable to meet field conditions and requirements for opening force.



1. Equip closers with heavy-duty rigid parallel arms and, where indicated, heavy duty parallel stop or stop and holder arms.
2. Supply drop plates or special soffit shoes where required. Attachments for wood doors and FRP doors will be through-bolts and sex nuts.
3. Supply [slim cover] full cover.
4. Finish:
  - a. Paint covers to match exterior door finish.
  - b. Match lockset/latchset finish scheduled.

## 2.8 PROTECTIVE TRIM UNITS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Metal Protective Trim Units:
    - a. Baldwin Hardware Corporation (BH).
    - b. Hager Companies (HAG).
    - c. Hiawatha, Inc. (HIA).
    - d. Ives: H. B. Ives (IVS).
    - e. Trimco, Triangle Brass Mfg. Co., Inc. (T).
    - f. Rockwood Manufacturing Company (RM).
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate protection plates from the following:
  1. Stainless Steel: 0.050 inch thick; beveled top and 2 sides.
- D. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine or self-tapping screws.
- E. Furnish protection plates sized 1-1/2 inches less than door width on push side and 1/2 inch less than door width on pull side, by height specified in Door Hardware Schedule.

## 2.9 STOPS AND HOLDERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
  2. Rockwood Manufacturing (RO).
  3. Trimco, Triangle Brass Mfg. Co., Inc. (T).
  4. Rixson-Firemark, Inc.; an Assa Abloy Company. (RIX).
  5. Sargent Manufacturing Company; an Assa Abloy Company. (SGT).
- B. Electromagnetic Door Holders for Labeled Fire Door Assemblies: Coordinate with fire detectors and interface with fire alarm system.
- C. Standards: Comply with the following:
  1. Stops and Bumpers: BHMA A156.16.
  2. Door Silencers: BHMA A156.16.
- D. Stops and Bumpers: BHMA Grade 1.
- E. Silencers for Metal Door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch; fabricated for drilled-in application to frame.

## 2.10 DOOR GASKETING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Door Gasketing:
    - a. Hager Companies (HAG).
    - b. National Guard Products, Inc. (NGP).
    - c. Pemko Manufacturing Co., Inc. (PE).
    - d. Reese Enterprises, Inc. (RE).
  2. Door Bottoms:
    - a. Hager Companies (HAG).
    - b. National Guard Products, Inc. (NGP).
    - c. Pemko Manufacturing Co., Inc. (PEM).
    - d. Reese Enterprises, Inc. (RE).
- B. Standard: Comply with BHMA A156.22.
- C. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
  1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
  2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

- 3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
- D. Air Leakage: Not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
- E. Fire-Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL 10C or NFPA 252.
- F. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- G. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.

### 2.11 THRESHOLDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Hager Companies (HAG).
  - 2. National Guard Products, Inc. (NGP).
  - 3. Pemko Manufacturing Co., Inc. (PEM).
  - 4. Reese Enterprises, Inc. (RE).
- B. Standard: Comply with BHMA A156.21.

### 2.12 FABRICATION

- A. Manufacturer's Nameplate: Do not provide manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise approved by Architect.
  - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.
- C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Steel Machine or Wood Screws: For the following fire-rated applications:
    - a. Mortise hinges to doors.
    - b. Strike plates to frames.
    - c. Closers to doors and frames.
  - 3. Steel Through Bolts: For the following fire-rated applications, unless door blocking is provided:
    - a. Surface hinges to doors.
    - b. Closers to doors and frames.
    - c. Surface-mounted exit devices.
  - 4. Spacers or Sex Bolts: For through bolting of hollow metal doors.
  - 5. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."

### 2.13 FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. BHMA Designations: Comply with base material and finish requirements indicated by the following:
  - 1. BHMA 613: Dark-oxidized satin bronze, oil rubbed, over bronze base metal.
  - 2. BHMA 626: Satin chromium plated over nickel, over brass or bronze base metal.
  - 3. BHMA 630: Satin stainless steel, over stainless-steel base metal.
  - 4. BHMA 652: Satin chromium plated over nickel, over steel base metal.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Steel Doors and Frames: Comply with DHI A115 series.
  - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.
- B. Wood Doors: Comply with DHI A115-W series.

**3.3 INSTALLATION**

- A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Key Control System: Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 07, Section "Joint Protection."

**3.4 ADJUSTING**

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
  - 2. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
- B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
  - 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
  - 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
  - 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.
  - 4. Submit report to Architect indicating actions taken as result of six-month adjustment.

**3.5 CLEANING AND PROTECTION**

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

**SECTION CONTINUES**

**PART 4 - DOOR HARDWARE SCHEDULE –****4.1 MIDLANDS TECHNICAL COLLEGE WEST COLUMBIA CAMPUS ACADEMIC BUILDING DENTAL LAB**

- A. Refer to "PART 3 – EXECUTION" for required specification sections.
- B. Manufacturers:
1. MK – McKinney.
  2. SA – Sargent.
  3. RF – Rixson.
  4. RO – Rockwood.
  5. PE – Pemko.

**HARDWARE SETS****Set: 1.0 – 333A and 333B**

Hinge	TA2714	US26D	MK
1 Classroom Lock	8237 EL x TEMP CORE	US26D	SA
1 Permanent Core	AS REQUIRED	US15	SA
1 Door Stop	409/441U	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE

**Set: 2.0 – 336A and 386A**

Hinge	TA2714	US26D	MK
1 Classroom Lock	8237 EL x TEMP CORE	US26D	SA
1 Permanent Core	AS REQUIRED	US15	SA
1 Surface Closer	281 P9	EN	SA
1 Kick Plate	K1050 8" HIGH CSK	US32D	RO
1 Door Stop	409/441U	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE

**Set: 3.0 – 321A**

Hinge	TA2714	US26D	MK
1 Classroom Lock	8237 EL x TEMP CORE	US26D	SA
1 Permanent Core	AS REQUIRED	US15	SA
1 Surface Closer	281 CPS	EN	SA
1 Kick Plate	K1050 8" HIGH CSK	US32D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE

**Set: 4.0 – 322A**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	8204 EL x TEMP CORE	US26D	SA
1 Overhead Stop	10 SERIES	689	RF
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE

**Manufacturers Abbreviations**

MK:	Markar
PR:	Precision
Y:	Yale
R:	Rixson
D:	Detex
M:	Mont Hard
T:	Trimco
P:	Pemko
LCN:	LCN
B:	Bommer

**END OF SECTION 08 71 00**

**DIVISION 09  
FINISHES**

**SECTION 09 21 16 – GYPSUM BOARD ASSEMBLIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Interior gypsum wallboard.
  - 2. Non-load-bearing steel framing.
  - 3. Sound attenuation batts.
- B. Related Sections include the following:

**1.2 DEFINITIONS**

- A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.

**1.4 QUALITY ASSURANCE**

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction. Products used in the assembly shall carry a classification label from a testing company acceptable to the authority having jurisdiction.
  - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory." GA-600, "Fire Resistance Design Manual." ITS's "Directory of Listed Products."
- B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
  - 1. STC-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."
- C. Gypsum Board Manufacture: Gypsum board manufactured in China will not be permitted. The Contractor shall provide a certification with the shop drawing submittal for this section stating the country of manufacture for each gypsum board product to be provided.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.
- C. Steel framing and related accessories shall be stored and handled in accordance with AISI "Code of Standard Practice".

**1.6 PROJECT CONDITIONS**

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

**PART 2 - PRODUCTS****2.1 STEEL PARTITION AND SOFFIT FRAMING**

- A. Components, General: As follows:
  - 1. Comply with ASTM C 754 for conditions indicated.
  - 2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating.
- B. Steel Studs and Runners: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 0.0179 inch.
  - 2. Depth: 4 inches, unless otherwise indicated.
- C. Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch- deep flanges.
- D. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 0.0179 inch.
  - 2. Depth: 7/8 inch, unless otherwise indicated.
- E. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

## 2.2 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 1396.
  - 1. Regular Type:
    - a. Thickness: 5/8 inch, unless otherwise indicated.
    - b. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
  - 2. Type X:
    - a. Thickness: 5/8 inch.
    - b. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
    - c. Location: Where required for fire-resistance-rated assembly.
- C. Mold and Moisture Resistant Panels: ASTM C 1396 and as follows. Provide MMR panels that are approved by the manufacturer for horizontal application over the stud spacing indicated.
  - 1. Type: Regular, unless otherwise indicated.
  - 2. Thickness: 5/8 inch, unless otherwise indicated.

## 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Paper-faced galvanized steel sheet.
  - 2. Shapes:
    - a. Cornerbead: Use at outside corners.
    - b. Bullnose Bead: Use where indicated.
    - c. LC-Bead (J-Bead): Use at exposed panel edges.
    - d. L-Bead: Use where indicated.
    - e. Expansion (Control) Joint: Use where indicated and where recommended by manufacturer of gypsum panels.

## 2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.

## 2.5 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

## 2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Isolation Strip at Exterior Walls:
  - 1. Asphalt-Saturated Organic Felt: ASTM D 226, 2-1/2 to 3 lb/cf density (No. 15 asphalt felt), nonperforated.
- E. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) 2-1/2 to 3 lb/cf density produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
  - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 INSTALLING STEEL FRAMING, GENERAL**

- A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's written recommendations or, if none available, with United States Gypsum's "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
  - 1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
  - 2. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly.
    - a. Use deep-leg deflection track where indicated.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.

**3.3 INSTALLING STEEL PARTITION AND SOFFIT FRAMING**

- A. Install tracks (runners) at floors, ceilings, and structural walls and columns where gypsum board assemblies abut other construction.
  - 1. Where studs are installed directly against exterior walls, install asphalt-felt isolation strip between studs and wall.
- B. Installation Tolerance: Install each steel framing and furring member so fastening surfaces vary not more than 1/8 inch from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
  - 1. Cut studs 1/2 inch short of full height to provide perimeter relief.
  - 2. For fire-resistance-rated and STC-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid-structure surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed to support gypsum board closures and to make partitions continuous from floor to underside of solid structure.
    - a. Terminate partition framing at suspended ceilings where indicated.
- D. Install steel studs and furring at the following spacings:
  - 1. Single-Layer Construction: 16 inches o.c., unless otherwise indicated.
- E. Install steel studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edges of stud flanges first.
- F. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
  - 1. Install two studs at each jamb, unless otherwise indicated.
  - 2. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint.
  - 3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- G. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

**3.4 APPLYING AND FINISHING PANELS, GENERAL**

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.



- E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- F. Install wall panels ½-inch off finish floor slab. Provide fire rated sealant to close gap in base of wall to slab on rated walls.
- G. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- H. Attach gypsum panels to framing provided at openings and cutouts.
- I. Form control and expansion joints with space between edges of adjoining gypsum panels from edge with control joint zip strip, caulk zip strip gap. Provide control joints as recommended by the manufacturer for regular gypsum wall board.
- J. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions 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 3/8-inch- wide joints to install sealant.
- K. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- L. STC-Rated Assemblies: Seal construction at perimeters, behind control and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
  - 1. Space screws a maximum of 12 inches o.c. for vertical applications.

### 3.5 PANEL APPLICATION METHODS

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
    - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
- B. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Mold and Moisture Resistant Panels (MMR): Provide mold and moisture resistant panels in all toilet rooms, kitchens, janitor closets, and within 5 foot of plumbing fixtures in all other spaces, unless another finish material is specifically indicated.

### 3.6 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints at locations indicated on Drawings. Install control joints additionally according to ASTM C 840 and in specific locations approved by Architect for visual effect.

### 3.7 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:

1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
2. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.

***END OF SECTION 09 21 16***

**SECTION 09 51 13 – ACOUSTICAL PANEL CEILINGS****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes ceilings consisting of acoustical panels and exposed suspension systems.

**1.2 SUBMITTALS**

- A. Product Data: For each type of product specified.

**1.3 QUALITY ASSURANCE**

- A. Installer Qualifications: Engage an experienced installer who has completed acoustical panel ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Source Limitations for Ceiling Units: Obtain each acoustical ceiling panel from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Source Limitations for Suspension System: Obtain each suspension system from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
  - 1. Obtain both acoustical ceiling panels and suspension system from the same manufacturer.
- D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
  - 1. Fire-response tests were performed by UL, ITS/Warnock Hersey, or another independent testing and inspecting agency that is acceptable to authorities having jurisdiction and that performs testing and follow-up services.
  - 2. Surface-burning characteristics of acoustical panels comply with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.
  - 3. Products are identified with appropriate markings of applicable testing and inspecting agency.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver acoustical panels and suspension system components to Project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

**1.5 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

**1.6 COORDINATION**

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

**1.7 EXTRA MATERIALS**

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
  - 1. Acoustical Ceiling Units: Full-size units equal to 15 percent of amount installed.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Acoustical Panel Ceiling Schedule at the end of Part 3.

**2.2 ACOUSTICAL PANELS, GENERAL**

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
  - 1. Mounting Method for Measuring Noise Reduction Coefficient: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface per ASTM E 795.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
  - 1. Where appearance characteristics of acoustical panels are indicated by referencing ASTM E 1264 pattern designations and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range of products that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

- C. Provide acoustical panels treated with Bioblock or BioShield paint which contains fungicide that inhibits or retards the growth of mold or mildew on their painted surfaces.

**2.3 METAL SUSPENSION SYSTEMS, GENERAL**

- A. Seismic Loads: Design and size components to withstand seismic loads in accordance with International Building Code for Seismic Design Category C chosen, select HD grid system and 2" molding.
- B. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.
- C. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
  - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- D. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.
- E. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
  - 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
  - 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than yield stress of wire; but provide not less than 0.106-inch- diameter wire.
- F. Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.
  - 1. For lay-in panels with reveal edge details, provide stepped edge molding that forms a reveal of the same depth and width as that formed between edge of panel and flange at exposed suspension member.
  - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

**2.4 ACOUSTICAL SEALANT**

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), complying with ASTM C 834 and the following requirements:
  - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Acoustical Sealant for Exposed and Concealed Joints:
    - a. Stop Gap Acoustical Sealant; Auralex Acoustics, Inc.
    - b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
    - c. SHEETROCK Acoustical Sealant; United States Gypsum Co.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates and structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage, and other conditions affecting performance of acoustical panel ceilings.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Coordination: Furnish layouts for cast-in-place anchors, clips, and other ceiling anchors whose installation is specified in other Sections.
- B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

**3.3 INSTALLATION**

- A. Install acoustical panel ceilings in accordance with the International Building Code and authorities having jurisdiction.
  - 1. Ceiling system installation and components shall conform to seismic requirements for Seismic Design Category C.
- B. Suspend ceiling hangers from building's structural members and as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
  3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
  4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  5. [Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete.
  6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  7. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 8 inches from ends of each member.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or post-installed anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
  2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
  3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fitted accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.
  2. Protect lighting fixtures and air ducts according to requirements indicated for fire-resistance-rated assembly.

### 3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

### 3.5 ACOUSTICAL PANEL CEILING SCHEDULE

- A. Mineral-Base Acoustical Panels for Acoustical Panel Ceiling APC1: Where this designation is indicated, provide acoustical panels, treated with mold/mildew inhibitor, and complying with the following:
1. Products: Provide product of one of the listed manufacturers corresponding to the Basis of Design product listed:
    - a. Armstrong World Industries, Inc., Fine Fissured Humiguard Plus.
    - b. Rockfon.
    - c. Certainteed, Inc.
    - d. USG Interiors, Inc.
  2. Classification: Panels fitting ASTM E 1264 for type and form as follows:
    - a. Type III, mineral base with painted finish; Form 2, water felted.
  3. Pattern: Panels fitting ASTM E 1264 pattern designation (description) C (perforated, small holes). D (fissured).
  4. Color: White.
  5. Light Reflectance Coefficient: Not less than LR 0.84.
  6. Noise Reduction Coefficient: NRC 0.55.
  7. Ceiling Attenuation Class: Not less than CAC 30.
  8. Edge Detail: Square.
  9. Thickness: 5/8- inch.
  10. Size: 24 x 24 inch.
- B. Suspension System for Acoustical Panel APC1: Where these designations are indicated, provide acoustical panel ceiling suspension system complying with the following:

1. Products:
  - a. Armstrong World Industries, Inc., Prelude XL.
  - b. Rockfon.
  - c. USG Interiors, Inc.
2. Wide-Face, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet hot-dip galvanized G-30, with prefinished 15/16-inch- wide flanges; other characteristics as follows:
  - a. Structural Classification: Intermediate-duty system.
  - b. Face Finish: Painted white.

***END OF SECTION 09 51 13***

**SECTION 09 65 13 – RESILIENT WALL BASE AND ACCESSORIES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Resilient wall base.
  - 2. Resilient flooring accessories.
- B. Related Sections include the following:
  - 1. Division 9 Section "Resilient Vinyl Plank Flooring."

**1.2 SUBMITTALS**

- A. Samples for Initial Selection: Manufacturer's standard sample sets consisting of sections of units showing the full range of colors and patterns available for each type of product indicated.

**1.3 QUALITY ASSURANCE**

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.
- B. Source Limitations: Obtain each type and color of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.
  - 2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F.
- C. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

**1.5 PROJECT CONDITIONS**

- A. Maintain a temperature of not less than 70 deg F or more than 95 deg F in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post-installation period, maintain a temperature of not less than 55 deg F or more than 95 deg F.
- B. Do not install products until they are at the same temperature as the space where they are to be installed.
- C. For resilient products installed on traffic surfaces, close spaces to traffic during installation and for time period after installation recommended in writing by manufacturer.
- D. Coordinate resilient product installation with other construction to minimize possibility of damage and soiling during remainder of construction period. Install resilient products after other finishing operations, including painting, have been completed.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Resilient Wall Base and Accessory Schedule at the end of Part 3.

**2.2 RESILIENT WALL BASE**

- A. Rubber Wall Base: Products complying with requirements specified in the Resilient Wall Base and Accessory Schedule.

**2.3 RESILIENT ACCESSORIES**

- A. Rubber Accessories: Products complying with requirements specified in the Resilient Wall Base and Accessory Schedule.

**2.4 INSTALLATION ACCESSORIES**

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by resilient product manufacturer for applications indicated.

- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
  - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Cove Base Adhesives: Not more than 50 g/L.
    - b. Rubber Floor Adhesives: Not more than 60 g/L.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements, including those for maximum moisture content. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. General: Comply with manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Broom and vacuum clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.3 INSTALLATION**

- A. General: Install resilient products according to manufacturer's written installation instructions.
- B. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
  - 1. Install wall base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
  - 2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
  - 3. Do not stretch base during installation.
  - 4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
  - 5. Install premolded outside corners before installing straight pieces.
  - 6. Form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.
- C. Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.
- D. Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

**3.4 CLEANING AND PROTECTING**

- A. Perform the following operations immediately after installing resilient products:
  - 1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
  - 2. Sweep or vacuum horizontal surfaces thoroughly.
  - 3. Do not wash resilient products until after time period recommended by resilient product manufacturer.
  - 4. Damp-mop or sponge resilient products to remove marks and soil.
- B. Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.
  - 1. Cover resilient products installed on floors and stairs with undyed, untreated building paper until inspection for Substantial Completion.
- C. Clean resilient products not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.

**3.5 RESILIENT WALL BASE AND ACCESSORY SCHEDULE**

- A. Rubber Wall Base RWB#1: Provide rubber wall base complying with the following: vinyl/rubber blend.
  - 1. Products: As follows:



- a. Johnsonite.
  - b. Roppe.
  - c. Burke.
  - d. Flexco.
  - e. Mannington.
2. Color and Pattern: As selected by Architect from manufacturer's full range of colors and patterns produced for rubber wall base complying with requirements indicated. A minimum 32 color range with acceptable matching accessories is required.
  3. Style: Cove with top-set toe.
  4. Minimum Thickness: 1/8 inch.
  5. Height: 4 inches.
  6. Lengths: Coils in lengths standard with manufacturer, but not less than 96 feet.
  7. Outside Corners: Premoulded.
  8. Inside Corners: Job-formed.
  9. Surface: Smooth.
- B. Rubber Accessory Molding: Provide rubber accessory molding complying with the following: vinyl/rubber blend.
1. Products: As follows:
    - a. Johnsonite.
    - b. Roppe.
    - c. Burke.
    - d. Flexco.
    - e. Mannington.
  2. Color: As selected by Architect from manufacturer's full range of colors produced for rubber accessory molding complying with requirements indicated.
  3. Product Description:
    - a. Nosing for resilient tile: RRS-XX-Series.
    - b. Reducer strip for resilient flooring: RRS-XX-Series.
  4. Profile and Dimensions: As required for specified flooring installation conditions.

***END OF SECTION 09 65 13***

**SECTION 09 65 20 – RESILIENT VINYL PLANK FLOORING****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Luxury vinyl plank flooring.
- B. Related Sections include the following:
  - 1. Division 09 Section "Resilient Base and Accessories" for resilient wall base, reducer strips, and other accessories installed with resilient floor tiles.

**1.2 SUBMITTALS**

- A. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors and patterns available for each type of product indicated.
- B. Test Reports: Submit test reports confirming substrate moisture vapor emission rate and alkalinity are within limits acceptable to tile and adhesive manufacturers.
- C. Maintenance Data: For resilient flooring to include in the maintenance manuals specified in Division 01.

**1.3 QUALITY ASSURANCE**

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.
- B. Source Limitations: Obtain each type, color, and pattern of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.
  - 2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F.
- C. Store flooring on flat surfaces.
- D. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

**1.5 PROJECT CONDITIONS**

- A. Maintain a temperature of not less than 70 deg F or more than 95 deg F in spaces to receive products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After post-installation period, maintain a temperature of not less than 55 deg F or more than 95 deg F.
- B. Do not install products until they are at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by manufacturer.
- D. Install flooring and accessories after other finishing operations, including painting, have been completed.
- E. Where demountable partitions and other items are indicated for installation on top of resilient flooring, install flooring before these items are installed.
- F. Do not install flooring over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive, as determined by ASTM F 1869, or manufacturer's recommended bond and moisture test.

**1.6 EXTRA MATERIALS**

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
  - 1. Furnish not less than one box for each 50 boxes or fraction thereof, of each type, color, pattern, class, wearing surface, and size of resilient tile flooring installed.
  - 2. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient accessory installed.
  - 3. Deliver extra materials to Owner.

**1.7 WARRANTY**

- A. Defects:
  - 1. One (1) year warranty for material defects plus labor to remedy.
- B. 10 Year Warranty: Material defects only.

**PART 2 - PRODUCTS**

**2.1 RESILIENT FLOORING**

- A. Resilient Flooring: [Products complying with ASTM F 1700 – Class III, Type B embossed surface and with requirements specified in the Resilient Tile Flooring Schedule.

**2.2 INSTALLATION ACCESSORIES**

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.
- B. Adhesives: Non-staining, water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
  - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
    - a. VCT Adhesives: Not more than 50 g/L.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer.
  - 2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving resilient flooring.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. General: Comply with resilient product manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Broom and vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.3 FLOORING INSTALLATION**

- A. General: Comply with tile manufacturer's written installation instructions.
- B. Lay out flooring from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half of a tile at perimeter.
  - 1. Lay flooring square with room axis, unless otherwise indicated.
- C. Match flooring for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay tiles in pattern of colors and sizes indicated on Drawings.
- D. Scribe, cut, and fit flooring to butt neatly and tightly to vertical surfaces and permanent fixtures, including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- E. Extend flooring into toe spaces, door reveals, closets, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent, nonstaining marking device.

- G. Install tiles on covers for telephone and electrical ducts, and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on covers. Tightly adhere edges to perimeter of floor around covers and to covers.
- H. Adhere flooring to substrates using a full spread of adhesive applied to substrate to comply with tile manufacturer's written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.
  - 1. Provide completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- I. Hand roll flooring according to tile manufacturer's written instructions.

**3.4 CLEANING AND PROTECTING**

- A. Perform the following operations immediately after installing resilient products:
  - 1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
  - 2. Sweep or vacuum floor thoroughly.
  - 3. Do not wash floor until after time period recommended by flooring manufacturer.
    - a. Allow minimum 5 days following installation, or longer if recommended by manufacturer.
  - 4. Damp-mop floor to remove marks and soil.
- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by flooring manufacturer.
  - 1. Cover products installed on floor surfaces with undyed, untreated building paper until inspection for Final Acceptance.
  - 2. Do not move heavy and sharp objects directly over floor surfaces. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- C. Clean floor surfaces not more than 4 days before dates scheduled for inspections intended to establish date of Final Acceptance in each area of Project. Clean products according to manufacturer's written recommendations.

**3.5 RESILIENT FLOORING SCHEDULE**

- A. Luxury Vinyl Plank with Bevelled Edges:
  - 1. Products As follows:
  - 2. Field Color:
    - a. Johnsonite, ID Freedom, Color 7480 Eastern Elm Ginger, Basis of Design.
    - b. Mannington, Spacia Wood Honey Oak SS5W2504.
    - c. Armstrong, Natural Creations Arbor Art TP046 Cerisier Miel.
  - 3. Wearing Surface: 20 mil (0.5 mm) min.
  - 4. Thickness: 0.096" min (2.5 mm min).
  - 5. Size: 4 by 36 inch.

**END OF SECTION 09 65 20**

**SECTION 09 90 00 – PAINTING****PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes surface preparation and field painting of the following:
  - 1. Exposed interior items and surfaces.
  - 2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
  - 3. Surface repairs associated with existing walls in renovation projects.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.
  - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
  - 1. Prefinished items include the following factory-finished components:
    - a. Architectural woodwork and casework.
    - b. Flush wood doors that have factory finish.
    - c. Metal toilet enclosures.
    - d. Metal lockers.
    - e. Finished mechanical and electrical equipment.
    - f. Light fixtures.
    - g. Distribution cabinets.
  - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
    - a. Foundation spaces.
    - b. Furred areas.
    - c. Ceiling plenums.
    - d. Pipe spaces.
    - e. Duct shafts.
  - 3. Finished metal surfaces include the following:
    - a. Anodized aluminum.
    - b. Stainless steel.
  - 4. Operating parts include moving parts of operating equipment and the following:
    - a. Valve and damper operators.
    - b. Linkages.
    - c. Sensing devices.
    - d. Motor and fan shafts.
  - 5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections include the following:
  - 1. Division 08, Section "Hollow Metal Doors and Frames" for shop priming steel doors and frames.
  - 2. Division 09, Section "Gypsum Board Assemblies" for surface preparation for gypsum board.

**1.2 DEFINITIONS**

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
  - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
  - 2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
  - 3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
  - 4. Semi-gloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
  - 5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

**1.3 SUBMITTALS**

- A. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
  - 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
  - 2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

- B. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed. Include paint system schedule in the format used in this specification section. Include Material Safety Data Sheet for each paint product use. Include VOC content in grams per liter.
  - 1. Manufacturing Location: Cut sheets or letter from manufacturer stating the location of material manufacturer, and the location of the mining or harvest of raw materials.
  - 2. Material Cost: Statement of material cost (not including labor and equipment.)
- C. Provide manufacturer's certificates that indicate that paint complies with low VOC limits specified.

#### 1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.
  - 1. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted.
    - a. Wall Surfaces: Provide samples on at least 100 sq. ft. of wall surface.
  - 2. After permanent lighting and other environmental services have been activated, apply coatings in this room or to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.
    - a. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature.
  - 3. Final approval of colors will be from job-applied samples.
  - 4. Mockups on Existing, Previously Painted Surfaces: Perform surface prep required by Part 3 and/or the manufacturer's surface prep requirements, then provide finish sample mock-up of 100 sq. ft. for each coating type and surface condition. Do not proceed with work until mockups have been reviewed and accepted by Owner and Architect. If existing coating is incompatible with specified coating to be applied inform Architect prior to application.

#### 1.5 PRODUCT SPECIFIC ENVIRONMENTAL REQUIREMENTS

- A. Chemical Component Limitations – VOC: The manufacturer shall demonstrate that the paint does not exceed the VOC concentrations allowed by the EPA's "South Coast Air Quality Management District" VOC regulations.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
  - 1. Product name or title of material.
  - 2. Product description (generic classification or binder type.)
  - 3. Manufacturer's stock number and date of manufacture.
  - 4. Contents by volume, for pigment and vehicle constituents.
  - 5. Thinning instructions.
  - 6. Application instructions.
  - 7. Color name and number.
  - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
  - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

#### 1.7 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F.
- B. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
  - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

**1.8 EXTRA MATERIALS**

- A. Furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.
1. Quantity: Furnish the Owner with extra paint materials in the quantities indicated below:
    - a. Interior, Low-Luster Acrylic Finish: One case of each color applied.
    - b. Interior, Semi-Gloss Acrylic Enamel: 2 gal. of each color applied.
  2. Quantity: Furnish the Owner with an additional 5 percent, but not less than 1 gal. or 1 case, as appropriate, of each material and color applied.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.
- B. Manufacturers Names: The following manufacturers are referred to in the paint schedules by use of shortened versions of their names, which are shown in parentheses:
1. Benjamin Moore & Co. (Moore.)
  2. Sherwin-Williams Co. (S-W.)
  3. PPG Industries (PPG.)

**2.2 PAINT MATERIALS, GENERAL**

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Match colors indicated by reference to manufacturer's color designations.
- D. Green Seal Requirements: All paints used must meet Green Seal requirements for VOC and chemical component limits, which are as follows:
1. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by the US Environmental Protection Agency (EPA) Reference Test Method 24. The calculation of VOC shall exclude water and tinting color added at the point of sale.
    - a. Interior Coatings; Non Flat: 150 g/l.
    - b. Interior Coatings; Flat: 50 g/l.
  2. Chemical Component Limitations – Aromatic Compounds: The product must contain no more than 0.5% by weight of the sum total of aromatic compounds. Testing for the concentration of these compounds will be performed if they are determined to be present in the product during a materials audit.
  3. Chemical Component Limitations – Other Chemicals: The manufacturer shall demonstrate that the following chemical compounds are not used as ingredients in the manufacturer of the product:
    - a. 1,2-dichlorobenzene.
    - b. Alkylphenol ethoxylates (APEs.)
    - c. Formaldehyde-donors.
    - d. Heavy metals, including lead, mercury, cadmium, hexavalent chromium and antimony in the elemental form or compounds.
    - e. Phthalates.
    - f. Triphenyl tins (TPT) and tributyl tins (TBT.)

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
  2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.
2. On previously painted surfaces, review scheduled paint for compatibility with previous coating system. Inform Architect of incompatibility problems prior to application.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
  1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  1. Provide barrier coats over incompatible primers or remove and re-prime.
  2. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
    - a. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10.
    - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
  3. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Existing Wall Preparation for Renovation Projects: In addition to all preparation items in 3.2, the Contractor shall include in his Base Bid repair and repointing of masonry block walls to meet the requirements for new masonry block and gypsum walls prior to applying wall finishes.
- E. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
  1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
- F. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat; but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
  1. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  2. Provide finish coats that are compatible with primers used.
  3. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
  4. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  5. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
  6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  7. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
  8. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
  9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
  1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  2. Omit primer on metal surfaces that have been shop primed and touchup painted.



3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
1. Piping, pipe hangers, and supports.
    - a. Paint exposed gas piping Safety Yellow.
  2. Heat exchangers.
  3. Tanks.
  4. Ductwork.
  5. Insulation.
  6. Motors and mechanical equipment.
  7. Accessory items.
- G. Electrical items to be painted include, but are not limited to, the following:
1. Conduit and fittings.
  2. Switchgear.
  3. Panelboards.
- H. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- I. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- J. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
- K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- L. Rated Walls: Create stencil and paint wall rating above ceiling at 20'-0" max o.c. and at all wall directional changes. Coordinate text requirements with the requirements of the local building official.

### 3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

### 3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

**3.6 INTERIOR PAINT SCHEDULE**

- A. General: Provide the following paint systems for the various substrates, as indicated. Dry film thickness is noted as "DFT."
- B. Gypsum Drywall Systems with Satin Acrylic Enamel Finish: Prime coat not required on items delivered shop primed.
1. Prime Coat: Lead-free, acrylic base primer. Prime coat:
    - a. PPG, Devguard All Purpose Primer.
    - b. Benjamin Moore, Cortech Waterborne DTM Primer V110.
    - c. Sherwin Williams (Basis of Design) Pro Industrial Pro-Cyrl Universal Primer, B66-310.
  2. First and Second Finish Coats: DTM Acrylic Semi-Gloss Enamel (30-40 units at 60 deg.)
    - a. PPG; 90-1210 Series Pitt Tech DTM Eg-shell Enamel.
    - b. Benjamin Moore: P29 Super Spec HP Acrylic DTM Eg-shell Enamel.
    - c. Sherwin Williams (Basis of Design) Pro Industrial DTM Acrylic Eg-shell Enamel. B66-1150 Series.
    - d. Benjamin Moore, 277 Super Spec Acrylic Latex Pearl Enamel.
- C. Ferrous Metal: Semi-Gloss Direct to Metal ("DTM") Acrylic Enamel Finish ("AC"): 1 coat over primer, with total DFT not less than 2.5 mils.
1. Prime Coat: Lead-free, acrylic Base Primer. Prime coat not required on items delivered shop primed.
    - a. PPG, Devguard All Purpose Primer.
    - b. Benjamin Moore, Cortech Waterborne DTM Primer V110.
    - c. Sherwin Williams (Basis of Design) Pro Industrial Pro-Cyrl Universal Primer, B66-310.
  2. First and Second Finish Coats: DTM Acrylic Semi-Gloss Enamel (30-40 units at 60 deg.)
    - a. PPG; 90-1210 Series Pitt Tech DTM Semi Gloss.
    - b. Benjamin Moore: P29 Super Spec HP Acrylic DTM Semi Gloss.
    - c. Sherwin Williams (Basis of Design) Pro Industrial DTM Acrylic Semi Gloss. B66-1150 Series.
- D. Zinc-Coated Metal: Semi-Gloss Direct Acrylic Enamel Finish: 2 coats over primer, with min. total DFT of 2.5 mils.
1. Prime Coat:
    - a. PPG; 90-712, Pitt Tech., DTM Industrial Enamel Primer.
    - b. Sherwin Williams.
    - c. Benjamin Moore, P29 Super Spec HP Acrylic DTM Semi-Gloss Enamel.
  2. First and Second Coats:
    - a. PPG; 90-474 Series, DTM Waterborne Acrylic Enamel.
    - b. Sherwin Williams.
    - c. Benjamin Moore, P29 Super Spec HP Acrylic DTM Semi-Gloss Enamel.

**END OF SECTION 09 90 00**

