CITY OF PAGE

Project Manual

FOR

PUBLIC WORKS TENANT IMPROVEMENTS

Architect's Project No.: 23013

September 20, 2024

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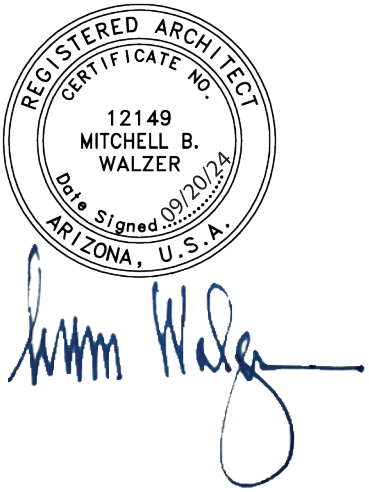

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SECTION 006000 – BONDS AND CERTIFICATES

PART 1 - GENERAL

1.1 The Bid price shall include the cost of Payment and Performance Bonds. Bonds shall cover the faithful performance, labor, and material (100%) of the Contract and payment of all obligations (100%) arising thereunder. Bonds shall be executed by Corporate Sureties licensed in Arizona.

1.2 SUMMARY

A. This section includes the following:

1. Payment Bond Requirements.
2. Performance Bond Requirements.
3. Certificate of Insurance Requirements.
4. Lien Release Requirements.

1.3 PAYMENT BOND REQUIREMENTS

A. The Contractor shall include a Payment Bond. The Payment Bond must be executed on the provided form. Substitutions will not be allowed.

1.4 PERFORMANCE BOND REQUIREMENTS

A. The Performance Bond must be executed on the provided form. Substitutions will not be allowed.

1.5 CERTIFICATES OF INSURANCE REQUIREMENTS

A. Without limiting any liabilities or any other obligations, the Contractor shall purchase and maintain such insurance as will protect it, Owner and their departments, agencies, boards and commissions and all officers, agents and employees thereof from claims set forth below which may arise out of, or result from its operations under the Contract, whether such operations be by it or by any subordinate or by anyone directly or indirectly employed by any of them, or by anyone or whose acts any of them may be liable.

B. Insurance Requirements: This insurance includes the interest of the City of Page, the General Contractor, and the Subcontractors involved in the work.

1. Insurance Company Requirement: A.M. Best Rating A-VIII or better.
2. Workers' Compensation with Employer's Liability: $500/500/500.
3. Comprehensive General Liability Insurance: $2,000,000 each occurrence (minimum).
4. $2,000,000 General and Products/ Completed Operations Aggregate.
5. Note: General Liability will need to be maintained for at least two years after the contract completion date in order to provide adequate completed operations protection.
6. Property Damage Liability Insurance: Full value of the entire work at the site.
7. Automobile Liability Insurance: At minimum $2,000,000 each accident.

8. Umbrella/ Excess Liability: $2,000,000 (Required for Construction Projects).

9. Inclusion of the Subcontractors' activities within the Contractor's own policy, otherwise each Subcontractor must maintain the same levels of insurance under separate policy for the life of the subcontract.

C. The language below **must be used verbatim** to describe Additional Insureds:

All policies with the exception of Workers' Compensation shall name the City of Page, their respective parent corporations, affiliates, officers, directors, employees and agents, and any others designated by City lenders, as Additional Insureds and shall include the condition that they are Primary, and that any such insurance maintained by the City of Page and any other Additional Insured is excess and non-contributory. Waiver of subrogation shall apply.

D. Certificate of Insurance acceptable to the Owner shall be filed by the Contractor prior to commencement of the work. Such Certificate shall contain provisions (1) Coverage afforded under the policies will not be canceled until at least 10 days' prior written notice has been given to the Owner and (2) The Owner shall be named as an additional insured. Failure on the part of the Contractor to procure or maintain required insurance shall constitute a material breach of the contract upon which the Owner may immediately terminate this Agreement or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, and all monies so paid shall be repaid by Contractor upon demand of the Owner may offset the cost of the premiums against any monies due to the Contractor.

E. Contractor and its insurers providing the required coverages shall waive all rights or recovery against the Owner and its directors, officers, employees, and agents.

1.6 LIEN RELEASE REQUIREMENTS

A. Upon completion of this Project and before final payment is made, the Contractor will furnish to the Owner written 100% lien releases from all Subcontractors, material dealers, and other participants doing work under this Contract.

B. If payment to Subcontractors is outstanding pending final payment by the Owner, or if for any other reason 100% lien releases cannot be obtained from all Subcontractors, the Contractor may provide the Owner with an indemnity bond.

END OF SECTION 006000

SECTION 006113 – PERFORMANCE BOND

SECTION 00050 - ARIZONA BOARD OF REGENTS **PERFORMANCE BOND**
PURSUANT TO BOARD OF REGENTS POLICY 3-804E

(Penalty of this bond must be 100% of the Contract Amount)

KNOW ALL MEN BY THESE PRESENTS:

That,_____
(hereinafter called the Principal), as Principal, and _____
a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Arizona Board of Regents, (hereinafter called the Obligee), in the amount of _____
Dollars ($_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____, 20__, to construct and complete a certain work described as _____which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extension thereof, with or without notice to the Surety and during the life of any guaranty required under the contract, and shall also perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived; then the above obligation shall be void, otherwise to remain in full force and effect and Surety shall be obligated to perform if Principal fails to perform.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Board of Regents Policy Section 3-804E, and all liabilities on this bond shall be determined in accordance with the provisions of the section, to the same extent as if copied at length herein.

The prevailing party in a suit on this bond, including any appeal thereof, shall recover as a part of his judgment such reasonable attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this _____ day of_____, 20__.

_____	_____
PRINCIPAL SEAL	SURETY SEAL
By:_____	BY:_____
	_____
	Bond Number
_____	_____
Agent Name & Telephone	Bonding Company & Telephone
_____	_____
Agent Address	Bonding Company Address

END OF SECTION 006113

SECTION 006116 – PAYMENT BOND

SECTION 00050 - ARIZONA BOARD OF REGENTS **PAYMENT BOND**
PURSUANT TO BOARD OF REGENTS POLICY 3-804E

(Penalty of this bond must be 100% of the Contract Amount)

KNOW ALL MEN BY THESE PRESENTS:

That,_____
(hereinafter called the Principal), as Principal, and _____
a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Arizona Board of Regents, (hereinafter called the Obligee), in the amount of _____Dollars ($_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, to construct and complete a certain work described as _____
which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall promptly pay all monies due to all persons supplying labor or materials to him/her or his/her subcontractors in the prosecution of the work provided for in said contract, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Board of Regents Policy Section 3-804E, and all liabilities on this bond shall be determined in accordance with the provisions of the section, to the same extent as if copied at length herein.

The prevailing party in a suit on this bond, including any appeal thereof, shall recover as a part of his judgment such reasonable attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this_____ day of _____, 20__.

_____	_____
PRINCIPAL SEAL	SURETY SEAL
BY:_____	BY:_____
	_____
	Bond Number
_____	_____
Agent Name & Telephone	Bonding Company & Telephone
_____	_____
Agent Address	Bonding Company Address

END OF SECTION 006116

SECTION 007200 – GENERAL CONDITIONS

PART 1 – GENERAL

1.1 The General Conditions of the Contract for Construction, Standard Form AIA A201 (2017 edition) as revised and attached to the A107, hereinafter referred to as General Conditions, are hereby made part of the Contract Documents, and are included by reference. Copies of this document are available for review at the Architect's office.

The General Conditions are a part of the Contract and shall be binding on the General Contractor and all Subcontractors.

END OF SECTION 007200

SECTION 007300 – SUPPLEMENTARY CONDITIONS

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SUPPLEMENTARY CONDITIONS

ARTICLE 0: GENERAL NOTES

0.1 SUPPLEMENTARY CONDITIONS - PURPOSE

0.1.1 The following supplements and amends AIA Document A201, "General Conditions of the Contract for Construction", Edition, 2017 as revised and attached to the A107 Agreement (hereinafter referred to as The General Conditions) and collectively comprise the Supplementary Conditions of the Contract for Construction.

0.1.2 General Conditions Articles, paragraphs and clauses not amended by statements of these Supplementary Conditions shall remain in effect as stated.

0.1.3 Supplementary Conditions Articles use titles and numbers relating to General Conditions Articles (Example: "G. C. 1.2.3.", or simply: "1.2.3." refers to General Conditions Article 1", paragraph 2, subparagraph 3).

0.2 CONTRACT TERMINOLOGY

0.2.1 The specifications are intended to include the Work of the Contract without regard to the number of separate buildings or facilities unless reference is made to a particular building or facility within one or more specification sections.

0.2.2 For projects to be bid on a Single Contract basis, the phrases: "General Contractor", "Plumbing Contractor", "Heating Ventilating Air Conditioning (HVAC) Contractor", "Electrical Contractor" or other specialty contractor shall mean "The Contractor". Therefore, all responsibility for completion of all work rests with the Contractor submitting the bid. The Contractor may use references to specialty contractors, subcontractors, or supplier/installer contractors to assist in organizing the Work and establishing major subcontractors but doing so does not relieve the Contractor from overall responsibility for completion of the Work.

ARTICLE 1: GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.2 EXECUTION, CORRELATION, AND INTENT

After Article 1.2.10, ADD the following new Articles:

1.2.11 In case of an inconsistency between Drawings and Specifications or within either Document or clarified by Addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation. Where dimensions are not shown, measurements shall be verified with the Architect and by measuring actual conditions of the work already in place.

1.2.12 All work and material shall be the best of the respective kinds specified or indicated. Should any workmanship or materials be required which are not directly or indirectly called for in the Specification and/or shown on the Drawings but are consistent with the Contract Documents and reasonably inferable by them or industry standard practice, said workmanship or materials shall be the same as similar parts that are detailed, indicated or specified, or shall match or exceed the quality of existing for remodeling and restoration work, and the Contractor shall understand the same to be implied and provide for it in his tender as fully as if it were particularly described or delineated.

1.2.13 Should conflicts occur in or between Drawings, Specifications, Soils Report, Addenda, etc., the Contractor is deemed to have estimated on the more expensive way unless he has asked for and obtained a written decision from the Architect before submission of his Proposal as to which method or materials will be required.

1.2.14 GENERAL REQUIREMENTS

Sections of Division 1 - General Requirements govern the execution of all sections of the specifications.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY THE CONTRACTOR

After Article 3.2.6, ADD the following new Articles:

3.2.7 Neither the Owner nor the Architect assume any responsibility for understanding or representation made by any of their agents or representatives prior to the execution of the Agreement unless (1) such understanding or representations are expressly stated in the Agreement, and (2) the Agreement expressly provides that responsibility therefore is assumed by the Owner.

3.2.8 Failure by the Contractor to acquaint himself with all available information will not relieve him from reasonability for estimating properly the difficulty or cost of successfully performing the Work and including that cost in the project contract amount.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURE

To Article 3.3.1, ADD the following:

The Contractor shall review all specified procedures, methods and means prior to bidding. If he believes any of these will not produce the intended results (installations that cannot be warranted or are otherwise objectionable to the Contractor), he will propose alternatives for consideration to the Architect. Submission of a bid will constitute acknowledgment that all specified procedures, methods, and means are acceptable and able to be warranted as required, excepting any applicable and unresolved CSSB compliance issues stated in Contractor's May 13, 2014 Letter of Concern. Neither the presence or absence of the Owner or the Architect, or their authorized representatives shall relieve the Contractor from any requirements herein.

3.4 LABOR AND MATERIALS

Add the following subparagraphs 3.4.7, 3.4.8 and 3.4.9:

3.4.7 Within fourteen (14) days of the Contract Date, the Contractor shall provide the Architect a list, naming manufacturers proposed to be used for the products identified in the Specifications and, where applicable, the name of the installing Subcontractor.

3.4.8 Mechanics whose work is unsatisfactory to the Owner, or are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable shall be dismissed from work under the Contract upon written notice from Owner.

3.4.9 The use of asbestos or any product containing asbestos banned by the Environmental Protection Agency and Department of Labor's Occupational Safety and Health Administration is prohibited from this project. A contractor who installs products containing asbestos assumes full responsibility and liability for penalties,

damages, legal actions, or loss and shall pay for costs of removal and replacement and legal costs, if they are involved. Products specified that unknowingly contain asbestos shall be brought to the attention of the Architect in writing prior to purchase and shall not be used on this project.

3.6 TAXES

Add the following subparagraphs 3.6.4 and 3.6.5:

3.6.4 Bidders are responsible for informing themselves of tax laws, requirements, regulations, and interpretations applicable to this project.

3.6.5 Unless otherwise specified, the contract sum includes all taxes, including local option tax, imposed prior to the date of bid opening, and which are applicable to the work. If tax laws are subsequently amended by legislation, an equitable net adjustment to the contract sum shall be made upon claim by either party involved.

3.7 PERMITS, FEES, AND NOTICES

Add the following Article:

3.7.6 Any reference in the Specifications text to codes or standard specifications of manufacturer's instructions; shall mean the latest printed edition of each in effect under the applicable jurisdiction at the Contract date.

3.8 ALLOWANCES

Add clause 3.8.2.4 to subparagraph 3.8.2:

3.8.2.4 Change Orders required under Clause 3.8.2.3 shall not include Contractor or Subcontractor mark-up unless the Contractor clearly demonstrates a significant change in the Scope of Work required. Differences in material costs alone are not cause for including mark-ups on the Change Order.

3.9 SUPERINTENDENT

Add to Article 3.9, the following subparagraphs 3.9.4 and 3.9.5:

3.9.4 The superintendent approved by the Owner shall be established prior to the preconstruction conference, or if none is held, at the commencement of the construction and shall remain in that capacity for the duration of the project.

3.9.5 The designated project superintendent shall remain in charge of the Project until Final Completion and shall supervise the Work, including the satisfactory completion of all items designated on any list accompanying the Certificate of Substantial Completion (see Clause 9.8.2). Any change in superintendent shall be approved by Owner or Architect, whose approval shall not be unreasonably withheld.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

Add the following subparagraph 3.10.4

3.10.4 Completed material delivery schedule will be prepared by the Contractor and submitted to the Architect no later than twenty (20) calendar days after the date of the agreement. This schedule shall include identification of all material critical to the scheduling of the project or for which long lead time in procurement is anticipated, and projected dates for submittal, order, and delivery of such material.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Add clause 3.12.1.1 to subparagraph 3.12.1:

3.12.1.1 All Prime Contractors shall submit proof to the Architect within sixty (60) days from the date of the Owner-Contractor Agreement that all materials are on order and delivery dates are confirmed whether a Contractor is directly or indirectly responsible for ordering of materials.

3.13 USE OF SITE

Rename the first paragraph 3.13.1 and add the following new sentence:

"The Contractor shall be liable for any and all damage caused by him to Owner's premises. The Contractor shall hold and save the Owner, his agent and representatives, free and harmless from liability of any nature or kind arising from any use, trespass, or damage occasioned by his operations on premises or third person, excepting those claims and damages arising from Owner's negligence or intentional acts or omissions or conduct of Owner's invitees and licensees.

Add the following subparagraphs 3.13.1, 3.13.2 and 3.13.3:

3.13.2 Construction storage areas are limited to those defined by the Contract Documents and to those mutually agreed to between the Owner and the Contractors requiring storage areas. Contractors shall mutually agree on respective areas for the use of each and not to infringe on areas of other contractors. Each Contractor shall maintain his own area in an accessible and orderly condition during performance of the work. The General Contractor is responsible for final restoration of construction areas to their original condition excepting damage to parking lot.

3.13.3 Before commencing the Work, the Owner and Contractors shall agree on use of areas in the immediate vicinity of new additions and existing buildings for materials storage necessary for construction of new work and remodeling. Contractors shall confine construction activities to the agreed upon areas to minimize interference with Owner's activities elsewhere in the buildings or facilities during construction. The General Contractor shall erect temporary barriers enclosing designated construction areas. When construction is completed, the General Contractor shall restore designated construction areas to their original condition and/or complete required new work excepting damage to parking lot.

3.13.4 Roads and sidewalks used in the performance of the work within the limits of the construction site and adjacent areas leading to it shall be kept open to travel and kept in a clean condition. Failure by the Contractor to keep roads and sidewalks in a clean and accessible condition shall result in the Owner's cleaning under provision of paragraphs 2.4 and 3.15.2.

ARTICLE 5: SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Add the following subparagraphs 5.2.5 and 5.2.6:

5.2.5 If a Prime Contractor, Subcontractor or Sub-Subcontractor solicits the services of another Prime Contractor, Subcontractor or Sub-Subcontractor, the party hired to do the work becomes a Subcontractor subject to provisions of the Contract Documents pertaining to Subcontractors and Sub-Subcontractors as applicable.

5.2.6 The names of persons or entities required in Clause 5.2.1 shall be submitted within fourteen (14) days after execution of the Contract. The first payment application will not be processed until the Architect has received the complete list.

ARTICLE 7: CHANGES IN THE WORK

7.3 CONSTRUCTION CHANGE DIRECTIVES

Add the following to 7.3.3.1:
"Lump sum properly itemized" means itemized breakdown of cost of all labor (by crafts), materials, equipment rentals, etc., for any portion of the work which comprises the change order including any subcontractors itemized breakdown and shall be broken down as outlined in subparagraph 7.3.7.

7.4 MINOR CHANGES IN THE WORK

Add to Article 7.4 as follows:

For Supplemental Instructions or interpretations or ordering minor changes in the Work, the Architect may use AIA Document G710, Architect's Supplemental Instructions. If the Contractor believes that a change in contract sum or contract time is involved, he should notify the Architect in writing within ten (10) days of its issuance.

ARTICLE 8: TIME

8.1 DEFINITIONS

Add to Article 8.1.2, after the first sentence, the following:

"If a specific date is not established in Agreement, the date of commencement shall be from the receipt of a Notice to Proceed from the Architect."

Add the following subparagraph 8.1.5:

8.1.5 Contractors shall obtain insurance and permits, file documents and notices as required and necessary and commence the work within 5 days following the date of the Agreement.

8.2 PROGRESS AND COMPLETION

Subparagraphs 8.2.1; change to read:

8.2.1 Time limits stated in the Contract Documents are of the essence and are based on a number of factors, most notably, the immediacy of the Owner's needs and practicability of a successful bidder completing the work within the time allowed. If a prospective bidder believes the completion date specified is unreasonable and not capable of being met, provide the Architect with written justification for consideration. Unless the completion date is changed by Addendum it is understood that by executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

Add the following subparagraph 8.2.1.1:

8.2.1.1 The Contractor is expected and required to meet the completion date, subject to other provisions of the Contract, whether or not formal provision for liquidated damages is made.

8.3 DELAYS AND EXTENSIONS OF TIME

Add the following sub-subparagraph 8.3.1:

Contractor's written claims for extension of time shall be accompanied by certified copies of records of dates, correspondence, notices and other relevant information which will serve as proof of the events forming the basis for the claim.

8.3.1.1 The Contractor shall notify the Architect in writing at the earliest opportunity when he is reasonably certain that materials may not be available at the job site for use at the time scheduled due to material shortages, labor strikes, transportation difficulties or other similar reason. This notification is necessary to permit the Architect to investigate alternate materials/systems. The Contractor should, on his own initiative, submit documentation from the appropriate manufacturer, supplier or Subcontractor substantiating the cause for the delay.

Add clauses 8.3.4 and 8.3.5:

8.3.4 Claims for additional time based on delayed shop drawing submittals, delayed material ordering and subsequent delays in shipping or other delays which could have been avoided by vigorous and timely prosecution of the work will not be considered as a valid basis for granting an extension of time since scheduling and control of suppliers and Subcontractors are a part of the Prime Contractor's responsibility. See Clause 3.12.1.1.

8.3.5 Time extensions for legitimate causes will be granted to a Contractor on an individual basis. A time extension granted to one Contractor does not infer nor constitute granting a similar time extension to other Contractor's unless other Contractor's work will be similarly delayed.

ARTICLE 9: PAYMENTS AND COMPLETION

9.3 APPLICATIONS FOR PAYMENT

Add to Article 9.3.1 the following:

The form of Application for Payment shall be a notarized AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet. A minimum of four (4) original copies of these forms shall be submitted for each application.

Add the following subparagraphs 9.3.1.3, 9.3.1.4, 9.3.1.5, 9.3.1.6, 9.3.1.7 and 9.3.1.8:

9.3.1.3 Application for payment shall be submitted on AIA Document G702/G703 "Application and Certificate for Payment."

9.3.1.4 The Contractor shall submit a financial breakdown of the work, itemized by crafts or sections as designated by the Architect. His payment shall be based upon his monthly percentage of completion of these items.

9.3.1.5 Submit application for payment in quadruplicate, and indicating:

1. The value of the labor, materials and equipment incorporated in the work, or delivered and stored at the site.
2. Retentions, in accordance with Agreement Section 12.1.7.
3. The deduction of all previously approved payments.
4. New amount requested.

5. All other information required under Agreement Section 12.1.7.

9.3.1.6 Application for payment will be processed each month during the scheduled period of construction. If through Contractor's fault a Certificate of Substantial Completion has not been issued on or before the scheduled date, no further applications for payment will be approved until the Certificate of Substantial Completion is issued.

9.3.1.7 The Contractor shall pay for transportation, services, materials, tools, expendable items, and subcontract work. Each payment shall be in an amount equal to the percentage of completion allowed to the Contractor for each item or category, less the percentage retained for payments to the Contractor.

9.6 PROGRESS PAYMENTS

Add the following subparagraph 9.6.1.1:

9.6.1.1 Progress payments will be made at monthly intervals with the number of payments based on the number of months between the date of commencement and the date specified for the certificate of substantial completion as specified herein before in Article 8. Each monthly payment shall be in an amount determined in accordance with paragraph 9.4 of the General Conditions and these Supplementary Conditions. After the payment of the last scheduled progress payment, no further progress payments will be made until the Certificate of Substantial Completion has been issued. If changes in the work result in an extension of time, the number of scheduled progress payments shall be changed to conform with the extension of time.

9.8 SUBSTANTIAL COMPLETION

Add the following subparagraph 9.8.6:

9.8.6 Permitting a Contractor to continue and finish all or part of the Work after the established or extended date for completion does not constitute a waiver of the Owner's rights under the Contract.

9.10 FINAL COMPLETION AND FINAL PAYMENT

To Article 9.10.2 add the following sentence: "AIA Documents G706, Contractor's Affidavit of Payment of Debts and Claims, G706-A, Contractor's Affidavit of Release of Liens, Documents G707, Consent of Surety Company to Final payment shall be used. If appropriate, G707-A, Consent of Surety to Reduction in or Partial Release of Retainage shall be used."

Add the following sub-subparagraphs 9.10.2.1, 9.10.2.2, 9.10.2.3 and 9.10.2.4:

9.10.2.1 The affidavit referred to in 9.10.2(1) shall be on AIA Document G706.

9.10.2.2 Consent of Surety referred to in 9.10.2(4) shall be on AIA Document G707.

9.10.2.3 The affidavit referred to in 9.10.2(5) shall be on AIA Document G706A, if required by Owner.

9.10.2.4 AIA Forms referenced herein are available from the American Institute of Architects at one of the following addresses:
The American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. 20006;
AIA Arizona Chapter, 802 North 5th Ave., Phoenix, AZ 85003

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following sub-subparagraph 10.1.1:

10.1.1 Contractor is responsible for initiating and maintaining all procedures necessary to prevent damage arising out of the Work to physical property or personnel, and adjacent property. Contractor shall maintain appropriate fire safety programs at all times, and other measures that may be ordered or required by authorities having jurisdiction. This paragraph 10.1.1 applies only to those areas where Contractor or its subcontractors are performing work or conducting operations.

Add the following subparagraph 10.1.2:

10.1.2 The General Contractor is designated as custodian of the property and premises included in the work and shall provide adequate temporary protection from weather damage and unauthorized intrusion, once the work is considered enclosed. The General Contractor shall furnish and maintain temporary stairs, ladders, ramps or other access structures or devices required for safe and proper execution of the work of all trades.

10.2 SAFETY OF PERSONS AND PROPERTY

After Article 10.2.7, add the following Article 10.2.8 and 10.2.9:

10.2.8 In the course of performing the Work the Contractor shall be responsible for protecting from damage done to any and all existing structures and/or improvements, including the finishes thereof within the adjoining working areas, and shall provide adequate protection therefore, either by barricades, or covering, or by temporary removal. Any existing structures and/or improvements damaged during construction shall be repaired and/or replaced with materials, workmanship, fixtures or equipment of the same kind, quality and size. Any materials or equipment temporarily removed and damaged shall be repaired or replaced and re-connected or installed in an approved manner.

10.2.9 The Contractor shall be responsible for Owner-furnished material and/or equipment as follows:

1. When the Owner furnishes new equipment or materials to be installed by the Contractor, the Contractor is responsible from receipt of the items until the Work is accepted by the Owner.

00820 Additional Articles

The following additional articles are hereby included as part of the Contract and shall be binding to the General Contractor and all subcontractors.

00823 Damage to Persons

In addition to the liability imposed by law upon Contractor on account of bodily injury or death suffered through Contractor's negligence, which liability is not impaired or otherwise affected hereby, Contractor hereby agrees to save Owner harmless and indemnify him from every expense, liability or payment (voluntary payments excepted) by reason of any injury to any person or persons, including death, suffered through any act or omission of contractor, or any subcontractor of any tier, or anyone directly or indirectly employed by either of them related to anything to the performance of this Contract. Contractor shall hold the Owner harmless and indemnify him from any claims for damage to property caused by his operation or by the operation of any subcontractor of any tier. Contractor shall not be required to indemnify the Owner for any claim or damage arising out of the Owner's negligence or intentional acts or omissions.

END OF SECTION 007300

SECTION 008500 – DRAWINGS AND SPECIFICATIONS

PART 1 – GENERAL

008500 Drawings and Specifications

Complimentary Drawings

Upon award of Contract, the Contractor will be furnished an electronic PDF set of Plans, Specifications, and Project Manuals shared via email. Additional hardcopy sets may be obtained from the Architect for the cost of reproduction.

Interpretation of Drawings and Specifications

In general, provisions of the specifications take precedence over notes on the drawings; addenda or bulletins to specifications take precedence over original specification or earlier addenda; dimensional figures take precedence over scaled measurements; large scale drawings and details take precedence over those of smaller scale; drawings of the latest date take precedence over earlier ones. Work indicated or required (but not expressly noted, detailed, or specified) shall be made the same as similar or corresponding elements which are fully noted, detailed or specified.

The Contractor shall comply with the true intent and meaning of the drawings and specifications taken as a whole. Any disputes over order of precedence shall be presented to the A/E for decision.

Standards of quality and performance indicated on the drawings or described in the specifications shall be understood to be minimum requirements only. When building codes or other legal authority demand higher standards, such legal requirements shall be met. When there is a conflict between two conditions or requirements, the most restrictive shall prevail.

The A/E will not be responsible for scaling the drawings.

The drawings are generally diagrammatic and indicate manner, method, and nature of the installation. The specifications denote style and quality of material and workmanship. When the term "or equal" or "approved equal" or "Equivalent to" is used, it shall be construed to mean approval by the A/E. Substitutions made without A/E approval shall be removed and replaced without additional cost to the Owner.

Where there is a conflict between the drawings and the specifications, the A/E shall be promptly notified. As specified in the General Conditions (included above), the Architect shall be the initial interpreter of the Drawings and Contract Documents.

END OF SECTION 008500

AIA Document A107-2007

Standard Form of Agreement Between Owner and Contractor – for a Project of Limited Scope

AGREEMENT made as of the day of in the year.
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

City of Page Public Works
697 Vista Avenue
Page, AZ 86040

and the Contractor:
(Name, legal status, address and other information)

(Contracting Firm)

for the following Project:
(Name, location and detailed description)

(Project Name)

The Architect:
(Name, legal status, address and other information)

(Architectural Firm)

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

ARTICLE 1 THE WORK OF THIS CONTRACT

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

The date of commencement of the Work shall be the _____ of _____, ____.

§ 2.2 The Contract Time shall be measured from the date of commencement.

§ 2.3 The Contractor shall achieve Substantial Completion of the entire Work not later than ( ) days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

~~**Portion of Work** **Substantial Completion Date**~~
~~N/A~~

~~, subject to adjustments of this Contract Time as provided in the Contract Documents.~~
~~*(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)*~~

ARTICLE 3 CONTRACT SUM

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

[**«X»**] Stipulated Sum, in accordance with Section 3.2 below

~~[« »] Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below~~

~~[« »] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below~~

(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)

§ 3.2 The Stipulated Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 3.2.1 The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

~~**§ 3.2.2** Unit prices, if any:~~
~~*(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)*~~

~~**Item** **Units and Limitations** **Price Per Unit ($0.00)**~~
~~N/A~~

§ 3.2.3 Allowances included in the stipulated sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Allowance
N/A	

§ 3.3 COST OF THE WORK PLUS CONTRACTOR'S FEE
§ 3.3.1 The Cost of the Work is as defined in Exhibit A Determination of the Cost of the Work.

§ 3.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

§ 3.4 COST OF THE WORK PLUS CONTRACTOR'S FEE WITH A GUARANTEED MAXIMUM PRICE
§ 3.4.1 The Cost of the Work is as defined in Exhibit A Determination of the Cost of the Work.

§ 3.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

§ 3.4.3 GUARANTEED MAXIMUM PRICE
§ 3.4.3.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed ($), subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.
(Insert specific provisions if the Contractor is to participate in any savings.)

§ 3.4.3.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

§ 3.4.3.3 Unit Prices, if any:
(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit ($0.00)
N/A		

§ 3.4.3.4 Allowances included in the Guaranteed Maximum Price, if any:
(Identify and state the amounts of any allowances, and state whether they include labor, materials, or both.)

Item	Allowance
N/A	

§ 3.4.3.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:

N/A

ARTICLE 4 PAYMENTS

§ 4.1 PROGRESS PAYMENTS

§ 4.1.1 Based upon Applications for Payment submitted to the Owner, ~~Architect by the Contractor and Certificates for Payment issued by the Architect,~~ the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.1.1 The Contractor will submit to the Owner, for the Owner's review and approval, a schedule of values for the Work (the "Schedule of Values") showing, in percentage and dollar amounts, the value that the various parts, systems, segments and units of the Work (the "Work Items") bear to the total Work and the Contract Price. The Contractor will thereafter provide the Owner with monthly revisions of the Schedule of Values to reflect the progress of the Work and any Owner-approved Changes in the Work. Owner-approved Changes in the Work which result in increases or decreases in the Contract Price will be allocated to the corresponding Work Items.

During the design phase, Contractor shall develop a milestone and deposit schedule. The schedule will detail specific completion requirements which are inspect and reviewable by Owner on site. Contractor and Owner shall work together to blend payment requirements to both recognize milestone achievements, but also submit payment requests along Owner's traditional monthly timelines. At the end of each milestone or month, in accordance with the agreed upon schedule of values, the Contractor will submit to the Owner for the Owner's approval a complete and correct payment request ("Payment Request") in an amount equal to the percentage of the Contract Price for the Work completed through the end of the preceding month. Each Payment Request will be based on the most recent Schedule of Values submitted by the Contractor and approved by the Owner. Each Payment Request will constitute a representation by the Contractor to the Owner that the Work has progressed to the point indicated and that the Contractor is entitled to payment in the amount requested. Each Payment Request will be accompanied by sufficient detail and supporting data, relative to the Schedule of Values, to show how the Payment Request amount was determined.

§ 4.1.1.2 The Contractor is required to submit Payment Requests to the Owner on a timely basis in order to be assured of prompt payment. Any undisputed Payment Request received by the Owner will be paid within forty-five (45) days of receipt by Owner; provided that Owner shall be entitled to a discount of 1.5% of the total amount of the Payment Request if Owner makes payment within thirty (30) days of receipt of such Payment Request. The Owner may decline to approve or withhold from any Payment Request because of (i) defective work not remedied within a reasonable time frame; (ii) filed or threatened third party claims; (iii) the failure of the Contractor to make payments to the Architect or any subcontractors or for labor, materials or equipment; or (iv) if the Contractor is otherwise in material breach of this Agreement.

~~**§ 4.1.2** The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:~~

~~**§ 4.1.3** Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the certified amount to the Construction Manager not later than the day of the month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than days after the Architect receives the Application for Payment.~~
~~*(Federal, state or local laws may require payment within a certain period of time.)*~~

§ 4.1.4 Retainage, if any, shall be withheld as follows:

Applications for payment shall be subject to a withholding of ten percent (10%) retainage, to be released at final payment.

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

Prime rate in Wall Street Journal on the day of default.

§ 4.2 FINAL PAYMENT

§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 18.2, and to satisfy other requirements, if any, which extend beyond final payment;

.2 the Contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a guaranteed maximum price; and

.3 a final Certificate for Payment has been issued by the Architect.

§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

Payment and 100% of Punch List work is completed and accepted by the Owner

ARTICLE 5 DISPUTE RESOLUTION

§ 5.1 BINDING DISPUTE RESOLUTION

For any claim subject to, but not resolved by, mediation pursuant to Section 21.3, the method of binding dispute resolution shall be as follows:
(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.)

[**«X »**] Arbitration pursuant to Section 21.4 of this Agreement

~~[« »] Litigation in a court of competent jurisdiction~~

~~[« »] Other *(Specify)*~~

ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS

§ 6.1 The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 6.1.1 The Agreement is this executed AIA Document A107–2007, Standard Form of Agreement between Owner and Contractor for a Project of Limited Scope.

§ 6.1.2 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Statement of Work	(Project Name)		

§ 6.1.3 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages
N/A			

§ 6.1.4 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Architecture/Engineering Firm Name
Name of Drawing Set

Number	Title	Date
Sheets …..	See Drawing Set above	

§ 6.1.5 The Addenda, if any:

Number	Date	Pages
N/A		

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are enumerated in this Article 6.

§ 6.1.6 Additional documents, if any, forming part of the Contract Documents:

.1 Exhibit A Determination of the Cost of the Work, if applicable.

.2 AIA Document E201–2007, General Conditions, if completed, or the following:
N/A

.3 Other documents:
(List here any additional documents that are intended to form part of the Contract Documents.)
N/A

ARTICLE 7 GENERAL PROVISIONS

§ 7.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 7.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

§ 7.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 7.4 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants

under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 7.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 7.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 7.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmission, unless otherwise provided in the Agreement or in the Contract Documents.

ARTICLE 8 OWNER

§ 8.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 8.1.1 The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.2 The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 8.1.3 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 8.2 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

§ 8.3 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner, without prejudice to any other remedy the Owner may have, may correct such deficiencies and may deduct the reasonable cost

thereof, including Owner's expenses and compensation for the Architect's services made necessary thereby, from the payment then or thereafter due the Contractor.

ARTICLE 9 CONTRACTOR

§ 9.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 9.1.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.1, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

§ 9.1.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 9.2 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 9.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

§ 9.3 LABOR AND MATERIALS

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 9.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 9.3.3 The Contractor may make a substitution only with the consent of the Owner, after evaluation by the Architect and in accordance with a Modification.

§ 9.4 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.

§ 9.5 TAXES

The Contractor shall pay sales, consumer, use and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 9.6 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 9.6.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 9.7 ALLOWANCES

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. Allowance amounts shall not include the Contractor's costs for unloading and handling at the site, labor, installation, overhead, and profit.

§ 9.8 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 9.8.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 9.8.2 The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Architect.

§ 9.9 SUBMITTALS

§ 9.9.1 The Contractor shall review for compliance with the Contract Documents and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Architect reasonable time for review. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements and field

construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

§ 9.9.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

§ 9.10 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 9.11 CUTTING AND PATCHING

The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

§ 9.12 CLEANING UP

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus material from and about the Project.

§ 9.13 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 9.14 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 9.15 INDEMNIFICATION

§ 9.15.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

§ 9.15.2 In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation

on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 10 ARCHITECT

§ 10.1 The Architect will provide administration of the Contract and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 10.2 The Architect will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 10.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 10.4 Based on the Architect's evaluations of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 10.5 The Architect has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

§ 10.6 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 10.7 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

§ 10.8 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 10.9 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

ARTICLE 11 SUBCONTRACTORS

§ 11.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

§ 11.2 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of the Subcontractors or suppliers for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 11.3 Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 12.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under conditions of the contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such claim as provided in Article 21.

§ 12.2 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

§ 12.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, and damage to the Work or defective construction of a separate contractor.

ARTICLE 13 CHANGES IN THE WORK

§ 13.1 By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor and Architect, or by written Construction Change Directive signed by the Owner and Architect.

§ 13.2 Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Architect, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the Construction Change Directive. The Architect will make an interim determination of the amount of payment due for purposes of certifying the Contractor's monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Architect will prepare a Change Order.

§ 13.3 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed.

ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 14.3 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion is the date certified by the Architect in accordance with Section 15.4.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by changes ordered in the Work, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties or any causes beyond the Contractor's control, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine, subject to the provisions of Article 21.

ARTICLE 15 PAYMENTS AND COMPLETION

§ 15.1 APPLICATIONS FOR PAYMENT

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values, allocating the entire Contract Sum to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used in reviewing the Contractor's Applications for Payment.

§ 15.1.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor, less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

§ 15.1.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 15.1.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

§ 15.2 CERTIFICATES FOR PAYMENT

§ 15.2.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 15.2.3.

§ 15.2.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluations of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 15.2.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.2.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 15.2.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to

such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 15.2.4 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 15.3 PROGRESS PAYMENTS

§ 15.3.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in similar manner.

§ 15.3.2 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 15.3.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 15.4 SUBSTANTIAL COMPLETION

§ 15.4.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 15.4.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 15.4.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion, establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial

Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 15.4.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 15.5 FINAL COMPLETION AND FINAL PAYMENT

§ 15.5.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.5.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 15.5.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

§ 15.5.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from

- **.1** liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

§ 15.5.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY

§ 16.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 16.1.2 and 16.1.3, except for damage or loss attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15.

§ 16.2 HAZARDOUS MATERIALS

§ 16.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay and start-up.

§ 16.2.2 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact, the material or substance presents the risk of bodily injury or death as described in Section 16.2.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 16.2.3 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

ARTICLE 17 INSURANCE AND BONDS

§ 17.1 The Contractor shall purchase from, and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable, claims for damages because of bodily injury, including death, and claims for damages, other than to the Work itself, to property which may arise out of or result from the Contractor's operations and completed operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them. This insurance shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to the Contractor's obligations under Section 9.15. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. The Contractor shall cause the commercial liability coverage required by the Contract Documents to include: (1) the Owner, the Architect and the

Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 17.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 17.3 PROPERTY INSURANCE

§ 17.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance on an "all-risk" or equivalent policy form, including builder's risk, in the amount of the initial Contract Sum, plus the value of subsequent modifications and cost of materials supplied and installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 15.5 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 17.3.1 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and sub-subcontractors in the Project.

§ 17.3.2 The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 17.3.3 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 12, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 17.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 12, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 17.3.4 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their sub-subcontractors in similar manner.

§ 17.4 PERFORMANCE BOND AND PAYMENT BOND

§ 17.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 17.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 18 CORRECTION OF WORK

§ 18.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.2.7.3 in Exhibit A, Determination of the Cost of the Work.

§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.4.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.

§ 18.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

§ 18.4 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 18.5 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 18.

ARTICLE 19 MISCELLANEOUS PROVISIONS

§ 19.1 ASSIGNMENT OF CONTRACT

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 19.2 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located, except, that if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.4.

§ 19.3 TESTS AND INSPECTIONS

Tests, inspections and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor.

§ 19.4 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 19.4.

ARTICLE 20 TERMINATION OF THE CONTRACT

§ 20.1 TERMINATION BY THE CONTRACTOR

If the Architect fails to certify payment as provided in Section 15.2.1 for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 20.2 TERMINATION BY THE OWNER FOR CAUSE

§ 20.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of a public authority; or
- **.4** other wise is guilty of substantial breach of a provision of the Contract Documents.

§ 20.2.2 When any of the above reasons exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' written notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs

and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 20.3 TERMINATION BY THE OWNER FOR CONVENIENCE

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 21 CLAIMS AND DISPUTES

§ 21.1 Claims, disputes and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 16.2, shall be referred initially to the Architect for decision. Such matters, except those waived as provided for in Section 21.8 and Sections 15.5.3 and 15.5.4, shall, after initial decision by the Architect or 30 days after submission of the matter to the Architect, be subject to mediation as a condition precedent to binding dispute resolution.

§ 21.2 If a claim, dispute or other matter in question relates to or is the subject of a mechanic's lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 21.3 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with their Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to this Agreement, and filed with the person or entity administering the mediation. The request may be made concurrently with the binding dispute resolution but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 21.4 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any claim, subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association, in accordance with the Construction Industry Arbitration Rules in effect on the date of this Agreement. Demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 21.5 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 21.6 Any party to an arbitration may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration provided that the party sought to be joined consents in writing to such joinder. Consent to

arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written Consent.

§ 21.7 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 21.8 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 20. Nothing contained in this Section 21.8 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Kyle Christiansen, Director City of Page Public Works	Name, Title Contracting Firm Legal Name
(Printed name and title)	*(Printed name and title)*

Attachment C
Indemnification and Insurance

1.1 Indemnification. Construction Manager shall protect, defend, indemnify and hold harmless the Owner and Owner's Client (the "Indemnitees") and all of their officials, officers, employees, contractors, agents or representatives from and against any and all liabilities, demands, suits, losses, fines, or judgments, including all reasonable costs for investigation and defense thereof (including but not limited to attorney fees, court costs, and expert fees), which may arise, in whole or in part, out of the acts, errors or omissions (including, but not limited to any construction defects and installation deficiencies) of the Construction Manager. Construction Manager's officers, employees, agents, or subcontractors unless such claim is

caused by the negligence or other wrongful acts of the Owner or Owner's Client, as applicable and provide further that such claim, damage, loss, expense or fine is attributable to bodily injury, sickness, disease, or death or to injury to or destruction of tangible property (other than the work itself). The Owner or Owner's Client shall give the Construction Manager reasonable notice of any such claims or actions. The indemnification required hereunder shall not be limited by reason of the specification of any particular insurance coverage. The provisions of this section shall survive the expiration or earlier termination of this Agreement.

1.2 Insurance.

a) Contractor shall provide, pay for and maintain insurance of the type and in the limits as set forth in the attached sample "Delaware North Companies Certificate of Insurance Inc. and Minimum Insurance Requirements", or if applicable, the Owner's Client's insurance requirements contained in Attachment A, whichever is greater. Such insurance shall be maintained in full force and effect from the date of and all during the Term of this Agreement.

b) The Owner and Owner's Client shall be included as Additional Insureds under the liability insurance policies. Coverage afforded the Additional Insureds under these policies shall be primary insurance. If the Additional Insureds have other insurance which is applicable to the loss, such other insurance shall be on an excess and/or contingent basis.

c) The insurance required by this Section 1.2 shall be written by a company or companies licensed to do business in the State in which Project is located and rated "Excellent" or better and rated "Class VIII" or better under the "Financial Size Category" in the latest edition of Best's Key Rating Guide. The Certificate of Insurance shall name Owner, Owner's Client and others, as shown below, as "Additional Insureds" on the face of the certificate and not merely "Certificate Holder."

The additional insured clause shall read:

> Named as Additional Insureds are: [insert Owner's name and name of Owner's Client] as well as name of Project Architect and their respective parent companies, subsidiaries, related and affiliated companies, and the officers, directors, agents, employees and assigns of each, as now or hereafter exist, as respect the services/work to be performed under this agreement.

d) CONSTRUCTION MANAGER shall furnish, during the term of this Agreement, Certificates of Insurance, acceptable to Owner and Owner's Client, and which shall be filed with Owner and Owner's Client prior to commencement of the Work. These Certificates and the insurance policies required by this Section 1.2 shall contain a provision that coverages afforded under the policies will not be cancelled or allowed to expire until at least 30 days prior written notice has been given to Owner and Owner's Client.

The Cancellation Clause shall read:

> Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will mail 30 days written notice to the certificate holder named to the left.

The Certificate Holders shall be addressed as follows unless specified differently in the Owner's agreement with the Owner's Client:

Delaware North at Grand Canyon
1 Mather Business Center
Grand Canyon, AZ 86023

e) The Owner and Owner's Client shall have the right to conduct an annual review of the insurance requirements contained herein and modify accordingly to be consistent with current accepted standards of practice as it relates to this type of contractual arrangement. No such modification shall be binding, upon the Contractor or require the Contractor to perform any additional obligations unless: (i) the Contractor is able to obtain a modification of its then existing insurance the Owner has agreed to pay any increased costs incurred by the Contractor with respect to such modifications.

1.3 Construction Performance and Payment Bonds.

a) Prior to the commencement of the construction, Construction Manager shall obtain and deliver to the Owner and Owner's Client no cost to either of them performance and payment bonds, as follows:

i) A contract surety bond in a sum equal to one hundred percent (100%) of the anticipated amount of the construction contract. Such bond shall be drawn in a form and from such company as approved by the Owner and Owner's Client , shall guarantee the faithful performance of necessary construction and completion of the work substantially in accordance with the approved plans and specifications, and shall indemnify and hold harmless Owner and Owner's Client against any losses and liability, damages, expenses, claims, and judgments caused by or resulting from any failure of Operator to perform completely the work described therein.

ii) A payment bond in a sum equal to one hundred percent (100%) of the amount of the construction contract. Said bond shall guarantee payment of all wages or labor and services engaged and/or all bills for material, supplies and equipment used in the performance of any such construction contract to the extent that any claimant has a direct contract with the Contractor or has a direct contract with a party that has a direct contract with the Contractor (e.g., a subcontractor that has a direct contract with the Contractor).

1.4 Additional Insurance. The Construction Manager, upon request, furnish to the Owner and Owner's Client adequate evidence or provisions for Social Security and Unemployment Compensation Insurance, to the extent such provisions are applicable to the Construction Manager's operations hereunder.

SECTION 011100 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION SUMMARY OF THE WORK

A. General: Name of project is "City of Page Public Works Tenant Improvements" on contract documents prepared by the Architect.

B. Architect: The construction documents were prepared by JWA Architects, LLC, who will provide periodic observation and interpretation of the contract documents in accordance with the General Conditions of the Contract.

C. Contract Documents: Requirements of the work are contained in the contract documents, and include cross-references therein to published information, which is not necessarily bound therewith.

D. Abbreviated Written Description: Without force and effect on requirements of contract documents, the (incomplete) description of the total work of the Project can be summarized as follows:

The project involves the remodeling of one bay of an existing industrial metal building for offices and ancillary uses. This scope includes the removal of two large overhead coiling doors and installing new structural and siding components in their place.

Interior work consists of a full height metal stud separation wall and metal stud framing for all interior rooms. Acoustical and gypsum board ceilings are suspended from existing purlins. Interior framing is to be covered with gypsum board. Plumbing, mechanical, and electrical systems are included as is concrete patching and flat work.

E. Building Code Requirements: The contractor shall comply with Grand Canyon National Park and Coconino County building code requirements. The current codes are listed on the cover sheet of the drawing set.

1.2 DEFINITION

A. General: Except as specifically defined otherwise, the following definitions, supplement definitions of the Contract, General Conditions, Supplementary General Conditions, and other general contract documents, and apply generally to the work.

B. General Requirements: General Requirements shall consist of Division 1 sections of these specifications. Division 1 sections are applicable to all sections of the specifications and shall apply to the entire work of the contract.

C. Indicated: Shown on drawings by notes, graphics, or schedules, or written in other portions of contract documents. Terms such as "shown", "noted", "Scheduled" and "specified" have same meaning as "indicated" and are used to assist the reader in locating particular information.

D. Directed, Reviewed, Accepted, Selected, etc.: These terms imply "by the Architect/Engineer", unless otherwise indicated.

E. Review or Acceptance by Architect: In no case releases Contractor from responsibility to fulfill requirements of contract documents.

F. Project Site: Space available to Contractor at location of project, either exclusively or to be shared with separate contractors, for performance of the work.

G. Furnish: Supply and deliver to project site, ready for unloading, unpacking, assembly, installation, and similar subsequent requirements.

H. Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.

I. Provide: Furnish and install, complete and ready for intended use.

J. Installer: Entity (firm or person) engaged to install work, by Contractor, Subcontractor or Sub Sub-contractor. Installers are required to be skilled experts in the work they are engaged in installing.

K. Specification Text Format: Underscoring facilitates scan reading, no other meaning. Imperative language is directed at Contractor, unless otherwise noted. Forty-eight division, three-part format is that commonly known as CSI Masterformat and generally recognized as industry standard method of organization, no other meaning.

L. Overlapping/Conflicting Requirements: Most stringent (generally most costly) applies and will be enforced, unless more detailed language written directly into contract documents clearly indicates that a less stringent requirement is acceptable. Refer uncertainties to Architect/Engineer for decision before proceeding.

Where optional requirements are specified in a parallel manner, the option is intended to be Contractor's unless otherwise indicated.

M. Minimum Requirements: Indicated requirements are for a specific minimum acceptable level of quality/quantity, as recognized in the industry. Actual work must comply (within specified tolerances) or may exceed minimums within reasonable limits. Refer uncertainties to Architect before proceeding.

N. Abbreviations, Plural Words: Abbreviations, where not defined in contract documents, will be interpreted to mean the normal construction industry terminology, determined by recognized grammatical rules, by the Architect. Plural words will be interpreted as singular and singular words will be interpreted as plural where applicable for context of contract documents.

1.3 CUTTING AND PATCHING

A. Structural Work: Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio. Submit proposal and request and obtain Architect's approval before proceeding with cut-and-patch of structural work.

B. Operational/Safety Limitations: Do not cut-and-patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance. Submit proposals and requests and obtain Architect's approvals before proceeding with cut-and-patches.

C. Visual/Quality Limitations: Do not cut-and-patch work exposed to view (interior and exterior) in a manner resulting in noticeable reduction of visual qualities and similar qualities, as judged by Architect.

D. Limitation on Approvals: Architect's decision to permit cutting and patching does not waive right to later require removal/replacement of work found to be cut-and-patched in an unsatisfactory manner, as judged by Architect.

END OF SECTION 011100

SECTION 013000 – SUBMITTALS

PART 1 - GENERAL

1.1 GENERAL - DEFINITIONS

A. The provisions of this section apply to required submittals, related to units of work, not to administrative submittals such as payment requests, insurance certificates and progress reports. In addition to specific provisions of General and Supplementary Conditions related to submittals, individual specification sections of Divisions 2 through 33 contain submittal requirements. Specific requirements in other sections shall have precedence over general requirements of this section.

B. In addition to categories of shop drawings, product data, and samples as defined by General Conditions, a category of miscellaneous submittals is required, including warranties, workmanship bonds, photographs, surveys, field records, inspection/test reports, and closeout submittals.

1.2 PROCEDURAL REQUIREMENTS

A. General: Coordinate submittals with progress schedule and actual progress of work; allow 1 week for Architect's/Engineer's initial processing of submittals. Use special transmittal form to establish complete record of submittals. Review date and stamp each submittal for project conformance and provide a contractor sequential number to each submittal for consistency of reference and identification. Provide copies required by governing authorities, which are in addition to copies specified for submittal to Architect/Engineer.

B. Copies of Shop Drawings: Submit one electronic copy, reviewed by the contractor with his comments.

C. Copies of Product Data: Mark each copy to indicate actual product to be provided; show selections from among options in manufacturer's printed product data. Submit one electronic copy: maintain an additional copy at project site for reference purposes. Do not proceed with installation of manufactured products until a copy of related product data is in the Installer’s possession. Maintain record set at project site for transmittal to Owner at final completion of the project.

D. Sets of Samples: Submit one set; one set will be returned. Provide three or more samples in each set where variations in color, pattern or texture are observable; show average condition and extreme conditions of variations. Submit full documentation with each set. Except as otherwise indicated, sample submittals are for Architect's/Engineer's selection of color, texture, pattern and "kind", as applicable. Maintain returned set at project site, for purposes of quality control comparisons and for Owner's future records.

E. Warranties and Special Project Warranties:

1. Two executed copies, plus copies as required in maintenance manuals.
2. Specified Product Warranties: Two executed copies, plus copies as required in maintenance manuals.
3. Coincidental Product Warranties: Single copy, plus copies as required in maintenance manuals.

4. Inspection/Test Reports and Certificates: Where not processed as shop drawings or product data, provide 2 copies required for maintenance manuals.
5. Maintenance Manuals: Two bound copies and one electronic copy.
6. Record Drawings: Transfer information from original maintained mark-up prints to sepia set of drawings which will be supplied by Architect to contractor. Record sepias will be returned to Architect for distribution to Owner (refer to Section 01700).

1.3 ACTION ON SUBMITTALS

Architect's/Engineer's Action: Where action and return is required or requested, Architect/Engineer will review each submittal, mark with "Action", and where possible return within five working days of receipt. Where submittal must be held for coordination, Contractor will be so advised without delay.

A. Final Unrestricted Release: Work may proceed, provided it complies with contract documents, when submittal is returned with the following:

    1. Marking: "Reviewed"

B. Final-But-Restricted Release: Work may proceed, provided it complies with notations and corrections on submittal and with contract documents, when submittal is returned with the following:

    1. Marking: "Exceptions Noted"

C. Returned for Resubmittal: Do not proceed with work. Revise submittal in accordance with notations thereon and resubmit without delay to obtain a different action marking. Do not allow submittals with the following markings (or unmarked submittals where a marking is required) to be used in connection with performance of the work:

    1. Marking: "Revise and Return"
    2. Marking: "Rejected"

PART 2 - PRODUCTS - (Not applicable)

PART 3 – EXECUTION - (Not applicable)

END OF SECTION 013000

SECTION 014500 – QUALITY CONTROL

PART 1 - GENERAL

1.1 WORK SPECIFIED HEREIN

A. The Contractor shall provide and maintain an effective quality control (CQC) program and perform sufficient inspections and tests of all items or the Work, including those of subcontractors, to ensure compliance with contract documents. Include surveillance and tests specified in the technical sections of the specifications. Furnish appropriate facilities, instruments, and testing devices required for performance of the quality control function. Controls must be adequate to cover construction operations and be keyed to the construction sequence.

1.2 CONTROL OF ON-SITE CONSTRUCTION

A. Preparatory Inspection: The Contractor shall perform this inspection prior to beginning Work on any definable feature of the Work. The inspection shall include a review of contract requirements with the supervisors directly responsible for the performance of the Work; a check to assure that materials, products, and equipment have been tested, submitted, and approved; a check to assure that provisions have been made for required control testing; an examination of the Work area to ascertain that preliminary Work has been completed; physical examination of materials and equipment to assure that they conform to shop drawings and data and that the materials and equipment are on hand.

B. Initial Inspection: The Contractor shall perform this inspection as soon as Work commences on a representative portion of a particular feature of workmanship; a review of control testing for compliance with contract requirements.

C. Follow-up Inspections: The Contractor shall perform these inspections on a regular basis to assure continuing compliance with contract requirements until completion of that particular Work.

1.3 REGULATORY REQUIREMENTS

A. Governing Agencies: Any Work performed on or within the boundaries of the Owner's property shall be subject to special inspections, periodic inspections, Code compliance inspections, and pre-occupancy and/or final inspections by the following agencies as applicable:

1. City of Page.
2. Coconino County Building Department.

B. It is the responsibility of the General Contractor to schedule and request all required observations and to coordinate all requested observations through the Architect.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION 014500

SECTION 015000 – TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specifications sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: Specific administrative and procedural minimum actions are specified in this section, as extension of provisions in General conditions and other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by the Architect that such temporary activity is not required for successful completion of the work and compliances with requirements of contract documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, support facilities, and security/protection provisions.

1.3 QUALITY ASSURANCE

A. General: In addition to compliance with governing regulations and rules/recommendations of franchised utility companies, comply with specific requirements indicated and with applicable local industry standards for construction work (published recommendations by local "building councils").

B. Conservation: In compliance with Owner's policy on energy/materials conservation, install and operate temporary facilities and perform construction activities in manner which reasonably will be conservative and avoid waste of energy and materials including water.

1.4 JOB CONDITIONS

A. General: Establish and initiate use of each temporary facility at time reasonably required for proper performance of the work. Terminate use and remove facilities at the earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need. Coordinate this with the Owner.

B. Conditions of Use: Install, operate, maintain, and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.

C. When temporary facilities are no longer required, the Contractor shall remove same and restore to their original condition any part, or parts, of the site or buildings disturbed or damaged by such removal.

PART 2 - PRODUCTS - (Not applicable)

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY SERVICES

A. The types of services required include, but not by way of limitation, water, sewerage, and electrical power.

B. Temporary Power: Contractor shall provide service from a portable generator with ground-fault circuit interrupter feature, activated from each circuit of 20-amps or less rating. Comply with all National Electric Code, State and/or Local code requirements.

3.2 TEMPORARY CONSTRUCTION FACILITIES

A. The types of temporary construction facilities required include, but not by way of limitation, toilet facilities, enclosure of storage, electrical power distribution, and ladders. Provide facilities reasonably required to perform construction operations properly and adequately.

B. Access Provisions: Provide ladders and similar temporary access elements as reasonably required to perform the work and facilitate its inspection during installation. Comply with reasonable requests of governing authorities performing inspections.

3.3 TEMPORARY SUPPORT FACILITIES

A. The types of temporary support facilities required include, but not by way of limitation, secure storage area, first aid facilities, clean-up facilities, waste disposal service, and similar miscellaneous general services, all as may be reasonably required for proficient performance of the work and accommodation of personnel at the site. If not otherwise indicated, remove temporary facilities immediately before the time of substantial completion. Locate temporary support facilities for convenience of users, and for minimum interference with construction activities. Coordinate location with City of Page Manager.

B. Sanitary Facilities: The General Contractor shall provide portable toilet facilities

C. Drinking Water: The General Contractor shall provide dispenser-type drinking water units, adequate in number and locations for personnel at the project site. Furnish paper cups and waste receptacles.

3.4 SECURITY/PROTECTION PROVISIONS

The following temporary security and protection facilities shall be provided by the General Contractor:

A. The types of temporary security and protection provisions required include, but not by way of limitation, fire protection, barricades, warning signs/lights, building enclosure/lockup, and similar provisions intended to minimize property losses, personal injuries and claims for damages at project site. Provide security/protection services and systems in coordination with activities and in a manner to achieve 24-hour, 7 day-per-week effectiveness.

B. Fire Extinguishers: Provide types, sizes, numbers, and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type ABC dry chemical extinguishers at all locations; comply with recommendations of NFPA No. 10. Post warning and quick instructions at each extinguisher location, and instruct all personnel at project site, at time of their first arrival, on proper use of extinguishers and other available facilities at project site. Post local fire department call number at each fire extinguisher location at project site.

C. Fencing: Provide temporary fencing to enclose any storage area for limited storage. Any yard and material storage fencing and security which the Contractor deems necessary for the protection of his equipment and materials shall be provided at his expense.

3.5 TEMPORARY FIRST AID

A. The General Contractor shall provide all articles necessary for first aid and keep them readily available on site. The General Contractor shall have arrangements and procedures for the immediate removal and treatment of any construction personnel who may become injured or ill.

3.6 BARRICADES

A. The General Contractor will provide all necessary guards, barricades, railings, warning lights and signs, and similar protective devices for the protection of property and persons having access to the work, and as provided by applicable laws, ordinances, safety and regulatory agencies having jurisdiction.

B. The Owner and the Architect shall not be responsible for safety requirements implied or observed.

3.7 JOB SITE STORAGE

A. Each contractor shall provide and maintain temporary enclosures for the protection of his materials or equipment which may be susceptible to damage from weather or construction activities. Location shall be subject to the approval of the General Contractor and Owner’s representative.

B. Any damage or loss from storage of pre-purchased equipment, materials, tools, and Contractor's equipment shall be borne by the Contractor.

C. The Contractor shall be responsible for erection, dismantling, maintenance, utilities, security, etc. that that he may deem necessary in setting up his storage area.

D. When temporary use of the enclosures is no longer required, they shall be removed by the Contractor and he shall restore to an acceptable condition any part or parts of the site disturbed by temporary enclosures.

3.8 CONSTRUCTION PARKING CONTROL

A. Parking for construction personnel shall be coordinated with the General Contractor and the Owner's representative.

3.9 CLEAN-UP

A. The General Contractor shall provide trash containers for the clean-up of small trash and light debris. No dirt, concrete, metal, or lumber shall be put in this container.

B. Demolition debris and unused materials shall be removed by the Contractor at his expense.

C. Clean-up of debris from each Contractor's work shall be done on a daily basis to keep the project clean, orderly and hazard-free. Dispose of all roofing nails and roofing materials from the site on a daily basis.

D. The Contractor, prior to leaving the site and upon completion of work, shall receive approval and acceptance from the Architect that all final clean-up requirements have been met.

END OF SECTION 015000

SECTION 017000 – EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore will be a single time period for entire work.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. General: Prior to requesting Architect's inspection for certification of substantial completion, complete the following and list known exceptions in request:

1. In the Application for Payment that coincides with the date of Substantial Completion or the first date following Substantial Completion, show either 100% completion for portion of work claimed as substantially complete, or list incomplete items, value of incompletion, and reason for being incomplete. Include an accounting of changes to the contract sum.
2. Include supporting documentation for completion as indicated in these contract documents.
3. Submit specific guaranties, warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents required in each section.
4. Deliver extra stocks of roofing materials, and similar physical items to Owner.
5. Complete final clean up requirements.
6. Touch-up and otherwise repair and restore marred exposed finishes.

B. Substantial Completion Observation Procedures: Upon receipt of Contractor's request, Architect will either proceed with observation or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect will either prepare Certificate of Substantial Completion, or advise Contractor of work which must be performed prior to issuance of Certificate; and repeat inspection when requested and assured by Contractor that work has been substantially completed. Results of completed inspection will form initial "punch-list" for final acceptance. Costs for additional subsequent visits above and beyond the approval of the substantial completion punch list by the Architect shall be paid for by the Contractor.

1.4 PREREQUISITES TO FINAL ACCEPTANCE

A. General: Prior to requesting Architect's final inspection for Certification of Final Acceptance and Final Payment, as required by contract terms and General Conditions, complete the following and list known exceptions (if any) in request.

1. Submit Final Payment Request with final releases and supporting documentation not previously submitted and accepted. Include Certificates of Insurance for product and completed operations where required.
2. Submit updated final statement, accounting for additional (final) changes to Contract.
3. Submit certified copy of Architect's final punch-list of itemized work to be completed or corrected stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect.
4. Remove temporary facilities, services, surplus materials, rubbish, and similar elements.
5. Submit Consent of Surety.
6. Submit final liquidated damages settlement statement (if applicable), acceptable to Owner.
7. Revise and submit evidence of final, continuing insurance coverage complying with insurance required.

B. Reinspection Procedure: Upon receipt of Contractor's notice that work has been completed, including punch-list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances. Architect will reinspect work or advise Contractor of prerequisites not fulfilled. Upon completion of reinspection, Architect will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated. Costs for additional subsequent visits above and beyond the 'walk through' for Final Completion by the Architect shall be paid by the Contractor.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Specific requirements for record documents are indicated in individual sections of these specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for Architect reference during normal working hours.

B. Record Drawings: Maintain a reproducible set of contract drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations which vary substantially from the work as originally shown. Electronic final PDF copies of the drawings may be shared to the Owner and Contractor via email, USB, or cloud sharing. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Mark-up new information, which is recognized to be of importance to Owner, but was for some reason not shown on either contract drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change-order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on cover of each set.

C. Record Specifications: Maintain one copy of specifications, including addenda, change-orders and similar modifications issued in printed form during construction, and mark-up variations (of

substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to Architect for Owner's records.

D. Record Product Data: Maintain one copy of each product data submittal, and mark-up significant variations in actual work in comparison with submitted information. Include both variations in product as delivered to site, and variations from manufacturer's instructions and recommendations for installation. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders and mark-up of record drawings and specifications. Upon completion of mark-up, submit complete set to Architect for Owner's records.

E. Miscellaneous Record Submittals: Refer to other sections of these specifications for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to date of substantial completion, complete miscellaneous records, and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Architect for Owner's records.

F. Maintenance Manuals: Organize maintenance-and-operating manual information into suitable sets of manageable size and bind into individual binder properly identified and indexed. Include emergency instructions, spare parts listing, warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring vinyl-covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

PART 2 - PRODUCTS - (Not applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. General Operating/Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning, and similar procedures and facilities with Owner. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain bonds, and similar continuing commitments.

B. Spare and Replacement Materials: Provide extra materials and parts such as carpet, tiles, paints, acoustical items and other items as specified in the various sections of the Project Manual. Neatly wrap, package, label and inventory all spare items, for future maintenance requirements and store in area(s) as directed by Owner.

3.2 FINAL CLEANING

A. General: Special cleaning for specific units of work is specified in sections of Division 2 through 16. General cleaning during the progress of work is specified in General Conditions and as temporary services in "Temporary Facilities" section of this Division. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition excepted for a first-class building and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:

1. Clean exposed exterior hard-surfaced finishes, to a dirt-free condition, free of dust, stains, films, and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces.
2. Remove debris and surface dust from roofs.
3. Clean project site (yard and grounds), of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petro-chemical spills, and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even-textured surface.

B. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated work have become Owner's property, dispose of these to Owner's best advantage as directed.

3.3 DATE OF COMPLETION AND BEGINNING OF WARRANTY PERIOD

A. The date of substantial completion will be the beginning of the warranty period. This date will represent the completion date for all phases of the Project, irrespective of early completion by some subcontractors of their work, or occupancy by the Owner prior to completion of some portions of the building.

END OF SECTION 017000

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of portions of existing 6” or 8” reinforced concrete slab for installation of new plumbing drain and waste lines.
2. Removal of portions of corrugated metal siding panel and structural girt and/or channel for new hollow metal doors and door openings.
3. Removal of overhead coiling doors, operators (motors), and associated electrical.
4. Removal of existing lighting, outlets, and conduits to existing electrical panels.
5. Salvage of existing items to be reused or recycled.
6. Concrete slab demolition:
    a. Remove portions of sidewalk along new ABA parking areas.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

1.3 DEFINITIONS

A. Remove: Detach or cut items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

C. Shoring: Support existing siding and structural elements where disturbed for new work (doors).

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PRE-INSTALLATION MEETINGS

A. Pre-Demolition Conference: Conduct conference at project site.

1. Inspect and discuss condition of construction to be selectively demolished. Review structural load limitations of existing structure.
2. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
3. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of demolition and new work, with starting and ending dates.
2. Coordination of Owner's continuing occupancy of existing building.

B. Pre-Demolition Photographs: Submit before Work begins.

1.7 CLOSEOUT SUBMITTALS

A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 FIELD CONDITIONS

A. Owner will occupy a portion of the building during demolition activities.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. There are no record documents of construction.

B. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate, and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Public Works Director will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off indicated utilities with utility companies as required.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Coordinate the requirements for access and protection with the Public Works Director.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from the building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls and other existing finish work that are to remain or that are exposed during selective demolition operations.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level.
2. Temporarily cover openings to remain. Barricade around openings to protect workers.
3. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
4. Dispose of demolished items and materials promptly. Comply with City of Page requirements for disposal of waste materials.

B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

A. Clean adjacent areas and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.7 SELECTIVE DEMOLITION SCHEDULE

A. Existing Construction to Be Removed: Portions of existing concrete floor slab, overhead coiling doors, and lighting system.

B. Existing Items to Remain: As noted on drawings.

END OF SECTION 024119

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. The work under this Section includes but is not limited to the following:

1. Formwork.
2. Reinforcing Steel.
3. Concrete Materials.
4. Admixtures.

1.3 QUALITY ASSURANCE

A. Codes and Standards: Comply with all provisions of the following Codes, Specifications and Standards, except where more stringent requirements are shown or specified:

1. ACI 301 "Specifications for Structural Concrete for Buildings".
2. ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
3. ACI 306 "Recommended Practice for Cold Weather Concreting".
4. ACI 347 "Practice for Formwork".
5. ACI 308 "Recommended Practice for Curing Concrete".
6. ACI 318 "Building Code Requirements for Reinforced Concrete".
7. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
8. ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures".
9. AWS D12.1 "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction".

B. Concrete Testing Service shall be an independent testing laboratory approved by Delaware North Companies and the Architect. The owner will pay the cost of testing.

C. Materials and installed work may require testing and retesting, as directed by the Architect, at any time during progress of work. Allow free access to material stockpiles and facilities. Tests, not specifically indicated to be done at Owner's expense, including retesting of rejected materials and installed work, shall be done at Contractor's expense.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures,

patching compounds, hardeners, curing compounds, synthetic fiber and others as requested by Architect.

B. Shop Drawings: Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement.

C. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test as specified.

D. Material Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

PART 2 – PRODUCTS

2.1 FORM FACING MATERIALS

A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or other approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars (Rebar): ANSI/ASTM A 615, new billet stock deformed bars, Grade 60 unless noted otherwise.

1. Reinforcing bars requiring welding shall not exceed AWS requirements on carbon content for rebar to be welded without preheating.
2. Bars shall be bent cold; no rebending to extent of injuring bars permitted.
3. Shop fabricated reinforcing bars shall conform to the required shapes and dimensions, with fabrication tolerances complying with ACI 315.

B. Steel Wire: ANSI/ASTM A 82, annealed, cold-drawn, steel.

C. Supports for Reinforcement: Provide supports for reinforcement, including welded wire fabric, including bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcing bars in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise noted.

2.3 CONCRETE MATERIALS

A. Portland Cement: ANSI/ASTM C 150, Type II, unless otherwise acceptable to Architect.

1. Use one brand of cement throughout project, unless otherwise acceptable to Architect.

B. Normal Weight Aggregates: ANSI/ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

1. Nominal Maximum Aggregate Size: 1 inch (25 mm)

Local aggregates not complying with ANSI/ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to the Architect.

C. Water: Potable.

D. Air-Entraining Admixture: ANSI/ASTM C 260. For exterior exposed concrete.

2.4 ADMIXTURES

A. Water Reducing Agent: Use water reducing agent admixture in pumped concrete. Concrete with a water-cementitious materials ratio below .45 (Type A).

B. Retarding Admixture for travel distance of 75 miles (Type B).

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.6 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or bases as follows:

1. Proportion normal weight concrete according to ACI 211.1 and ACI 301
2. Slab on Grade: Compressive Strength 4,000 psi.

B. Submit written reports to the Architect of each proposed mix design for each class of concrete. Do not begin concrete production until mixes have been reviewed by Architect. Review of mix designs by the Architect will in no way relieve the contractor of his responsibility for the performance of the concrete work.

C. Slab-on-Grade: Proportion normal-weight concrete mix as follows:

1. Compressive strength (28 days): 4000 psi (20.7 MPa)
2. Maximum Slump: 4-1/2 inches (125 mm)

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at

no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

E. Cementitious Materials: For concrete exposed to deicers, limit percentage, by weight, or cementitious materials other than portland cement according to ACI 301 requirements.

F. Air Content: Add air entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus 1 or minus 1.5 percent, unless otherwise indicated:

1. Air Content: 5.5 percent for 1-1/2 inch-(38-mm) nominal maximum aggregate size.
2. Air Content: 6 percent for 1-inch-(25 mm) nominal maximum aggregate size.
3. Air Content: 6 percent for ¾ inch (19 mm) nominal maximum aggregate size.

G. Do not air entrain concrete to trowel-finished interior floors. Do not allow entrapped air content to exceed 3 percent.

2.7 CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:

1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.

B. Slab-on-Grade: Proportion normal-weight concrete mix as follows:

1. Compressive Strength (28 Days): 3,000 psi.
2. Maximum Slump: 4 inches.

2.8 CONCRETE MIXING

A. Ready-Mix Concrete: Comply with requirements of ANSI/ASTM C 94, and as herein specified.

1. Delete references for allowing additional water to be added to batch for material with insufficient slump. Addition of water to the batch will not be permitted.
2. Cold weather and hot weather concreting shall be placed according to recommended practices in ACI-306 and ACI-305 respectively.

PART 3 – EXECUTION

3.1 PLACING REINFORCEMENT

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

D. Place reinforcement to obtain at least minimum coverage for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Bars shall be continuous insofar as practicable. Dowels shall be of sufficient length to develop the strength of the bar.

3.2 JOINTS

A. Construction Joints: Locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to Architect. Comply with general architectural notes.

B. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.

C. Expansion Joints in Slabs-on-Ground: Provide expansion joints at points of contact between slab-on-ground and vertical surfaces.

D. Contraction (Control) Joints on Grade: Construct contraction joints to form panels. Provide contraction joints such that enclosed area does not exceed 150 square feet. Joints are to be keyed or sawn type.

3.3 PREPARATION OF FORM SURFACES

A. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

B. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.4 CONCRETE PLACEMENT

A. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

1. Reinforcement with any of the following defects will not be permitted in work:

    a. Bar lengths, depths and bends exceeding the specified fabrication tolerances.
    b. Bends or kinks not indicated on drawings of final shop drawings.
    c. Bars with reduced cross section due to excessive rusting or other causes.
    d. Bars not supported as specified.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301.

D. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

E. General: Comply with ACI 304, and as herein specified.

1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
2. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
3. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
   a. Where fall exceeds 6'-0" place concrete through suitable drop chutes or tremies with emerging flow directed vertically to minimize segregation.
4. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix. Keep a spare vibrator on hand at all times concrete is being placed.
5. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
6. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
7. Bring slab surfaces to correct level with straightedge and strike-off. Use bull floats or darbies or smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
8. Maintain reinforcing in proper position during concrete placement operations.
9. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix design.
10. Wet forms thoroughly before placing concrete.

3.5 FINISH OF FORMED SURFACES

A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

B. Smooth Form Finish: Provide for formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly

to concrete, (such as rigid insulation, waterproofing, dampproofing, painting or other similar system). Cast concrete surfaces with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

3.6 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than seven days.
2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

B. Curing Methods: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by curing compound, and by combinations thereof, as herein specified.

1. Provide moisture curing by following methods.
    a. Keep concrete surface continuously wet by covering with water for 7 days.
    b. Continuous water-fog-spray for 7 days.
    c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet for 7 days. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.
2. Provide moisture-cover curing as follows:
    a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during period using cover material and waterproof tape.
3. Provide curing and sealing compound to slabs as follows:
    a. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within two hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    b. Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials, unless otherwise acceptable to Architect.
4. Curing Formed Surfaces: Cure formed concrete surface by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
5. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, and other flat surfaces by application of appropriate curing compound.

3.7 MISCELLANEOUS CONCRETE ITEMS

A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades are in place. Mix, place and cure

concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

3.8 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas: Repair and patch defective areas with cement mortar, when acceptable to Architect.

B. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.

C. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.

D. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

E. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.

F. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

G. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove the top of cracks and cut-out holes to sound concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one-part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

H. Use epoxy-based mortar for structural repairs, where directed by Architect. Repair methods not specified above may be used, subject to acceptance of Architect.

3.9 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. A testing laboratory shall be employed to perform concrete tests and to submit test reports for compression, slump, temperature and air content. Sampling and testing for quality control during placement of concrete includes the following, or as directed by Architect.

B. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

1. Slump: ASTM C 143; one test for each set of compressive strength test specimens.

2. Concrete Temperature: Test hourly when air temperature is 40 degrees Fahrenheit (4 degrees centigrade) and below, and when 80 degrees Fahrenheit (27 degrees centigrade) and above; and each time a set of compression test specimens are made.
3. Compression Test Specimen: ASTM C 31; one set of three standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when there is a possibility of the surrounding air temperatures falling below 40 degrees Fahrenheit, Architect may require additional specimens cured under job conditions. Do not store test samples at the site for more than 24 hours when field-cure test specimens are required.
4. Compressive Strength Tests: ASTM C 39; one set for each 50 cu. yds. or fraction thereof, of each concrete class placed in any one day; one specimen tested at seven days, one specimen tested at 28 days, and one specimen retained in reserve for later testing if required.

    a. When the total quantity of a given class of concrete is less than 50 cu. yds., strength test may be waived by Architect if, in his judgment, adequate evidence of satisfactory strength is provided.
    b. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceeding specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

C. Test results will be reported in writing to Architect and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials: compressive breaking strength and type of break for both seven-day tests and 28-day tests.

D. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing services may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. The contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

END OF SECTION 033000

SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wood blocking and nailers.
2. Plywood backing panels.
3. Fasteners.
4. Plywood sheathing.
5. Roof framing.

1.3 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated. Refer to structural drawings.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. WCLIB - West Coast Lumber Inspection Bureau.
2. WWPA - Western Wood Products Association.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

PART 2 - PRODUCTS

2.1 WOODWORK PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

4. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

B. Wood Structural Panels:

1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
2. Oriented Strand Board: DOC PS 2.
3. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
4. Comply with "Code Plus" provisions in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."
5. Factory mark panels according to indicated standard.

2.2 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:

1. Rooftop equipment bases and support curbs.
2. Blocking.
3. Nailers.

B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 15 percent maximum moisture content and the following species:

1. Western woods; WCLIB or WWPA.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and the following species and grades:

1. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.3 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PSI, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than ½ inch (12.7 mm) thick.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: ASME B18.2.1.

G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal two times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn.
2. Matrial: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.5 MISCELLANEOUS MATERIALS

A. Building Wrap: Air-retarder sheeting made from polyolefins; cross-laminated films, woven strands, or spun-bonded fibers; coated or uncoated; with or without perforations; and complying with ASTM E 1677, Type 1.

1. Thickness: Not less than 3 mils (0.08 mm).
2. Permeance: Not less than 10 perms (575 ng/Pa x s x sq. m).
3. Flame-Spread Index: 25 or less per ASTM E 84.
4. Allowable Exposure Time: Not less than three months.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

C. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

D. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.

E. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

END OF SECTION 061000

SECTION 064100 - ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Plastic-laminate cabinets.
2. Plastic-laminate countertops.

B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing casework and concealed within other construction before woodwork installation.

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items, unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated including cabinet hardware and accessories.

B. Product Data: For hardboard, medium-density fiberboard, particleboard, high-pressure decorative laminate, adhesive for bonding plastic laminate, and cabinet hardware and accessories.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details at 3” = 1’0”.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.

D. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.

1. Plastic laminates.

E. Samples for Verification: For the following:

1. Plastic-laminate-clad panel products, 8 x 10 inches, for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.
2. Exposed cabinet hardware and accessories, one unit for each type and finish.

F. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished comply with requirements.

G. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed architectural woodwork 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. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of interior architectural woodwork.

D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.

1. Provide AWI Quality Certification Program labels or certificate indicating that woodwork complies with requirements of grades specified.

E. Fire-Test-Response Characteristics: Where fire-retardant materials or products are required, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in

areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and will maintaining temperature between 60 and 90 deg F and relative humidity between 17 and 50 percent during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 8 Section "Door Hardware" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

PART 2 - PRODUCTS

2.1 WOODWORK FABRICATORS

A. Available Fabricators: Subject to compliance with requirements, fabricators offering interior architectural woodwork that may be incorporated into the Work include, but are not limited to, the following:

2.2 MATERIALS

A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. General: Provide materials that comply with requirements of the WIC quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

C. Wood Products: Comply with the following:

1. Hardboard: AHA A135.4.

2. Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.

D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering high-pressure decorative laminates that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:

a. Formica Corporation.
b. International Paper; Decorative Products Div.
c. Pioneer Plastics Corp.
d. Wilsonart International; Div. of Premark International, Inc.

E. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

F. Adhesive for Bonding Plastic Laminate: PVA.

G. Adhesive for Bonding Plastic Laminate: Resorcinol.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.3 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Door Hardware".

B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

C. Butt Hinges: 2-3/4-inch, 5-knuckle steel hinges made from 0.095-inch thick metal, and as follows:

1. Semi-concealed Hinges for Flush Doors: BHMA A156.9, B01361.
2. Semi-concealed Hinges for Overlay Doors: BHMA A156.9, B01521.

D. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening, self-closing.

E. Back-Mounted Pulls: BHMA A156.9, B02011.

F. Wire Pulls: Back mounted, 4 inches long, 5/16 inches in diameter.

G. Shelf Rests: Shelf support pegs.

H. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:

1. Box Drawer Slides: 75 lbf (330 N).
2. File Drawer Slides: 150 lbf (670 N).
3. Pencil Drawer Slides: 45 lbf (200 N).

I. Door Locks: BHMA A156.11, E07121.

J. Grommets for Cable Passage through Countertops: 2-inch, molded-plastic grommets and matching plastic caps with slot for wire passage.

1. Product: Subject to compliance with requirements, provide "SG series" by Doug Mockett and Co., Inc.

K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Satin Stainless Steel: BHMA 630.

L. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 INSTALLATION MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.5 FABRICATION, GENERAL

A. Interior Woodwork Grade: Provide Premium grade interior woodwork complying with the referenced quality standard.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details indicated.

D. Complete fabrication, including assembly, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.

E. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings.

2.6 PLASTIC-LAMINATE CABINETS

A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.

B. Grade: Premium.

C. AWI Type of Cabinet Construction: Flush overlay as indicated.

D. WIC Construction Style: Style A, Frameless.

E. WIC Construction Type: Type I, multiple self-supporting units rigidly joined together.

F. WIC Door and Drawer Front Style: Flush overlay.

G. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:

1. Horizontal Surfaces Other Than Tops: HGS.
2. Postformed Surfaces: HGP.
3. Vertical Surfaces: HGS.
4. Edges: PVC T-mold matching laminate in color, pattern, and finish.

H. Materials for Semi-exposed Surfaces: Provide surface materials indicated below:

1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS.
2. Drawer Sides and Backs: Solid-hardwood lumber.
3. Drawer Bottoms: Thermoset decorative overlay.

I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. Provide Architect's selections from laminate manufacturer's full range of colors and finishes in the following categories:

a. Solid colors.
b. Wood grains.
c. Patterns.

2.7 PLASTIC-LAMINATE COUNTERTOPS

A. Quality Standard: Comply with AWI Section 400 requirements for high-pressure decorative laminate countertops.

B. Quality Standard: Comply with WIC Section 16.

C. Grade: Premium.

D. High-Pressure Decorative Laminate Grade: HGS.

E. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. Provide Architect's selections from manufacturer's full range of colors and finishes in the following categories:

    a. Solid colors.
    b. Solid colors with core same color as surface.
    c. Patterns.

F. Grain Direction: Parallel to cabinet fronts.

G. Edge Treatment: As indicated on architectural details.

H. Core Material: Medium-density fiberboard made with exterior glue.

I. Core Material at Sinks: Medium-density fiberboard made with exterior glue.

PART 3 - EXECUTION

3.1 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and back priming.

3.2 INSTALLATION

A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces and repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.

F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
4. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 064100

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Concealed building insulation.
2. Vapor barrier.

B. Related Sections include the following:

1. Division 9, Section Gypsum Board Assemblies for installation in metal-framed assemblies of insulation specified by reference to this Section.

1.3 SUBMITTALS

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

B. Samples for Verification: Full-size units for each type of exposed insulation indicated.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for insulation products.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of building insulation through one source.

B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Surface-Burning Characteristics: ASTM E 84.
2. Fire-Resistance Ratings: ASTM E 119.
3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Protect plastic insulation as follows:

1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

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

1. Glass-Fiber Insulation:

a. CertainTeed Corporation.
b. Johns Manville Corporation.
c. Knauf Fiber Glass.
d. Owens Corning.

2.2 INSULATING MATERIALS

A. General: Provide insulating materials that comply with requirements and with referenced standards.

1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.

B. Unfaced, Flexible Glass-Fiber Board Insulation: ASTM C 612, Type IA; ASTM C 553, Types I, II, and III; or ASTM C 665, Type I; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; and of the following properties:

1. Nominal density of 1.0 lb/cu. ft. (16 kg/cu. m), thermal resistivity of 3.7 deg F x h x sq. ft./Btu x in. at 75 deg F (25.7 K x m/W at 24 deg C).
2. Nominal density of not less than 1.5 lb/cu. ft. (24 kg/cu. m) nor more than 1.7 lb/cu. ft. (26 kg/cu. m), thermal resistivity of 4 deg F x h x sq. ft./Btu x in. at 75 deg F (27.7 K x m/W at 24 deg C).
3. Combustion Characteristics: Passes ASTM E 136.

C. Vapor Barrier: 10 mil polyethylene film or (radiant barrier).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for Sections in which substrates and related work are specified and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

B. Close off openings in cavities receiving poured-in-place insulation to prevent escape of insulation. Provide bronze or stainless-steel screens (inside) where openings must be maintained for drainage or ventilation.

3.3 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice and snow.

C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Water-Piping Coordination: If water piping is located on inside of insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

E. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OF GENERAL BUILDING INSULATION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions.

B. Stuff glass-fiber, loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.

C. Apply insulation on the ceiling by laying on acoustical panels. Do not install on recessed light fixtures.

3.5 INSTALLATION OF RETARDERS

A. Install interior vapor barrier according to ASTM C 1321.

3.6 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:

1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:

a. All dissimilar materials and joints between new and existing construction.
b. Joints in metal flashing and metal trim.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.6 PROJECT CONDITIONS

A. 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 or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

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.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Single-Component Nonsag Urethane Sealant:

1. Products:

a. Sika Corporation, Inc.; Sikaflex - 1a.
b. Sika Corporation, Inc.; Sikaflex - 15LM.
c. Sonneborn, Division of ChemRex Inc.; Ultra.
d. Sonneborn, Division of ChemRex Inc.; NP 1.
e. Tremco; Vulkem 116.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 100/50.
4. Uses Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and O.

D. Single-component Neutral and basic curing silicone sealant.

1. Products:

a. Dow Corning Corporation, 791
b. Dow Corning Corporation, 795
c. GE Silicones; SilPruf NB SCS9000
d. Pecora Corporation, 865
e. Pecora Corporation, 895

f. Pecora Corporation, 898

2. Type and Grade: S (Single component) and NS (nonsag)
3. Class: 50
4. Use related to exposure: NT (nontraffic)
5. Uses related to joint substrates: M, G, A, and O.
6. Stain test Response Characteristics: Nonstaining to porous substrates per ASTM C1248.

E. Single-component Nonsag Polysulfide Sealant.

1. Products:

a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
b. Polymeric Systems Inc.; PSI-7000.

2. Type and Grade: S (Single component) and NS (Nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (Nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and O.

2.4 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 to 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 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. Nonporous joint substrates include the following:

    a. Metal.

B. Joint Priming: Prime joint substrates 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 in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealants using proven techniques that comply with the following:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

D. 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 sealant from surfaces adjacent to joints.
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 where indicated per Figure 5B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

A. Clean off excess sealant 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 original work.

END OF SECTION 079200

SECTION 081113 – HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Steel door frames.
2. Borrowed-light frames.
3. Insulated steel door.

B. Related Sections include the following:

1. Division 8 Section "Door Hardware" for door hardware and weather stripping.
2. Division 8 Section “Flush Wood Doors” for wood doors.
3. Division 9 Section "Painting" for field painting factory-primed doors and frames.

1.3 DEFINITIONS

A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI 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.

1.4 SUBMITTALS

A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.

B. Shop Drawings: Show the following:

1. Frame details for each frame type including dimensioned profiles.
2. Details and locations of reinforcement and preparations for hardware.
3. Details of each different wall opening condition.
4. Details of anchorages, accessories, joints, and connections.
5. Coordination of glazing frames and stops with glass and glazing requirements.
6. Installation methods.

C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for frames.

1.5 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

1. Manufacturer Qualifications: Minimum 5 years documented experience manufacturing products specified in this Section.

B. All products shall conform to the requirements of ANSI A250.8, "SDI 100 recommended specifications for Standard Steel Doors and Frames".

1.6 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- (100-mm-) 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 (6-mm) spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following. Note that the list is limited, as this specification requires frames with continuous Kerfs for integral gasketing.

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

1. Steel Frames:
   a. Ceco Door Products; a United Dominion Company.
   b. Curries Company.
   c. Republic Doors and Frames.
   d. Requests for substitutions will be considered.

2.2 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.

C. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 (ZF120) zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher-leveled standard of flatness where used for face sheets.

2.3 FRAMES

A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Frames 16-gauge thick steel sheet.

C. Supports and Anchors: Fabricated from not less than 0.042-inch thick, electrolytic zinc-coated or metallic-coated steel sheet. Anchors shall be a maximum of 16" o.c. per jamb.

1. Wall Anchors in Masonry Construction: 0.177-inch diameter, steel wire complying with ASTM A 510 (ASTM A 510M) may be used in place of steel sheet.

D. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.4 DOORS

A. Doors: Full flush (no vertical seams), complying with ANSI A250.8; face panels laminated to core and complete unit closed with steel perimeter channels projection welded to face sheet.

B. Thickness: 1 ¾ inches.

C. ANSI Level 4, Model 1; 14-gauge faces.

D. Insulated Doors: Insulated; U-valve of .13, polystyrene core.

E. Finish: Factory primed.

F. Door Reinforcement:

1. Provide top and bottom channels. Hinge reinforcement, lock reinforcement and closer reinforcement.

2.5 FABRICATION

A. General: Fabricate steel frame units to comply with SDI 100, Grades II & III and 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. Frame Construction: Fabricate frames to shape shown.

1. For interior applications, fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
2. Provide welded frames with temporary spreader bars.

C. Reinforce frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

D. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

E. Glazing Stops: Manufacturer's standard, formed from 0.032-inch thick steel sheet.

1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.

2.6 FINISHES

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

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install steel frames and accessories according to Shop Drawings, manufacturer's data, and as specified.

B. Placing Frames: Comply with provisions in SDI 105, 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 existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
3. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.

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.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Solid-core doors with paint grade wood-veneer, faces.
2. Factory fitting flush wood doors to frames and factory machining for hardware.

B. Related Sections include the following:

1. Division 8 Section "Glazing" for glass view panels in flush wood doors.
2. Division 9 Section “Painting” 099100.

1.3 SUBMITTALS

A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

B. Quality Standard: Comply with NWWDA I.S.1-A, "Architectural Wood Flush Doors."

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 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.

B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 17 and 50 percent during the remainder of the construction period.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

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 from 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. Algoma Hardwoods Inc.
b. Buell Door Company.
c. Eagle Plywood & Door Manufacturing, Inc.
d. Eggers Industries; Architectural Door Division.
e. Haley Brothers, Inc.
f. Mohawk Flush Doors, Inc.
g. Weyerhaeuser Company.

2.2 DOOR CONSTRUCTION, GENERAL

A. Doors for Stain Finish:

1. Grade: Premium.
2. Species and Cut: Any closed grain of mill option.
3. Stiles: Same species as faces.

2.3 SOLID-CORE DOORS

A. Particleboard Cores: Comply with the following requirements:

1. Particleboard: ANSI A208.1, Grade LD-2.
2. Blocking: Provide wood blocking in particleboard-core doors as follows:

a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
b. 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.

2.4 LOUVERS AND LIGHT FRAMES

A. Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.0478-inch thick, cold-rolled steel sheet; factory primed.

2.5 FABRICATION

A. 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 in NFPA 80 for fire-rated doors.

B. 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.

C. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

1. Light Openings: Trim openings with moldings of material and profile indicated.

2.6 PREFITTING AND PREPARATION FOR HARDWARE

A. Pre-fit and pre-machine wood doors at factory.

B. Comply with tolerance requirements of AWI for prefitting. Machine doors for hardware requiring cutting of doors. Comply with final hardware schedules and door frame shop drawings and with hardware templates and other essential information required to ensure proper fit of doors and hardware.

1. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in factory.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and 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 level heads and plumb jambs.
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 8 Section "Door Hardware."

B. Manufacturer's Written Instructions: Install 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

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawing and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Access doors are required to provide access to all mechanical plumbing, electrical controls, valves or other areas requiring maintenance access.

B. Related Sections include the following:

1. Division 9 Section "Acoustical Tile Ceilings" for access tile in suspended acoustical tile ceilings.
2. Division 23 Section "Duct Accessories" for heating and air-conditioning duct access doors.

1.3 SUBMITTALS

A. Product Data: For each type of door and frame indicated. Include construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain doors and frames through one source from a single manufacturer.

B. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

PART 2 - PRODUCTS

2.1 STAINLESS-STEEL

A. Rolled-Stainless-Steel Floor Plate: ASTM A 793, manufacturer’s standard finish.

2.2 ACCESS DOORS AND FRAMES

A. Flush Access Doors and Frames with Exposed Trim: Fabricated from stainless steel sheet.

1. Locations: wall surfaces.
2. Door: Minimum 0.060-inch thick sheet metal, set flush with exposed face flange of frame.
3. Frame: Minimum 0.060-inch thick sheet metal with 1-inch wide, surface-mounted trim.
4. Hinges: Continuous piano hinge.
5. Latch: Screwdriver-operated cam latch.

2.3 FABRICATION

A. General: Provide access door assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Stainless Steel Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.

1. Exposed Flanges: Nominal 1 to 1-1/2 inches wide around perimeter of frame.
2. Provide mounting holes in frames to attach frames to metal or wood framing in plaster and drywall construction and to attach masonry anchors in masonry construction. Furnish adjustable metal masonry anchors.

D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

2.4 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

PART 3 - EXECUTION

3.1 PREPARATION

A. Advise installers of other work about specific requirements relating to access door and floor door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.

3.3 ADJUSTING AND CLEANING

A. Adjust doors and hardware after installation for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

SECTION 084113 – ALUMINUM STOREFRONT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Exterior and interior aluminum-framed storefronts.

a. Glazing is retained mechanically with gaskets on four sides.

2. Exterior and interior manual-swing aluminum doors.

B. Related Sections include the following:

1. Division 7 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
3. Division 8 Section "Automatic Door Operators" for hardware to the extent not specified in this Section.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum-framed systems, including anchorage, capable of withstanding, without failure, the effects of the following:

1. Structural loads.
2. Thermal movements.
3. Movements of supporting structure indicated on Drawings including, but not limited to, deflection from uniformly distributed and concentrated live loads.
4. Dimensional tolerances of building frame and other adjacent construction.

B. Structural Loads:

1. Wind Loads: See General Structural notes on Drawings.
2. Seismic Loads: See General Structural notes on Drawings.

C. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.

2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch, whichever is smaller.

D. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.

E. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

F. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 1.57 lbf/sq. ft.

G. Average Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having average U-factor of not more than 0.42 Btu/sq. ft. x h x deg F when tested according to AAMA 1503.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product indicated.

B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Capable of assuming engineering responsibility and performing work of this Section and who is acceptable to manufacturer.

1. Engineering Responsibility: Preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.

B. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval.

C. Accessible Entrances: Comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."

D. Welding: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code--Aluminum."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating aluminum-framed systems without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

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

C. Basis-of-Design Product: The design for aluminum-framed systems is based on Kawneer Tri-Fab 451T. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:

1. EFCO Corporation.
2. Kawneer.
3. United States Aluminum.
4. Vistawall Architectural Products.
5. YKK

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.

2.3 FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
2. Reinforce members as required to receive fastener threads.

D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.

E. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.

F. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.

2.4 GLAZING SYSTEMS

A. Glazing Gaskets: Manufacturer's standard compression types, replaceable, molded or extruded, that maintain uniform pressure and watertight seal.

B. Spacers and Setting Blocks: Manufacturer's standard elastomeric types.

2.5 DOORS

A. Doors: Manufacturer's insulated glazed doors, for manual swing operation.

1. Basis-of-Design Product: The design of the aluminum insulated glazed doors is base on Kawneer 500 Tuff line w/ 1” Glazing.
2. Door Construction: 2-inch overall thickness, with minimum 0.188-inch thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deep penetration and fillet welded or that incorporate concealed tie rods.
3. Door Design: Wide stile; 5”-inch nominal width.
4. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.

a. Provide nonremovable glazing stops on outside of door.

B. Door Hardware: As specified in Division 8 Section "Automatic Door Operators."

2.6 WINDOWS

A. Manufacturer's insulated fixed store front framing low-e glass.

2.7 ACCESSORY MATERIALS

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."

B. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.8 FABRICATION

A. Form aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Means to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
4. Physical and thermal isolation of glazing from framing members.
5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
6. Provisions for field replacement of glazing from interior.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Storefront Framing: Fabricate components for assembly using shear-block system or screw-spline system as determined by installer.

E. Door Frames: Reinforce as required to support loads imposed by door operation and for installing hardware.

1. At exterior doors, provide compression weather stripping at fixed stops.
2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.

F. Doors: Reinforce doors as required for installing hardware.

1. At exterior doors, provide weather sweeps applied to door bottoms.

G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight, unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" and to produce weather tight installation and in accordance with manufacturer’s recommendations.

E. Install components plumb and true in alignment with established lines and grades, without warp or rack.

F. Install glazing as specified in Division 8 Section "Glazing."

G. Entrances: Install to produce smooth operation and tight fit at contact points.

1. Exterior Entrances: Install to produce tight fit at weather stripping and weathertight closure.
2. Field-Installed Hardware: Install surface-mounted hardware according to hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

H. WINDOWS: Install to produce tight fit at weather stripping and weathertight closure.

I. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.

J. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances:

1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet; 1/4 inch over total length.
2. Alignment:

    a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
    b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.

3. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch.

3.3 ADJUSTING

A. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.

END OF SECTION 084113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Commercial door hardware for the following:

a. Swinging doors.

B. Related Sections include the following:

1. Division 8 Section "Hollow Metal Doors and Frames" for door silencers provided as part of the frame.
2. Division 8 Section "Flush Wood Doors" for factory prep.
3. Division 8 Section “Aluminum Storefronts”.

1.3 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.
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.

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. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 1.

E. Warranties: Special warranties specified in this Section.

1.4 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.

E. Regulatory Requirements: Comply with provisions of the following:

1. Where indicated to comply with accessibility requirements, comply with 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 lb. applied perpendicular to door.

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: 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.

1.5 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.

1.6 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.

1.7 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 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.

1.8 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 HINGES AND PIVOTS

A. Standards: Comply with the following:

1. Butts and Hinges: BHMA A156.1 and A156.7.
2. Template Hinge Dimensions: BHMA A156.7.

B. 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

C. Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

D. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

E. Hinge Weight: Unless otherwise indicated, provide the following:

1. Entrance Doors: Heavy-weight hinges.
2. Doors with Closers: Antifriction-bearing hinges.
3. Interior Doors: Standard-weight hinges.

F. 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.

G. Hinge Options: Comply with the following where indicated in the Door Hardware Schedule or on Drawings:

1. Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:

    a. Outswinging exterior doors.
    b. Outswinging corridor doors with locks.

2. Corners: Square.

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 and frames. Finish screw heads to match surface of hinges.

2.2 LOCKS AND LATCHES

A. Standards: Comply with the following:

1. Bored Locks and Latches: BHMA A156.2.

B. Bored Locks: BHMA Grade 1; refer to hardware sets.

C. Lock Trim: Comply with the following:

1. Lever: Cast.
2. Escutcheon (Rose): Wrought, forged, or cast.
3. Dummy Trim: Match lever lock trim and escutcheons.
4. Lockset Designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:

a. Bored Locks: Provide design indicated on Drawings.

D. Lock Functions: Function numbers and descriptions indicated in the Door Hardware Schedule comply with the following:

1. Bored Locks: BHMA A156.2.

E. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:

1. Bored Locks: Minimum 1/2-inch latch bolt throw.
2. Deadbolts: Minimum 1-inch bolt throw.

F. Backset: 2-3/4 inches, unless otherwise indicated.

2.3 EXIT DEVICES

A. Standard: BHMA A156.3.

1. BHMA Grade: Grade 1.

B. Certified Products: Provide rim exit devices listed in BHMA's "Directory of Certified Exit Devices."

C. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.

D. Outside Trim: Lever with cylinder; material and finish to match locksets, unless otherwise indicated.

1. Match design for locksets and latchsets, unless otherwise indicated.

E. Through Bolts: For exit devices and trim on metal doors and non-fire-rated wood doors.

F. Dogging: Cylinder.

2.4 CYLINDERS AND KEYING

A. Standards: Comply with the following:

1. Cylinders: BHMA A156.5.

B. Cylinder Grade: BHMA Grade 1.

C. 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: Six.
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.

D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:

1. Interchangeable Cores: Core insert, removable by use of a special key, and usable with other manufacturers' cylinders.

E. Construction Keying: Comply with the following:

1. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

a. Replace construction cores with permanent cores, as directed by Owner.

F. Keying System: Unless otherwise indicated, provide a factory-registered keying system complying with the following requirements:

1. Master Key System: Cylinders are operated by a change key and a master key.

G. Keys: Provide nickel-silver keys complying with the following:

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

a. Notation: "DO NOT DUPLICATE."

2. Quantity: In addition to one extra blank key for each lock, provide the following:

a. Cylinder Change Keys: Three.
b. Master Keys: Five.

2.5 STRIKES

A. Standards: Comply with the following:

1. Strikes for Bored Locks and Latches: BHMA A156.2.
2. Dustproof Strikes: BHMA A156.16.
3. Electric Strikes: BHMA A156.5

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.

C. Provide electric strikes if and where indicated, interconnect with power/control system.

2.6 OPERATING TRIM

A. Standard: Comply with BHMA A156.6.

B. Materials: Fabricate from stainless steel, unless otherwise indicated.

C. Push-Pull Design: As illustrated on Drawings.

2.7 CLOSERS

A. Standards: Comply with the following:

1. Closers: BHMA A156.4.

B. Surface Closers: BHMA Grade 1.

C. Certified Products: Provide door closers listed in BHMA's "Directory of Certified Door Closers."

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 factory-sized closers, adjustable to meet field conditions and requirements for opening force.

2.8 PROTECTIVE TRIM UNITS

A. Standard: Comply with BHMA A156.6.

B. Materials: Fabricate protection plates from the following:

1. Stainless Steel: 0.050 inch thick; beveled top and 2 sides.

C. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine or self-tapping screws.

D. 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 12"high.

2.9 STOPS AND HOLDERS

A. Standards: Comply with the following:

1. Door Holds and Stops: BHMA156.16., Grade 1. Provide types as appropriate for each location. Door holds to be spring type.
2. Where floor or wall stops are not appropriate, proved concealed overhead holder and stop, medium duty.

2.10 DOOR GASKETING

A. Standard: Comply with BHMA A156.22.

B. 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. Note that frames have continuous kerf for integral gasket systems.
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.

C. 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.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.

2.11 THRESHOLDS

A. Standard: Comply with BHMA A156.21. Fluted aluminum ADA compliant Flat Plate Type M. Finish to match all hardware, except ceramic mosaic floor tile.

2.12 MISCELLANEOUS DOOR HARDWARE

A. Standard: Comply with the following:

1. Auxiliary Hardware: BHMA A156.16.

2.13 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. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."

2.14 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 626: Satin chromium plated over nickel, over brass or bronze base metal.
2. BHMA 627: Satin aluminum, clear coated, over aluminum base metal.
3. BHMA 628: Satin aluminum, clear anodized, over aluminum base metal.
4. BHMA 630: Satin stainless steel, over stainless-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 Frames: Comply with DHI (Door & Hardware Institute) A115 series.

1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI (Steel Door Institute) 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 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 9 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. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

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.

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.

3.6 MANUFACTURERS ABBREVIATIONS

A. Note: Products listed below marked “Building Standard” are No Substitution.

1. AR – Adams Rite.
2. BST – Best Locks “Building Standard”.
3. HOR – Horton Operators “Building Standard”.
4. PEM – Pemko.
5. PHI – Precision Exit Devices “Building Standard”.
6. RIX – Rixson Pivots.
7. RM – Rockwood MFG.
8. SGT – Sargent & Co.
9. STA – Stanley Hinges.
10. STA – Stanley Closers “Building Standard”.

Hardware Set 1

6" WIDE STILES REQUIRED

DESCRIPTION	MODEL	FINISH	MFG	ANSI
PWR TRANSFER	EPT-12C	689	PHI	
HINGES HW .180	FBB199 4.5 X 4.5 NRP	630	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
CYLINDER - RIM SFIC	12-E72 L/C	626	BLK	
ELEC EXIT DEVICE - RIM	MLR-TDS-2108 X V4908A	630	PHI	
ADA OPERATOR	ED100LE PUSH	689	DOR	
RECEIVER	910NTC		RCI	
WIRELESS ACTURATORS	910NTC-HC-SS-REM	SS	RCI	
SWEEP	200NA 36"	AL	NGP	
WEATHERSEAL	BY ALUM FRAME MFG		OTH	
THRESHOLD	425 HD 36"'	AL	NGP	
PWR SUPPLY	RPSMLR2BB		PHI	

Hardware Set 2

6" WIDE STILES REQUIRED

DESCRIPTION	MODEL	FINISH	MFG	ANSI
PWR TRANSFER	EPT-12C	689	PHI	
HINGES HW .180	FBB168 4.5 X 4.5 NRP	652	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
CYLINDER - RIM SFIC	12-E72 L/C	626	BLK	
ELEC EXIT DEVICE - RIM	MLR-TDS-2108 X V4908A	630	PHI	
ADA OPERATOR	ED100LE PUSH	689	DOR	
RECEIVER	910NTC		RCI	
WIRELESS ACTURATORS	910NTC-HC-SS-REM	SS	RCI	
WEATHERSEAL	BY ALUM FRAME MFG		OTH	
PWR SUPPLY	RPSMLR2BB		PHI	

Hardware Set 3

DESCRIPTION	MODEL	FINISH	MFG	ANSI

HINGES	FBB179 4.5 X 4.5	652	STH
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK
CORE	1C7M2 CORMAX CORE	626	BLK
ENTRY LOCK	9K37AB15D S3 L/C	626	BLK
OVERHEAD STOP SURFACE	4424 90 DEGREE	630	ABH
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM
AUTO DOOR BOTTOM	423N-36 MORTISED	AL	NGP
GASKETING SOUND	127NA 36" X 84"	AL	NGP

Hardware Set 3.1

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES	FBB179 4.5 X 4.5	652	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
ENTRY LOCK	9K37AB15D S3 L/C	626	BLK	
WALL STOP	1270WV	630	TRM	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
AUTO DOOR BOTTOM	423N-36 MORTISED	AL	NGP	
GASKETING SOUND	127NA 36" X 84"	AL	NGP	

Hardware Set 4

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5	652	STH	
MORTISE PRIVACY W/ IND	45H0L15H S3 VIB	626	BLK	
CLOSER	QDC111 REG ARM	689	STCH	
WALL STOP	1270WV	630	TRM	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
AUTO DOOR BOTTOM	423N-36 MORTISED	AL	NGP	
GASKETING SOUND	127NA 36" X 84"	AL	NGP	

Hardware Set 5

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5	652	STH	

PULL PLATE	1017-3B 4 X 16	630	TRM
PUSH PLATE	1001-3 4 X 16	630	TRM
CLOSER	QDC111 REG ARM	689	STCH
WALL STOP	1270WX	630	TRM
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM
MOP PLATE	K0050 6 x 35 B4E CSK	630	TRM
AUTO DOOR BOTTOM	423N-36 MORTISED	AL	NGP
GASKETING SOUND	127NA 36" X 84"	AL	NGP

Hardware Set 6

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES	FBB179 4.5 X 4.5 NRP	652	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
STOREROOM LOCK	9K37D15D S3 L/C	626	BLK	
OVERHEAD STOP SURFACE	4424 90 DEGREE	630	ABH	
MOP PLATE	K0050 6 x 35 B4E CSK	630	TRM	
SILENCERS	1229A	GRY	TRM	

Hardware Set 7

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES	FBB179 4.5 X 4.5	652	STH	
CLASSROOM LOCK	9K37R15D S3 L/C	626	BLK	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
WALL STOP	1270WX	630	TRM	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
SILENCERS	1229A	GRY	STH	

Hardware Set 8

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES	FBB191 4.5 X 4.5 NRP	630	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	

CORE	1C7M2 CORMAX CORE	626	BLK
STOREROOM LOCK	9K37D15D S3 L/C	626	BLK
LATCH PROTECTOR	5001	630	TRM
OVERHEAD STOP SURFACE	4424 90 DEGREE	630	ABH
DRIP CAP	16A-40"	AL	NGP
SWEEP	200NA 36"	AL	NGP
WEATHERSEAL	160AV 36 X 84	AL	NGP
THRESHOLD	425 HD 36"'	AL	NGP
SILENCERS	1229A	GRY	TRM

Hardware Set 9

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5 NRP	652	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
STOREROOM LOCK	9K37D15D S3 L/C 3/4" LATCH BOLT	626	BLK	
DUST PROOF STRIKE	3911	626	STH	
FLUSHBOLTS	3917-12	626	STH	
WALL STOP	1270WX	630	TRM	
ASTRAGAL	158SA- 84	AL	NGP	
SILENCERS	1229A	GRY	TRM	

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5 NRP	652	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
STOREROOM LOCK	9K37D15D S3 L/C 3/4" LATCH BOLT	626	BLK	
DUST PROOF STRIKE	3911	626	STH	
FLUSHBOLTS	3917-12	626	STH	
WALL STOP	1270WX	630	TRM	
ASTRAGAL	158SA- 84	AL	NGP	
SILENCERS	1229A	GRY	TRM	

Hardware Set 10

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB199 4.5 X 4.5 NRP	630	STH	
CLASSROOM LOCK	9K37R15D S3 L/C	626	BLK	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
LATCH PROTECTOR	5001	630	TRM	
CLOSER/STP	QDC119	689	STCH	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
DRIP CAP	16A-40"	AL	NGP	
SWEEP	200NA 36"	AL	NGP	
WEATHERSEAL	160AV 36 X 84	AL	NGP	
THRESHOLD	425 HD 36"'	AL	NGP	
SILENCERS	1229A	GRY	TRM	

Hardware Set 10.1

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5 NRP	652	STH	
CLASSROOM LOCK	9K37R15D S3 L/C	626	BLK	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
CLOSER/STP	QDC119	689	STCH	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
SWEEP	200NA 36"	AL	NGP	
WEATHERSEAL	160AV 36 X 84	AL	NGP	
THRESHOLD	425 HD 36"'	AL	NGP	
SILENCERS	1229A	GRY	TRM	

Hardware Set 10.2

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5 NRP	652	STH	
CLASSROOM LOCK	9K37R15D S3 L/C	626	BLK	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
CLOSER	QDC111 REG ARM	689	STCH	
WALL STOP	1270WX	630	STH	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	

SWEEP	200NA 36"	AL	NGP
WEATHERSEAL	160AV 36 X 84	AL	NGP
THRESHOLD	425 HD 36"'	AL	NGP
SILENCERS	1229A	GRY	TRM

Hardware Set 11

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB199 4.5 X 4.5 NRP	630	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
CYLINDER - RIM SFIC	12-E72 L/C	626	BLK	
EXIT DEVICE - RIM	2108 X V4908A	630	PHI	
CLOSER/STP	QDC119	689	STCH	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
DRIP CAP	16A-40"	AL	NGP	
SWEEP	200NA 36"	AL	NGP	
WEATHERSEAL	160AV 36 X 84	AL	NGP	
THRESHOLD	425 HD 36"'	AL	NGP	
SILENCERS	1229A	GRY	TRM	

Hardware Set 12

DESCRIPTION	MODEL	FINISH	MFG	ANSI
HINGES HW .180	FBB168 4.5 X 4.5 NRP	652	STH	
CONST. CORE SFIC	CONSTRUCTION CORE..1CC7A2-	NA	BLK	
CORE	1C7M2 CORMAX CORE	626	BLK	
CYLINDER - RIM SFIC	12-E72 L/C	626	BLK	
EXIT DEVICE - RIM	2108 X V4908A	630	PHI	
CLOSER	QDC111 REG ARM	689	STCH	
WALL STOP	1270WX	630	TRM	
KICK PLATE	K0050 10 x 34 B4E CSK	630	TRM	
SWEEP	200NA 36"	AL	NGP	
WEATHERSEAL	160AV 36 X 84	AL	NGP	
THRESHOLD	425 HD 36"'	AL	NGP	
SILENCERS	1229A	GRY	TRM	

END OF SECTION 087100

SECTION 087113 - AUTOMATIC DOOR OPERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Power door operators.

B. Related Sections include the following:

1. Division 8 door Sections for doors that need reinforcement for automatic door operators.
2. Division 16 Sections for electrical connections including conduit and wiring for automatic door operators.

1.3 DEFINITIONS

A. Activation Device: Device that, when actuated, sends electrical signal to automatic door operator to open door.

B. Safety Device: Device that prevents door from opening or closing.

1.4 PERFORMANCE REQUIREMENTS

A. Opening and Closing Forces: Not more than 15 lbf, 1 inch from the latch edge of the door.

B. Entrance doors shall pass water leak testing prior to substantial completion.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for automatic door operators and activation and safety devices.

B. Operation and Maintenance Data: For automatic door operators to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project, and who employs an inspector certified by AAADM.

B. Manufacturer Qualifications: Company certificate issued by AAADM.

C. Source Limitations: Obtain automatic door operators through one source from a single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. UL Standard: Comply with UL 325.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify door openings by field measurements before fabrication of exposed covers for automatic door operators and indicate measurements on Shop Drawings.

1.8 COORDINATION

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

B. Electrical System Roughing-in: Coordinate layout and installation of automatic door operators with connections to power supplies and security access control system.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of automatic door operators that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Faulty or sporadic operation of automatic door operator or activation and safety devices.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering or use.

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

1.10 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Activation and Safety Devices: One unit of each type.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Horton Easy Access, Series 7000.
2. LCN Auto Equalizer 4810/4820.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with standards indicated below:

1. Sheet: ASTM B 209 (ASTM B 209M).
2. Extrusions: ASTM B 221 (ASTM B 221M, Alloy 6063-T5 or T-6).

B. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

2.3 AUTOMATIC DOOR OPERATORS, GENERAL

A. General: Provide operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated.

B. Electromechanical Operating System: Unit powered by permanent-magnet dc motor; with closing speed controlled mechanically by gear train and dynamically by braking action of electric motor, and with manual operation including spring closing with power off.

C. Hinge Operation: Refer to Division 8 Section "Door Hardware" to determine type of hinge for each door that door operator shall accommodate.

D. Housing: Fabricated from 0.125-inch thick extruded or formed aluminum.

E. Exposed Cover: Fabricated from 0.125-inch thick extruded aluminum; continuous over full width of door opening; with enclosed end caps, provision for maintenance access, and fasteners concealed when door is in closed position.

1. Finish: Powder coat ,match door and frame.
2. Color: As selected by Architect from manufacturer's full range.

2.4 POWER DOOR OPERATORS

A. Standard: Comply with BHMA A156.10.

B. Performance Requirements:

1. Not more than 40 lbf, 1 inch from latch edge of door to prevent stopped door from opening or closing.

2. If power fails, not more than 30 lbf, 1 inch from latch edge of door to manually open door.

C. Operation: Power opening and power closing.

D. Operating System: Electromechanical.

E. Features:

1. Adjustable opening and closing speed.
2. Adjustable backcheck.
3. Adjustable hold-open time of not less than 0 to 30 seconds.
4. Adjustable time delay.

F. Mounting: Surface.

2.5 ACTIVATION AND SAFETY DEVICES

A. Wall Push-Plate Switch: Manufacturer's standard semi-flush, wall-mounted, door control switch; consisting of round or square, flat push plate; of material indicated; and actuator mounted in recessed junction box. Provide engraved message as indicated.

1. Material: Stainless steel.
2. Message: International symbol of accessibility and "Push to Open."

B. Electrical Interlocks: Unless units are equipped with self-protecting devices or circuits, provide electrical interlocks to prevent activation of operator when door is locked, latched, or bolted.

2.6 ACCESSORIES

A. Automatic Door Operator Signage: Comply with BHMA A156.10.

2.7 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. 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.

2.8 ALUMINUM FINISHES

A. Powder-Coat Finish: Apply manufacturer's standard powder coating complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.

1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, door and frame supports, and other conditions affecting performance of automatic door operators.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.

B. Examine roughing-in for electrical systems to verify actual locations of power connections before automatic door operator installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install complete automatic door operator system, including activation and safety devices, control wiring, and remote power units.

B. Power Door Operator Installation Standard: Comply with BHMA A156.10 for installation.

C. Automatic Door Operators: Install door operator system, including control wiring, as follows:

1. Refer to Division 16 Sections for connection to electrical power distribution system.

D. Activation and Safety Devices: Install devices and wiring, including connections to automatic door operators, according to BHMA A156.10 and as follows:

1. Wall Switches: Provide push plates on both sides of each opening indicated to receive automatic door operators.

E. Connect wiring according to Division 16 Section "Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing and Inspecting: After installation has been completed, testing and inspecting of each automatic door operator shall be performed to verify compliance with applicable BHMA standards.

1. Inspection Report: Submit report in writing to Architect and Contractor within 24 hours after inspection.

C. Remove and replace automatic door operators where test results indicate they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, shall be performed to determine compliance of replaced or additional work with specified requirements.

3.4 ADJUSTING

A. Adjust automatic door operators and activation and safety devices to operate smoothly, easily, and properly, and for safe operation and weathertight closure.

B. Lubricate operators, hardware, and other moving parts.

C. After completing installation of exposed, factory-finished automatic door operators, inspect exposed finishes and repair damaged finishes.

D. Readjust automatic door operators and activation and safety devices after repeated operation of completed installation equivalent to three days' use by normal traffic (100 to 300 cycles). Lubricate hardware, operating equipment, and other moving parts.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain automatic door operators. Refer to Division 1 Section "Closeout Procedures."

END OF SECTION 087113

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Doors.
2. Interior borrowed lites.
3. Glazed entrance and store front framing system (low-e glass)
4. Fixed glass windows with low-e glass.

1.3 DEFINITIONS

A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.

D. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

E. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.5 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

1.6 QUALITY ASSURANCE

A. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.

B. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201.

C. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA Laminated Division's "Laminated Glass Design Guide" and GANA's "Glazing Manual."
2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.9 WARRANTY

A. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form, made out to Owner and signed by laminated-glass manufacturer agreeing to replace laminated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

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

B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 GLASS PRODUCTS

A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.

B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
2. For uncoated glass, comply with requirements for Condition A.
3. For coated vision glass, comply with requirements for Condition C (other uncoated glass).
4. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is indicated.

C. Laminated Glass: ASTM C 1172, and complying with other requirements specified and with the following:

1. Interlayer: Polyvinyl butyral or cured resin of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.

a. For polyvinyl butyral interlayers, laminate lites in autoclave with heat plus pressure.
b. For cured-resin interlayers, laminate lites with laminated-glass manufacturer's standard cast-in-place and cured-transparent-resin interlayer.

2. Laminating Process: Fabricate laminated glass to produce glass free of foreign substances and air or glass pockets.

D. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of low-e glass separated by a dehydrated interspace and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.

1. Provide Kind FT (fully tempered) glass lites where safety glass is indicated.

2. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
3. Sealing System: Dual seal, with primary and secondary sealants as follows:

    a. Manufacturer's standard sealants.

4. Spacer Specifications: Manufacturer's standard spacer material and construction.
5. Spacer Specifications: Manufacturer's standard spacer material and construction complying with the following requirements:

    a. Spacer Material: Aluminum with mill or clear anodic finish.
    b. Desiccant: Molecular sieve or silica gel, or blend of both.
    c. Corner Construction: Manufacturer's standard corner construction.

2.3 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:

1. Type 1, for glazing applications in which tape acts as the primary sealant.
2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.4 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

2.5 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

2.6 LAMINATED-GLASS UNITS

A. Laminated-Glass Units LG-:

1. Products:
2. Kind LA, consisting of two lites of annealed float glass.
3. Outer Lite: Class 1 (clear) float glass.
    a. Thickness: 5.0 mm.
4. Plastic Interlayer:
    a. Thickness: 0.76 mm 2.29 mm, but not less than that required to comply as a Type II safety glass material.
    b. Interlayer Color: Clear.
5. Inner Lite: Class 1 (clear) float glass.
    a. Thickness: 5.0 mm.

2.7 INSULATING-GLASS UNITS

A. Clear Insulating-Glass Units IG-:

1. Products:
2. Overall Unit Thickness and Thickness of Each Lite: 25 and 6.0 mm.
3. Interspace Content: Air.
4. Outdoor Lite: Class 1 (clear) float glass.
    a. Kind FT (fully tempered).
5. Indoor Lite: Class 1 (clear)float glass.
    a. Kind FT (fully tempered).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing glazing, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.

2. Presence and functioning of weep system.
3. Minimum required face or edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass lites where length plus width is larger than 50 inches as follows:

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until just before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 CLEANING AND PROTECTION

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000

SECTION 092216 - NON-LOAD BEARING STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior suspension systems (e.g., supports for ceilings, etc.).

B. Related sections include the following:

1. Division 7 Section “Building Insulation” for insulation installed with z-shaped furring.

1.3 SUBMITTALS

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

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch diameter wire.

B. Furring Channels (Furring Members):

1. Steel Studs: ASTM C 645.

a. Minimum Gauge: 20 gauge.
b. Depth: As indicated on Drawings.

2. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.

a. Minimum Gauge: 20 gauge.

C. Resilient Furring Channels: ½ inch-(12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

2.3 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power and other properties required to fasten steel members to substrates.

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.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.

B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Install bracing at terminations in assemblies.

D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3 INSTALLING SUSPENSION SYSTEMS

A. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards Insert deflection limit.
3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.

F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.4 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install studs so flanges within framing system point in same direction.

C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: 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.
    a. Install two studs at each jamb; provide 2” stitch welds at 12” o.c. each side.
    b. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of opening to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

D. Direct Furring:

1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior gypsum wallboard.
2. Tile backing panels.
3. Non-load-bearing steel framing.

B. Related Sections include the following:

1. Division 7 Section "Building Insulation " for insulation and vapor retarders installed in gypsum board assemblies.
2. Division 7 Section “Joint Sealants” for acoustical sealants installed in assemblies that incorporate Gypsum Board.
3. Division 9 “Non-Load Bearing Steel Framing” for Z-furring.
4. Division 9 Painting sections for primers applied to Gypsum Board Surface.

1.3 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.

1.4 SUBMITTALS

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

B. Samples: For the following products:

1. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.5 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.

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.

1.6 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.

1.7 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 MANUFACTURERS

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

1. Steel Framing and Furring:

a. Consolidated Systems, Inc.
b. Dietrich Industries, Inc.
c. National Gypsum Company.
d. Western Metal Lath & Steel Framing Systems.

2. Gypsum Board and Related Products:

a. American Gypsum Co.
b. G-P Gypsum Corp.
c. National Gypsum Company.
d. United States Gypsum Co.

2.2 STEEL SUSPENDED CEILING FRAMING

A. Components, General: Comply with ASTM C 754 for conditions indicated.

B. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch diameter wire.

C. Hangers: As follows:

1. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.

D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch, a minimum 1/2-inch wide flange, with manufacturer's standard corrosion-resistant zinc coating.

1. Depth: 2-1/2 inches.

E. Furring Channels (Furring Members): Commercial-steel sheet with manufacturer's standard corrosion-resistant zinc coating.

1. Cold Rolled Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch wide flange, 3/4 inch deep.
2. Steel Studs: ASTM C 645.

a. Minimum Gauge: 20 gauge.
b. Depth: As indicated.

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.

a. Minimum Base Metal Thickness: 0.0312 inch.

2.3 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 manufacturer's standard corrosion-resistant zinc coating.

B. Steel Studs and Runners: ASTM C 645.

1. Minimum Gauge: 20 gauge.
2. Depth: As indicated.

C. Deep-Leg Deflection Track: ASTM C 645 top runner with 3-inch deep flanges.

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base Metal Thickness: 0.0312 inch.

E. Cold-Rolled Channel Bridging: 0.0538-inch bare steel thickness, with minimum 1/2-inch wide flange.

1. Depth: 1-1/2 inches.
2. Clip Angle: 1-1/2 by 1-1/2 inch, 0.068-inch thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: 0.0179 inch.
2. Depth: 7/8 inch.

G. Cold-Rolled Furring Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch wide flange.

1. Depth: 3/4 inch.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare steel thickness of 0.0312 inch.
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch diameter wire.

H. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.4 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 36.

1. Type X:

a. Thickness: 5/8 inch.
b. Long Edges: Tapered.
c. Location: Vertical surfaces, unless otherwise indicated.

2.5 TILE BACKING PANELS

A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.

B. Glass-Mat, Water-Resistant Backing Board:

1. Complying with ASTM C 1178/C 1178/M

a. Product: Subject to compliance with requirements, provide “DensShield Tile Guard” by G-P Gypsum.

2.6 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:

a. Cornerbead: Use at outside corners, unless otherwise indicated.
b. L-Bead: L-shaped; exposed long leg receives joint compound; use where indicated.
c. U-Bead: J-shaped; exposed short flange does not receive joint compound; use at exposed panel edges.

2.7 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

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 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 drying-type, all-purpose compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.8 ACOUSTICAL SEALANT

A. Products: Subject to compliance with requirements, provide one of the following:

1. Acoustical Sealant for Exposed and Concealed Joints:

a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. 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.

2.9 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
B. 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.

C. Sound Attenuation Blankest: As specified in Division 7 Section “Building Insulation”.

D. Acoustical Sealant: As specified in Division 7 Section “Joint Sealants”.

E. Thermal Insulation: As specified in Division 7 Section "Building Insulation."

F. Polyethylene Vapor Retarder: As specified in Division 7 Section "Building Insulation."

2.10 TEXTURE FINISHES

A. Primer: As recommended by textured finish manufacturer.

B. Polystyrene Aggregate Ceiling Finish: Water-based, job mixed, polystyrene aggregate finish with flame-spread and smoke-developed indexes of not more than 25 when tested according to ASTM E 84.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. G-P Gypsum; Georgia-Pacific Regency Ceiling Textures/Polystyrene.
b. National Gypsum Company; Perfect Spray.
c. USG Corporation; SHEETROCK Ceiling Spray Texture, QT.

3. Texture: As selected by Architect

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 PREPARATION

A. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength.

1. Furnish devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed-on fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of gypsum board assemblies and without reducing the fire-resistive material thickness below that which is required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.3 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.

3.4 INSTALLING STEEL SUSPENDED CEILING FRAMING

A. Suspend ceiling hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counters playing, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers 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.
3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
4. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to steel deck tabs.
6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
7. Do not connect or suspend steel framing from ducts, pipes, or conduit.

B. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet measured lengthwise on each member and transversely between parallel members.

C. Sway-brace suspended steel framing with hangers used for support.

D. Screw furring to wood framing.

E. Wire-tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.

F. Install suspended steel framing components in sizes and spacings indicated, but not less than that required by the referenced steel framing and installation standards.

1. Hangers: 48 inches (1219 mm) o.c.
2. Carrying Channels (Main Runners): 48 inches (1219 mm) o.c.
3. Furring Channels (Furring Members): 16 inches (406 mm) o.c.

3.5 INSTALLING STEEL PARTITION FRAMING

A. Install tracks (runners) at floors, ceilings, and structural walls and columns where gypsum board assemblies abut other construction.

1. Where studs or furring 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.
2. Multilayer 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.

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.

3.6 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. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

G. Attach gypsum panels to framing provided at openings and cutouts.

H. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members using resilient channels or provide control joints to counteract wood shrinkage.

I. Form control and expansion joints with space between edges of adjoining gypsum panels.

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.

N. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.

3.7 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 horizontally (perpendicular 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. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

C. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.8 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. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. L-Bead: Use where indicated.
3. U-Bead: Use at exposed panel edges.

3.9 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 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.

3.10 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.
B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.
C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture finish manufacturer's written recommendations.

3.11 FIELD QUALITY CONTROL

A. Above-Ceiling Observation: Before Contractor installs gypsum board ceilings, Architect will conduct an above-ceiling observation and report deficiencies in the Work observed. Do not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected.

1. Notify Architect seven days in advance of date and time when Project, or part of Project, will be ready for above-ceiling observation.
2. Before notifying Architect, complete the following in areas to receive gypsum board ceilings:

    a. Installation of 80 percent of lighting fixtures, powered for operation.
    b. Installation, insulation, and leak and pressure testing of water piping systems.
    c. Installation of air-duct systems.
    d. Installation of air devices.
    e. Installation of mechanical system control-air tubing.
    f. Installation of ceiling support framing.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Ceramic mosaic tile.
2. Solid polymer thresholds installed as part of tile installations.
3. Waterproof membrane for tile installations.
4. Crack-suppression membrane for thin-set tile installations.

B. Related Sections include the following:

1. Division 2 Section "Selective Demolition" for removing existing finishes.
2. Division 7 Section" Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).

C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

1. Level Surfaces: Minimum 0.6.

1.5 SUBMITTALS

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

B. Samples for initial selection: Fore each type of tile and grout indicated.

C. Samples for verification:

1. Full-size units of each type and composition of tile for color and finish required.

1.6 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain all tiles of this same type from one source or producer.

1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:

1. Waterproofing.
2. Joint sealants.
3. Cementitious backer units.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Store liquid latexes in unopened containers and protected from freezing.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.

C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. As selected by Architect from manufacturer's full range.

D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.2 TILE PRODUCTS

A. Provide tile as manufactured by DalTile.

B. Unglazed Ceramic Mosaic Tile CT-1: Factory-mounted flat tile as follows:

1. Composition: Porcelain. “Warwick” or equal.
2. Surface: Slip-resistant, with abrasive admixture.
3. Module Size: 12 by 12 inches.
4. Nominal Thickness: 5/16 inch.
5. Face: Plan with cushion edges.
6. Color: To be selected from full range of manufacturer’s Grade 1 and Grade 2 colors, field color. Provide 10% accent color, from manufacturer’s Grades 3 or 4.

2.3 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to ½ inch or less, and finish bevel to match face of threshold.

B. Solid Polymer Thresholds: Made from homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI Z124.3, for Type 5 or Type 6, without precoated finish.

2.4 SETTING AND GROUTING MATERIALS

A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:

1. Prepackaged dry-mortar mix containing dry, redispersible, ethylene vinyl acetate additive to which only water must be added at Project site.

a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.

B. Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.

1. Polymer Type: Either ethylene vinyl acetate, in dry, redispersible form, packaged with other dry ingredients, or acrylic resin or styrene-butadiene rubber in liquid-latex form for addition to prepackaged dry-grout mix.

a. Unsanded grout mixture for joints 1/8 inch and narrower.
b. Sanded grout mixture for joints 1/8 inch and wider.

2.5 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section "Joint Sealants."

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

2.6 MISCELLANEOUS MATERIALS

A. Trowelable Underlayment's and Patching Compounds: Latex-modified, Portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

C. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

2.7 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.

B. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints.

Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

1. For tile mounted in sheets, make joints between the sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.

F. Grout tile to comply with requirements of the following tile installation standards:
1. For ceramic tile grouts (sand-portland cement; dry-set, commercial Portland cement; and latex Portland cement grouts), comply with ANSI A108.10.

3.4 FLOOR TILE INSTALLATION

A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.

1. For installations indicated below, follow procedures in ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage.

a. Exterior tile floors.
b. Tile floors in wet areas.
c. Tile floors composed of rib-backed tiles.

B. Joint Widths: Install tile on walls with the following joint widths:

1. Glazed Wall Tile: 1/16 inch, or as approved by Architect.

3.5 WALL TILE INSTALLATION

A. Install types of tiles designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.

3.6 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-Portland cement grout residue from tile as soon as possible.
2. Clean grout smears and hazes from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 093013

SECTION 095113 - ACOUSTICAL CEILING PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

1.3 DEFINITIONS

A. CAC: Ceiling Attenuation Class.

B. LR: Light Reflectance coefficient.

C. NRC: Noise Reduction Coefficient.

1.4 SUBMITTALS

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

B. Samples for Initial Selection: For components with factory-applied color finishes.

C. Maintenance Data: For finishes to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory, or an NVLAP-accredited laboratory, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548. NVLAP-accredited laboratories must document accreditation, based on a "Certificate of Accreditation" and a "Scope of Accreditation" listing the test methods specified.

B. Source Limitations:

1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
2. Suspension System: Obtain each type through one source from a single manufacturer.

C. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.

D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

   a. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
   b. Identify materials with appropriate markings of applicable testing and inspecting agency.

2. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:

E. Seismic Standard: Provide acoustical panel ceilings designed and installed to withstand the effects of earthquake motions according to the following:

1. Standard for Ceiling Suspension Systems Requiring Seismic Restraint: Comply with ASTM E 580.
2. UBC Standard 25-2, "Metal Suspension Systems for Acoustical Tile and for Lay-in Panel Ceilings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, 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.

1.7 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.

1.8 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.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Panels: Full-size panels equal to 2.0 percent of quantity installed.
2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of quantity installed.
3. Hold-Down Clips: Equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:

1. Products: Subject to compliance with requirements, provide one of the products specified.
2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

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 reflectance, unless otherwise indicated.

1. Mounting Method for Measuring NRC: 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 pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

2.3 NODULAR, CAST OR MOLDED, MINERAL-BASE ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products:

1. Armstrong (Basis of specification, alternatives acceptable during bidding, per substitutions in Division 1. Ultima 2'X2'.

B. Products required;

NRC 0.70
LR 0.89

Edge: Square
Thickness: ¾"

2.4 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

B. 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.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.

D. 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. Nickel-Copper-Alloy Wire: ASTM B 164, nickel-copper-alloy UNS No. N04400.
3. 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 0.135-inch diameter wire.

E. Hold-Down Clips: Where indicated, provide manufacturer's standard hold-down clips spaced 24 inches o.c. on all cross tees.

F. Impact Clips: Where indicated, provide manufacturer's standard impact-clip system designed to absorb impact forces against acoustical panels.

2.5 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products:

1. As manufactured by Armstrong, Chicago Metallic or USG Interiors.

B. Wide-Face, Capped, Double-Web, Fire-Rated Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation, with prefinished 15/16-inch wide metal caps on flanges.

1. Structural Classification: Intermediate-duty system.
2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
3. Face Design: Flat, flush.
4. Cap Material: Steel cold-rolled sheet.
5. Cap Finish: Painted white.

2.6 METAL EDGE MOLDINGS AND TRIM

A. Manufacturers:

1. Armstrong World Industries, Inc.
2. Celotex Corporation; Architectural Ceilings Marketing Dept.
3. Chicago Metallic Corporation.
4. Fry Reglet Corporation.
5. USG Interiors, Inc.

B. Roll-Formed 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, finish, and color as that used for exposed flanges of suspension system runners.

1. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

2.7 ACOUSTICAL SEALANT

A. Products:

1. Acoustical Sealant for Exposed and Concealed Joints:

a. Pecora Corp; AC-20 FTR Acoustical and Insulation Sealant.
b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and 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.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including 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 with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. 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, GENERAL

A. General: Install acoustical panel ceilings to comply with ASTM C 636 UBC Standard 25-2 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

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 and, if permitted with fire-resistance-rated ceilings, 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 and 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 roof deck. Fasten hangers to cast-in-place hanger inserts, post installed mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
6. Do not attach hangers to steel deck tabs.
7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
8. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; 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. 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.
2. 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 fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

1. Arrange directionally patterned acoustical panels as follows:

a. Install panels with pattern running in one direction parallel to long axis of space.

2. Protect lighting fixtures and air ducts to comply with 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.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wall base.
2. Molding accessories.

B. Related sections include the following:

1. Division 7 Section “Joint Sealants.”

1.3 SUBMITTALS

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

B. Samples for Initial Selection: For each type of product indicated.

C. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide resilient stair accessories with a critical radiant flux classification of Class I, not less than 0.45 W/sq. cm, as determined by testing identical products per ASTM E 648 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 PROJECT CONDITIONS

A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 COLORS AND PATTERNS

A. Colors and Patterns: As selected by Architect from manufacturer's full range.

2.3 RESILIENT WALL BASE

A. Wall Base: ASTM F 1861.

1. American Floor Products Company, Inc.;
2. Armstrong World Industries, Inc.;
3. Azrock Commercial Flooring, DOMCO;
4. Burke Mercer Flooring Products;
5. Johnsonite;
6. Roppe Corporation.

B. Type (Material Requirement): TS (rubber, vulcanized thermoset).

C. Group (Manufacturing Method): 1 (solid, homogeneous).

D. Style: Cove (with top-set toe).

E. Minimum Thickness: 0.125 inch.

F. Height: 4 inches.

G. Lengths: Coils in manufacturer's standard length.

H. Outside Corners: Pre-molded.

I. Inside Corners: Pre-molded.

J. Surface: Smooth.

2.4 RESILIENT MOLDING ACCESSORY

A. Description: Reducer strip for resilient floor covering.

1. Burke Mercer Flooring Products;
2. Johnsonite;
3. Roppe Corporation.

B. Material: Rubber.

C. Profile and Dimensions: As required for specific application.

2.5 INSTALLATION MATERIALS

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

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

B. Remove substrate coatings 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.

C. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

D. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

1. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RESILIENT WALL BASE INSTALLATION

A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

B. Install bead of sealant between floor and wall before installing rubber base.

C. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch wall base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.

G. Premolded Corners: Install premolded corners before installing straight pieces.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

a. Do not wash surfaces until after time period recommended by manufacturer.

B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 096513

SECTION 096800 – CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Textured Loop Carpet

B. Related Sections include the following:

1. Division 9 Section "Resilient Wall Base and Accessories" for resilient wall base and accessories installed with carpet.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate required.

B. Maintenance Data: For carpet to include in maintenance manuals specified in Division 1. Include the following:

1. Methods for maintaining carpet, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements. Architect must approve the installer.

B. Product Options: Products and manufacturers named in Part 2 establish requirements for product quality in terms of appearance, construction, and performance. Other manufacturers' products comparable in quality to named products and complying with requirements may be considered. Refer to Division 1.

C. Test Requirements: Carpet shall comply with the following:

1. Radial Panel Test: ASTM E648-78 and NFPA 253, minimum critical radian flux of 0.45 watts per square centimeter.

2. Methenamine: DOC-FF-1-70 and ASTM D2859 76, Standards for the Surface Flammability of Carpets.
3. Smoke Density: NFPA 258 and ASTM E662-83, carpet to have specific optical density of 450 or less.
4. Fade Resistance: AATCC 16E-1982, gray scale rating of 4 or better after 180 standard fading hours for dark colors.
5. Ozone and Gas: AATCC129-1298, rating of 3 or better.
6. Static Resistance: minimum 3.0 kv for 20% RH at 70 degrees, AATCC134.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."

B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet manufacturer.

D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet before installing these items.

1.7 WARRANTY

A. General Warranty: Special warranty 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 Carpet Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

1. Wear: Warrant that carpet will lose no more than 10% by weight of pile face fiber during the life of the carpet, when installed and maintained in accordance with manufacturers' procedures.
2. Static Protection: Warrant that the carpet will give protection from static discharges in excess of 3.0 kv when tested under the standard shuffle test method (at 70 degree and 20% RH.)
3. Backing Delamination: Warrant that the secondary backing of the carpet will not delaminate during the life of the carpet. Chair pads are not required.
4. Edge Ravel: Warrant that under normal use, the carpet will no edge ravel at seams or edge during the life of the carpet.
5. Tuft Bind: Warrant that the carpet will have an average face yarn tuft bind of twenty pounds for the life of the carpet, when tested using the ASTM D1 335-67 method. This portion of the warranty must protect against insufficient tuft bind, whether the carpet is dry or wet, as it might be during steam cleaning, hot water extraction or as a result of a broken pipe or flood.)

1.8 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet: Full-width rolls equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

PART 2 - PRODUCTS

2.1 CARPET

A. Products: Subject to compliance with requirements, provide the following:

1. Textured Loop, 100% nylon fiber
2. 0.141" minimum pile thickness
3. 10 stitches per inch
4. Polypropylene primary backing
5. Manufacturer's standard secondary backing.
6. Static resistance of less than 3.0 KV
7. Carpet width: 12 feet
8. 28 oz/ sq. yd. total weight min.

B. Color and pattern to be selected by Architect.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided by or recommended by the following:

1. Carpet manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and that is recommended by the following:

1. Carpet manufacturer.

C. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.

D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements for maximum moisture

content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Verify that substrates and conditions are satisfactory for carpet 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 the following:

    a. Carpet manufacturer.
2. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and carpet manufacturer's written installation instructions for preparing substrates indicated to receive carpet installation.

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, without using solvents. Use mechanical methods recommended in writing by the following:

1. Carpet manufacturer.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

E. Contractor is responsible to protect all furniture, walls, doors from any damage during demolition or installation of new carpet. Any items moved shall be replaced in the original position at end of the installation in the related area. Contractor is responsible financially for all damages.

3.3 INSTALLATION

A. Direct-Glue-Down Installation: Comply with CRI 104, Section 8, "Direct Glue-Down Installation."

B. Comply with carpet manufacturer's written recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under the door in closed position.

1. Bevel adjoining border edges at seams with hand shears.
2. Level adjoining border edges.

C. Do not bridge building expansion joints with carpet.

D. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.

E. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, 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 nonpermanent, nonstaining marking device.

G. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing carpet:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
2. Remove yarns that protrude from carpet surface.
3. Vacuum carpet using commercial machine with face-beater element.

B. Protect installed carpet to comply with CRI 104, Section 15, "Protection of Indoor Installations."

C. Protect carpet against 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 carpet manufacturer.

END OF SECTION 096800

SECTION 099100 – PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation, field painting, and application of high-performance coatings of exposed exterior and interior items and surfaces.

1. Exterior:
   a. Steel.

2. Interior:
   a. Steel.
   b. Gypsum Board.

B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

1. Painting includes field painting of surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

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.
   b. Metal toilet enclosures.
   c. Finished mechanical and electrical equipment.
   d. Light fixtures.

2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
   a. Furred areas.
   b. Ceiling plenums.
   c. Pipe spaces.
   d. Duct shafts.

3. Finished metal surfaces include the following:
   a. Anodized aluminum.
   b. Stainless steel.
   c. Chromium plate.
   d. Copper and copper alloys.
   e. Bronze and brass.

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 UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Related Sections include the following:

1. Division 8 “Hollow Metal Doors and Frames” for factory priming steel doors and frames.
2. Division 9 “Gypsum Board Assemblies” for surface preparation of gypsum board.

1.3 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 20 and 35 when measured at a 60-degree meter.
3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.

1.4 SUBMITTALS

A. Product Data: For each paint system indicated. Include block fillers and primers.

1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

B. Samples for Initial Selection: For each type of finish-coat material indicated.

1. After color selection, Contractor will furnish color chips for surfaces to be coated.

1.5 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI Standards indicated and listed in “MPI Approved Products List”.
2. Preparation and Workmanship: Comply with requirements in “MPI Architectural Painting Specification Manual” for products and paint systems indicated.

B. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

C. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to 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 storage containers 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.

1.7 PROJECT CONDITIONS

A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.

B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.

C. Do not apply paint in snow, rain, fog, or mist; or when 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 and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Benjamin Moore & Co.
2. Sherwin-Williams Co. (Sherwin-Williams).
3. ICI Dulux Paint Centers (ICI Dulux Paints).
4. Kelly-Moore Paint Co. (Kelly-Moore).

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint systems and on substrate indicated.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop.

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Non-flat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
4. Restricted Components: Paints and coatings shall not contain any of the following:
    a. Acrolein.
    b. Acrylonitrile.
    c. Antimony.
    d. Benzene.
    e. Butyl benzyl phthalate.
    f. Cadmium.
    g. Di (2-ethylhexyl) phthalate.
    h. Di-n-butyl phthalate.
    i. Di-n-octyl phthalate.
    j. 1,2-dichlorobenzene.
    k. Diethyl phthalate.
    l. Dimethyl phthalate.
    m. Ethylbenzene.
    n. Formaldehyde.
    o. Hexavalent chromium.
    p. Isophorone.
    q. Lead.

r. Mercury.
s. Methyl ethyl ketone.
t. Methyl isobutyl ketone.
u. Methylene chloride.
v. Naphthalene.
w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

2.3 EXTERIOR PRIMERS

A. Quick-Drying Alkyd Metal Primer: MPI #76.

2.4 EXTERIOR ALKYD PAINTS

A. Exterior Alkyd Enamel (Semi-gloss): MPI #94 (Gloss Level 5).

2.5 INTERIOR PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.

2.6 INTERIOR METAL PRIMERS

A. Quick-Drying Alkyd Metal Primer: MPI #76.

2.7 INTERIOR LATEX PAINTS

A. High-Performance Architectural Latex (Eggshell): MPI #139 (Gloss Level 3).

2.8 INTERIOR ALKYD PAINTS

A. Interior Alkyd (Semi-gloss): MPI #47 (Gloss Level 5).

2.9 EPOXY COATINGS

A. Water-Based Epoxy: MPI #115.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as 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 Architect about anticipated problems when using the materials specified over substrates primed by others.

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 substrates of substances that could impair 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 reprime.
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 SSPC's recommendations.
    a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    b. 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 same primer as the shop coat.

D. Material 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.
3. Use only thinners approved by paint manufacturers and only within recommended limits.

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. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
2. Do not paint over dirt, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Provide finish coats that are compatible with primers used.
4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
6. Paint interior surfaces of ducts with flat, non-specular black paint where visible through registers or grilles.
7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
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 film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. Omit primer over metal surfaces that have been shop primed and touch-up 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 that 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 and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause 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 type of material applied. Use brush of appropriate size for surface or item being painted.
2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

F. Mechanical items to be painted include, but are not limited to, the following:

1. Uninsulated metal piping.
2. Uninsulated plastic piping.
3. Pipe hangers and supports.
4. Tanks that do not have factory-applied final finishes.
5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

G. Electrical items to be painted include, but are not limited to, the following:

1. Switchgear.
2. Panel boards.
3. Electrical equipment that is indicated to have a factory-primed finish for field painting.

H. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by 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. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following test procedures at any time and as often as Owner deems necessary during the period when paint is being applied:

1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of the Contractor.
2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

1. After completing painting, clean and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. After work of other trades is complete, touch-up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 EXTERIOR PAINT SCHEDULE

A. Steel Substrates:

1. Alkyd System: MPI EXT 5.1D.

a. Prime Coat: Alkyd anticorrosive metal primer.
b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
c. Topcoat: Exterior alkyd enamel semi-gloss.

3.8 INTERIOR PAINT SCHEDULE

A. Steel Substrates:

1. Alkyd System: MPI INT 5.1E.

a. Prime Coat: Quick-drying alkyd metal primer.
b. Intermediate Coat: Interior alkyd matching topcoat.
c. Topcoat: Interior alkyd semi-gloss.

3.9 HIGH-PERFORMANCE COATING SCHEDULE

A. Applying high-performance coatings according to manufacturer's written instructions:

1. Use applicators and techniques suited for coating and substrate indicated.
2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

END OF SECTION 099100

SECTION 102113 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes toilet compartments and screens as follows:

1. Type: Steel, color-coated finish.
2. Screen Style: Floor anchored.

B. Related Sections include the following:

1. Division 10 "Toilet and Bath Accessories" for toilet paper holders, grab bars, purse shelves, and similar accessories.

1.3 SUBMITTALS

A. Product Data: For each type and style of toilet compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.

B. Shop Drawings: For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.

1. Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.

C. Samples for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.

D. Samples for Verification: Of each compartment or screen color and finish required, prepared on 6-inch square Samples of same thickness and material indicated for Work.

1.4 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate

supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

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

1. Accurate Partitions Corporation.
2. All American Metal Corp.
3. Ampco Products, Inc.
4. Bobrick Washroom Equipment, Inc.
5. Capitol Partitions, Inc.
6. Commercial and Architectural Products, Inc.; Marlite.
7. Compression Polymers Group; Comtec Industries.
8. Crane Plumbing; Sanymetal.
9. General Partitions Mfg. Corp.
10. Global Steel Products Corp.
11. Hadrian Inc.
12. Knickerbocker Partition Corporation.
13. Lambaton/Universal.
14. MASCO; Flush-Metal Partition Corp.
15. Metpar Corp.
16. Mills Company (The).
17. Partition Systems, Inc.; Columbia Partitions.
18. Santana Products, Inc.
19. Tex-Lam Manufacturing, Inc.
20. Turan Partition Corporation.
21. Weis/Robart Partitions, Inc.
22. Young Sales Corp.; DesignRite.

2.2 MATERIALS

A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.

B. Steel Sheets for Color-Coated Finish: Provide mill-phosphatized steel sheet that is leveled to stretcher-leveled flatness complying with the requirements of standards indicated below:

1. Electrolytically Zinc-Coated Steel Sheet: ASTM A 591 (ASTM A 591M), Class C, of the following minimum thicknesses:

a. Pilasters (Overhead Braced): 0.0359 inch.
b. Pilasters (Unbraced): 0.0478 inch.

c. Panels and Screens: 0.0359 inch.
d. Doors: 0.0299 inch.
e. Tapping Reinforcement: 0.0747 inch.

C. Core Material for Metal-Faced Units: Manufacturer's standard sound-deadening honeycomb of resin-impregnated kraft paper in thickness required to provide finished thickness of 1 inch minimum for doors, panels, and screens and 1-1/4 inches minimum for pilasters.

D. Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch thick and 3 inches high, finished to match hardware.

E. Stirrup Brackets: Manufacturer's standard ear or U-brackets for attaching panels and screens to walls and pilasters of the following material:

1. Material: Stainless steel.

F. Full-Height (Continuous) Brackets: Manufacturer's standard design for attaching panels and screens to walls and pilasters of the following material:

1. Material: Stainless steel.

G. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories of the following material:

1. Material: Stainless steel.

H. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with anti-grip profile in manufacturer's standard finish.

I. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip in manufacturer's standard finish.

J. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.3 FABRICATION

A. General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.

1. Provide internal reinforcement in metal units for compartment-mounted hardware, accessories, and grab bars, as indicated.

B. Metal-Faced Toilet Compartments and Screens: Pressure laminate seamless face sheets to core material and provide continuous, interlocking molding strip or lapped and formed edges. Seal corners by welding or clips. Grind exposed welds smooth.

C. Overhead-Braced-and-Floor-Anchored Compartments: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make

provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.

D. Wall-Hung Screens: Provide units in sizes indicated of same construction and finish as compartment panels, unless otherwise indicated.

1. Provide metal-faced screens with integral full-height flanges for attachment to wall.
2. Provide V-shaped, metal-faced screens with manufacturer's standard sound-deadening core material bonded to inner surface of face sheets. Provide metal top and bottom caps. Fabricate screens to form unit that is a maximum of 6 inches wide at wall and 1 inch wide at its protruding end. Provide complete with concealed anchoring devices for attachment to wall and mechanical leveling adjustment.

E. Doors: Unless otherwise indicated, provide 24-inch wide in-swinging doors for standard toilet compartments and 36-inch wide out-swinging doors with a minimum 32-inch wide clear opening for compartments indicated to be handicapped accessible.

1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold door open at any angle up to 90 degrees.
2. Latch and Keeper: Recessed latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible.
3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
4. Door Bumper: Manufacturer's standard rubber-tipped bumpers at out-swinging doors or entrance screen doors.
5. Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartments indicated to be handicapped accessible.

2.4 ZINC- OR ZINC-ALLOY-COATED STEEL SHEET FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying finishes.

B. Color-Coated Finish: Provide manufacturer's standard baked finish complying with coating manufacturer's written instructions for pretreatment, application, baking, and minimum dry film thickness.

1. Color: One color in each room as selected by Architect from manufacturer's full range of colors.
2. Colors: Two colors in each room as selected by Architect from manufacturer's full range of colors.
3. Colors: Match Architect's samples.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than 1/2 inch between pilasters and panels and not more than 1 inch between panels and walls. Secure units in position with manufacturer's recommended anchoring devices.

1. Secure panels to walls and panels with not less than 2 stirrup brackets attached near top and bottom of panel. Locate wall brackets so holes for wall anchors occur in masonry or tile joints. Align brackets at pilasters with brackets at walls.

B. Overhead-Braced-and-Floor-Anchored Compartments: Secure pilasters to floor and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than 2 fasteners. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

C. Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

3.2 ADJUSTING AND CLEANING

A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance screens to return to fully closed position.

B. Provide final protection and maintain conditions that ensure toilet compartments and screens are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 102113

SECTION 102800 – TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Toilet and bath accessories.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.

1.4 QUALITY ASSURANCE

A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.

B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.

1. Other manufacturers' products with equal characteristics may be considered. See Division 1 Section "Substitutions."
2. Do not modify aesthetic effects, as judged solely by Architect, except with Architect's approval. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.5 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.6 WARRANTY

A. General Warranty: Special warranty 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. Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.

1. Minimum Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Toilet and Bath Accessories:

a. American Specialties, Inc.
b. Bobrick Washroom Equipment, Inc.
c. Bradley Corporation.

B. Products: Subject to compliance with requirements, provide the products indicated for each designation in the Toilet and Bath Accessory Schedule at the end of Part 3.

2.2 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.0312-inch minimum nominal thickness, unless otherwise indicated.

B. Brass: ASTM B 19, leaded and unleaded flat products; ASTM B 16, rods, shapes, forgings, and flat products with finished edges; ASTM B 30, castings.

C. Sheet Steel: ASTM A 366/A 366M, cold rolled, commercial quality, 0.0359-inch minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.

D. Galvanized Steel Sheet: ASTM A 653/A 653M, G60.

E. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service), nickel plus chromium electrodeposited on base metal.

F. Baked-Enamel Finish: Factory-applied, gloss-white, baked-acrylic-enamel coating.

G. Mirror Glass: ASTM C 1036, Type 1, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD-M-411.

H. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

I. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.3 FABRICATION

A. General: One, maximum 1-1/2-inch diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of accessories. On interior surface not exposed to view or back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.

B. General: Names or labels are not permitted on exposed faces of accessories. On interior surface not exposed to view or on back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.

C. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.

D. Recessed Toilet Accessories: Unless otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors and access panels with full-length, stainless-steel hinge. Provide anchorage that is fully concealed when unit is closed.

E. Framed Glass-Mirror Units: Fabricate frames for glass-mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.

1. Provide galvanized steel backing sheet, not less than 0.034 inch and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.

F. Mirror-Unit Hangers: Provide mirror-unit mounting system that permits rigid, tamper- and theft-resistant installation, as follows:

1. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
2. Heavy-duty wall brackets of galvanized steel equipped with concealed locking devices requiring a special tool to remove.

G. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.

C. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

3.3 TOILET AND BATH ACCESSORY SCHEDULE

A. Mechanical Roll Paper Towel Dispenser: Where this designation is indicated, provide stainless-steel paper towel dispenser complying with the following:

1. Exam Rooms/ Public Restrooms/ Break Rooms: Provided by Owner.

B. Toilet Tissue Dispenser: Provided by owner. Contractor to provide backing.

C. Soap Dispenser: Provided by Owner. Contractor to provide backing.

D. Grab Bar: Where this designation is indicated, provide stainless-steel grab bar complying with the following:

1. Stainless-Steel Nominal Thickness: Minimum 0.05 inch.
2. Mounting: Concealed with manufacturer's standard flanges and anchors.
3. Gripping Surfaces: Smooth, satin finish.
4. Outside Diameter: 1-1/4 inches for medium-duty applications.
5. Length: Provide 18”, 24”, 36” and 42” long units typically.
    a. Bobrick B 6806 Series

E. Mirror Unit: Where this designation is indicated, provide custom mirror unit complying with the following:

1. Stainless-Steel, Channel-Framed Mirror: Fabricate frame from stainless-steel channels in manufacturer's standard satin or bright finish with square corners mitered to hairline joints and mechanically interlocked.
    a. Bobrick B 2908 2436 W/SS Angle Frame.

F. Mop and Broom Holder: Where this designation is indicated, provide mop and broom holder complying with the following:

1. Mop and Broom Holder: 36-inch long unit fabricated of minimum nominal 0.0375-inch thick, stainless-steel hat channel with four spring-loaded, rubber, cam-type, mop/broom holders.
    a. Bobrick B 223

G. Clothes Hook: Provide clothes hood complying with the following:

1. Single prong unit: Stainless steel, wall bracket and backplate for concealed mounting.
   a. Bobrick B 233

H. Diaper-Changing Station: Provide infant-care product complying with the following:

1. Horizontal, Surface-Mounted Unit: Diaper-changing station with surface-mounted, mildew-resistant, molded polyethylene body that folds horizontally against wall when not in use; projects not more than 4 inches (100 mm) from wall when closed; and is engineered to support a minimum of 250-lb (113 kg) static weight when opened.
   a. Koala Kare vertical baby changing table.

END OF SECTION 102800

SECTION 104400 – FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Portable fire extinguishers.
2. Fire-protection cabinets for the following:

    a. Portable fire extinguishers.

B. Related Sections include the following:

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection cabinets.

1. Fire Extinguishers: Include rating and classification.
2. Fire-Protection Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

B. Maintenance Data: For fire extinguishers and fire-protection cabinets to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain fire extinguishers and fire-protection cabinets through one source from a single manufacturer.

B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FMG.

1.5 COORDINATION

A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of portable fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure of hydrostatic test according to NFPA 10.
b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.

B. Tempered Break Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 1.5 mm thick.

2.3 PORTABLE FIRE EXTINGUISHERS

A. Manufacturers:

1. JL Industries, Inc.
2. Larsen's Manufacturing Company.
3. Modern Metal Products; Div. of Technico.

B. General: Provide fire extinguishers of type, size, and capacity for each fire-protection cabinet fire-protection cabinet and mounting bracket indicated.

1. Valves: Manufacturer's standard.
2. Handles and Levers: Manufacturer's standard.
3. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

C. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 2-A:10-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.4 FIRE-PROTECTION CABINET

A. Manufacturers:

1. JL Industries, Inc.
2. Larsen's Manufacturing Company.
3. Modern Metal Products; Div. of Technico.

B. Cabinet Type: Suitable for fire extinguisher.

C. Cabinet Construction: Non-Firerated.

D. Cabinet Material: Enameled-steel sheet.

E. Semirecessed Cabinet: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).

1. Rolled-Edge Trim: 2-1/2-inch backbend depth.

F. Cabinet Trim Material: Steel sheet.

G. Door Material: Steel sheet.

H. Door Style: Fully glazed panel with frame.

I. Door Glazing: Tempered break glass.

J. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.

1. Provide manufacturer's standard.
2. Provide continuous hinge, of same material and finish as trim, permitting door to open 180 degrees.

K. Finishes:

1. Manufacturer's standard baked-enamel paint for the following:

a. Exterior of cabinet, door, and trim, except for those surfaces indicated to receive another finish.
b. Interior of cabinet and door.

2.5 FABRICATION

A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.

1. Weld joints and grind smooth.

B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.

1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
2. Miter and weld perimeter door frames.

C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.6 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish fire-protection cabinets after assembly.

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.

2.7 STEEL FINISHES

A. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond using manufacturer's standard methods.

B. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.

B. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged units.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

A. General: Install fire-protection specialties in locations and at mounting heights indicated or, if not indicated, at heights indicated below:

1. Fire-Protection Cabinets: 54 inches above finished floor to top of cabinet.

B. Fire-Protection Cabinets: Fasten fire-protection cabinets to structure, square and plumb.

1. Unless otherwise indicated, provide recessed fire-protection cabinets. If wall thickness is not adequate for recessed cabinets, provide semirecessed fire-protection cabinets.
2. Provide inside latch and lock for break-glass panels.

3.4 ADJUSTING AND CLEANING

A. Remove temporary protective coverings and strippable films, if any, as fire-protection specialties are installed, unless otherwise indicated in manufacturer's written installation instructions.

B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.

D. Touch up marred finishes or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet manufacturer.

E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104400

SECTION 105100 - LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wardrobe lockers, including the following:

a. Single tier.

B. Related Sections include the following:

1. Division 6 Section "Miscellaneous Carpentry" for wood furring and grounds.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of locker and bench.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.

1. Show locker fillers, trim, base, sloping tops, and accessories. Include locker-numbering sequence.

C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.

D. Samples for Verification: For the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare Samples from the same material to be used for the Work.

1. Lockers.

E. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals specified in Division 1.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain locker units and accessories through one source from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect lockers from damage during delivery, handling, storage, and installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

1. Lyon Metal Products, Inc.
2. Penco Products, Inc.; Subsidiary of Vesper Corporation.
3. Republic Storage Systems Co., Inc.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 366/A 366M, matte finish, suitable for exposed applications, and stretcher leveled or roller leveled to stretcher-leveled flatness.

B. Fasteners: Zinc-or nickel-plated steel, slotless-type exposed bolt heads, and self-locking nuts or lock washers for nuts on moving parts.

2.3 WARDROBE LOCKERS

A. Body: Form backs, tops, bottoms, sides, and intermediate partitions from steel sheet; flanged for double thickness at back vertical corners. Comply with the following:

1. Back-Material Sheet Thickness: 0.0239 inch (0.60 mm).
2. Side-Material Sheet Thickness: 0.0239 inch (0.60 mm).
3. Exposed Ends: Form exposed ends of non-recessed lockers from minimum 0.0598-inch (1.50 mm) thick steel sheet.

B. Frames: Form channel frames from minimum 0.0598-inch (1.50 mm) thick steel sheet; lapped and welded at corners. Form continuous integral door strike on vertical frame members. Provide resilient bumpers to cushion door closing.

1. Latch Hooks: Form from minimum 0.1046-inch (2.70 mm) thick steel; welded or riveted to door frames.
2. Frame Vents: Fabricate vertical face frames with vents.
3. Frame Vents: Fabricate horizontal face frames with vents.

C. Doors: One-piece steel sheet, formed into channel shape at vertical edges and flanged at right angles at top and bottom edges. Fabricate to prevent springing when opening or closing, and to swing 180 degrees. Comply with the following:

1. Sheet Thickness: 0.0598 inch (1.50 mm) minimum.

2. Reinforcement: Brace or reinforce inner face of doors more than 15 inches wide.
3. Reinforcing and Sound-Dampening Panels: Brace or reinforce inner face of doors with manufacturer's standard reinforcing angles, channels, or stiffener panels.
4. Acoustical Treatment: Fabricate lockers for quiet operation with manufacturer's standard rattle-free latching mechanism and moving components isolated to prevent metal-to-metal contact.

    a. Sound-Dampening Panels: Manufacturer's standard, designed to stiffen door surface and reduce sound levels when door is slammed, of die-formed metal with full perimeter flange and sound-dampening material. Spot weld panel to inside of door.

5. Louvered Vents: Stamped, louvered vents in door face, as follows:

    a. Single-Tier Lockers: No fewer than six louver openings at top and bottom.

D. Shelves: Provide hat shelf in single-tier units; fabricated from minimum 0.0239-inch (0.60 mm) thick, formed steel sheet; flanged on all edges.

E. Hinges: Steel, full loop, five or seven knuckle; tight pin; minimum 2 inches high. Weld to inside of door frame and attach to door with at least two factory-installed fasteners that are completely concealed and tamper resistant when door is closed.

1. Provide at least three hinges for each door more than 42 inches high.

F. Projecting Handle and Latch: Manufacturer's standard, positive automatic, pre-locking, pry-resistant latch and pull; chromium-plated, heavy-duty, vandal-resistant, lift-up handle, as follows:

G. Recessed Handle and Latch: Manufacturer's standard housing, formed from 0.0359-inch (0.90 mm) thick nickel-plated steel or stainless steel, with integral door pull, recessed for latch lifter and locking devices; non-protruding latch lifter; and automatic, pre-locking, pry-resistant latch, as follows:

1. Provide minimum three-point latching for each door more than 42 inches high.

    a. Provide strike and eye for padlock.

2. Provide single-point gravity or spring-actuated latch with padlock lug.

2.4 LOCKER ACCESSORIES

A. Interior Equipment: Furnish each locker with the following items, unless otherwise indicated:

1. Hooks: Manufacturer's standard zinc-plated, ball-pointed steel. Provide one double-prong ceiling hook, and not fewer than two single-prong wall hooks for single, double, and triple-tier units. Attach hooks with at least two fasteners.
2. Coat Rods: Manufacturer's standard galvanized steel. Provide rod in lieu of ceiling hook for lockers 18 inches deep or greater.

B. Number Plates: Manufacturer's standard etched, embossed, or stamped, aluminum number plates with numerals at least 3/8-inch high. Number lockers in sequence indicated. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.

C. Continuous Metal Base: Minimum 0.0598-inch (1.50 mm) thick steel sheet, channel or zee profiled for stiffness, fabricated in lengths as long as practicable to enclose base and base ends of lockers, and finished to match lockers.

1. Height: 4 inches.

D. Recess Trim: Manufacturer's standard; fabricated from minimum 0.0478-inch (1.20 mm) thick steel sheet, minimum 2 ½ inch face width, and finished to match lockers. Fabricate trim in lengths as long as practicable.

E. Filler Panels: Manufacturer's standard; fabricated from minimum 0.0478-inch (1.20 mm) thick steel sheet in an unequal leg angle shape and finished to match lockers. Provide slip joint filler angle formed to receive filler panel.

F. Finished End Panels: Manufacturer's standard; fabricated from minimum 0.0239-inch (0.60 mm) thick steel sheet, finished to match lockers, and designed for concealing exposed ends of non-recessed lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

2.5 FABRICATION

A. Unit Principle: Fabricate each locker with an individual door and frame, individual top, bottom, back, and shelves, and common intermediate uprights separating compartments.

B. Knocked-Down Construction: Fabricate lockers for nominal assembly at Project site.

C. Fabricate lockers square, rigid, and without warp, with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch. Weld frame members together to form a rigid, one-piece assembly.

1. Form locker-body panels, doors, shelves and accessories from one-piece steel sheet, unless otherwise indicated.

2.6 FINISHES, GENERAL

A. Finish all steel surfaces and accessories, except prefinished stainless-steel and chrome-plated surfaces.

B. Finish Painting: Refer to Division 9 Section "Painting."

C. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

D. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

E. 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.

2.7 STEEL SHEET FINISHES

A. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond. Use manufacturer's standard methods.

B. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard baked-enamel finish consisting of a thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 1.4 mils (0.036 mm) on doors, frames, and legs, and 1.1 mils (0.028 mm) elsewhere.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install metal lockers and accessories level, plumb, rigid, and flush according to manufacturer's written instructions.

B. Assemble knocked-down lockers with standard fasteners, with no exposed fasteners on door faces and face frames.

C. Connect groups of all-welded lockers together with standard fasteners, with no exposed fasteners on face frames.

D. Anchor lockers to floors and walls at intervals recommended by manufacturer, but not more than 36 inches o.c. Install anchors through backup reinforcing plates where necessary to avoid metal distortion, using concealed fasteners.

E. Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.

1. Attach recess trim to recessed lockers with concealed clips.
2. Attach sloping top units to lockers, with closures at exposed ends.

F. Attach finished end panels with fasteners only at perimeter to conceal exposed ends of non-recessed lockers.

3.2 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.

B. Clean interior and exposed exterior surfaces and polish stainless-steel and nonferrous-metal surfaces.

C. Protect lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit locker use during construction.

D. Touch up marred finishes or replace locker units that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 105100