

Oklahoma Union
Elementary School
Window and Door
Renovations

South Coffeyville, Oklahoma

Project No. 170325

PROJECT MANUAL
INCLUDING SPECIFICATIONS

April 10, 2019

Section 000010

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PROJECT DIRECTORY
Job No. 170325
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SECTION 00011 – PROJECT DIRECTORY

THE WORK: Oklahoma Union Elementary School Windows and Doors

OWNER: Oklahoma Union Schools
South Coffeyville, OK

ARCHITECT: Ambler Architects
Project Manager: Katie Zaun
510 SE Dewey Ave
P O Box 2446
Bartlesville, Oklahoma 74005
(918) 336-3512 FAX: (918) 337-0379

END OF SECTION

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- 1.1 The following drawings, along with these specifications and any addendums subsequently published, make up the contract documents.
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 - G000 Cover Sheet
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END OF SECTION

EMPLOYEE CRIMINAL CONVICTION AFFIDAVIT

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SECTION 00614 – EMPLOYEE CRIMINAL CONVICTION AFFIDAVIT

PART 1 – GENERAL

1.1 State law requires the Contractor to periodically provide, during the performance of the Project, a signed statement declaring that no employee working on school premises during normal school hours has been convicted in this state, the United States, or another state of:

- A. Any sex offense subject to the Sex Offenders Registration Act in this state, or similar law of any other state, or the federal sex offender registration provisions; or
- B. Any unpardoned felony offense within the last ten years. The prohibition against permitting employees convicted of a felony offense to work on school premises will not be applicable if the person is a volunteer, or performing community service hours under a court order, or performing services under a supervised work release program, or when ten (10) years have elapsed since the date of the criminal conviction, or if the employee has received a pardon for the criminal offense.
- C. The Contractor will be REQUIRED to obtain compliance statements from all subcontractors on the Project.
- D. The submission of executed compliance statements will be a condition of receiving periodic “draws” and final payment on the Contract Sum.
- E. Further, the new law provides that it is unlawful for any person registered pursuant to the Sex Offenders Registration Act to work with, or provide services to, children, or to work on school premises, or for any person or business who offers or provides services to children, or contracts for work to be performed on school premises to knowingly and willfully allow any employee to work with children or to work on school premises if the person is registered pursuant to the Oklahoma Sex Offenders Registration Act. The new law provides that any person convicted for a violation of these provisions is guilty of a misdemeanor, punishable by a fine not to exceed \$1000.00. In addition, the violator may be liable for civil damages.
- F. The Contractor will not allow any employee to work on school premises during normal school hours if the employee is convicted in this state, the United States, or any other state of:
 - 1. Any sex offense subject to the Sex Offenders Registration Act in this state, or similar law of another state or the federal sex offender registration provisions; OR
 - 2. Any felony offense, unless:
 - a. The person is a volunteer, or
 - b. Is performing community service hours under a court order, or
 - c. Performing services under a supervised work release program, or
 - d. Ten years have lapsed since the date of the criminal conviction or
 - e. The employee has received a Presidential or Gubernatorial pardon for the criminal offense.
- G. Contractor agrees that persons performing community service hours or services under work release shall not be allowed to work on school premises at any time after having been convicted of any offense stated in Section F above;
- H. As a condition, to receive periodic “draws” and final payment on the Contract Sum, the Contractor will furnish a signed statement declaring that no employee working on school premises during normal school hours under the authority of the Contractor is in violation of the provisions of this Article. If this contract does not provide for periodic “draws” against the Contract Sum, the signed statement referred to in this Section will be furnished as required from time to time by the Owner/District. Owner/District’s form of the signed statement will be used.

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- I. As a condition to receive periodic "draws" and final payment on the Contract Sum, the Contractor agrees to obtain similar compliance statements from all subcontractors on the Project with reference to employees of the subcontractors.
- J. If the Contractor is convicted of a violation of tit. 57, O. S. (1998 Supp) § 589, Owner may terminate this Contract.
- K. The foregoing provisions are intended to comply with Senate Bill 1394 of the Second Regular Session (1998) of the 46th Oklahoma Legislature.

EMPLOYEE CRIMINAL CONVICTION AFFIDAVIT
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CONTRACTOR COMPLIANCE STATEMENT

The undersigned, _____, states:

_____ ("Contractor") has

entered into a contract dated _____, with

Oklahoma Union Schools

For the following described Project:

Oklahoma Union Elementary School Window and Door Renovations

The undersigned is a principal of the Contractor or is authorized to execute and deliver this Statement for and on behalf of the Contractor.

No employee on the Project who has worked on, or is working on, school premises during normal school hours has been convicted in this state, the United States, or another state of:

- a) any sex offense subject to the Sex Offenders Registration Act in this state or similar law of another state or the federal sex offender registration provisions; or b) any unpardoned felony offense within the last ten years; except that the foregoing does not apply to volunteers, persons performing community service hours under the court order, or persons performing community services under a supervised work release program; provided however, that person performing community service hours or services under work release have not been allowed to work on school premises at any time after having been convicted of any sex offense subject to the Sex Offenders Registration Act of this state, similar law of any other state, or federal sex offender registration provisions.

The undersigned is personally familiar with the facts stated above and makes this Statement of the undersigned's personal knowledge.

Dated: _____, 20_____.

Signature

EMPLOYEE CRIMINAL CONVICTION AFFIDAVIT
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SUBCONTRACTOR COMPLIANCE STATEMENT

The undersigned, _____, states:

_____ ("Subcontractor") has

entered into a contract dated _____, with ("Contractor")

_____ for the following described Project:

Oklahoma Union Elementary School Window and Door Renovations

The undersigned is a principal of the Subcontractor or is authorized to execute and deliver this Statement for and on behalf of the Subcontractor.

No employee of the subcontractor on the Project who has worked on, or is working on, school premises during normal school hours has been convicted in this state, the United States, or another state of: a) any sex offense subject to the Sex Offenders Registration Act in this state or similar law of another state or the federal sex offender registration provisions; or b) any unpardoned felony offense within the last ten years; except that the foregoing does not apply to volunteers, persons performing community service hours under the court order, or persons performing community services under a supervised work release program; provided however, that person performing community service hours or services under work release have not been allowed to work on school premises at any time after having been convicted of any sex offense subject to the Sex Offenders Registration Act of this state, similar law of any other state, or federal sex offender registration provisions.

The undersigned is personally familiar with the facts stated above and makes this Statement of the undersigned's personal knowledge.

Dated: _____, 20_____.

Signature

END OF SECTION

SALES TAX EXEMPTION CERTIFICATE
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Oklahoma Union Elementary School
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SECTION 00615 – SALES TAX EXEMPTION CERTIFICATE

Project Name: Oklahoma Union Elementary Schools Window and Door Renovations

Owner: Oklahoma Union Schools
Rural Route 1, Box 377-7
South Coffeyville, OK 74072-9801

Contractor: _____
Has been appointed agent for the above-mentioned Owner for the purchase of property or services for the above referenced project to be owned by the above-mentioned Owner. Payment of the purchase price of such property or services shall be made by the Contractor and not by the above mentioned Owner and the supplier shall have no recourse whatever against the above mentioned Owner on account of failure of the Contractor or any of its subcontractors or agents to pay the purchase price, or any part thereof, of such property or services. Upon passage of title, all such property will be included in a project owned by the above-mentioned Owner. All such property or services are exempt from Oklahoma Sales and Use Taxes and/or City Sales Taxes.

DATED _____

Oklahoma Union Schools

BY

President, Oklahoma Union
School Board

Clerk

Attested by:

EVIDENCE OF TAX EXEMPT STATUS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 00616 – EVIDENCE OF TAX EXEMPT STATUS

Project Name: Oklahoma Union Elementary Schools Window and Door Renovations

Owner: Oklahoma Union Schools
Rural Route 1, Box 377-7
South Coffeyville, OK 74072-9801

Contractor: _____

To Vendor: _____ Amount of Purchase \$ _____

Date: _____

To wit:

The contractor has been appointed by the owner as its agent for the sole purpose of purchasing property described herein.

All materials acquired on the above project are for the project. Upon passage of Title, all of such material will be included in the above-referenced project owned by the above Owner from the Vendor, f.o.b., Bartlesville, Oklahoma.

This project is for the above owner and all of such property is exempt from Oklahoma Sales and Use Taxes and City Sales Tax. Notwithstanding this appointment, the above Owner is not responsible to the Vendor for the payment of the purchase price specified herein. Title to the property described is deemed to pass directly from the Vendor to the Owner.

DATED _____

Oklahoma Union Schools

BY

President, Oklahoma Union
School Board

Clerk

Attested by:

SUPPLEMENTARY CONDITIONS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

1.1 SCOPE

- A. "General Conditions of the Contract for Construction" AIA Document A201-2007 is part of this Contract.
- B. This Section of the Specifications supplements, modifies, deletes from, and/or adds to the General Conditions:
 - 1. All Articles, or portions thereof, which are not specifically modified, deleted, or superseded hereby, remain in full effect.
 - 2. The General Conditions also may be supplemented elsewhere in the Contract Documents by other provisions.

1.2 ARTICLE 1 – GENERAL PROVISIONS

- A. After subparagraph 1.4.1 of the General Conditions, add:

1.4.2 MISCELLANEOUS DEFINITIONS

- 1.4.2.1 These specifications are the abbreviated or streamlined type and include incomplete sentences. Omission of words or phrases such as "The Contractor shall," "in conformity with," "shall be," "as noted on the drawings," "according to the plans", "a", "the", and "all" are intentional. Sentences shall be read as complete imperative statements, binding upon the contract as if in fully worded form.
- 1.4.2.2 Whenever the words "approval", "satisfactory", "directed", "submitted", "inspected", or similar words or phrases are used, it shall be assumed the words "Architect or his representative," follows the verb as object of the clause, such as "approved by the Architect or his representative."
- 1.4.2.3 The term "product" includes materials, systems and equipment.
- 1.4.2.4 The term "provide" includes furnishing and installing a product, complete in place, tested and approved.
- 1.4.2.5 The terms "building code" and "code" refer to regulations of government agencies having jurisdiction.
- 1.4.2.6 The terms "approved", "required", and "as directed" refer to and indicate the work or materials that may be approved, required, or directed by the Architect acting as the agent of the Owner.
- 1.4.2.7 The term "similar" means in its general sense and not necessarily identical.
- 1.4.2.8 The terms "shown", "indicated", "detailed", "noted", "scheduled", and terms of similar import, refer to requirements contained in the Contract Documents.
- 1.4.2.9 All reference to standard specifications or manufacturer's installation directions shall mean the latest edition thereof.
- 1.4.2.10 Drawings Explanation: Mechanical and Electrical drawings are diagrammatic. Anything shown on Architectural drawings and not shown on Mechanical or Electrical drawings, or shown on Mechanical or Electrical drawings and not

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shown on Architectural drawings, shall be interpreted as being shown on all three and shall be provided within the Contract amount.

- 1.4.2.11 It is not intended that different phases of the work be delegated to various subcontractors by Contract Documents. The General Contractor must make his own contracts with the various subcontractors, setting forth the work these subcontractors will be held responsible for. The General Contractor alone will be held responsible by Owner and Architect for the completed project.

1.4.3 PRECEDENT AND INTERPRETATION OF CONTRACT DOCUMENTS

- 1.4.3.1 Addenda or modifications of any nature to Drawings or Specifications shall take precedence over original Contract Documents.
- 1.4.3.2 Every effort has been made to provide clear, concise documents with which to construct this project. Where conflicts occur on drawings or between drawings and specifications, the bidder shall request a determination by the Architect as to the true meaning of the documents prior to the bid date as outlined in [The Construction Manager's Manual](#) - Instructions to Bidders. If no interpretation was requested during bidding, the Architect shall determine the preferred option and the Contractor shall provide same with no change in the contract amount.
- 1.4.3.3 Precedent shall be drawings of larger scale over those of smaller scale, figured dimensions over scaled dimensions and noted materials over graphic indications.

1.3 ARTICLE 3 – CONTRACTOR

A. After subparagraph 3.2.3 of the General Conditions, add:

- 3.2.4 The Contractor shall perform the Work to achieve the results expressed and implied in the Contract Documents. Should the Contractor determine that existing conditions are such that the Work cannot be completed as specified, then the Contractor shall at once report to the Architect regarding this situation.
- 3.2.5 If work is required in a manner to make it impossible to produce first-class work, or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, Contractor shall be held responsible for any failure to carry out work in satisfactory, first-class manner.

B. After subparagraph 3.6.1 of the General Conditions, add:

- 3.6.2 Contractor assumes full responsibility for the payment of all contributions and payroll taxes (State and Federal) as to all subcontractors and employees engaged in the performance of work pursuant hereto, and further agrees to confirm and meet all requirements that might be specified under regulations of the administrative officials or board charged with the enforcement of any State or Federal act on the subject referred to. All Contractors agree to furnish Owner, upon request, a certificate or other evidence of compliance herewith.

C. After subparagraph 3.7.4 of the General Conditions, add:

- 3.7.5 All work shall comply with local and other governing ordinances, codes, and regulations. This requirement does not relieve the Contractor of responsibility for complying with the

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contract document requirements if they exceed those of governing codes and regulations.

3.7.6 No claims for additional payment will be approved for changes required to comply with codes, ordinances, or regulations governing Mechanical, Electrical services and installations.

3.7.7 Cooperate with applicable City (or other Government) Officials at all times. If said Officials deems special inspection necessary, provide proper facilities so that he can conveniently examine, inspect the work. Notify this Official in advance of all stopping, starting of construction.

3.7.8 Contractor shall keep himself fully informed of all existing and current ordinances and regulations of the City, County, State, and National laws, if any, limiting or controlling the materials supplied to, or by, them. He shall at all times observe and comply with all ordinances, laws, and regulations and shall protect and indemnify the Contracting Authority, its officers and agents against any claims or liability arising from or based on any violations of the same.

D. After subparagraph 3.9.2 of the General Conditions, add:

3.9.2 The Project Superintendent shall be in attendance at all times during the period that any Work is performed by the Contractor or any Subcontractor.

E. Add to subparagraph 3.12.5 of the General Conditions:

Transmit each submittal to Architect with prime Contractor's transmittal form or letter. Identify each item submitted with Contractor's name, date, project, material, quantity, and other pertinent data.

F. Change subparagraph 3.12.8 of the General Conditions to: Where the phrase "Architect's approval" appears, change to read "Architect's Final Review".

G. After subparagraph 3.13.1 of the General Conditions, add:

3.13.2 Arrange and maintain building materials in a neat and orderly manner; walks, drives, roads, entrances shall remain unencumbered as much as possible. Allot proper space for subcontractor's sheds, tool houses, material storage as required; necessary moving of material or sheds to be at Contractor's expense. Store materials affected by moisture on platforms, protected from the weather.

1.4 ARTICLE 4 – ADMINISTRATION OF THE CONTRACT:

A. Begin subparagraph 4.2.2 of the General Conditions with:

The Architect and the Owner, and their designated representatives, shall have access to the Work at all times, whether Work is in preparation, progress or abeyance.

B. In the first sentence of 4.2.7 strike out the words "...and approve...".

1.5 ARTICLE 5 – SUBCONTRACTORS:

A. After subparagraph 5.4.2 of the General Conditions of the Contract, add:

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5.5 SUBCONTRACTORS PERFORMANCE

- 5.5.1 Subcontractor is required to perform his Work as directed by the requirements of Subparagraph 3.2.4 of the Supplementary Conditions. Commencement of Subcontractor's Work shall automatically imply Subcontractor's approval and acceptance of the prior construction that will receive Subcontractor's Work.

1.6 ARTICLE 8 – TIME

- A. After subparagraph 8.3.3 of the General Conditions, add:

8.3.4 In planning the construction schedule within the agreed Contract Time, it shall be assumed that the Contractor has anticipated the amount of adverse weather conditions normal to the site of the Work for the season or seasons of the year involved. Only those weather delays attributable to other than normal weather conditions will be considered by the Architect.

8.3.5 When the Contract Time has been extended, as provided under this Paragraph 8.3, such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs or other such reasons.

1.7 ARTICLE 9 – PAYMENTS AND COMPLETION:

- A. Add to subparagraph 9.3.1 of the General Conditions:

The form of application for payment shall be AIA Document G702, "Application and Certificate for Payment", supported by continuation sheet or sheets approved by the Architect.

- B. After subparagraph 9.3.1.2 of the General Conditions, add:

9.3.1.3 Contractor shall indemnify and save harmless the Owner, its officers and agents, for all claims for labor and materials furnished under this Contract, and shall furnish the Owner with satisfactory evidence, when called for by him, that all persons, firms or corporations who have done work or furnished materials under this Contract, for which the Owner may become liable under the laws of the State, have been fully paid or satisfactorily secured, and in case such evidence is not furnished, an amount necessary or sufficient within the discretion of the Owner, to meet the claims of persons, firms or corporations aforesaid, in addition to any other monies that are to be retained, as herein specified, from the money due the Contractor under this Contract, shall be retained until the liabilities aforesaid shall be duly discharged or satisfactorily secured.

- C. After subparagraph 9.5.1.6 of the General Conditions, add:

9.5.6.1a

It is hereby understood and mutually agreed, by and between the parties hereto, that the date of the beginning, rate of progress and the time for completion of the Work to be done hereunder are ESSENTIAL CONDITIONS of this contract. It is further mutually understood and agreed, by and between the parties hereto, that the Work embraced in this contract shall be commenced on the date of the Owner's Notice to Proceed.

9.5.6.1b

The Contractor agrees that said Work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time set out in the Contract Bid. It is expressly understood and agreed by and between

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the parties hereto, that the time for completion of the Work takes into consideration the average climatic range and usual construction conditions prevailing in this locality and at the project site.

9.5.6.1c

Liquidated Damages – The date of Substantial Completion for the project shall be included in the Contract for Construction. This date shall be the date when the Architect and Owner agree that the project is substantially complete and issue a Certificate of Substantial Completion, as described in other portions of these specifications. For each day that Substantial Completion of the project is delayed, after the date set forth in the Contract for Construction, the Contractor and the Contractor's surety, if any, shall be liable for and shall pay the Owner the sum hereinafter stipulated as liquidated damages, unless the date set forth in the Contract is amended by Change Order during the course of the project. The Contractor shall include any request for contract time extensions with the first Pay Application submitted after the delay occurs. Contract extensions will not be considered for delays more than 30 days old. For each calendar day of delay until the work is Substantially Complete: Five Hundred dollars (\$500.00).

1.8 ARTICLE 10 – PROTECTION OF PERSONS AND PROPERTY:

A. Add to subparagraph 10.2.3 of the General Conditions:

At the Owner's request, the Contractor shall secure and pay for watchman services of the site, as required, to protect interests of the Owner in the work. Payment shall be reimbursed at actual cost to the General Contractor if this request is made.

1.9 ARTICLE 11 – INSURANCE AND BONDS

A. Add to subparagraph 11.1.2:

Insurance coverage shall not be less than:

1. Worker's Compensation: Statutory
2. Contractor's Public Liability:

- 1) Personal injury: \$500,000/\$1,000,000
- 2) Property damage: \$100,000/\$200,000
- 3) Contractor's Contingent Liability:

- a) Personal injury: \$500,000/\$1,000,000
- b) Property damage: \$100,000/\$200,000

4) Motor Vehicle Public Liability:

- a) Personal injury: \$500,000/\$1,000,000
- b) Property damage: \$100,000 each occurrence

All Contractor's insurance policies shall name the Owner and the Architect as additional insured.

All insurance policies shall provide that no cancellation of the policy or endorsement shall be effective until 30 days following the mailing of written notices of such cancellation to the Architect and to the Owner.

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Where applicable, property damage liability must be endorsed for: blasting; the collapse of, or structural injury to, any building or structure, damage to underground property, such as wires, conduits, pipes, mains, sewers or other similar property.

B. Contractor's Liability Insurance shall cover the following:

Claims for damages from any cause whatsoever to Builder's machinery, tools, equipment and temporary structures of all kinds used, or to be used, by Contractor, his agents, subcontractor, materials men, or his or their employees in the performance of this Contract, or any modifications thereof or supplements thereto.

Claims for damages to the structure on which work of this Contract is to be done, to building materials, and supplies while contained on the premises or adjacent thereto, as listed below:

1. Frost or cold weather, ice (other than hail), snow, sleet, rain, sand, dust, high water, overflow, or change in temperature or humidity.
2. Interruption of operations resulting from riot or strike or occupancy by striking employees engaged in construction work.
3. Pilferage, theft, burglary, or larceny.
4. Use of motor vehicles, air and steam pressure vessels and other equipment owned, operated or controlled by Contractor, his agents subcontractors, materials men, or his or their employees.

C. All insurance certificates shall be subject to approval by Owner, and filed with him.

Provide four (4) copies of all policies furnished by insurance carrier. Thirty (30) days written notice must be given to Owner before cancellation of any policies.

ARTICLE 15

A. Delete subparagraph 15.1.6 of the General Conditions.

END OF SECTION

CHANGE ORDER PROCEDURES
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SECTION 012500 – CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as are described in written Change Orders signed by the Owner and the Architect and issued after execution of the Contract, in accordance with the provisions of this Section.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. Changes in the Work are described further in Article 7 of the General Conditions.

1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

1.3 SUBMITTALS

- A. Make submittals directly to the Architect at the address shown on the Project Directory in the Project Manual.
- B. Submit the number of copies called for under the various items listed in this Section.

1.4 PRODUCT HANDLING

- A. Maintain a "Register of Bulletins and Change Orders" at the job site, accurately reflecting current status of all pertinent data.
- B. Make a Register available to the Architect for review at his request.

1.5 PROCESSING CHANGES INITIATED BY THE OWNER

- A. Should the Owner contemplate making a change in the Work or a change in the Contract Time of Completion, the Architect will issue a "Bulletin" to the Contractor:
1. Bulletins will be dated and will be numbered in sequence;
 2. The Bulletin will describe the contemplated change, and will carry one of the following instructions to the Contractor:
 - a) Make the described change in the Work at no change in the Contract Sum and no change in the Contract Time of Completion;
 - b) Make the described change in the Work, credit or cost for which will be determined in accordance with Paragraph 7.2 of the General Conditions;

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- c) Promptly advise the Architect as to credit or cost proposed for the described change.
This is not an authorization to proceed with the change.
- B. If the Contractor has been directed by the Architect to make the described change in the Work at no change in the Contract Sum and no change in the Contract Time of Completion, but the Contractor wishes to make a claim for one or both of such changes, the Contractor shall proceed with the change and shall notify the Architect as provided for under Subparagraph 4.3.7 of the General Conditions.
- C. If the Contractor has been directed by the Architect to make the described change subject to later determination of cost or credit in accordance with Paragraph 7.2 of the General Conditions, the Contractor shall:
 - 1. Take such measures as needed to make the change;
 - 2. Consult with the Architect and reach agreement on the most appropriate method for determining credit or cost for the change.
- D. If the Contractor has been directed by the Architect to promptly advise him as to credit or cost proposed for the described change, the Contractor shall:
 - 1. Analyze the described change and its impact on cost and time;
 - 2. Secure the required information and forward it to the Architect for review;
 - 3. Meet with the Architect as required to explain costs and, when appropriate, determine other acceptable ways to achieve the desired objective;
 - 4. Alert pertinent personnel and subcontractors as to the impending change and, to the maximum extent possible, avoid such work as would increase the Owner's cost for making the change, advising the Architect in writing when such avoidance is no longer practicable.

1.6 PROCESSING CHANGES INITIATED BY THE CONTRACTOR

- A. Such changes may occur when the Contractor discovers a discrepancy between the Contract Documents and an existing condition, a concealed condition as described in Subparagraph 4.3.6 of the General Conditions, or other cause for suggesting a change in the Work, a change in the Contract Sum, or a change in the Contract Time of Completion.
- B. Upon agreement by the Architect that there is reasonable cause to consider the Contractor's proposed change, the Architect will issue a Bulletin in accordance with the provisions described in Article 1.5 above.
- C. The Owner will not consider any proposed change order claims after that portion of the work is complete. In order to receive any compensation for extra work, the Contractor shall request consideration prior to executing any portion of said work. In order to receive any compensation for extra work, the Contractor shall receive approval of the request prior to executing any portion of said work.

1.7 PROCESSING BULLETINS

- A. The Contractor shall make written reply to the Architect in response to each bulletin.
 - 1. State proposed change in the Contract Sum, if any;
 - 2. State proposed change in the Contract Time of Completion, if any;
 - 3. Clearly describe other changes in the Work required or desirable due to the proposed change;
 - 4. Include full backup data such as subcontractors' letter of proposal or similar information;
 - 5. Submit this response in single copy.

CHANGE ORDER PROCEDURES
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Window and Door Renovations

- B. When cost or credit for the change has been agreed upon by the Owner and the Contractor, or the Owner has directed that cost or credit be determined in accordance with provisions of Paragraph 7.2 of the General Conditions, the Architect will issue a "Change Order" to the Contractor.

1.7 PROCESSING CHANGE ORDERS

- A. Change Orders will be dated and will be numbered in sequence.
- B. The Change Order will describe the change or changes, will refer to the Bulletin or Bulletins involved, and will be signed by the Owner and the Architect.
- C. The Architect will issue three (3) copies and forward all three copies to the Owner for signatures.
 - 1. The Owner shall sign and return all three (3) signed copies to the Architect.
 - 2. The Architect shall forward all three (3) signed copies to the Contractor for signatures.
 - 3. The Contractor shall sign all three (3) copies and return two (2) copies to the Architect;
 - 4. The Architect will retain one signed copy in his file and will forward one signed copy to the Owner.
- D. Should the Contractor disagree with the stipulated change in Contract Sum or change in Contract Time of Completion, or both:
 - 1. The Contractor promptly shall return two (2) copies of the Change Order, unsigned by him, to the Architect with a letter signed by the Contractor and stating the reason or reasons for the Contractor's disagreement.
 - 2. The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.

END OF SECTION 01251

APPLICATIONS FOR PAYMENT
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 012910 – APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Comply with procedures described in this Section when applying for progress payments under the Contract.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. The Contract Sum and the Schedule for Payments are described in the Form of Agreement;
3. Payment upon Substantial Completion and Completion of the Work are described in the General Conditions and in Section 017700 of these Specifications;
4. The Architect's approval of applications for progress payment and final payment may be contingent upon the Architect's approval of status of Project Record Documents as described in 017830 of these Specifications.

1.2 QUALITY ASSURANCE

- A. Prior to start of construction, secure the Architect's approval of the Schedule of Values required to be submitted under Paragraph 9.2 of the General Conditions, and further described in Section 012920 of these Specifications.
- B. During progress of the Work, modify the Schedule of Values as approved by the Architect to reflect changes in the Contract Sum due to Change Orders or other modifications of the Contract.
- C. Base requests for payment on the approved Schedule of Values.

1.3 SUBMITTALS

A. Unless otherwise directed by the Architect:

1. Make submittal of request for payment by filling in all appropriate information. Send to Architect three (3) days before formal request for payment. Get Architect's approval before sending formal submittal.
2. Make formal submittal of request for payment by filling in all data, by typewriter or neat lettering in ink, on AIA Document G702, "Application and Certificate for Payment", plus continuation sheet or sheets;
3. Sign and notarize the Application and Certificate for Payment;
4. Submit the original of the Application and Certificate for Payment with the continuation sheet or sheets, plus two identical copies all signed and notarized to the Architect;
5. The Architect will compare the formal submittal with the schedule of values, the work performed and the materials stored and, when approved, will sign the Application and Certificate for Payment, and will distribute:
 - a) One copy to Owner;
 - b) One copy to Contractor;
 - c) One copy to Architect's file.

END OF SECTION

SCHEDULE OF VALUES
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 012920 – SCHEDULE OF VALUES

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Provide a detailed breakdown of the Contract Sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. Schedule of Values is required under Paragraph 9.2 of the General Conditions;
3. Schedule of Values is required to be compatible with the "continuation sheet" accompanying applications for payment, as described in Section 012910.

1.2 QUALITY ASSURANCE

- A. Use required means to assure arithmetical accuracy of the sums described.
- B. When so required by the Architect, provide copies of the subcontracts or other data acceptable to the Architect, substantiating the sums described.

1.3 SUBMITTALS

A. Prior to the start of construction, submit a proposed Schedule of Values to the Architect:

1. Meet with the Architect and determine additional data, if any, required to be submitted;
2. Secure the Architect's approval of the Schedule of Values prior to submitting first application for payment.

END OF SECTION

PROJECT MEETINGS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 013100 – PROJECT MEETINGS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. To enable orderly review during progress of the Work, and to provide for systematic discussion of problems between the Architect, Owner and Contractor, the Contractor will conduct periodic project meetings throughout the construction period.
2. The frequency of these meetings may vary according to the progress of the Work. Meeting schedule will be agreed upon by the Architect, Contractor, and Owner.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. The Contractor's relations with his subcontractors and material suppliers, and discussion relative thereto, are the Contractor's responsibility and normally are not part of project meetings content.

1.2 QUALITY ASSURANCE

- A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.3 SUBMITTALS

A. Agenda Items:

1. To the maximum extent practicable, the Contractor shall be advised at least 24 hours in advance of project meetings regarding any items to be added to the agenda.

B. Minutes:

1. The Contractor shall publish minutes of each project meeting, and will furnish one copy to the Architect and one copy to the Owner within five (5) working days after said meeting.

PART 2 EXECUTION

2.1 MEETING SCHEDULE

- A. Except as noted below for Pre-Construction Meeting, project meetings will be held at least every two weeks and more often when deemed appropriate by all parties.
- B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

2.2 MEETING LOCATION

- A. The Contractor will establish a meeting location. To the maximum extent possible, meetings will be held at or adjacent to the job site.

PROJECT MEETINGS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

2.3 PRE-CONSTRUCTION MEETING

- A. A Pre-Construction Meeting will be scheduled to be held within fifteen (15) working days after the Owner has issued the Notice to Proceed:
 - 1. Attendance is required by authorized representatives of the Contractor and major subcontractors;
 - 2. The Architect will advise other interested parties, including the Owner, and request their attendance.
- B. Minimum Agenda: Data will be distributed and discussed on at least the following items:
 - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Architect;
 - 2. Channels and procedures for communication;
 - 3. Construction Schedule, including sequence of critical work;
 - 4. Contract Documents; including distribution of required copies of original Documents and revisions;
 - 5. Processing of Shop Drawings and other data submitted to the Architect for review;
 - 6. Processing of Bulletins, Field Decisions, and Change Orders;
 - 7. Rules and regulations governing performance of the Work;
 - 8. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

2.4 PROJECT MEETINGS

- A. Attendance:
 - 1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work;
 - 2. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.
- B. Minimum Agenda:
 - 1. Review, revise as necessary, and approve minutes of previous meeting;
 - 2. Review progress of the Work since last meeting, including status of submittals for approval;
 - 3. Identify written problems which impede planned progress;
 - 4. Develop corrective measures and procedures to regain planned schedule;
 - 5. Complete other current business;
 - 6. Set time and date for next meeting.
- C. Revisions to Minutes:
 - 1. Unless published minutes are challenged in writing prior to or verbally during the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting;
 - 2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes;
 - 3. Challenge to minutes shall be settled as priority portion of "old business" at the next regularly scheduled meeting.

PART 3 SPECIAL MEETING

PROJECT MEETINGS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

3.1 PURPOSE

- A. There shall be special meetings prior to the commencing of any major subcontractor's work (i.e., sitework, grading, masonry, steel erection, painting, HVAC etc.) The purpose of these special meetings is to arrive at an understanding of the intent of the design and the manner in which the Work will be performed.
- B. No work shall commence by any major subcontractor until first meeting with the Architect to specifically discuss the Work to be performed.
- C. Any work which must be redone, as a result of failure to hold subcontractor meetings will be done at no additional cost to the Owner.

END OF SECTION

CONSTRUCTION SCHEDULES
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 013200 – CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. To assure adequate planning and execution of the Work so that the Work is completed within the number of calendar days allowed in the Contract, and to assist the Architect in appraising the reasonableness of the proposed schedule and in evaluating progress of the Work, prepare and maintain the schedules and reports described in this Section.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. Requirements for Progress Schedule: General Conditions;
3. Construction Period: Form of Agreement.

C. Definitions:

1. "Day", as used throughout the Contract unless otherwise stated, means "calendar day".

1.2 QUALITY ASSURANCE

- A. Designate a scheduler in Contractor's employ who is thoroughly trained and experienced in compiling construction schedule data, and in preparing and issuing periodic reports as required below.

- B. Perform data preparation, analysis, charting, and updating in accordance with standards approved by the Architect.

C. Reliance upon the approved schedule:

1. The construction schedule, as approved by the Architect, will be an integral part of the Contract and will establish interim completion dates for the various activities under the Contract;
2. Should any activity not be completed within fifteen (15) days after the stated scheduled date, the Owner shall have the right to require the Contractor to expedite completion of the activity by whatever means the Owner deems appropriate and necessary, without additional compensation to the Contractor;
3. Should any activity be 30 days or more behind schedule, the Owner shall have the right to perform the activity or have the activity performed by whatever method the Owner deems appropriate;
4. Costs incurred by the Owner and by the Architect in connection with expediting construction activity under this Article shall be reimbursed by the Contractor;
5. It is expressly understood and agreed that failure by the Owner to exercise the option either to order the Contractor to expedite the activity by other means shall not be considered to set a precedent for any other activities.

1.3 SUBMITTALS

CONSTRUCTION SCHEDULES
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

- A. Comply with pertinent provisions of Section 013300.
- B. Construction Schedule:
 - 1. Within ten (10) calendar days after the Contractor has received the Owner's Notice to Proceed, submit one reproducible copy of a preliminary construction schedule prepared in accordance with Part 3 of this Section.
- C. Periodic Reports:
 - 1. On the first working day of each month following the submittal described in the Paragraph above, submit one reproducible copy of the construction schedule, updated, as described in Part 3 of this Section.

PART 2 PRODUCTS

2.1 CONSTRUCTION ANALYSIS

- A. Graphically show by horizontal bar-chart the order and interdependence of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished, as planned by the Contractor and his project field superintendent in coordination with all subcontractors whose work is shown on the diagram.
- B. Include, but do not necessarily limit indicated activities to:
 - 1. Project mobilization;
 - 2. Submittal and approval of Shop Drawings and Samples;
 - 3. Procurement of equipment and critical materials;
 - 4. Fabrication of special materials and equipment, and its installation and testing;
 - 5. Activities of trades in the completion of the work;
 - 6. Final cleanup;
 - 7. Final inspecting and testing;
 - 8. Activities by the Architect that effect progress, or required dates for completion, or both, for each part of the Work.

PART 3 EXECUTION

3.1 CONSTRUCTION SCHEDULE

- A. As soon as practicable after receipt of Notice to Proceed, complete the construction analysis in preliminary form, meet with the Architect, review contents of the proposed construction schedule, and make all revisions agreed upon.

3.2 PERIODIC REPORTS

- A. Update the approved construction schedule:
 - 1. Indicate "actual" progress in percent completion for each activity.
 - 2. Provide written narrative summary of revisions causing delay in the program, and an explanation of corrective actions taken or proposed.

3.3 REVISIONS

CONSTRUCTION SCHEDULES
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

- A. Make only those revisions to approved construction schedule as are approved in advance by the Architect.

END OF SECTION

SUBMITTALS AND SUBSTITUTIONS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 013300 – SUBMITTALS AND SUBSTITUTIONS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;

C. Work Not Included:

1. Unrequired submittals will not be reviewed by the Architect;
2. The Contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Architect.

1.2 QUALITY ASSURANCE

A. Coordination of Submittals:

1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted;
2. Verify that each item and the submittal for it conform in all respects with the specified requirements;
3. By affixing the Contractor's review stamp and signature to each submittal, certify that this coordination has been performed. Unstamped/unsigned submittals will be returned to the Contractor unreviewed by the Architect.

B. Substitutions:

1. The Contract is based on the materials and methods established in the Contract Documents. Substitutions will be considered only prior to Bidding as set forth in Section 00200 Instructions to Bidders.
2. When it becomes necessary to substitute a material or item, due to unavailability of the specified item, the Architect must be notified. The Contractor may offer items for substitution under these conditions, but the Architect will determine the appropriate material or item to be installed.
3. The following products do not require further approval except for interface within the Work:
 - a) Products specified by reference to standard specifications such as ASTM and similar standards;
 - b) Products specified by manufacturer's name and catalog model number;
4. Do not substitute materials, equipment, or methods unless such substitution has been made in accordance with Section 00200 "Instructions to Bidders" or has been specifically approved in writing for this Work by the Architect.

SUBMITTALS AND SUBSTITUTIONS

Job No. 170325

Oklahoma Union Elementary School
Window and Door Renovations

C. SUBMITTALS

1. Make submittal of Shop Drawings, Product Data, Samples and other items in accordance with the provisions of this Section
2. Note reference to Architect's review of submittals in the General Conditions, Subparagraph 4.2.7.

PART 2 PRODUCTS

2.1 SHOP DRAWINGS

A. Scale and Measurements:

1. Make Shop Drawings accurately to scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.
2. Reproductions of Contract Documents for Shop Drawings will not be allowed.

B. Types of Prints Required:

1. Submit the number of copies which are required to be returned, plus three copies which will be retained by the Architect, Owner and Consultants.

C. Review comments of the Architect will be shown on the documents returned to the Contractor. The Contractor may make and distribute such copies as are required for his purposes.

2.2 PRODUCT DATA

- A. Clearly show which portions of the contents are being submitted for review where contents of submitted literature from manufacturers includes data not pertinent to the submittal.
- B. Submit the number of copies, which are required to be returned, plus three copies, which will be retained by the Architect, Owner, and Consultants.

2.3 SAMPLES

- A. Provide sample or samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below.
- B. Number of Samples Required:
 1. Unless otherwise specified, submit samples in the quantity which is required to be returned, plus one which will be retained by the Architect.
 2. By prearrangement in specific cases, a single sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Architect.

2.4 COLORS AND PATTERNS

- A. Unless the precise color and pattern are specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the Architect for selection.

SUBMITTALS AND SUBSTITUTIONS
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

PART 3 EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

- A. Consecutively number all submittals:
 - 1. When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
 - 2. On resubmittals, cite the original submittal number for reference.
- B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.
- C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.
- D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Architect for his review upon request.

3.2 GROUPING OF SUBMITTALS

- A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
 - 1. Partial submittal may be rejected as not complying with the provisions of the Contract.
 - 2. The Contractor may be held liable for delays so occasioned.

3.3 TIMING OF SUBMITTALS

- A. Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery. The Architect and Owner will not be held responsible for delays caused by the untimely submittal of shop drawings or project data by the Contractor.
- B. In scheduling, allow for at least ten working days for review by the Architect following receipt of the submittal.

3.4 ARCHITECT'S REVIEW

- A. Review by the Architect does not relieve the Contractor from responsibility for errors or substandard details, which may exist in the submitted data.
- B. Architect shall affix a stamp with dated signature to each submittal reviewed. The stamp will define the approval status of the documents. Stamp notations and definitions follow:
 - 1. "APPROVED" or "NO EXCEPTIONS TAKEN" – Document is satisfactory in accordance with above disclaimers. Resubmittal is not required.
 - 2. "APPROVED AS NOTED" or "NOTE MARKINGS" – Make corrections indicated. Allows Work to be expedited while documents are being revised to an approved status. Corrections must be made for copies that will be placed in the Final Records. This requires resubmittal to Architect for review and stamping.
 - 3. "REVISE AND RESUBMIT" – This requires revision and resubmittal. Can be used alone or might be utilized in conjunction with above marks in "2", or below in "4".
 - 4. "NOT APPROVED" or "REJECTED" – Fabrication not allowed, or installation not allowed, or both. Contractor must issue new submittals for approval.

SUBMITTALS AND SUBSTITUTIONS

Job No. 170325

Oklahoma Union Elementary School

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C. Revisions:

1. Make revisions required by the Architect.
2. If the Contractor considers any required revision to be a change, he shall so notify the Architect as provided for in Section 01251 Change Order Procedure.
3. Make only those revisions directed by the Architect.

END OF SECTION

TESTING LABORATORY SERVICES
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 014500 – TESTING LABORATORY SERVICES

PART 1 GENERAL

1.1 DESCRIPTION

- A. Work Included – Provide testing and inspections, complete, as described in this Section and elsewhere.
- B. Related Work – Requirements for testing are described in other Sections of these Specifications.

1.2 QUALITY ASSURANCE – Upon completion of each test and/or inspection, promptly distribute copies of test or inspection reports to the Architect.

PART 2 PRODUCTS

2.1 PAYMENT FOR TESTING

- A. The Contractor shall contract with a testing laboratory which meets the Architect's approval and include within the Contract Sum an amount sufficient to cover all testing and inspecting required under this Section and all others of these specifications.
- B. The Owner will pay for all testing and inspecting specifically requested by the Architect over and above that described in these specifications.
- C. When initial tests requested by the Architect indicate noncompliance with the Contract Documents, costs of initial tests associated with that non-compliance will be deducted by the Owner from the Contract Sum, and subsequent re-testing occasioned by the non-compliance shall be performed by the same testing laboratory, and the costs thereof shall be paid by the Contractor.

2.2 SPECIFIC TESTS AND INSPECTIONS

- A. Provide all tests and inspections required by provisions of the Contract Documents, and such other tests and inspections as directed by the Architect.
- B. Tests include, but are not necessarily limited to, those described in Part 3 of this Section.

PART 3 EXECUTION

3.1 TAKING SPECIMENS – Except as may be specifically otherwise approved by the Architect, have the testing laboratory secure and handle all samples and specimens for testing.

3.2 COOPERATION WITH TESTING LABORATORY – Provide access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.

3.3 WAIVER OF INSPECTION AND/OR TESTS – Specified inspections and/or tests may be waived only by the specific approval of the Architect, and such waivers will be expected to result in credit to the Owner equal to normal cost of such inspection and/or test.

TEMPORARY FACILITIES AND CONTROLS

Job No. 170325

Oklahoma Union Elementary School

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SECTION 015500 – TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Provide temporary facilities and controls needed for the work including, but not necessarily limited to:
 - a) Enclosures such as tarpaulins, barricades, and canopies;
 - b) Temporary partitions and dust control as coordinated with the Owner;
 - c) Project sign, see drawings.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications;
2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work are not part of this Section;
3. Permanent installation and hookup of the various utility lines are described in other Sections.

1.2 PRODUCT HANDLING

A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

PART 2 PRODUCTS

2.1 UTILITIES

A. Water:

1. Provide necessary temporary piping and water supply and, upon completion of the Work, remove such temporary facilities;
2. Contractor shall be responsible for all cost associated with temporary water facility.

B. Electricity:

1. Provide necessary temporary service, wiring and, upon completion of the Work, remove such temporary facility;
2. Provide distribution boxes so located that the individual trades may furnish and use 100 ft. maximum length extension cords to obtain power and lighting at points where needed for work, inspection, and safety;
3. Contractor is responsible for all costs associated with temporary electric facility.

C. Air Handling Units:

1. Provide and maintain portable heating units (not electric) necessary for proper conduct of operations needed in the Work.

TEMPORARY FACILITIES AND CONTROLS

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2. Contractor may utilize existing building heating units once dust-producing activities have ceased and building is secured from outside conditions. Do not run units when building is open to the exterior. The contractor shall keep all new units clean and provide appropriate filters at all times.
3. Contractor may utilize new building heating units in a prudent manner. If, in the Architect's opinion, units become dirty and need to be cleaned due to construction activity, this cleaning shall be provided at no cost to the Owner.

D. Telephone and Fax Machine:

1. Make necessary arrangements and pay costs for installation and operation of telephone and fax service to the Contractor's office at the site;
2. Make the telephone and fax machine available to the Architect for use in connection with the Work.

2.2 FIELD OFFICES AND SHEDS

A. Contractor's Facilities:

1. Provide a field office structure and sheds adequate in size and accommodation for Contractor's offices, supply, and storage.
2. Within the Contractor's facilities, provide enclosed space adequate for holding project discussions; furnish with table, chairs, and utilities;
3. Field office may be within the construction area.

B. Sanitary Facilities:

1. Contractor shall provide portable sanitary facilities as required by state and local agencies. Project personnel shall not use Owner's existing facilities.
2. Maintain in a sanitary condition at all times.

2.3 ENCLOSURES

- A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges and other temporary construction necessary for proper completion of the work in compliance with safety and other regulations.

2.3 PROJECT SIGNS

- A. Prior to start of construction, erect a Job Sign as detailed on the drawings, in location designated by the Architect.
- B. Except as otherwise specifically approved by the Architect, do not permit other signs or advertising on the job site.

PART 3 EXECUTION

3.1 MAINTENANCE AND REMOVAL

- A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.
 - B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.
- END OF SECTION

PRODUCT HANDLING
Job No. 170325
Oklahoma Union Elementary School
Window and Door Renovations

SECTION 016600 – PRODUCT HANDLING

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURERS' RECOMMENDATIONS

- A. Except as otherwise approved by the Architect, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

1.4 PACKAGING

- A. Deliver product to the job site in their manufacturer's original container, with labels intact and legible:

1. Maintain packaged materials with seals unbroken and labels intact until time of use:
2. Promptly remove damaged and material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

- B. The Architect may reject as non-complying such material and products that do not bear identification satisfactory with the Architect as to manufacturer, grade, quality, and other pertinent information.

1.5 PROTECTION

- A. Protect finished surfaces, including jambs and soffits, of openings used as passageways, through which equipment and materials are handled.
- B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.
- C. Maintain finished surfaces, clean, unmarred, and suitably protected until accepted by Owner.

1.6 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs at the approval of the Architect and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify an extension in the Contract Time of Completion.

Section 016600

PRODUCT HANDLING

Job No. 170325

Oklahoma Union Elementary School
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END OF SECTION

Section 016600

PRODUCT HANDLING

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FIELD ENGINEERING
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SECTION 017200 – FIELD ENGINEERING

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Provide such field engineering services as are required for proper completion of the Work, including, but not necessarily limited to:
 - a) Establishing and maintaining lines and levels;
 - b) Structural design of shores, forms, and similar items provided by the Contractor as part of his means and methods of construction.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. Additional requirements for field engineering also may be described in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

- A. Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 013300.

B. Upon Request of the Architect, Submit:

1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services;
2. Documentation verifying accuracy of field engineering work;
3. Statement, signed by the Contractor's retained Field Engineer, certifying that elevations and locations of improvements are in conformance or nonconformance with requirements of the Contract Documents.

1.4 PROCEDURES

- A. In Addition to procedures directed by the Contractor for proper performance of the Contractor's responsibilities:

1. Locate and protect control points before starting work on the site;
2. Preserve permanent reference points during progress of the Work;
3. Do not change or relocate reference points or items of the Work without specific approval from the Architects;
4. Promptly advise the Architect when a reference point is lost or destroyed, or requires relocation because of other changes in the Work;
 - a) Upon direction of the Architect, require the Field Engineer to replace reference stakes or markers;

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- b) Locate such replacements according to the original survey control.

END OF SECTION

Section 017200

FIELD ENGINEERING

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CUTTING AND PATCHING
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SECTION 017300 – CUTTING AND PATCHING

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. This Section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:
 - a) Make the several parts fit properly;
 - b) Uncover work to provide for installing, inspecting, or both, of ill-timed work;
 - c) Remove and replace work not conforming to requirements of the Contract Documents;
 - d) Remove and replace defective work.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. In addition to other requirements specified, upon the Architect's request, uncover work to provide for inspection by the Architect of covered work, and remove samples of installed materials for testing;
3. Do not cut or alter work performed under separate contracts without the Architect's written permission.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. Request for Architect's Consent:

1. Prior to cutting, which affects structural safety, submit written request to the Architect for permission to proceed with cutting;
2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for unusual cutting and patching, so notify the Architect and secure his written permission and the required Change Order prior to proceeding.

B. Notices to the Architect:

1. Prior to unusual cutting and patching performed pursuant to the Architect's instructions, submit cost estimate to the Architect. Secure the Architect's approval of cost estimates and type of reimbursement before proceeding with cutting and patching;
2. Submit written notice to the Architect designating the time the Work will be uncovered, to provide for the Architect's observation.

PART 2 PRODUCTS

2.01 MATERIALS

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- A. For replacement of items removed, use materials complying with pertinent Sections of these Specifications.

2.02 PAYMENT FOR COST

- A. The Owner will reimburse the Contractor for unusual cutting and patching performed, pursuant to the written Change Order, after claim for such reimbursement is submitted by the Contractor. Perform usual cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspection:
 - 1. Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching, and backfilling.
- B. Discrepancies:
 - 1. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed direction;
 - 2. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide required protection including, but not necessarily limited to, shoring, bracing and support, to maintain structural integrity of the Work and adjacent existing structures.

3.03 PERFORMANCE

- A. Perform excavating and backfilling as required under pertinent other Sections of these Specifications:
 - 1. Perform cutting and demolition, by methods which will prevent damage to other portions of the Work, and provide proper surfaces to receive installation of repaired and new work;
 - 2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.

END OF SECTION

CLEANING
Job No. 170325
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SECTION 017410 – CLEANING

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Sections in Division 1 of these Specifications;
2. In addition to standards described in this Section, comply with requirements for cleaning as described in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

- A. Conduct daily inspection, and more often if necessary, to verify that requirements for cleanliness are being met.
- B. In addition to the standards described in this Section, comply with requirements of governmental agencies having jurisdiction.

PART 2 PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

- A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 COMPATIBILITY

- A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 EXECUTION

3.1 PROGRESS CLEANING

A. General:

1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials;
2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work;
3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site;
4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the environment.

B. Site:

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1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage;
2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service arrangements to meet the requirements of subparagraph 3.1.A.1 above;
3. Maintain the site in a neat and orderly condition at all times.

C. Structures:

1. Daily, and more often if necessary, inspect the structures and pick up all scrap, debris, and waste material. Remove such items to the place designated or their storage;
2. Weekly, and more often if necessary, sweep interior spaces clean:
 - a) "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a hand-held broom.
3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness;
4. Following the installation of finish floor materials, clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials are installed:
 - a) "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from foreign material which, in the opinion of the Architect, may be injurious to the finish floor material.

3.2 FINAL CLEANING

- A. "Clean", for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.
- B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.
- C. Site:
 1. Unless otherwise specifically directed by the Architect, broom clean paved areas on the site and public paved areas adjacent to the site;
 2. Completely remove resultant debris.
- D. Structures:
 1. Exterior:
 - a) Visually inspect exterior surfaces and remove all traces of soil, waste materials, smidges, and other foreign matter;
 - b) Remove all traces of splashed materials from adjacent surfaces;
 - c) If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the structure;

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- d) In the event of stubborn stains not removable with water, the Architect may require other cleaning at no additional cost to the Owner.
- 2. Interior:
 - a) Visually inspect interior surfaces and remove all traces of soil, waste materials, smidges, and other foreign matter;
 - b) Remove all traces of splashed materials from adjacent surfaces;
 - c) Remove paint droppings, spots, stains, and dirt from finished surfaces.
- 3. Glass:
 - a) Clean inside and outside.
- 4. Polished Surfaces:
 - a) To surfaces requiring routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished. This shall include, but not necessarily be limited to: Tile or VCT floors, woodwork, cabinetry, etc.
- E. Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean Work.

3.3 CLEANING DURING OWNER'S OCCUPANCY

- A. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be determined by the Architect in accordance with the General Conditions of the Contract.

END OF SECTION

CONTRACT CLOSEOUT
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SECTION 017700 – CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Provide an orderly and efficient transfer of the completed Work to the Owner.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Activities relative to Contract closeout are described in, but not necessarily limited to, Paragraphs 4.2, 9.8, and 9.10 of the General Conditions;

1.2 QUALITY ASSURANCE

- A. Prior to requesting inspection by the Architect, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

1.3 PROCEDURES

A. Substantial Completion:

1. Prepare and submit the list required by the Subparagraph 9.8.2 of the General Conditions.
2. Obtain certificate of occupancy and submit to architect.
3. Within a reasonable time after receipt of the list, the Architect will inspect to determine status of completion;
4. Should the Architect determine that the Work is not substantially complete:
 - a) The Architect promptly will so notify the Contractor, in writing, giving the reasons therefore;
 - b) Contractor will remedy the deficiencies and notify the Architect when ready for reinspection;
 - c) The Architect and Owner will reinspect the Work.
5. When the Architect and Owner concur that the Work is substantially complete:
 - a) The Architect will prepare a "Certificate of Substantial Completion" on AIA form G704, accompanied by the Contractor's list of items to be completed or corrected, as verified by the Architect and Owner;
 - b) The Architect will submit the Certificate to the Owner and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

B. Final Completion

1. Prepare and submit the notice required by Paragraph 9.10.1 of the General Conditions;
2. Verify that the Work is complete including, but not necessarily limited to, the items mentioned in Paragraph 9.10.2 of the General Conditions;
3. Certify that:

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- a) Contract Documents have been reviewed;
 - b) Work has been inspected for compliance with the Contract Documents;
 - c) Work has been completed in accordance with the Contract Documents;
 - d) Equipment and systems have been tested as required, and are operational;
 - e) Work is completed and ready for final inspection.
4. The Architect will make an inspection to verify status of completion;
 5. Should the Architect determine that the Work is incomplete or defective:
 - a) The Architect promptly will so notify the Contractor, in writing, listing the incomplete or defective work;
 - b) The Contractor will remedy the deficiencies promptly, and notify the Architect when ready for reinspection.
 6. When the Architect determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make closeout submittals.
- C. Closeout Submittals include, but are not necessarily limited to:
1. Project Record Documents described in Section 017830;
 2. Operation and maintenance data for items so listed in pertinent other Sections of these Specifications, and for other items when so directed by the Architect;
 3. Warranties and bonds;
 4. Keys and keying schedule;
 5. Spare parts and extra materials;
 6. Certificates of Insurance for products and completed operations;
 7. Evidence of payment and release of liens;
 8. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
- D. Final Adjustment of Accounts:
1. Submit a final statement of accounting to the Architect, showing all adjustments to the Contract Sum;
 2. If so required, the Architect will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Order.

1.4 INSTRUCTION

- A. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

END OF SECTION

OPERATION AND MAINTENANCE DATA

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SECTION 017820 – OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding the products incorporated into the Work, furnish and deliver the data described in this Section and in other Sections of these Specifications.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. Required contents of submittals also may be amplified in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

- A. In preparing data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the extent needed for communicating the essential data.

1.3 SUBMITTALS

- A. Comply with provisions of Section 013300.
- B. Submit two copies of a preliminary draft of the proposed Manual or Manuals to the Architect for review and comments.
- C. Unless otherwise directed in other Sections, or in writing by the Architect, submit three copies of the final Manual to the Architect prior to indoctrination of operation and maintenance personnel

PART 2 PRODUCTS

2.1 INSTRUCTION MANUALS

- A. Where instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

B. Format:

1. Size: 8 ½" X 11"
2. Paper: White bond, at least 20lb. Weight
3. Text: Typed, no handwritten text allowed.
4. Drawings: 8 ½" X 11", 11" X 17" or 22" X 34" are the only acceptable drawing sizes: bind in with text; foldout acceptable; provide pocket inside rear cover for 22X34 drawings.
5. Flysheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets shall be in color.
6. Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the Manual; 3-ring binder will be acceptable; all binding is subject to the Architect's approval.

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7. Measurements: Provide all measurements in U.S. standard units such as feet-and-inches, lbs, and cfm.
- C. Provide front and back covers for each Manual, using durable material approved by the Architect, and clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

(name and address of Work)
(name of Contractor)
(general subject of this Manual)
(space for approval signature of)
(the Architect and approval date)

- D. Contents: Include at least the following:
1. Neatly typewritten index near the front of the Manual, giving immediate information as to location within the Manual of all emergency information regarding the installation;
 2. Complete instructions regarding operation and maintenance of all equipment involved including lubrication, disassembly, and reassembly;
 3. Complete nomenclature of all parts of all equipment;
 4. Complete nomenclature and part number of all replaceable parts, name and address of nearest vendor, and all other data pertinent to procurement procedures;
 5. Copy of all guarantees and warranties issued;
 6. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items, included in this installation, and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned;
 7. Such other data as required in other Sections of these Specifications.

PART 3 EXECUTION

3.1 INSTRUCTION MANUALS

- A. Preliminary:
1. Prepare a preliminary draft of each proposed Manual;
 2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering;
 3. Securing the Architect's approval prior to proceeding.
- B. Final:
1. Complete the Manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.
- C. Revisions:
1. Following the indoctrination and instruction of operation and maintenance personnel, review all proposed revisions of the Manual with the Architect;
 2. If the Contractor is required by the Architect to revise previously approved Manuals, compensation will be made as provided for under "Changes" in the General Conditions.

END OF SECTION

PROJECT RECORDS DOCUMENT
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SECTION 017830 – PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work Included:

1. Throughout progress of the Work, maintain an accurate record of changes in the Contract Documents, as described in Article 3.1 below;
2. Upon completion of the Work, transfer the recorded changes to a set of Project Record Documents, as described in Article 3.2 below;
3. Architect will require, as a part of project close out, complete project record documents;
4. As a part of the project record documents, Contractor shall provide a complete schedule of all finish items including paint colors, specified mixes, etc. as a part of the permanent record for this project.

B. Related Work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications;
2. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Delegate the responsibility for maintenance of Project Record Documents to one person on the Contractor's staff.

B. Accuracy of Records:

1. Thoroughly coordinate changes within the Project Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly;

C. Make entries within 24 hours after receipt of information that the change has occurred.

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 013300.
- B. The Architect's approval of the current status of Project Record Documents may be a prerequisite to the Architect's approval of requests for progress payment and request for final payment under the Contract.
- C. Prior to submitting each request for progress payment, secure the Architect's approval of the current status of the Project Record Documents.
- D. Prior to submitting request for final payment, submit the set of final Project Record Documents to the Architect and secure his approval.

1.4 PRODUCT HANDLING

- A. Maintain the job set of Project Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final set of Project Record Documents.

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- B. In the event of loss of recorded data, use means necessary to again secure the data to the Architect's approval:
 - 1. Such means shall include, if necessary and in the opinion of the Architect, removal and replacement of concealing materials;
 - 2. In such case, provide replacements to the standards originally required by the Contract Documents.

PART 2 PRODUCTS

2.1 RECORD DOCUMENTS

- A. Job Set and Final Record Documents:
 - 1. Promptly following receipt of the Owner's Notice to Proceed, Contractor shall purchase drawings from the Architect as indicated in Section 02200 Instructions to Bidders. Job set and Final Record Documents shall be taken from these sets of Documents.

PART 3 EXECUTION

3.1 MAINTENANCE OF JOB SET

- A. Immediately upon receipt of the job set identify each of the Documents with the title, "PROJECT RECORD DOCUMENTS – JOB SET".
- B. Preservation:
 - 1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Architect;
 - 2. Do not use the job set for any purpose except entry of new data to final set of Project Record Documents;
 - 3. Maintain the job set at the site of Work as designated by the Architect.
- C. Making entries of Drawings:
 - 1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required;
 - 2. Date all entries;
 - 3. Call attention to the entry by a "cloud" drawn around the area or areas affected;
 - 4. In the event of overlapping changes, use different colors for those changes.
- D. Make entries in other Documents as approved by the Architect.
- E. Conversion of schematic layouts:
 - 1. In the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items are shown schematically and are not intended to portray precise physical layout.
 - a) Final physical arrangement is determined by the Contractor, subject to the Architect's approval.

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- b) However, design of future modifications of the facility may require some accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
- 2. Show on the job set of Project Record Drawings, by dimension accurate to within one inch, the centerline of each run of items such as are described in subparagraph 3.1-E-1 above:
 - a) Clearly identify the item by accurate note such as “cast iron drain”, “copper water”, and the like;
 - b) Show, by symbol or note, the vertical location of the item (“under slab”, “in ceiling plenum”, “exposed”, and the like);
 - c) Make all identification sufficiently descriptive that it may be related reliable to the Specifications.
- 3. The Architect may waive the requirements for conversion of schematic layouts where, in the Architect’s judgment, conversion serves no useful purpose. However, do not rely upon waiver being issued except as specifically issued in writing by the Architect.

3.2 FINAL SET OF PROJECT RECORD DOCUMENTS

- A. The purpose of the final set of Project Record Documents is to provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.
- B. Approval of Recorded Data Prior to Transfer:
 - 1. Following receipt of the drawings described in Paragraph 2.1.A above, and; prior to start of transfer of recorded data thereto, secure the Architect’s approval of all recorded data;
 - 2. Make required revisions.
- C. Transfer of Data to Drawings:
 - 1. Carefully transfer change data shown on the job set of Record Drawings to the corresponding drawings, coordinating the changes as required;
 - 2. Clearly indicate at each affected detail and other drawing a full description of changes made during construction, and the actual location of items described in subparagraph 3.1.E.1 above;
 - 3. Call attention to each entry by drawing a “cloud” around the area or areas affected;
 - 4. Make changes neatly, consistently, and with the proper media to assure longevity.
- D. Transfer of Data to Other Documents:
 - 1. If the Documents other than Drawings have been kept clean during progress of the Work, and if entries thereon have been orderly to the approval of the Architect, the job set of those Documents, other than Drawings, will be accepted as the final set of Project Record Documents;
 - 2. If any such Document is not so approved by the Architect, secure a new copy of that Document from the Architect at the Architect’s usual charge for reproduction and handling, and carefully transfer the change data to the new copy to the approval of the Architect.
- E. Review and submittal:

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1. Submit the completed set for final Project Record Documents to the Architect as described in Paragraph 1.3.D above.
2. Participate in review meetings as required;
3. Make required changes and promptly deliver the final Project Record Documents to the Architect.

3.3 CHANGES SUBSEQUENT TO ACCEPTANCE

- A. The Contractor has no responsibility for recording changes in the Work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

END OF SECTION

JOINT SEALANTS
Job No. 170325
Oklahoma Union Elementary School
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SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes joint sealants for the following applications:
 - 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Construction joints in cast-in-place concrete.
 - b. Joints in exterior insulation and finish systems.
 - c. Joints between different materials listed above.
 - d. Perimeter joints between materials listed above and frames of doors windows and louvers.
 - e. Control and expansion joints in ceilings and other overhead surfaces.
 - f. Other joints as indicated.
 - 2. Exterior joints in the following horizontal traffic surfaces:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Joints between different materials listed above.
 - c. Other joints as indicated.
 - 3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Perimeter joints of exterior openings.
 - b. Tile control and expansion joints.
 - c. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - e. Other joints as indicated.
 - 4. Interior joints in the following horizontal traffic surfaces:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - c. Other joints as indicated.
- B. Related Sections include the following:
 - 1. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

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JOINT SEALANTS

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1.4 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in Sealant Schedule in Part 3.

2.2 MATERIALS, GENERAL

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

2.3 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 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.

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JOINT SEALANTS

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PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 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 sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess 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.
- G. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

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JOINT SEALANTS

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3.3 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.

3.4 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.

3.5 JOINT-SEALANT SCHEDULE

- A. Mildew-Resistant Silicone Sealant: Where joint sealants of this type are indicated, provide products formulated with fungicide that are intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes, and that comply with the following:
 - 1. Products:
 - a. 786 Mildew Resistant; Dow Corning.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25.
 - 4. Applications: Interior joints in vertical surfaces between plumbing fixtures and wall surfaces.
- B. Single-Component Nonsag Urethane Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
 - 1. Products:
 - a. NP 1; Sonneborn Building Products Div., ChemRex Inc.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25.
 - 4. Applications: Exterior joints in horizontal and vertical surfaces between masonry, concrete, metals and wood.
- C. Single-Component Pourable Urethane Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
 - 1. Products:
 - a. SL 1; Sonneborn Building Products Div., ChemRex Inc..
 - 2. Type and Grade: S (single component) and P (pourable).
 - 3. Class: 25.
 - 4. Applications: Exterior joints in horizontal surfaces between masonry, concrete, metals and wood.

END OF SECTION 07920

HOLLOW METAL DOORS AND FRAMES
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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 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes hollow-metal work.
- B. Related Requirements:
 - 1. Section 087100 "Door Hardware" for door hardware for hollow-metal doors.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or ANSI/SDI A250.8.

1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site or predetermined location.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, core descriptions, and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, joints, field splices, and connections.
 - 7. Details of accessories.
 - 8. Details of moldings, removable stops, and glazing.
 - 9. Details of conduit and preparations for power, signal, and control systems.
- C. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.

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1.7 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each type of hollow-metal door and frame assembly for tests performed by a qualified testing agency indicating compliance with performance requirements.
- B. Oversize Construction Certification: For assemblies required to be fire-rated and exceeding limitations of labeled assemblies.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
 - 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Apex Industries, Inc.
 - 2. Ceco Door; ASSA ABLOY.
 - 3. Curries Company; ASSA ABLOY.
 - 4. Republic Doors and Frames.
 - 5. Steelcraft; an Allegion brand.

2.2 INTERIOR DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B. At locations indicated in the Door and Frame Schedule.
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Uncoated steel sheet, minimum thickness of 0.042 inch.
 - d. Edge Construction: Model 1, Full Flush.
 - e. Edge Bevel Provide manufacturer's standard beveled or square edges.
 - f. Core: Manufacturer's standard Kraft-paper honeycomb, Polystyrene, Polyurethane, Polyisocyanurate, or Vertical steel stiffener at manufacturer's discretion.
 - g. Core: Kraft-paper honeycomb.
 - 2. Frames:

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- a. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch.
- b. Construction: Knocked down face welded
- 3. Exposed Finish: Prime

2.3 EXTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B. At locations indicated in the Door and Frame Schedule.
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch, with minimum A40 coating.
 - d. Edge Construction: Model 1, Full Flush.
 - e. Core: Manufacturer's standard Polystyrene, Polyurethane, Polyisocyanurate, or Vertical steel stiffener at manufacturer's discretion.
 - f. Core: Kraft-paper honeycomb
 - 2. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
 - b. Construction: Knocked down Face welded.
 - 3. Exposed Finish: Prime

2.4 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
 - 2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
 - 3. Postinstalled Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.
- B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.
- C. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at top of underlayment.
- D. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized according to ASTM A153/A153M, Class B.

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2.5 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A153M.
- C. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- D. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.

2.6 FABRICATION

- A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 2. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
- B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping according to ANSI/SDI A250.6, the Door Hardware Schedule, and templates.
 - 1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
 - 2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

2.7 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXECUTION

- A. Examine substrates, areas, and conditions, with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built in anchors to verify actual locations before frame installation.

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- C. Prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. Install hollow-metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.
- B. Hollow-Metal Frames: Comply with ANSI/SDI A250.11 or NAAMM-HMMA 840 as required by standards specified..
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Install frames with removable stops located on secure side of opening.
 - 2. Floor Anchors: Secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 3. Solidly pack mineral-fiber insulation inside frames.
 - 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.
 - 5. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 6. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.
 - 1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch.
 - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

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3.4 FIELD QUALITY CONTROL

- A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.5 REPAIR

- A. Remove grout and other bonding material from hollow-metal work immediately after installation
- B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

FIBERGLASS WINDOWS

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PART 1 GENERAL

1.1 SECTION INCLUDES

1. All Ultrex® Single Hung window complete with hardware, glazing, weather strip, insect screen, grilles-between-the-glass, jamb extension, sheet rock return, j-channel, and standard or specified anchors, trim and attachments.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. C1036: Standard Specification for Flat Glass
2. E90-09: Standard Test Method for Laboratory Measurement of airborne Sound Transmission Loss of Building Partitions and Elements.
3. E 283: Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
4. E 330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Door by Uniform Static Air Pressure Difference.
5. E 547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
6. E 2190: Standard Specification for Insulating Glass Unit Performance Evaluation.
7. F2090-17: Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.
8. E 2068: Standard Test Method to Determine the Operating and Breakaway Forces of Sliding Windows and Doors.

B. Insulating Glass Manufacturer's Alliance/Insulating Glass Certification Council (IGMA/IGCC)

C. American Architectural Manufacturer's Association/Window and Door Manufacturer's Association/Canadian Standards Association (AAMA/WDMA/CSA):

1. AAMA/WDMA/CSA 101/I.S.2/A440-11: North American Fenestration Standard/Specification for windows, doors, and skylights.
2. AAMA/WDMA/CSA 101/I.S.2/A440-08: North American Fenestration Standard/Specification for windows, doors, and skylights.
3. AAMA 450-10: Voluntary Performance Ratings Method for Mulled Fenestration Assemblies

D. Window and Door Manufacturer's Association (WDMA): Hallmark Certification Program.

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E. American Architectural Manufacturer's Association (AAMA): 624-10: Voluntary Specification, Performance Requirements and Test Procedures for Organic Coatings on Fiber Reinforced Thermoset Profiles.

F. National Fenestration Rating Council (NFRC):

1. 100: Procedures for Determining Fenestration Product U-factors
2. 200: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

1.3 SYSTEM DESCRIPTION

A. Design and Performance Requirements:

Product	Air Tested to PSF	Water Tested to psf	Design Pressure (DP)	Certification Rating	Max Overall Width		Max Overall Height	
					in	mm	in	mm
Integrity All Ultrex Single Hung	1.57	7.5	50	LC-PG50-H	29 1/2	(749)	59 1/2	(1511)
Integrity All Ultrex Single Hung	1.57	6.0	40	LC-PG40-H	29 1/2	(749)	77 11/16	(1973)
Integrity All Ultrex Single Hung	1.57	7.5	50	LC-PG50-H	35 1/2	(902)	59 1/2	(1511)
Integrity All Ultrex Single Hung	1.57	6.0	40	LC-PG40-H	35 1/2	(902)	77 11/16	(1973)
Integrity All Ultrex Single Hung	1.57	6.0	40	LC-PG40-H	41 1/2	(1054)	65 1/2	(1664)
Integrity All Ultrex Single Hung	1.57	7.5	50	LC-PG50-H	47 1/2	(1207)	47 1/2	(1207)
Integrity All Ultrex Single Hung	1.57	6.0	40	LC-PG40-H	47 1/2	(1207)	59 1/2	(1511)
Integrity All Ultrex Single Hung	1.57	4.6	30	LC-PG30-H	47 1/2	(1207)	77 11/16	(1973)
Integrity All Ultrex Single Hung - Cottage	1.57	4.6	30	LC-PG30-H	29 1/2	(749)	71 1/2	(1816)
Integrity All Ultrex Single Hung - Cottage	1.57	4.6	25	LC-PG25-H	29 1/2	(749)	77 1/2	(1969)
Integrity All Ultrex Single Hung - Cottage	1.57	4.6	30	LC-PG30-H	35 1/2	(902)	71 1/2	(1816)
Integrity All Ultrex Single Hung - Cottage	1.57	3.8	25	LC-PG25-H	47 1/2	(1207)	77 1/2	(1969)
Integrity All Ultrex Single Hung - Reverse Cottage	1.57	4.6	30	LC-PG30-H	29 1/2	(749)	71 1/2	(1816)
Integrity All Ultrex Single Hung - Reverse Cottage	1.57	4.6	25	LC-PG25-H	29 1/2	(749)	77 1/2	(1969)
Integrity All Ultrex Single Hung - Reverse Cottage	1.57	4.6	30	LC-PG30-H	35 1/2	(902)	71 1/2	(1816)
Integrity All Ultrex Single Hung - Reverse Cottage	1.57	3.8	25	LC-PG25-H	47 1/2	(1207)	77 1/2	(1969)
Integrity All Ultrex Sliding Fixed Window	1.57	7.5	50	LC-PG50-FW	59 1/2	(1511)	71 1/2	(1816)

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1.4 SUBMITTALS

- A. Shop Drawings: Submit shop drawings under provision of Section 01 33 00.
- B. Product Data: Submit catalog data under provision of Section 01 33 00.
- C. Samples:
 - 1. Submit corner section under provision of section 01 33 00.
 - 2. Specified performance and design requirements under provisions of Section 01 33 00.
- D. Quality Control Submittals: Certificates: submit manufacturer's certification indicating compliance with specified performance and design requirement under provision of section 01 33 00.

1.5 QUALITY ASSURANCE

- A. Requirements: consult local code for IBC [International Building Code] and IRC [International Residential Code] adoption year and pertinent revisions for information on:
 - 1. Egress, emergency escape and rescue requirements
 - 2. Basement window requirements
 - 3. Windows fall prevention and/or window opening control device requirements.

1.6 DELIVERY

- A. Deliver in original packaging and protect from weather

1.7 STORAGE AND HANDLING

- A. Store window units in an upright position in a clean and dry storage area above ground to protect from weather under provision of Section 01 66 00

1.8 WARRANTY

The following limited warranty is subject to conditions and exclusions. There are certain conditions or applications over which Integrity has no control. Defect or problems as a result of such conditions or applications are not the responsibility of Integrity. For a more complete description of the Integrity limited warranty, refer to the Complete and current warranty information is available at Integritywindows.com/warranty.

- A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.
 - 1. Hardware another non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

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PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

- A. Description: All Ultrex® Single Hung (and related stationary or picture units) as manufactured by Integrity Windows and Doors, Roanoke, Virginia.

2.2 FRAME DESCRIPTION

- A. Interior: Pultruded reinforced fiberglass (Ultrex®), 0.070 inch (2mm) thick.
- B. Frame width: 3 3/32 inch (79mm)
- C. Jamb depth: 2 inch (51mm)
- A. Frame Expander accessory is an insert kit shipped as ready-to-install.
 - 1. Insert kit includes four fabricated frame expander components, including head-jamb, sill and both jamb components.
 - 2. Included in both 1" and 3" frame expander options.

2.3 SASH/PANEL DESCRIPTION

- A. Pultruded reinforced fiberglass (Ultrex®), 0.070 inch (2mm) thick
- B. Composite sash thickness: 15/16 inch (24mm)
- C. Equal sash style. Cottage Style: Sash divided 2/5 over 3/5. Reverse Cottage Style: Sash divided 3/5 over 2/5.

2.4 GLAZING

- A. Select quality complying with ASTM C 1036. Insulating glass SIGMA/IGCC when tested in accordance with ASTM E 2190. STC/OITC ratings are tested to the stated performance level in accordance with ASTM E 90-09.
- B. Glazing Method: 11/16 inch (17mm) insulating glass
- C. Glass Type: Low E1, E2, E3, or E3/ERS with air or Argon gas
- D. Glass Type Option: Obscure Glass or California Fire Glass (Annealed exterior and tempered interior glazing configuration), Rain Glass, Glue Chip, Narrow Reed, Reed, Frost, Bronze Tint, Gray Tint, Green Tint.
- E. Glazing Seal: Silicone bedding at exterior, interior has glazing boot
- F. Perimeter Spacer: Default color is mill finish (stainless). An optional black perimeter spacer color is available for all interior color selections.
- G. Glazing Option: STC/OITC upgrade

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2.5 MULLING

2.6 STANDARD MULLING

- A. Directional mull limits: 6 wide by 1 unit high; 114 by 78 (2896mm x 1981mm) inches
- B. Directional mull limits: 5 wide by 5 units high; 96 by 96 (2438mm x 2438mm) inches

2.7 REINFORCED MULLING

- A. Directional mull limits: 6 wide by 1 unit high; 114 by 78 (2896mm x 1981mm) inches
- B. Directional mull limits: 5 wide by 5 units high; 96 by 96 (2438mm x 2438mm) inches

2.8 FINISH

- A. Exterior: Ultrex with a cross-head extruded acrylic organic coating system. Meets AAMA 624-10 requirements.
- B. Interior: Ultrex with a cross-head extruded acrylic organic coating system.
- C. Color: Stone White exterior with Stone White interior, Pebble Gray exterior with Stone White interior, Bronze exterior with Stone White interior, Evergreen exterior with Stone White interior, Cashmere exterior with Stone White interior, Ebony exterior with Stone White interior. Ebony exterior with Stone White interior, Bronze exterior with Bronze interior, Ebony exterior with Ebony interior. (Split finishes not available on Dark Interior options)

2.9 HARDWARE

- A. Balance System: Coil spring block and tackle with nylon cord, glass filled nylon show, and zinc locking mechanism.
- B. Lock: High pressure zinc die-cast cam lock and keeper.
 - 1. Finish: Phosphate coated and electrostatically painted. Color: Stone White on Stone White interior, Oil Rubbed Bronze on Bronze interior, Matte Black on Ebony interior. Optional colors: Stone White, Bright Brass, Satin Nickel, Oil Rubbed Bronze, Almond Frost, Matte Black.
 - 2. Two (2) locks installed on units with a rough opening greater than 30 inches
- C. Sash Lift: A contoured zinc die cast sash lift, Color: Stone White, Bronze, Ebony (Matches unit interior finish).
- D. Tilt Latches: Ergonomic tilt latches attach to the upper corners of the bottom sash for easy tilting and sash removal. Colors: Stone White, Bronze, Ebony (Matches unit interior finish)
- E. Sash Limiters: Available as a field applied option to limit sash travel. ABS material and beige in color with Stone White or Matte Black screws. Applied in the balance tube channel.
- F. Factory Installed Window Opening Control Device for operating units per ASTM F2090-17: a system consisting of an acetal lever housed in an acetal shell on each stile of the top sash.

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1. Available on all sizes
2. Color: White on Stone White interior, Black on Bronze and Ebony interiors

2.10 WEATHER STRIP

- A. Frame weather strip: Foam filled bulb
 1. Color: Beige on Stone White interior, Black on Bronze and Ebony interiors
- B. Top Sash interlock: Rigid ABS with flexible Alcryn seals
 1. Color: Beige on Stone White interior, Black on Bronze and Ebony interiors
- C. Stationary sash seal: foam tape
 1. Color: Gray

2.11 JAMB EXTENSION

- A. Standard 2 inch jambs. Optional factory-installed jamb extension: 4 9/16 inch (116mm) and 6 9/16 inch (167 mm)
- B. Available in Stone White, Bronze or Ebony. Default color will match the unit interior selection.
 - a. Split finishes are not available for Dark Interior options.
 - b. Stone White jamb extension is available for all interior color selections.

2.12 INSECT SCREEN

- A. Factory-installed half screen
- B. Screen mesh, 18 by 16: Charcoal fiberglass. Pile weather strip on top rail of screen seals against top sash.
- C. Aluminum frame
 1. Color: Stone White, Pebble Gray, Bronze, Evergreen, Cashmere, Ebony
- D. Optional full screen available

2.13 GRILLES-BETWEEN-THE-GLASS (GBG)

- A. Manufactured from aluminum in a 23/32 inch (18mm) wide contoured placed between the two panes of glass.
 1. Colors:
 - a. Interior: White, Bronze or Ebony (Matches unit interior finish)
 1. Split finishes are not available for Ebony and Bronze interior colors.

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- b. Exterior: White, Pebble Gray, Bronze, Evergreen, Cashmere, or Ebony
 - 1. Customer selectable exterior color on stone white interior units.
- 2. Patterns:
 - a. Rectangular
 - b. 9 lite Prairie cut with 4" DLO corners
 - c. 6 lite top or bottom Prairie cut with 4" DLO corners
 - d. 6 lite left or right Prairie cut with 4" DLO corners
 - e. Cottage style up to 2H with specified DLO height (3" min)
 - f. Size limitations may apply to Prairie and Cottage lite cut availability

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2.14 ACCESSORIES AND TRIM

A. EXTERIOR CASING:

1. Non-integral to the unit. Fastened to the exterior wall with barb and kerf.
2. 2 inch Brick Mould available as a full surround or with sill nosing.
3. 3 ½ inch Flat Casing available as a full surround or with sill nosing. Also available with 1inch Ranch Style header and sill overhang.
4. Available colors: Stone White, Evergreen, Bronze, Pebble Gray, Cashmere, Ebony.

B. INSTALLATION ACCESSORIES:

1. Factory-installed vinyl nailing fin/drip cap at head, sill and side jambs.
2. Installation brackets for masonry applications.
3. Mullion kit: standard mullion kit for filed assembly of related units available in horizontal, vertical and 2-wide and/or 2-high configurations. Kit includes: Instruction, interior and exterior mull covers, mull plugs and brackets.
4. Sheet rock return
 - a. Available colors: Stone White, Bronze or Ebony. Default color will match unit interior selection. Stone White is available for all interior color selections.
5. J-channel
 - a. Available colors: Stone White, Pebble Gray, Cashmere, Evergreen, Bronze or Ebony
6. Flush Fin
 - a. Available colors: Stone White, Pebble Gray, Cashmere, Evergreen, Bronze or Ebony
7. 3/4 inch Receiver
 - a. Available colors: Stone White, Bronze or Ebony. Default color will match unit interior selection. Stone White is available for all interior color selections.
8. Frame Expander (1 inch or 3 inch option available)
 - a. Available colors: Stone White, Pebble Gray, Cashmere, Evergreen, Bronze or Ebony

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PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required in Section 01 71 00. Report frame defects or unsuitable conditions to the General Contractor before proceeding,
- B. Acceptance of Condition: Beginning installation confirms acceptance of existing conditions.

3.2 INSTALLATION

- A. Comply with Section 01 73 00.
- B. Assemble and install window/door unit(s) according to manufacturer's instruction and reviewed shop drawing.
- C. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants. Do not use expansive foam sealant.
- D. Install accessory items as required.
- E. Use finish nails to apply wood trim and mouldings.

3.3 FIELD QUALITY CONTROL

- A. Remove visible labels and adhesive residue according to manufacturer's instruction.
 - 1. Unless otherwise specified, air leakage resistance tests shall be conducted at a uniform static pressure of 75 Pa (~1.57 psf). The maximum allowable rate of air leakage shall not exceed 2.3 L/sm^2 (~0.45 cfm/ft²).
 - 2. Unless otherwise specified, water penetration resistance testing shall be conducted per AAMA 502 and ASTM E1105 at 2/3 of the fenestration products design pressure (DP) rating using "Procedure B" – cyclic static air pressure difference. Water penetration shall be defined in accordance with the test method(s) applied.

3.4 CLEANING

- A. Remove visible labels and adhesive residue according to manufacturer's instruction.
- B. Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

3.5 PROTECTING INSTALLED CONSTRUCTION

- A. Comply with Section 07 76 00.
- B. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

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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 commercial door hardware for the following:
 - 1. Swinging doors.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
- C. Related Sections:
 - 1. Division 08 Section "Door Hardware Schedule".
 - 2. Division 08 Section "Hollow Metal Doors and Frames".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

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1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions 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. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 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 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.
 - h. Warranty information for each product.
 - 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. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

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- b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
 - D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
 - E. Informational Submittals:
 - 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
 - F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.
- 1.4 QUALITY ASSURANCE
- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
 - B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified 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.
 - C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
 - D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

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2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
 - E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
 - F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 1. Function of building, purpose of each area and degree of security required.
 2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
 - G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
 - H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
 - 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, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

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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 standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. 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. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Five years for exit hardware.
 - 3. Five years for motorized electric latch retraction exit devices.
 - 4. Two years for electromechanical door hardware.

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.

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PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

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4. Hinge Options: Comply with the following:
 - a. Non-removable 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 all out-swinging lockable doors.
5. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).

2.3 POWER TRANSFER DEVICES

- A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
 1. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC (# wires) Option.
- B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
 1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
 2. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – QC-C Series.

2.4 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

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1. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
2. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
3. Manufacturers:
 - a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
 1. Manufacturers:
 - a. No Substitution.
- C. Cylinders: Original manufacturer cylinders complying with the following:
 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 5. Keyway: Match Facility Standard.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. Existing System: Key locks to Owner's existing system.
- E. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
- F. Key Registration List (Bitting List):
 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 2. Provide transcript list in writing or electronic file as directed by the Owner.

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- G. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:

- a. Telkee (TK).

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.

1. Manufacturers:

- a. Corbin Russwin Hardware (RU) – ML2000 Series.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

- B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.8 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as

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required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 5. Electromechanical Options: Subject to same compliance standards and requirements as mechanical exit devices, electrified devices to be of type and design as specified in hardware sets. Include any specific controllers when conventional power supplies are not sufficient to provide the proper inrush current.
 6. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
 7. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 8. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 9. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 10. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 11. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 12. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

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1. Manufacturers:

- a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.

C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.

- 1. Provide keyed removable feature where specified in the Hardware Sets.
- 2. Provide stabilizers and mounting brackets as required.
- 3. Provide electrical quick connection wiring options as specified in the hardware sets.
- 4. Manufacturers:

- a. Corbin Russwin Hardware (RU) - 700/900 Series.

2.9 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

- 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
- 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
- 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
- 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
- 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
- 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
- 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and

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fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

1. Manufacturers:

- a. Norton Door Controls (NO) – 9500 Series.

- C. Door Closers, Surface Mounted (Unitrol): Unitrol arms to have door stop mechanism to absorb dead stop shock on arm and top hinge. Hold-open arms to have a spring loaded mechanism in addition to shock absorber assembly. Arms to be provided with rigid steel main arm and secondary arm lengths proportional to the door width.

1. Manufacturers:

- a. Norton Door Controls (NO) - Unitrol Series.

2.10 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

- a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.11 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

- 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

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1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- 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. Manufacturers:
 1. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.12 ELECTRONIC ACCESSORIES

- A. Push-Button Switches: Industrial grade momentary or alternate contact, back-lighted push buttons with stainless-steel switch enclosures. 12/24 VDC bi-color illumination suitable for either flush or surface mounting.
 1. Manufacturers:
 - a. Securitron (SU) - PB Series.
- B. Switching Power Supplies: Provide switching power supplies that are dual voltage, UL listed, supervised units. Units shall be field selectable with a dedicated battery charging circuit that provide 4 Amp at 12VDC or 24VDC continuous, with up to 16 independently controlled power limited outputs. Units shall tolerate brownout or overvoltage input $\pm 15\%$ of nominal voltage and have thermal shutdown protection with auto restart. Circuit breaker shall protect against overcurrent and reverse battery faults and units shall be available with a single relay fire trigger or individually triggered relayed outputs. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
 1. Manufacturers:
 - a. Securitron (SU) - AQ Series.

2.13 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

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2.14 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, 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. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

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2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and 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.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 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.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

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3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Manufacturer's Abbreviations:

1. MK - McKinney
2. RU - Corbin Russwin
3. RO - Rockwood
4. NO - Norton
5. PE - Pemko
6. SU - Securitron

Hardware Sets

Set: 1.0

Doors: 116A, 116B, 148, 175, 191, 203A, 203B, 209B

6 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Removable Mullion	CR910KM x Match Facility Keying		RU
2 Exit Device (nightlatch)	ED5200 K157ET x Match Facility Keying	630	RU
2 Door Pull	BF157 Mtg-Type 12XHD	US32D	RO
2 Surface Closer	UNI9500 SN-134	689	NO
2 Door Stop	465 EXP	US26D	RO
1 Threshold	2009APK		PE
1 Gasketing	312CR		PE
1 Rain Guard	346C		PE

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2 Sweep	315CN	PE
2 Astragal	303APK	PE

Set: 2.0

Doors: 142

3 Hinge	TA2314 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Storeroom Lock	ML2057 125Y x Match Facility Keying	626	RU
1 Surface Closer	9500 SN-134	689	NO
1 Door Stop	465 EXP	US26D	RO
1 Threshold	2009APK		PE
1 Gasketing	312CR		PE
1 Rain Guard	346C		PE
1 Sweep	315CN		PE

Set: 3.0

Doors: 141, 204B, 204C

3 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Exit Device (nightlatch)	ED5200 K157ET x Match Facility Keying	630	RU
1 Door Pull	BF157 Mtg-Type 12XHD	US32D	RO
1 Surface Closer	9500 SN-134	689	NO
1 Door Stop	465 EXP	US26D	RO
1 Threshold	2009APK		PE
1 Gasketing	312CR		PE
1 Rain Guard	346C		PE
1 Sweep	315CN		PE

Set: 4.0

Doors: 209A

5 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Hinge (heavy weight)	T4A3786 QC12 4-1/2" x 4-1/2"	US26D	MK
1 Removable Mullion	CR910KM x Match Facility Keying		RU
1 Exit Device (nightlatch)	ED5200 K157ET x Match Facility Keying	630	RU
1 Exit Device (nightlatch)	ED5200 K157ET x Match Facility Keying M92 MELR	630	RU
2 Door Pull	BF157 Mtg-Type 12XHD	US32D	RO
2 Surface Closer	9500 SN-134	689	NO
2 Wall Stop	409	US32D	RO
1 Gasketing	S88D 20'		PE

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2 Astragal	303APK	PE
1 ElectroLynx Harness	QC-C003	MK
1 ElectroLynx Harness	QC-C1500	MK
1 ElectroLynx Harness	QC-C1500P	MK
1 Push Button	PB3EN	SU
1 Power Supply	AQD3-1R	SU

Notes: Exit device with electric latch retraction for control access to corridor 161. Push button to be installed as directed by the owner / architect. The push button is to be wired to the exit device with latch retraction, when the button is pressed the exit device latch will temporarily retract to allow for ingress. Free egress at all times.

Set: 5.0

Doors: 204A, 204D

6 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Removable Mullion	CR910KM x Match Facility Keying		RU
2 Exit Device (classroom)	ED5200 125955ET x Match Facility Keying	630	RU
2 Surface Closer	9500 SN-134	689	NO
2 Wall Stop	409	US32D	RO
1 Gasketing	S88D 20'		PE
2 Astragal	303APK		PE

END OF SECTION 087100

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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 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Glass for windows, doors, and, storefront framing .
 - 2. Glazing sealants and accessories.

1.3 DEFINITIONS

- A. Glass Manufacturers: 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. IBC: International Building Code.
- D. Interspace: Space between lites of an insulating-glass unit.

1.4 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review temporary protection requirements for glazing during and after installation.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.
- C. Glazing Accessory Samples: For sealants, in 12-inch lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.

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- D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.7 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For glass.
- B. Product Test Reports: For tinted glass, coated glass insulating, glass and glazing sealants, for tests performed by a qualified testing agency.
- C. Preconstruction adhesion and compatibility test report.
- D. Sample Warranties: For special warranties.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved by coated-glass manufacturer.
- B. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- D. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Install glazing in mockups specified in Section 084113 "Aluminum-Framed Entrances and Storefronts" Section 084413 "Glazed Aluminum Curtain Walls" to match glazing systems required for Project, including glazing methods.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.10 FIELD 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.

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1.11 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to 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.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Glass Product: Subject to compliance with requirements, provide product indicated in glass schedules or comparable product by one of the following:
 - 1. AGC Glass Company North America, Inc.
 - 2. Pilkington North America Inc.
 - 3. PPG Industries, Inc.
- B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.
 - 1. Obtain tinted glass from single source from single manufacturer.
- C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.
 - 1. Design Wind Pressures: As indicated on Drawings.
 - 2. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
 - a. Wind Design Data: Component and cladding load 25 psi..
- C. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

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- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
1. Minimum Glass Thickness for Exterior Lites: 6 mm.
 2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- D. Strength: Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 GLASS PRODUCTS

- A. Clear Annealed Float Glass: ASTM C 1036, Type I, Class 1 (clear), Quality-Q3.
- B. Tinted Annealed Float Glass: ASTM C 1036, Type I, Class 2 (tinted), Quality-Q3.
- C. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
- D. Coated Vision Glass: ASTM C 1048, Condition C, Type I, Class 1 (clear) Quality-Q3.
1. Basis-of-Design Product: 6mm clear annealed float glass with Solorban 60 coating on the #2 surface.

2.5 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.

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1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
2. Spacer: Manufacturer's standard spacer material and construction.
3. Desiccant: Molecular sieve or silica gel, or a blend of both.

2.6 GLAZING SEALANTS

A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Field-applied sealants shall have a VOC content of not more than 250 g/L.
4. Sealants shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
5. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.

2.7 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; 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.

2.8 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, with 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 of 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).

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- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.9 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit 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.
 - 1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, 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 systems.
 - 3. Minimum required face and 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.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

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. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

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- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- 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.
 - 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.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

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, then to jambs. Cover horizontal framing joints by applying tapes to jambs, 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 right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.

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- G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.6 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. 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.
 - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces 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.

3.7 GLASS TYPE SCHEDULE

- A. Glass Type 1 – typical glass used in all windows/storefronts and curtain walls – Coated Tinted Insulated Glass: 1" thick unit complying with ASTM E774 and constructed of 1/4" tinted and

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coated exterior lite conforming to ASTM C1048, Condition C, Kind FT Type 1, Class 1, Quality q³. Unit shall have the following characteristics:

1. Visible light transmittance: approximately 48 percent.
2. Ultraviolet transmittance – approximately 15 percent.
3. Outside visible light reflectance: approximately 8 percent.
4. Solar reflectance: approximately 10 percent.
5. ASHRAE winter U-Value: .31 BTU per hour per square foot (degree F.).
6. Shading coefficient: approximately 0.41.
7. Solar heat gain coefficient (SHGC): approximately 0.35.
8. IGCC certification: Level CBA.
9. Tint Color: Grey.

END OF SECTION 088000

NON-STRUCTURAL METAL FRAMING
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SECTION 092216 - NON-STRUCTURAL METAL FRAMING

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. Non-load-bearing steel framing systems for interior partitions.
 - 2. Suspension systems for interior ceilings and soffits.

1.3 ACTION SUBMITTALS

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

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.

1.5 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Steel Framing Industry Association or the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- C. Horizontal Deflection: For non-composite wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft..

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C645 requirements for steel unless otherwise indicated.

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2. Protective Coating: ASTM A653/A653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C645. Use either conventional steel studs and tracks or embossed, high-strength steel studs and tracks.
 1. Steel Studs and Tracks:
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich.
 - 3) MBA Building Supplies.
 - 4) MRI Steel Framing, LLC.
 - 5) SCAFCO Steel Stud Company.
 - 6) Steel Construction Systems.
 - 7) The Steel Network, Inc.
 - b. Minimum Base-Steel Thickness: As required by performance requirements for horizontal deflection.
 - c. Depth: As indicated on Drawings.
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
 1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to tracks while allowing 1-1/2-inch minimum vertical movement.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich.
 - 3) SCAFCO Steel Stud Company.
 - 4) The Steel Network, Inc.
 2. Single Long-Leg Track System: ASTM C645 top track with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top track and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 3. Double-Track System: ASTM C645 top outer tracks, inside track with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer track sized to friction-fit over inner track.
 4. Deflection Track: Steel sheet top track manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich.
 - 3) MBA Building Supplies.
 - 4) SCAFCO Steel Stud Company.
 - 5) The Steel Network, Inc.
- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ClarkDietrich.
 - b. SCAFCO Steel Stud Company.

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- c. Steel Construction Systems.
- 2. Minimum Base-Steel Thickness: 0.0269 inch.
- E. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-steel thickness, with minimum 1/2-inch-wide flanges.
 - 1. <Double click here to find, evaluate, and insert list of manufacturers and products.>
 - 2. Depth: [**As indicated on Drawings**] [**1-1/2 inches**] <Insert depth>.
 - 3. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.

2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.
- B. Hanger Attachments to Concrete:
 - 1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or AC308 as appropriate for the substrate.
 - a. Uses: Securing hangers to structure.
 - b. Type: Torque-controlled, expansion anchor torque-controlled, adhesive anchor or adhesive anchor.
 - c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5, unless otherwise indicated.
 - d. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F593, and nuts, ASTM F594.
 - 2. Power-Actuated Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- C. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.
- E. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of 0.0538 inch and minimum 1/2-inch-wide flanges.
 - 1. Depth: 2 inches.
- F. Grid Suspension System for Gypsum Board Ceilings: ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Armstrong World Industries, Inc.
 - b. USG Corporation.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
 - 1. Asphalt-Saturated Organic Felt: ASTM D226/D226M, Type I (No. 15 asphalt felt), nonperforated.

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2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

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 of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
 2. Multilayer Application: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.

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- D. Install tracks 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 that penetrate 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 track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. 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 openings to match framing required above door heads.
- 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.

3.5 INSTALLING CEILING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Hangers: 48 inches o.c.
 - 2. Carrying Channels (Main Runners): 48 inches o.c.
 - 3. Furring Channels (Furring Members): 16 inches o.c.
- 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.
 - 3. Wire Hangers: Secure 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 hangers to deteriorate or otherwise fail.
 - 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 - 5. Do not attach hangers to steel roof deck.

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6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 8. 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. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. 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.

END OF SECTION 092216

Section 092900
GYPSUM BOARD
Job No. 170325
Oklahoma Union Elementary School
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SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
- B. Related Requirements:
 - 1. Section 092216 "Non-Structural Metal Framing" for non-structural framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

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

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

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2.2 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include the following:
1. American Gypsum.
 2. CertainTeed Corp.
 3. Georgia-Pacific Gypsum LLC.
 4. Lafarge North America Inc.
 5. National Gypsum Company.
 6. USG Corporation.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
1. Thickness: 5/8 inch.
 2. Long Edges: Tapered.
- C. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
1. Core: 5/8 inch, Type X.
 2. Long Edges: Tapered.
 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. Expansion (control) joint.

2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
1. Interior Gypsum Board: Paper.
 2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

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2.5 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.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."
- D. Vapor Retarder: As specified in Section 072100 "Thermal Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install 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.
- D. 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.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support 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.

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3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Type X – In locations shown on the drawings and as follows: This is the type of gypsum board used for almost all gypsum board surfaces in the project. It will be used for walls, ceilings and soffits as required to provide a finished appearance to the Work. Where a finish is not specifically called out on the drawings, assume that a gypsum board finish is required. Provide framing and finished gypsum board as required in these locations.
- B. Ceiling Type – In locations shown on the drawings and any place necessary to provide a finished appearance to the Work. Where a finish is not specifically called out on the drawings, assume that a gypsum board finish is required. Provide framing and finished gypsum board as required in these locations after consultation with the architect.
- C. Install interior gypsum board in the following locations:
 1. Type X: As indicated on Drawings.
 2. Ceiling Type: As indicated on Drawings.
- D. Single-Layer Application:
 1. On ceilings, apply gypsum panels before wall/partition board application to 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 panels.
 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect. Prior to starting the finishing process, consult with Architect for any additional locations desired for general expansion/contraction purposes (not aesthetics). Install such control joints at no additional cost to Owner.

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- C. Interior Trim: Install in the following locations:
1. Cornerbead: Use at outside corners unless otherwise indicated.
 2. Bullnose Bead: Use where indicated.
 3. LC-Bead: Use at exposed panel edges.
 4. U-Bead: Use at exposed panel edges where indicated.
 5. Curved-Edge Cornerbead: Use at curved openings.

3.5 FINISHING GYPSUM BOARD

- 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 finishes. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 2. Level 2: Panels that are substrate for tile and Panels that are substrate for acoustical tile.
 3. Level 3: In areas specifically approved by the Architect .
 4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
 5. There will be areas within this project, where a new surface will abut an existing surface and it will be necessary to match the texture of the existing surface. Provide samples as required to match the existing surfaces encountered at the direction of the Architect. We will endeavor to keep such surfaces, to a minimum, but may be extensive. The Architect and Contractor will work together to affect an appropriate solution in each case.

3.6 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900

RESILIENT BASE AND ACCESSORIES
Job No. 170325
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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 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Thermoset-rubber base.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.
- C. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.
- D. Product Schedule: For resilient base and accessory products. RB

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 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.

1.5 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Coordinate mockups in this Section with mockups specified in other Sections.

1.6 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.

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1.7 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient 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.

PART 2 - PRODUCTS

2.1 THERMOSET- VOLCANIZED RUBBER BASE- RB

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Roppe Corporation, USA.
- B. Product Standard: ASTM F1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
 - 1. Style and Location:
 - a. Style A, Straight: Provide in areas with carpet
 - b. Style B, Cove: Provide in areas with resilient floor coverings
- C. Thickness: 0.125 inch.
- D. Height: 4 inches
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Job formed
- G. Inside Corners: Job formed
- H. Colors: As selected by Architect from full range of industry colors and indicated on the finish schedule.

2.2 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 manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

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- C. Metal Edge Strips: [Extruded aluminum with mill finish] <Insert requirements>, nominal 2 inches wide, of height required to protect exposed edges of flooring, and in maximum available lengths to minimize running joints.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 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.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until materials are the same temperature as space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.

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RESILIENT BASE AND ACCESSORIES

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- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners:
 - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Form without producing discoloration (whitening) at bends.
 - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Miter or cope corners to minimize open joints.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from surfaces.
 - 2. Sweep and vacuum horizontal surfaces thoroughly.
 - 3. Damp-mop horizontal surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient product before applying liquid floor polish.
 - 1. Apply three coat(s).
- E. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

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SECTION 099123 - INTERIOR PAINTING

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 surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete masonry units (CMUs).
 - 2. Steel and iron.
 - 3. Gypsum board.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

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1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following. Basis of Design: Sherwin Williams. Refer to Finish Schedule.
 - 1. Behr Process Corporation.
 - 2. Benjamin Moore & Co.
 - 3. Kelly-Moore Paint Company Inc.
 - 4. PPG Paints.
 - 5. Pratt & Lambert.
 - 6. Sherwin-Williams Company (The).

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2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Masonry (Clay and CMUs): 12 percent.
 - 2. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

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- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 7/NACE No. 4.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

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3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. CMU Substrates:
 - 1. Epoxy over Latex System:
 - a. Block Filler: Block filler, latex, interior/exterior.
 - 1) Sherwin Williams Loxon Block Surfacer- Matte Finish.
 - b. Intermediate Coat: Epoxy, interior, matching topcoat.
 - c. Topcoat: Epoxy, interior (MPI Gloss Level 3), MPI #52.
 - 1) Sherwin Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy- Eg-Shel.
- B. Hollow Metal Doors and Frames:
 - a. Prime Coat: Primer, rust inhibitive, for metal.
 - 1) Sherwin Williams Pro-Cryl Universal Primer.
 - b. Intermediate Coat: Interior, matching topcoat.
 - c. Topcoat: Acrylic, interior, semi-gloss (MPI Gloss Level 5).
 - 1) Pro Industrial DTM Acrylic- Semi-Gloss.
- C. Gypsum Board Substrates:
 - 1. Latex over Latex Sealer System MPI INT 9.2A:
 - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
 - 1) Sherwin Williams ProMar 200 Zero VOC Interior Latex Primer
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - c. Topcoat: Latex, interior (MPI Gloss Level 3), MPI #52.
 - 1) Sherwin Williams ProMar 200 Zero VOC Interior Latex- Eg-shel.

END OF SECTION 099123

