

**SLVH RMC
Third Floor South Med-Surg
Tenant Improvement**

San Luis Valley Health

Pre-Design
Specifications

Issue Date: November 28, 2022

PROJECT MANUAL

VOLUME 1



RTA, INC.
19 South Tejon Street, Suite 300
Colorado Springs, Colorado 80903

RTA Project No. 2022-042.00

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AVAILABLE PROJECT INFORMATION

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1.01 EXISTING CONDITIONS

- A. Scope of work Exhibit: Dated September 28, 2022. Prepared by RTA Architects. Attached below.
1. Sheet X-01 - SLVH RMC - USDA MED/SURG – Scope of work and work area.
 2. Sheet X-03 - SLVH RMC - EXISTING CONDITIONS

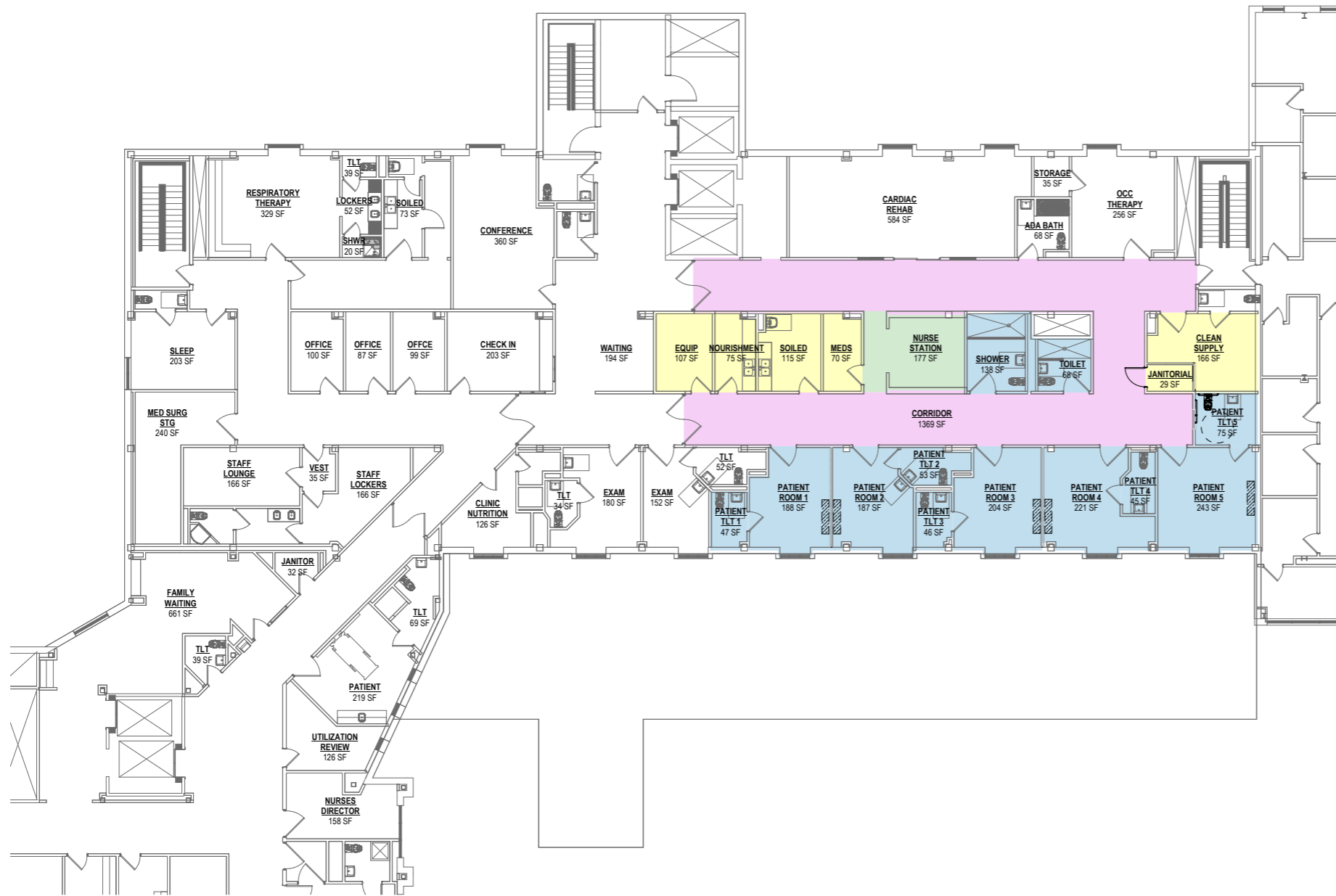
PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SCOPE OF WORK

- EXISTING CORRIDORS
- M/S SUPPORT
- PATIENT ROOMS
- STAFF AREAS



EXISTING CORRIDORS (PINK) _____ **1,369 SF**

- a. new finishes: flooring, base, paint
- b. new wall bumper rail and PVC Wainscot wall protection
- c. replace (e) lighting with new LED lighting
- d. (4) new security cameras indicated as (CC) on plan

M/S SUPPORT (YELLOW) _____ **562 SF**

- EQUIP _____ 107 SF
- NOURISHMENT _____ 75 SF
- SOILED _____ 115 SF
- MEDS _____ 70 SF
- JANITORIAL _____ 29 SF
- CLEAN SUPPLY _____ 166 SF

- a. new finishes: flooring, base, paint
- b. new doors and hardware
- c. replace (e) lighting with new LED lighting
- d. (e) casework to remain as-is

PATIENT ROOMS (BLUE) _____ **1,515 SF**

- Patient Rooms:
- a. new finishes: flooring, base, paint
 - b. new 6' wide Amico Modular Retro-fit headwall
 - c. replace (e) lighting with new LED
 - d. replace doors and hardware
 - e. new window coverings
 - f. new 3' wide patient belonging casework - tall boy
 - g. new demising walls w/ med gases between rooms 1 & 2 and 3 & 4

- Patient Shower Rooms (2):
- a. clean/ regrout (e) CT flooring and seal
 - b. paint
 - c. replace (e) lighting with new LED lighting

STAFF AREAS (GREEN) _____ **177 SF**

- NURSE STATION _____ 177 SF

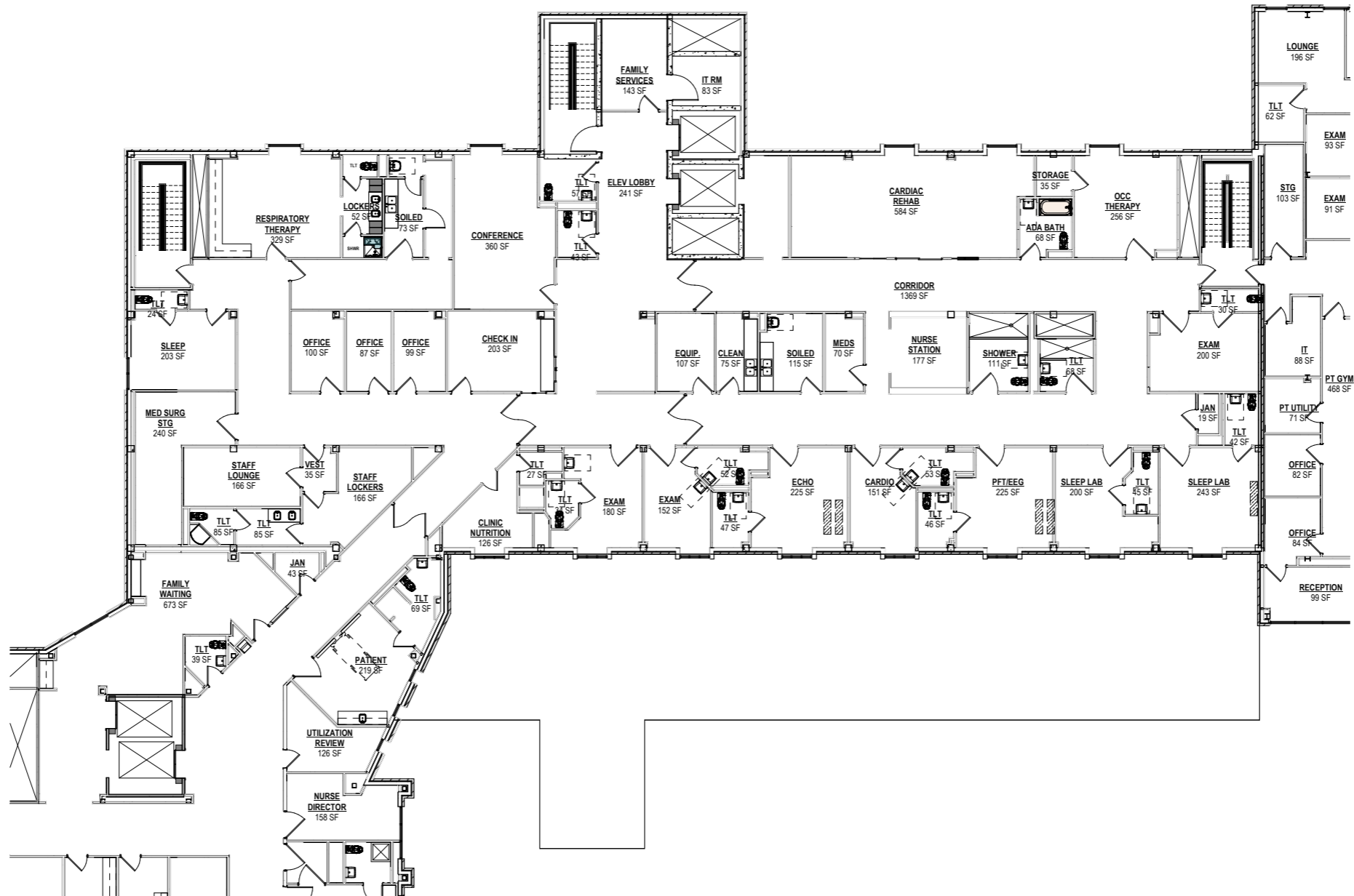
- Nurse Station:
- a. new nurse station casework (entire replacement) w/ solid surface transaction top/ PL work surface
 - (5) work stations
 - b. replace (e) light fixtures w/ new LED lighting
 - c. new finishes: flooring, base, paint

TOTAL AREA: 3,623 SF

General Notes:

1. Plumbing: Project will include under floor demolition and new work at the existing 2nd floor spaces beneath the new expanded ADA Toilet Room @ Patient Room #5 and adjacent repositioned Janitorial Closet.
2. HVAC: Project will include new roof openings and structural reinforcement, to accommodate new RTU, roof curb and required roof flashings.

SLVH RMC - 3RD FLOOR SOUTH MED/SURG TI



SLVH RMC - 3RD FLOOR SOUTH TI

SECTION 00 5000
CONTRACTING FORMS AND SUPPLEMENTS

PART 1 GENERAL

1.01 CONTRACTOR IS RESPONSIBLE FOR OBTAINING A VALID LICENSE TO USE ALL COPYRIGHTED DOCUMENTS SPECIFIED BUT NOT INCLUDED IN THE PROJECT MANUAL.

1.02 AGREEMENT AND CONDITIONS OF THE CONTRACT

- A. The Agreement is based on AIA A133 - 2019 with USDA RD Contract Modifier
- B. The General Conditions are based on AIA A201 - 2017 with USDA RD Contract Modifier.

1.03 FORMS

- A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in Contract Documents.
- B. Bond Forms:
 - 1. Bid Bond Form: AIA A310.
 - 2. Performance and Payment Bond Form: AIA A312.
- C. Post-Award Certificates and Other Forms:
 - 1. Schedule of Values Form: AIA G703.
 - 2. Application for Payment Forms: AIA G702 with AIA G703 (for Contractors).
- D. Clarification and Modification Forms:
 - 1. Substitution Request Form: CSI/CSC Form 1.5C (During the Bidding/Negotiating Stage).
 - 2. Substitution Request Form: CSI/CSC Form 13.1A (After the Bidding/Negotiating Stage).
 - 3. Architect's Supplemental Instructions Form: Architect's standard form
 - 4. Construction Change Directive Form: Architect's standard form
 - 5. Change Order Form: AIA G701.
- E. Closeout Forms:
 - 1. Certificate of Substantial Completion Form: AIA G704.

1.04 REFERENCE STANDARDS

- A. AIA A133 - Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price; 2009.
- B. AIA A201 - General Conditions of the Contract for Construction; 2017.
- C. AIA A310 - Bid Bond; 2010.
- D. AIA A312 - Performance Bond and Payment Bond; 2010.
- E. AIA G701 - Change Order; 2017.
- F. AIA G702 - Application and Certificate for Payment; 1992.
- G. AIA G703 - Continuation Sheet; 1992.
- H. AIA G704 - Certificate of Substantial Completion; 2017.
- I. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage); Current Edition.
- J. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase); Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 00 5000

SECTION 00 6000
PERFORMANCE BOND/LABOR AND MATERIAL PAYMENT BOND

1. 1. FORM TO BE USED

- A. The latest Edition of the "Performance Bond" and "Labor and Material Payment Bond" AIA Document A312, as published by the American Institute of Architects, is hereby made a part of these Specifications.

1.2. COPIES AVAILABLE

- A. A copy of the Performance Bond/Labor and Material Payment Bond is attached following this section.

1.3. DIRECTIONS FOR PREPARATION

- A. Upon award of the Contract, the Contractor shall furnish Performance Bond and Labor and Material Payment Bonds covering the faithful performance of the Contract Agreement. The Performance and Payment Bonds shall be made in the amount of the Contract price. The Contractor shall include in his base proposal amount the total premiums for the Performance Bond, Labor and Material Payment Bonds.
- B. Individual sureties, partnerships, or corporations, not in the surety business, will not be acceptable.
- C. The name of the Principal shall be shown exactly as it appears in the Contract.
- D. If the Principals are partners, or joint ventures, each member shall execute the bond as an individual, with his place of residence shown.
- E. If the Principal is a corporation, the bond shall be executed under its corporate seal. IF the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall be affixed following the corporate name.
- F. The current power-of-attorney of the person signing for the surety company must be attached to each bond.
- G. The date of the bond must be the same as the date of the Contract.
- H. The signature of a witness shall appear in the appropriate place, attesting to the signature of each party to the bond.
- I. The United States, acting through USDA Rural Development, will be named as co-obligee on all surety unless prohibited by State law.

END OF SECTION 00 6000

DRAFT AIA[®] Document A312[™] - 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

« »
« »

SURETY:

(Name, legal status and principal place of business)

« »
« »

OWNER:

(Name, legal status and address)

« »
« »

CONSTRUCTION CONTRACT

Date: « »

Amount: \$ « »

Description:

(Name and location)

«DRAFT»

« »

BOND

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature:

Name and « »

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

Signature:

Name and « »

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »
« »
« »

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

« »
« »
« »
« »
« »
« »

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

<< >>

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corporate Seal)

Signature: _____
Name and Title: << >><< >>
Address: << >>

SURETY

Company: _____ (Corporate Seal)

Signature: _____
Name and Title: << >><< >>
Address: << >>

**SECTION 00 7200
GENERAL CONDITIONS**

FORM OF GENERAL CONDITIONS

1.01 THE GENERAL CONDITIONS APPLICABLE TO THIS CONTRACT IS:

AIA A201 - GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT - 2017

SUPPLEMENTARY CONDITIONS

2.01 REFER TO DOCUMENT 00 7300 - SUPPLEMENTARY CONDITIONS FOR AMENDMENTS TO THESE GENERAL CONDITIONS.

END OF SECTION 00 7200

**SECTION 00 7300
SUPPLEMENTARY CONDITIONS**

PART 1 GENERAL

1.01 SUMMARY

The following supplements modify, change, delete from, or add to the “General Conditions of the Contract for Construction”, AIA Document A201, 2017 Edition, Electronic Format. Where any article of the General Conditions is modified or any paragraph, subparagraph, or clause thereof is modified or deleted by these supplements, the unaltered provisions of that article, paragraph, subparagraph, or clause shall remain in effect.

All Divisions of the Specifications shall be subject to the General Conditions and Supplementary Conditions.

1.03 MODIFICATIONS TO ARTICLES OF THE GENERAL CONDITIONS

ARTICLE 1 – GENERAL PROVISIONS/ 1.2 EXECUTION, CORRELATION, AND INTENT

1.1.1 Add the following to this subparagraph:

These General Conditions are modified and amended by supplementary conditions (Document 00 7300) and Quality Requirements (Document 01 4000)

1.2.1 Add the following to this Subparagraph:

Where a conflict occurs between or within standards, specifications, and drawings, the more stringent or higher quality requirements shall apply. The precedence of the Construction Documents is in the following sequence:

- 1) Addenda and modifications to the Drawings and Specifications take precedence over the original construction documents.
- 2) Should there be a conflict within or between the Specifications and the Drawings, the Architect shall decide which stipulation will provide the best installation and his decision shall be final.

ARTICLE 2 – OWNER / 2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.3.1 Add the words “if required”, between the words “Owner” and “shall” in the first sentence.

2.3.3 Change the phrase “Owner shall employ to “Owner may appoint”.

ARTICLE 2 – OWNER /2.4 OWNER’S RIGHT TO CARRY OUT THE WORK

2.4 Delete and substitute the following Subparagraph:

If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents and fails after forty-eight (48) hours verbal notification to an officer of that company and twenty-four (24) hours from receipt of written notification to the Contractor

by the Owner, to commence and continue correction of such default or neglect with diligence or promptness, the Owner may, without prejudice to any other remedy he may have, make good such deficiencies.

In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 – CONTRACTOR / 3.4 LABOR AND MATERIALS

Add the following Subparagraph:

- 3.4.4 Contractor shall have based its bid upon the use of any of the items specifically named in the Specifications or on the Drawings, or as approved in an Addendum issued by the Architect. No changes or substitutions will be considered after the award of the contract except those which will result in a better job, a savings to the Owner, or both, or due to unavailability of specified product for reasons beyond the Contractor's control.

ARTICLE 3 – CONTRACTOR / 3.5 WARRANTY

Add the following Subparagraph:

- 3.5.3 In addition warranties called for in the various sections, the Contractor shall provide a written warranty on all portions of the Work under this Contract for a period of two (2) years from the date of Substantial Completion. The warranty shall cover defects in workmanship and material and shall include replacement or repair of such defects.

ARTICLE 3 – CONTRACTOR / 3.6 TAXES

Add the following Subparagraph:

- 3.6.2 Colorado State, County and Municipal Taxes: The Owner is exempt from the collection and payment of state, municipal, RTD and county sales and use taxes on any materials, supplies, or other equipment used or installed in the work. The contract bid amount and any agreed upon variations thereof shall not include the cost of any such state taxes. It shall be the responsibility of the Contractor and all subcontractors to complete and file an "Application for Exemption Certificate" with the Colorado Department of revenue. Copies of tax exemption certificates shall be filed with the Contractor by each subcontractor at a time and in a manner directed by the Contractor and are subject to review by owner upon request.

ARTICLE 3 – CONTRACTOR / 3.7 PERMITS, FEES AND NOTICES

- 3.7.1 Add the following Subparagraph:

Unless advised by the Owner or Architect to the contrary, building permits shall be taken out by the Contractor from the State of Colorado Division of Labor and paid for by the Contractor. Electrical and Mechanical permits shall be taken out from the Colorado Division of

Labor, Public Safety Section and paid for by the electrical and mechanical subcontractors. These subcontractors shall also be required to pay for any and all inspections required by the State for Electrical and Mechanical work.

The Contractor shall obtain a fire inspection permit from applicable Fire Department having jurisdiction of the project site.

The Contractor shall call for all inspections required by the local and State Building Inspection Authority, including the local Fire Department.

Assessments against the property are the obligation of the Owner and will be paid by the Owner as necessary to assure issuance of permits specified above. This includes sewer and water charges for capital improvements and line extensions.

3.7.6 Add the following Subparagraphs:

Nothing contained in the Specifications or on the drawings shall be construed as authority for any Contractor to violate any applicable codes or ordinances in effect at the site. Code and ordinances shall take full and complete precedence over the Contract Documents in this respect, except where the Contract Documents call for work or materials of higher standard than those required by codes and ordinances in which event the higher standard shall control.

3.7.7 The Contractor shall be required to obtain all the necessary and applicable Contractors licenses from the appropriate governmental authorities and shall not allow any Subcontractor to commence work on this contract until all required licenses of the Subcontractor have been obtained.

ARTICLE 3 – CONTRACTOR / 3.9 SUPERINTENDENT

3.9.1 Delete in its entirety and substitute the following:

The Contractor's Superintendent or an Assistant Superintendent shall be on site at all times while work is in progress including but not limited to weekends, evenings and nights. No subcontractors shall perform work on the site without the presence of the Superintendent or Assistant Superintendent.

The Contractor's Superintendent shall be on the job site full time during normal working hours until all punch list items have been completed to the satisfaction of the Architect. Communication given to the Superintendent shall be as binding as given to the Contractor. Important communications shall be confirmed in writing.

ARTICLE 3 – CONTRACTOR / 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULE

3.10.1 Add the following Subparagraph:

The schedule shall indicate the start and completion of each of the elements on the Schedule of Values. The schedule shall indicate the major dependencies among elements on the schedule. The completion time shall be as specified in the Agreement. The schedule shall be revised when the completion time is revised by Change Order.

See specifications, Division 1, for detailed procedures.

ARTICLE 3 – CONTRACTOR / 3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 Add the following Subparagraph:

See Specifications, Division 1 for Record Documents Requirements

ARTICLE 3 – CONTRACTOR / 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.11 Add the following Subparagraph:

See Specifications, Division 1 for detailed procedures.

ARTICLE 3 – CONTRACTOR / 3.14 CUTTING AND PATCHING

3.14.3 Add the following Subparagraph:

See Specifications, Division 1, for additional requirements.

ARTICLE 3 – CONTRACTOR / 3.15 CLEANING UP

3.15.3 Add the following Subparagraph:

See Specifications, Division 1 for additional requirements.

ARTICLE 3 – CONTRACTOR / 3.18 INDEMNIFICATION

3.18.1 Remove the word “negligent” from the first sentence.

ARTICLE 4 – ADMINISTRATION OF THE CONTRACT / 4.2 ARCHITECT’S ADMINISTRATION
OF THE CONTRACT

4.2.13 Delete in its entirety

ARTICLE 7 – CHANGES IN THE WORK / 7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.3 Delete 7.3.3.1 and .2 and substitute the following Subparagraph:

The cost or credit to the Owner resulting from a construction change directive shall be determined in one of the following ways:

- .1 By unit prices named in the bid or subsequently agreed upon. Unit prices shall include all Contractors’ costs, including materials and labor, and shall be applied directly to the quantities or the differences in quantities for which unit prices are requested.

The Contractor may include a sum up to 15% of the total of 7.3.3.1. above as compensation to cover the cost of supervision, overhead, bond, insurance, profit and any other general expenses; subcontractor and second level subcontractors

may include a sum up to 10% for such expenses. When both additions and credits are involved in any one change, the allowance for mark-up shall be figured on the basis of net increase, if any.

- .2 By reasonable estimated cost of:
 - .1 Labor, including foremen (labor costs shall be direct costs).
 - .2 Social Security and old age and unemployment contributions.
 - .3 Materials entering permanently into the work.
 - .4 The ownership or rental cost of construction plant and equipment during the time of use on the extra work.

The Contractor may include a sum up to 15% of the total of 7.3.3.2 above as compensation to cover the cost of supervision, overhead, bond, insurance, profit and any other general expenses; subcontractor and second level subcontractors may include a sum up to 10% for such expenses. When both additions and credits are involved in any one change, the allowance for mark-up shall be figured on the basis of net increase, if any.

The Contractor shall include an itemized breakdown showing quantities, unit costs, hours and rates of labor, and any other costs in such detail as may be required to allow the reasonableness of costs to be established. Similar cost information covering Subcontractor's work shall be included as part of the Contractor's proposal. Minimum charges for "handling" will not be acceptable.

Request for quotations shall be returned to the Architect within ten (10) calendar days of receipt by the Contractor.

ARTICLE 8 – TIME / 8.2 PROGRESS AND COMPLETION

- 8.2.1 Add the following to the last sentence:

It is agreed that time is of the essence and that the Owner will suffer substantial damages if the work is not completed within the time stated in the Agreement.

- 8.2.4 Add the following sub paragraph:

The Owner requires the facility to be Substantially Complete with a full Certificate of Occupancy by the date indicated in the GC's contract. Failing to meet this date, the General Contractor shall agree to pay the Owner liquidated damages for each consecutive calendar day that work in the school remains substantially uncompleted. Liquidated Damages are defined as the sum of one thousand dollars and no/100 dollars (\$1,000) for each consecutive calendar day.

ARTICLE 9 – PAYMENTS AND COMPLETION / 9.2 SCHEDULE OF VALUES

- 9.2.1 Add the following to this Subparagraph:

The Schedule of Values shall be prepared in such a manner that each major item of subcontractor work is shown as a single line item on AIA Document G 703, Application and Certificate for Payment, Continuation Sheet. As a guide, each section of the Project Manual should be shown as a single line item. Upon request by the Architect, the Contractor shall support values given with data that will substantiate their correctness. The Schedule of Values shall be used only as a basis for the Contractor's application for payment.

Each item on the Schedule of Values shall be identified as belonging to the major categories of Sitework, Building Construction, or General Conditions. In general, Sitework shall include all project work beyond five (5) feet outside the building perimeter (to include off-site utilities, if any), and Building Construction shall include all work within five (5) feet of building perimeter. General condition items shall include costs such as supervision and mobilization, which apply to Sitework and Building Construction. Division of the Schedule of Values into these categories may require the Contractor to create additional line items of the Schedule of Values.

Breakdown installed costs into delivered cost of product and total installed cost with overhead and profit. For each line item which has installed value of more than \$10,000 breakdown costs to list major products or operations under each item. Round off figures to nearest dollar and make total cost of all items listed to schedule equal to total Contract sum.

If re-submittal is required after review by Architect, revise and resubmit schedule in same manner as required. Schedule must be approved prior to certification of first Application for Payment by Architect.

ARTICLE 9 – PAYMENTS AND COMPLETION / 9.3 APPLICATION FOR PAYMENT

9.3.1 Delete and substitute the following Subparagraphs:

On or before the first day of each month, the Contractor shall submit to the Architect an itemized Application for Payment for all work completed through the date of the application. Application for Payment shall be supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require and reflecting retainage as provided elsewhere in the Contract Documents.

9.3.2 Add the following to this Subparagraph:

In order to facilitate and better assure prompt deliveries of materials, the Owner will issue payment to the Contractor for the full value of all materials, less the contract retained percentage safely stored within the county where the project is located for delivery as needed to the site of the work. Such stored materials must be properly tagged as to material and job identification, must be available for inspection by the Architect, and such requests for payment must be accompanied by documentary evidence as to quantity and value of materials, including insurance on the materials as evidenced by a Certificate of Insurance.

9.3.4 Add the following Subparagraph:

With each application for payment, the Contractor shall submit monthly Progress Charts comparing the "work-in-place" progress to the Progress Schedule

9.3.5 Add the following Subparagraph:

Starting with the second pay application and continuing each month through completion of the project, the Contractor shall submit lien waivers for the previous month's pay application. These lien waivers shall cover all subcontractors and vendors as well as the Contractor's portion of the work. Pay applications will not be processed until the prior month's pay application lien waivers are submitted and reviewed. Each lien waiver shall key to a specific line item(s) on the Schedule of Values.

ARTICLE 9 – PAYMENTS AND COMPLETION / 9.5 DECISIONS TO WITHHOLD
CERTIFICATION

9.5.1 Add the following to this Subparagraph:

- .8 Failure of the Contractor to submit Progress Charts in comparison to Progress Schedule with application for payment.
- .9 Failure to comply with any laws, ordinances, regulations or orders of any public authority governing the performance of the work, including failure to obtain necessary permits or licenses.

The Owner shall make monthly progress payments as described in 9.6 until the scheduled (including time extensions made by change order) time for substantial completion. If the Project is not substantially complete at this time, the Owner will not make further progress payments until the project is substantially complete.

9.5.2 Add the following Subparagraph:

Payment of any sums due Contractor may be withheld as security for the faithful performance of this Agreement.

ARTICLE 9 – PAYMENTS AND COMPLETION / 9.6 PROGRESS PAYMENTS

9.6.1 Add the following Subparagraphs:

Not later than thirty (30) days following the end of the period covered by the Application for Payment, ninety percent (90%) of the portion of the Contract sum properly allocable to labor, materials and equipment incorporated in the work and materials and equipment suitably stored at the site or some other location agreed upon in writing, where as indicated below, the parties have specifically agreed to progress payments on unincorporated materials and equipment, for the period covered by the Application for Payment, less the aggregate of previous payments made by the Owner, and upon 50% project scope completion as designated in the Certified Application for Payment, a sum sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less such amounts as the Architect shall determine for all incomplete work and unsettled claims as provided in the Contract Documents.

The Contractor specifically waives the right to make application for interest earned on retainage held by the Owner as allowed under the provisions of Sections 24-91-105 through 108, C.R.S.

Materials stored off the project site must be of specially fabricated nature and /or in a bonded warehouse to qualify for payment. The Contractor shall provide the Architect with an acceptable Certificate of Insurance with amounts and locations of stored items listed.

9.6.7 Add the following Subparagraphs:

Upon completion of the work for each month and before, or contemporaneously with, payment of any sums due Contractor, which payment may be withheld as security for the faithful performance of this Contract or otherwise, Contractor shall produce and deliver to Owner, full, complete, and properly executed releases from all persons or entities who have furnished materials or labor, including Contractor, in connection with the work.

Contractor warrants that it will pay all subcontractors and sub-subcontractors any payment due them arising out of, and pursuant to the terms of, this Contractor.

ARTICLE 9 – PAYMENT AND COMPLETION / 9.8 SUBSTANTIAL COMPLETION

9.8.1 Add the following to the last Sentence of these Subparagraphs:

and all major systems are operational and all safety features are completed.

9.8.3 In addition to the other requirements of this Agreement, Contractor must have obtained the written approval and issuance of any occupancy permits required by the laws of the State of Colorado before Contractor shall be deemed to have achieved substantial completion.

ARTICLE 9 – PAYMENTS AND COMPLETION / 9.9 PARTIAL OCCUPANCY OR USE

9.9.1 Delete in it's entirety and substitute the following Subparagraph:

The Contractor agrees to the use and occupancy of a portion or unit of the project before formal acceptance by the Owner under the following conditions:

- 1) A Certificate of Substantial Completion shall be prepared and executed as provided in Subparagraph 9.8.4 of the accompanying General Conditions of the Contract for Construction, except that when, In the opinion of the Owner, the Contractor is chargeable with unwarranted delay in completing work or other contract requirements, the signature of the Contractor will not be required. The Certificate of Substantial Completion shall be accompanied by a written endorsement of the Contractor's insurance carrier and surety permitting occupancy by the Owner during the remaining period of project work.
- 2) Occupancy by the Owner shall be construed by the Contractor as being acceptance of that part of the project to be occupied.
- 3) The Contractor shall not be held responsible for any damage to the occupied part of the project resulting from the Owner's occupancy.
- 4) Occupancy by the Owner shall not be deemed to constitute a waiver of existing claims on behalf of the Owner or Contractor against each other, nor a waiver of any unknown defects or claims.

Use and occupancy by the Owner prior to project acceptance does not ret relieve the Contractor of his responsibility to maintain all insurance and bonds required of the Contractor under the Contract until the project is completed and accepted by the Owner.

ARTICLE 9 – PAYMENTS AND COMPLETION / 9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Delete the last sentence. Add the following:

If the work is completed, but final completion thereof shall be prevented through delay or correction of minor defects or unavailability of materials or other causes beyond the control of the Contractor, the Owner at his discretion may release to the Contractor such amount as may be in excess of three times the cost of completing the unfinished work or the cost of correcting the defective work.

Notwithstanding the provisions of this Agreement as to payment to the Contractor, the provisions of Section 38-26-107 C.R.S., shall be applicable under circumstances of a

verified statement being filed by a supplier, material man or subcontractor for an amount due and unpaid.

9.10.2 Add the following to this paragraph:

(6) All guarantees, warranties and certificates, (7) operating and maintenance manuals, (8) identification lists of materials and equipment, (9) Inspection Certificates and (10) record documents; and the Contractor has demonstrated to the Owner the proper operation and maintenance of all equipment.

Upon completion of the above, the project shall be advertised by "Notice of Contractor's Settlement," in accordance with State Statute.

On the date of final settlement thus advertised, and after the Contractor has submitted a written notice to the Owner that no claims have been filed, final payment and settlement shall be made in full.

If any unpaid claim for labor, materials, supplies or equipment is filed before payment in full of all sums due the Contractor, the Owner shall withhold from the Contractor sufficient funds to insure the payment of such claim, until the same shall have been paid or withdrawn, such payment or withdrawal to be evidenced by filing a receipt in full or an order for withdrawal signed by the claimant or his duly authorized agent or assignee. However, as provided by statute, such funds shall not be withheld longer than ninety (90) days following the date fixed for final settlement with the Contractor, as set forth in the published notice of Contractor's Settlement unless such action at law shall be commenced within that time to enforce such unpaid claim and notice of such action at law shall have been filed with the Owner. At the expiration of the ninety- (90) day period, the Owner shall release to the Contractor all monies as are not the subject of such action at law.

9.10.3 Delete in its entirety. See revised Subparagraph 9.10.1

ARTICLE 10 – PROTECTION OF PERSONS AND PROPERTY / 10.3 HAZARDOUS MATERIALS AND SUBSTANCES.

10.3.3 Delete Paragraph 10.3.3 in its entirety.

10.3.6 Delete Paragraph 10.3.6 in its entirety.

ARTICLE 11 – INSURANCE AND BONDS / 11.1 CONTRACTOR'S INSURANCE AND BONDS

11.1.1 Add the following to this paragraph:

The Contractor and all subcontractors shall obtain and maintain throughout the life of the project, the following insurance:

- 1) Workmen's Compensation: amounts and coverage as required by law.
- 2) Comprehensive General Liability (to include completed operation):
 - a) Bodily injury: \$2 million single limit
 - b) Property damage \$2 million single limit
\$5 million annual aggregate

- 2) Comprehensive Automobile Liability (including owned, non-owned, and hired vehicles):
 - a) Bodily injury: \$2 million single limit
 - b) Property damage \$2 million single limit

11.1.2 Add the following to this paragraph:

Contractor shall furnish prior to beginning work, a performance bond in the amount equal to one hundred percent (100%) of the contract amount as security for the faithful performance of this contract and also a labor and material payment bond in an amount not less than one hundred percent (100%) of the contract amount as security for the payment to all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The bonds shall be issued by a surety licensed to contract business in the State of Colorado and approved by the Owner.

11.1.5 Add the following Subparagraph:

Certificates of Insurance shall include the statement that the hold harmless clause as required under General Conditions Article 3.18 is included in the policy.

11.1.6 Add the following Subparagraph:

The Contractor shall take out and maintain during the life of this Contract the above stated insurance written by Insurance Carriers satisfactory to the Owner. The Comprehensive General Liability and Comprehensive General Automobile Liability coverage's will insure the Owner for work performed pursuant to this contract and will protect said Owner from and against all claims arising out of this Contract for injury to persons (including death) and/or property of another, whether such operations be by the Contractor or any Subcontractor or anyone directly employed or indirectly employed.

11.1.7 Add the following Subparagraph:

It is a further condition of this Agreement that the Owner shall be named as an Additional Insured, only for operations arising out of the performance of this Contract, under the following policies of insurance carried by the Contractor: (a) Comprehensive General Liability, (b) Comprehensive General Automobile Liability. The Contractor shall provide copies of the Additional Insured Endorsements in addition to the Certificates of Insurance.

11.1.8 Add the following Subparagraph:

It is also understood and agreed on the part of the Contractor that the Contract will cover Owner, its officers, agents, employees and servants against contingent liability for any and all claims of any nature whatsoever arising out of said operations and covered by the herein above policies of insurance.

11.1.9 Add the following Subparagraph:

If the Contractor fails to procure and maintain such insurance, or if an aggregate policy limit has been eroded, the contractor will notify the owner by certified letter within 7 days. Owner shall have the right to procure and maintain the said insurance for and in the name of the Contractor and the Contractor shall pay the cost thereof and shall furnish all necessary information to make effective and to maintain such insurance.

ARTICLE 11 – INSURANCE AND BONDS / 11.2 OWNER'S INSURANCE

Add the following Subparagraphs:

- 11.2.3 The Contractor shall procure and maintain at his own expense, until completion of direct work and acceptance thereof, a builder's risk insurance policy insuring against "all risks of physical loss or damage" as the term is commonly construed in the insurance industry, insuring the entire project against such physical loss or damage. A copy of the policy will be provided to the Owner upon request.

If other special insurance not provided for herein is desired by the Contractor, the Contractor shall purchase such insurance at his expense; such coverage contains specific limitations and exclusions. A copy of the policy will be provided to the Owner upon request.

- 11.2.4 Such insurance shall be written on forms acceptable to Owner in an amount not less than the final completed value of the project; less cost of site preparation (including fences necessary to secure work area and excavation land, foundations below the lowest basement floor, underground pipes and wiring, sidewalks, curbs and gutters; and shall name as insured the Owner. It shall be understood that subcontractors and second level subcontractors are insured as to their interests in the partially completed projects.
- 11.2.5 Any insured loss is to be adjusted with the Owner and made payable to the Owner as Trustee for the insured, as their interests may appear.
- 11.2.6 The insurance policy shall provide for necessary access to the project by Owner as follows: "Permission is hereby granted for the Owner to occupy such portion of the premises completed or suitable for occupancy prior to final acceptance of the entire project, any provision of the policy to the contrary notwithstanding".
- 11.2.7 The contractor and his subcontractors and suppliers waive all rights against the Owner for damages caused by fire or other perils to the extent covered by the builder's risk insurance obtained pursuant to this section or other property insurance applicable to the work, except such rights they have to proceeds of such insurance provided by the owner on their behalf. The contractor shall require similar waivers of his subcontractors and all lower tier subcontractors, agents and employees. In waiving rights of recovery under terms of this sub paragraph, the term "owner" shall be deemed to include his employee, and the architect/engineer and his employees as the owner's representative as provided in the Contract Documents.
- 11.2.8 The following are specific exclusions: This insurance does not cover pollution, land, glass breakage, any tools owned by the Contractor and Subcontractor, any equipment, scaffolding, staging, towers and forms owned or rented by the Contractor, the capital value of which is not included in the cost of the work, or any temporary structures or trailers used by the Contractor or any subcontractor or material supplier.
- 11.2.9 The Contractor shall pay any deductible amount up to Twenty-five Thousand and No/100 Dollars (\$25,000) when making a claim against the property builder's risk insurance policy.
- 11.2.10 The contractor shall indemnify and hold the Owner and the Architect and their agents and employees harmless from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss, or expense (a) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property including the work itself and including the loss of use resulting therefrom, and (b) is caused in whole or in part by any negligent or intentional act or omission or breach of contract of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused

in part by a party indemnified hereunder. This specific indemnification by the Contractor is in addition to and not in lieu of other remedies which may be available to the Owner.

ARTICLE 11 – INSURANCE AND BONDS / 11.3 WAIVERS OF SUBROGATION

11.3.1 Delete Paragraph 11.3.1 in its entirety.

ARTICLE 13 – MISCELLANEOUS PROVISIONS / 13.1 GOVERNING LAW

13.1.1 Delete the first sentence and replace with the following:

The contract shall be governed by the laws of the State of Colorado.

ARTICLE 13 – MISCELLANEOUS PROVISIONS / 13.4 TESTS AND INSPECTIONS

13.4.1 Add the following to this Subparagraph:

The Contractor shall not use any material or equipment represented by samples found to be unacceptable. See Specifications, Division 1 for detailed procedures and cost of testing.

ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT / 14.1 TERMINATION BY THE CONTRACTOR

14.1.1.3 Add the following to the last sentence in this Subparagraph before the word “or” at the end of said paragraph:

without prior written notice to Contractor of the reason for withholding payment; or

ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT/14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.3 It is amended to read;

In the event of termination for the owners convenience, and provided Contractor is not in default under the terms of the Contract Documents, Contractor shall be reasonable compensated for the construction work earned to the date of such termination based on the actual cost of work completed as of such date. It is the intent of Owner and Contractor that Owner shall never incur a penalty for any termination of Contractor by Owner.

ARTICLE 15 – CLAIMS AND DISPUTES / 15.1 CLAIMS

15.1.6 Claims for Additional Time.

15.1.6.2 Delete and substitute the following Subparagraph:

Extensions of the contract completion time will be made for delays due to weather conditions only when such conditions are more severe and extended than those reflected by the fifteen-year average for the month as evidenced by the Climatological Data, U.S. Department of Commerce for the project area, and only if a request for such an extension of time is received within ten (10) days of the first date of delay. The request shall include weather data including temperatures and the number of days with precipitation.

15.1.7 Delete Paragraph 15.1.7 in its entirety

ARTICLE 15 – CLAIMS AND DISPUTES / 15.3 MEDIATION

15.3.2 Add the following sentence to the beginning of the Paragraph.

Mediation shall be utilized only if both parties mutually agree at the time of the dispute. If both parties do not mutually agree to mediation, then both parties shall have the right to proceed with either legal or equitable remedies as set forth hereafter.

15.3.5 Add the following Paragraph 13.3.5

In the event the parties cannot resolve a controversy or claim informally or by mutually agreed upon mediation, then each party shall have the right to exercise any and all remedies which they may have available to them, whether at law or in equity.

ADDITIONS TO ARTICLES OF GENERAL CONDITIONS

ARTICLE 16 – MEASUREMENTS

Before ordering any material or doing any work, the Contractor shall verify all measurements at the project and shall be responsible for correctness of same. No extra charge or compensation shall be allowed because of difference between actual dimensions and the measurements indicated on the Drawings.

Any difference that may be found shall be submitted to the Owner for consideration before proceeding with the work. The Architect and Owner will not be responsible for the scaling of Drawings.

ARTICLE 17 – SURVIVAL

Any provision in the Contract Documents to the contrary notwithstanding, the obligations of Owner and Contractor, each to the other, under this Contract, shall survive the termination of the Contract and shall continue to be binding upon the parties after such termination and until such time as full performance of such obligations shall have been made.

ARTICLE 18 – LEGAL ACTIONS

As a condition precedent to and as additional consideration for the award of any contract or subcontract pursuant to these Specifications, the Contractor and all subcontractors, suppliers, and other parties to the performance of the work required by these Specifications, do agree that in the event any party institutes a suit against any other party because of any alleged failure to perform properly hereunder, or any alleged error, omission, breach of warranty, negligence or malpractice hereunder, and if such suit is not successfully prosecuted to a judgment in favor of the party plaintiff, or if it is dismissed, or if a judgment is rendered for any defendant or defendants, the party instituting the suit hereby agrees to pay in full all actual costs of defense, including but not limited to attorney fees, expert witness fees, costs of investigations in the preparation for trial professional time expended by principals and employees of the prevailing party and that the same shall be taxed as cost in said action and judgment entered thereon, except that this provision shall not apply to the Owner, regardless of whether the Owner initiates the suit.

ARTICLE 19 – HAZARDOUS SUBSTANCES

Contractor shall state, in writing, on or about the date of substantial completion, that to the best of Contractor's knowledge, information, and belief, no asbestos, or hazardous substances (as defined by Section 29-22-101 (1) C.R.S, were used for, or in the construction of, this Project; provided however, that if a hazardous substance is commonly used in school construction, such substance may be specified by the Architect, and used in the Project by Contractor, provided Contractor has received both Architect's and Owner's prior written consent.

ARTICLE 20 – LOCAL LABOR

Colorado labor shall be employed on the work under this Contract to the extent of not less than eighty (80) percent of each type or class of labor in the several classifications of skilled and common labor employed. The term 'Colorado Labor', as used herein means any person who has been a bona fide resident of the State of Colorado for a period of not less than one year, without discrimination based on race, color, creed, national origin, religion, sex or any other statuses or condition prohibited by state or federal laws.

ARTICLE 21 – NON-DISCRIMINATION CLAUSE

The Contractor agrees to comply with the provisions of the "Colorado Anti-Discrimination Act of 1951" (Chapter 81, Article 10 DRS 1953) as amended.

ARTICLE 22 – MATERIALS PREFERENCE

Preference is hereby given to materials, supplies and provisions, products, manufactured or grown in Colorado, the quality being equal to articles offered by competitors outside the State.

ARTICLE 23 – EXPEDITING MATERIALS

The Contractor shall immediately after receipt of Notice to Proceed and approval of the list of subcontractors and material suppliers, place orders for all equipment, materials and supplies required for the work, if requested. He shall submit to the Architect evidence that such orders have been placed.

The Contractor shall exercise due diligence in seeing that all equipment, material and supplies are delivered well in advance of the time they are needed on the job; and he shall properly store and protect same at his expense either at the site or elsewhere as approved by the Architect. Payment for materials stored will be made as provided for these in Supplementary Conditions.

ARTICLE 24 – LIQUIDATED DAMAGES

Liquidated Damages shall be defined in the contract. The amount will be \$1000.00 per day after the date of Substantial Completion.

ARTICLE 25 – ILLEGAL ALIENS

Contractor certifies that Contractor shall comply with the provisions of § 8-17.5-101, *et seq.*, C.R.S. Contractor shall not knowingly employ or contract with and illegal alien to perform Services under this Agreement, or enter into a contract with a subcontractor or subcontractor that knowingly employs or contracts with an illegal alien. Contractor represents, warrants and agrees that: (i) it has confirmed the employment eligibility of all employees who are newly hired for employment to perform Service under this Agreement through participation in either the E-Verify Program or the Department Program described in § 8-17.5-101, C.R.S. Contractor shall not use either the E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while this Agreement is being performed. If the Contractor obtains actual knowledge that a subcontractor performing Service under this Agreement knowingly employs or contracts with and illegal alien, the Contractor shall; (i) notify the subcontractor and Owner within three (3) days that Contractor has actual knowledge that the subcontractor is employing or contracting with and illegal alien; (ii) terminate the subcontract with the subcontractor if within three (3) days of receiving such notice, the subcontractor does not stop employing or contracting with the illegal alien, unless the subcontractor provides information to establish that the subcontractor has not knowingly employing or contracting with an illegal alien. Contractor shall comply with all reasonable requests made in the course of an investigation by the Colorado Department of Labor and Employment. If Contractor fails to comply with any requirements of § 8-17.5-102(2), C.R.S., the Owner may terminate this agreement for breach, and Contractor shall be liable for actual damages to Owner. If the Contractor participates in the Department Program, Contractor shall provide the affirmation required under § 8-17.5-102(5)(e)(III), C.R.S. to the Owner.

ARTICLE 26 – REQUIRED CONSTRUCTION CONTRACT/PUBLIC ENTITY PROVISIONS

The parties further agree that the following provisions of the Colorado Revised Statutes are hereby incorporated into this agreement, and the provisions set forth below in said Statute shall be material provisions of this contract as required by law:

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 00 7300

SECTION 01 1000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: SLVH RMC – 3rd Floor South Med Surg TI
- B. Owner's Name: San Luis Valley Health.
- C. Architect's Name: RTA Architects Inc. 19 South Tejon St, Colorado Springs, CO, 80903. 719-471-7566.
- D. Work to be Performed: This project will convert five rooms, currently used for SLVH's cardiology clinic and cardiopulmonary outpatient services, into patient care rooms. SLVH's original proposal targeted seven rooms. However, building code requirements necessitate increased square footage per room and dictate new room configurations, which allowed for five code-compliant rooms rather than seven as the existing footprint (available square footage) does not change with this project. This change does not alter the original proposal purpose or need to serve COVID positive patients in private rooms. Previously, these rooms and associated nursing station were used as an inpatient wing. The existing footprint from this past use will allow SLVH to refit these rooms back to inpatient rooms. These private rooms will be flexible to accommodate the need for isolation when required for COVID positive patients, as well as for high acuity patient care on demand. By having these additional private rooms, SLVH can increase the efficiency of the nursing staff and the comfort and needs of the patient. The total square footage of the five combined patient care rooms is 1,515. The total square footage of the entire scope of work to include corridors and med/surg support and staff areas is 3,623. Rooms will be updated with new flooring, LED replacement lighting, air scrubbers, furnishings and equipment, medical gas headwall improvements, and necessary technology updates, to operate updated equipment and support patient monitoring and staff work locations. The update will include at least one of the patient care room bathrooms to meet current ADA standards. The unit currently has a nursing station that will need new nurse station casework, a secured medication room (Pyxis machine), refrigerator, and CII safe. Aesthetics (flooring, paint, wall protection) within the unit will be updated to match other units within the hospital to visually unify locations.
- E. Conceptual Cost Estimate (pre-design): \$2,500,000.00

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

1.03 DESCRIPTION OF ALTERATIONS WORK

- A. Scope of demolition and removal work is indicated on drawings and specified in Section 02 4100.
- B. Scope of alterations work is indicated on drawings.

1.04 WORK BY OWNER

- A. Items noted NIC (Not in Contract) will be supplied and installed by Owner before Substantial Completion. Some items include:
 - 1. Furnishings.
 - 2. Small equipment.

1.05 OWNER OCCUPANCY

- A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to areas noted on Drawings.
 - 1. Locate and conduct construction activities in ways that will limit disturbance to site.
 - 2. Disruptive Operations: Noisy and disruptive operations (such use of jack hammers and other noisy equipment) will not be allowed in existing buildings except at times allowed by Owner's representative.
 - 3. Upon notification from Owner, cease operations that are, in the opinion of Owner, disruptive to hospital operations. Schedule such operations as described above.
 - 4. Power Outages: Coordinate and schedule any required electrical or other utility outages with Owner. Outages will be allowed only at previously agreed upon times.
- B. Arrange use of site and premises to allow:
 - 1. Owner occupancy.
 - 2. Work by Others.
 - 3. Use of site and premises by the public.
- C. Provide access to and from site as required by law and by Owner:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- D. Existing building spaces may not be used for storage.
- E. Utility Outages and Shutdown:
 - 1. Limit disruption of utility services to hours the building is unoccupied.
 - 2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
 - 3. Prevent accidental disruption of utility services to other facilities.

1.07 SEPARATE CONTRACTS

- A. Materials Testing: The Owner's separate testing agency will inspect, test, and report to the General Contractor, Owner, and Design Team. Scope of work to include: soils testing, utility installation, concrete testing, steel erection and installation
- B. Fundamental Commissioning: The Mechanical Contractor shall coordinate his work with that of the Owner's separate commissioning agent to comply with the requirements of the commissioning agent and mechanical engineer

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

END OF SECTION 01 1000

SECTION 01 2000
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SCHEDULE OF VALUES

- A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.

1.02 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.
- C. Execute certification by signature of authorized officer.
- D. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- E. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- F. Submit one electronic and three hard-copies of each Application for Payment.

1.03 MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
- B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
- C. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- D. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

1.04 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 2000

SECTION 01 2200
UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. List of unit prices, for use in preparing Bids.
- B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.02 COSTS INCLUDED

- A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.03 MEASUREMENT OF QUANTITIES

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. Measurements and quantities will be verified by Owner.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.
- D. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- E. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- F. Measurement by Area: Measured by square dimension using mean length and width or radius.
- G. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

1.04 PAYMENT

- A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

1.05 SCHEDULE OF UNIT PRICES

- A. **Floor Leveling**
 - 1. Unit of Measurement: Per Bag Installed
- B. **Gypsum Wall Board Patch and Repair**
 - 1. Unit of Measurement: Hourly Rate

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 2200

**SECTION 01 2300
ALTERNATES**

PART 1 GENERAL

1.01 DEFINITIONS

1.02 PROCEDURES

1.03 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

- A. Alternate No. ____ - _____:
 - 1. Base Bid Item: Section _____ and Drawing number ____ including _____.
 - 2. Alternate Item: Section _____ and Drawing number ____ including _____.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 2300

SECTION 01 2500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
 - 4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
 - 5. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
- B. A Substitution Request for specified installer constitutes a representation that the submitter:
 - 1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
 - 1. Note explicitly any non-compliant characteristics.
- D. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
- E. Limit each request to a single proposed substitution item.
 - 1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

- A. Submittal Time Restrictions:
- B. Submittal Form (before award of contract):
 - 1. Submit substitution requests by completing CSI/CSC Form 1.5C - Substitution Request. See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

- A. Submittal Form (after award of contract):
 - 1. Submit substitution requests by completing CSI/CSC Form 13.1A - Substitution Request (After Bidding/Negotiating). See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.
- B. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
- C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
 2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
 3. Bear the costs engendered by proposed substitution of:
 - a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
 - b. Other unanticipated project considerations.
- D. Substitutions will not be considered under one or more of the following circumstances:
1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
 2. Without a separate written request.
 3. When acceptance will require revisions to Contract Documents.

3.04 RESOLUTION

- A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
- B. Architect will notify Contractor in writing of decision to accept or reject request.

3.05 ACCEPTANCE

- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.06 CLOSEOUT ACTIVITIES

- A. See Section 01 7800 - Closeout Submittals, for closeout submittals.
- B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

END OF SECTION 01 2500

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROGRESS MEETINGS

- A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- B. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Architect.
 - 4. Major subcontractors.
 - 5. Owner's Representative.
- C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.02 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 7 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 7 days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.

3.03 PROGRESS PHOTOGRAPHS

- A. Document existing conditions in the work area prior to start of demolition. Take initial photographs in quality and quantity and at locations to fully document existing conditions which may become concealed as the result of new work.
 - 1. Submit initial photographs to Owner and Architect, and discuss existing conditions that are of a concern of Contractor in relation to proposed new work.
 - 2. Provide photographs of the site and building prior to the start of demolition and construction.
- B. Submit new photographs at least once a month, within 3 days after being taken.

3.04 REQUESTS FOR INTERPRETATION (RFI)

- A. Definition: A request seeking one of the following:
 - 1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
 - 2. A resolution to an issue which has arisen due to field conditions and affects design intent.
- B. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
- C. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.

- D. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- E. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
- F. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
- G. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.

3.05 SUBMITTAL SCHEDULE

- A. Submit to Architect for review a schedule for submittals in tabular format.
 - 1. Submit at the same time as the preliminary schedule specified in Section - 01 3216 - Construction Progress Schedule.
 - 2. Coordinate with Contractor's construction schedule and schedule of values.
 - 3. Format schedule to allow tracking of status of submittals throughout duration of construction.
 - 4. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
 - 5. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
 - a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.06 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
- B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.
- C. Samples will be reviewed for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.07 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Sustainability design submittals and reports.
 - 3. Certificates.
 - 4. Test reports.
 - 5. Inspection reports.
 - 6. Manufacturer's instructions.
 - 7. Manufacturer's field reports.
 - 8. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

3.08 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.
- D. Submit for Owner's benefit during and after project completion.

3.09 NUMBER OF COPIES OF SUBMITTALS

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
 - 1. After review, produce duplicates.
 - 2. Retained samples will not be returned to Contractor unless specifically so stated.

3.10 SUBMITTAL PROCEDURES

- A. General Requirements:
 - 1. Use a separate transmittal for each item.
 - 2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
 - 3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 - 4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 - 5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
 - 6. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
 - a. Deliver submittals to Architect at business address.
 - 7. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
 - c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval, allow an additional 30 days.
 - 8. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 - 9. Provide space for Contractor and Architect review stamps.
 - 10. When revised for resubmission, identify all changes made since previous submission.
 - 11. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
 - 12. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.

- B. Product Data Procedures:
 - 1. Submit only information required by individual specification sections.
 - 2. Collect required information into a single submittal.
 - 3. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
 - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
 - 2. Do not reproduce Contract Documents to create shop drawings.
 - 3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
 - 1. Transmit related items together as single package.
 - 2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.11 SUBMITTAL REVIEW

- A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.
- C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
 - 1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
- D. Architect's and consultants' actions on items submitted for review:
 - 1. Authorizing purchasing, fabrication, delivery, and installation:
 - a. "Approved", or language with same legal meaning.
 - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
 - 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - 2. Not Authorizing fabrication, delivery, and installation:
 - a. "Revise and Resubmit".
 - 1) Resubmit revised item, with review notations acknowledged and incorporated.
 - b. "Rejected".
 - 1) Submit item complying with requirements of Contract Documents.
- E. Architect's and consultants' actions on items submitted for information:
 - 1. Items for which no action was taken:
 - a. "Received" - to notify the Contractor that the submittal has been received for record only.
 - 2. Items for which action was taken:
 - a. "Reviewed" - no further action is required from Contractor.

END OF SECTION 01 3000

SECTION 01 3216
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SUBMITTALS

- A. Within 10 days after date established in Notice to Proceed, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
- B. Within 10 days after joint review, submit complete schedule.
- C. Submit updated schedule with each Application for Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Coordinate content with schedule of values specified in Section 01 2000 - Price and Payment Procedures.
- D. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Annotate diagrams to graphically depict current status of Work.

3.06 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION 01 3216

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
- B. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
 - 1. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- E. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
 - 1. Submit report in duplicate within 10 days of observation to Architect for information.
 - 2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.02 QUALITY ASSURANCE

- A. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.03 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
 - 1. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Have work performed by persons qualified to produce required and specified quality.
- E. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

- A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
- B. Assemble and erect a composite mock-up panel at location to be determined.
 - 1. Mock-up is to be freestanding, not a part of permanent construction to remain.
 - 2. Mock-up to be constructed in configuration indicated in the Drawings.
 - 3. Mock-up shall be installed in two phases.
 - a. The first phase shall be complete when all work related to thermal and weather barriers are installed.
 - b. The second phase shall be complete when all finishes, window components and associated flashings are installed to represent completed building envelope.
- C. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.
 - 1. The contractor or sub-contractor completing work on the mock-up shall be the same that completes the final construction.
- D. Integrated Exterior Mock-ups: Construct integrated exterior mock-up as indicated on drawings. Coordinate installation of exterior envelope materials and products as required in individual Specification Sections. Provide adequate supporting structure for mock-up materials as necessary.
- E. Notify Architect seven (7) working days in advance of dates and times when mock-ups will be constructed.
- F. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- G. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- H. Obtain Architect's approval of mock-ups before starting work, fabrication, or construction.
 - 1. Architect will issue written comments within seven (7) working days of initial review and each subsequent follow up review of each mock-up.
 - 2. Make corrections or rebuild mock-up as necessary until Architect's approval is issued.
- I. Architect will use accepted mock-ups as a comparison standard for the remaining Work.

- J. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

3.03 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment, with Owner' consent.

END OF SECTION 01 4000

SECTION 01 4100

REGULATORY REQUIREMENTS

<<<< 0RTA - APPLICABLE PROJECT CODES ARE LISTED ON THE DRAWINGS ON CODE PLANS. LISTING THEM AGAIN HERE IS A POTENTIAL FOR ERROR AND CONFLICT. RECOMMEND NOT USING THIS SECTION>>>>

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 TEMPORARY UTILITIES

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.

1.02 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

1.04 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide protection for plants designated to remain. Replace damaged plants.

1.05 FENCING

- A. Construction: Commercial grade chain link fence.
- B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.
- C. Erect and maintain a construction fence throughout the construction period. The construction fence shall enclose an area sufficient to completely enclose all of the Contractor's work area including space for staging, stockpiling of materials, field offices, storage trailers and sheds.
- D. Remove construction fence at the completion of construction, and regrade any disturbed soils as specified.

1.06 TEMPORARY PROTECTIVE FACILITIES / SCAFFOLDING AND RUNWAYS

1.07 EXTERIOR ENCLOSURES

- A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.08 ELEVATORS

1.09 SECURITY - SEE SECTION 01 3553

- A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

1.10 VEHICULAR ACCESS AND PARKING

- A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
- B. Coordinate access and haul routes with governing authorities and Owner.
- C. Provide and maintain access to fire hydrants, free of obstructions.

1.11 WASTE REMOVAL

- A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

- B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- C. Provide containers with lids. Remove trash from site periodically.

1.12 PROJECT IDENTIFICATION

- A. The owner will provide project identification sign and erect on site.

1.13 FIELD OFFICES

- A. Office: Weathertight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.
- B. Provide space for Project meetings, with table and chairs to accommodate 10 persons.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 5000

SECTION 01 5713
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SUBMITTALS

END OF SECTION 01 5713

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
- B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.
- C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.

2.03 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.
- D. Products Specified by Naming a Basis of Design Manufacturer or Product with a Provision for Substitutions: Submit a request for substitution for any other manufacturer listed under Other Acceptable Manufacturers, or for a manufacturer not named. Refer to Section 01 4000 for basis of design specifications requirements..

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. See Section 01 2500 - Substitution Procedures.

END OF SECTION 01 6000

SECTION 01 6116

VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 GENERAL

1.01 DEFINITIONS

- A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:
 - 1. Interior paints and coatings applied on site.
 - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
 - 3. Flooring.
 - 4. Composite wood.
 - 5. Products making up wall and ceiling assemblies.
 - 6. Thermal and acoustical insulation.
- B. VOC-Content-Restricted Products: All products in the following product categories, whether specified or not:
 - 1. Interior paints and coatings applied on site.
 - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
 - 3. Wet-applied roofing and waterproofing.
- C. Interior of Building: Anywhere inside the exterior weather barrier.
- D. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.
- E. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.
- F. Inherently Non-Emitting Materials: Products composed wholly of minerals or metals, unless they include organic-based surface coatings, binders, or sealants; and specifically the following:
 - 1. Stone.
 - 2. Concrete.
 - 3. Clay brick.
 - 4. Metals that are plated, anodized, or powder-coated.
 - 5. Glass.
 - 6. Ceramics.
 - 7. Solid wood flooring that is unfinished and untreated.

1.02 SUBMITTALS

- A. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.

1.03 QUALITY ASSURANCE

- A. Indoor Emissions Standard and Test Method: CAL (CDPH SM), using Standard Private Office exposure scenario and the allowable concentrations specified in the method, and range of total VOC's after 14 days.
 - 1. Wet-Applied Products: State amount applied in mass per surface area.
 - 2. Paints and Coatings: Test tinted products, not just tinting bases.
 - 3. Evidence of Compliance: Acceptable types of evidence are the following;
 - a. Current UL (GGG) certification.
 - b. Current SCS (CPD) Floorscore certification.
 - c. Current SCS (CPD) Indoor Advantage Gold certification.
 - d. Current listing in CHPS (HPPD) as a low-emitting product.
 - e. Current CRI (GLP) certification.
 - f. Test report showing compliance and stating exposure scenario used.
 - 4. Product data submittal showing VOC content is NOT acceptable evidence.

5. Manufacturer's certification without test report by independent agency is NOT acceptable evidence.
- B. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.
 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Report of laboratory testing performed in accordance with requirements.
 - b. Published product data showing compliance with requirements.
- C. Composite Wood Emissions Standard: CARB (ATCM) for ultra-low emitting formaldehyde (ULEF) resins.
 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Current SCS "No Added Formaldehyde (NAF)" certification; www.scs-certified.com.
 - b. Report of laboratory testing performed in accordance with requirements.
 - c. Published product data showing compliance with requirements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Indoor-Emissions-Restricted Products: Comply with Indoor Emissions Standard and Test Method, except for:
 1. Composite Wood, Wood Fiber, and Wood Chip Products: Comply with Composite Wood Emissions Standard or contain no added formaldehyde resins.
 2. Inherently Non-Emitting Materials.
- B. VOC-Content-Restricted Products: VOC content not greater than required by the following:
 1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.
 2. Joint Sealants: SCAQMD 1168 Rule.
 3. Paints and Coatings: Each color; most stringent of the following:
 - a. 40 CFR 59, Subpart D.
 - b. SCAQMD 1113 Rule.
 - c. CARB (SCM).
 4. Wet-Applied Roofing and Waterproofing: Comply with requirements for paints and coatings.

PART 3 EXECUTION

END OF SECTION 01 6116

SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.02 QUALIFICATIONS

1.03 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- G. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- H. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

PART 3 EXECUTION

3.01 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- D. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

3.02 GENERAL INSTALLATION REQUIREMENTS

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.
- B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

- F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.03 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.
 - 2. Fit products together to integrate with other work.
 - 3. Provide openings for penetration of mechanical, electrical, and other services.
 - 4. Match work that has been cut to adjacent work.
 - 5. Repair areas adjacent to cuts to required condition.
 - 6. Repair new work damaged by subsequent work.
 - 7. Remove samples of installed work for testing when requested.
 - 8. Remove and replace defective and non-complying work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

3.04 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

3.05 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.06 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

3.07 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- C. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- D. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

- E. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION 01 7000

SECTION 01 7419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

- A. Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

1.02 SUBMITTALS

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 WASTE MANAGEMENT IMPLEMENTATION

- A. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
- B. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
- C. Recycling: Separate, store, protect, and handle recyclable waste products to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
- D. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
- E. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION 01 7419

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft O&M at least 30 days prior to any system demonstration to allow time for review and required revisions. Architect will review draft and return one copy with comments.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Provide the following documents to the Owner
 - 1. Affidavit of Payment of Debts and Claims: AIA G706
 - 2. Affidavit of Release of Liens: AIA G706A
 - 3. Consent of Surety to Final Payment: AIA G707

3.02 ASBESTOS CONTAINING MATERIAL

3.03 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
 - 7. Field test reports

3.04 OPERATION AND MAINTENANCE DATA

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

3.05 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 - 1. Product data, with catalog number, size, composition, and color and texture designations.
 - 2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

3.06 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:

1. Description of unit or system, and component parts.
 2. Identify function, normal operating characteristics, and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Complete nomenclature and model number of replaceable parts.
- B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

3.07 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

3.08 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

END OF SECTION 01 7800

**SECTION 01 7900
DEMONSTRATION AND TRAINING**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
- B. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
- C. Training Reports:
- D. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
- B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.
- C. Demonstration may be combined with Owner personnel training if applicable.
- D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
- E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.

3.02 TRAINING - GENERAL

- A. General Contractor will prepare the Training Plan based on draft plans submitted by the Contractor and review comments received from Commissioning Authority.
- B. Conduct training on-site unless otherwise indicated.
- C. Owner will provide classroom and seating at no cost to Contractor.
- D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.
- E. Provide training in minimum two hour segments.
- F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.
- G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

END OF SECTION 01 7900

SECTION 01 9113
GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Commissioning is intended to achieve the following specific objectives; this section specifies the Contractor's responsibilities for commissioning:
 - 1. Verify that the work is installed in accordance with Contract Documents and the manufacturer's recommendations and instructions, and that it receives adequate operational checkout prior to startup: Startup reports and Prefunctional Checklists executed by Contractor are utilized to achieve this.
 - 2. Verify and document that functional performance is in accordance with Contract Documents: Functional Tests executed by Contractor and witnessed by the Commissioning Authority are utilized to achieve this.
 - 3. Verify that operation and maintenance manuals submitted to Owner are complete: Detailed operation and maintenance (O&M) data submittals by Contractor are utilized to achieve this.
 - 4. Verify that the Owner's operating personnel are adequately trained: Formal training conducted by Contractor is utilized to achieve this.
- B. The Commissioning Authority directs and coordinates all commissioning activities; this section describes some but not all of the Commissioning Authority's responsibilities.

PART 2 PRODUCTS

2.01 TEST EQUIPMENT

- A. Provide all standard testing equipment required to perform startup and initial checkout and required Functional Testing; unless otherwise noted such testing equipment will NOT become the property of Owner.
- B. Calibration Tolerances: Provide testing equipment of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified. If not otherwise noted, the following minimum requirements apply:
 - 1. Temperature Sensors and Digital Thermometers: Certified calibration within past year to accuracy of 0.5 degree F and resolution of plus/minus 0.1 degree F.
 - 2. Pressure Sensors: Accuracy of plus/minus 2.0 percent of the value range being measured (not full range of meter), calibrated within the last year.
 - 3. Calibration: According to the manufacturer's recommended intervals and when dropped or damaged; affix calibration tags or keep certificates readily available for inspection.
- C. Equipment-Specific Tools: Where special testing equipment, tools and instruments are specific to a piece of equipment, are only available from the vendor, and are required in order to accomplish startup or Functional Testing, provide such equipment, tools, and instruments as part of the work at no extra cost to Owner; such equipment, tools, and instruments are to become the property of Owner.
- D. Dataloggers: Independent equipment and software for monitoring flows, currents, status, pressures, etc. of equipment.
 - 1. Dataloggers required to for Functional Tests will be provided by the Commissioning Authority and will not become the property of Owner.

PART 3 EXECUTION

3.01 STARTUP PLANS AND REPORTS

- A. Startup Plans: For each item of equipment and system for which the manufacturer provides a startup plan, submit the plan not less than 8 weeks prior to startup.
- B. Startup Reports: For each item of equipment and system for which the manufacturer provides a startup checklist (or startup plan or field checkout sheet), document compliance by submitting the completed startup checklist prior to startup, signed and dated by responsible entity.

- C. Submit directly to the Commissioning Authority.

3.02 FUNCTIONAL TESTS

- A. A Functional Test is required for each item of equipment, system, or other assembly specified to be commissioned, unless sampling of multiple identical or near-identical units is allowed by the final test procedures.
- B. Contractor is responsible for execution of required Functional Tests, after completion of Prefunctional Checklist and before closeout.
- C. Commissioning Authority is responsible for witnessing and reporting results of Functional Tests, including preparation and completion of forms for that purpose.
- D. Contractor is responsible for correction of deficiencies and re-testing at no extra cost to Owner; if a deficiency is not corrected and re-tested immediately, the Commissioning Authority will document the deficiency and the Contractor's stated intentions regarding correction.
- E. Functional Test Procedures:
 - 1. Some test procedures are included in Contract Documents; where Functional Test procedures are not included in Contract Documents, test procedures will be determined by the Commissioning Authority with input by and coordination with Contractor.
- F. Deferred Functional Tests: Some tests may need to be performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions; performance of these tests remains the Contractor's responsibility regardless of timing.

3.03 SENSOR AND ACTUATOR CALIBRATION

- A. Calibrate all field-installed temperature, relative humidity, carbon monoxide, carbon dioxide, and pressure sensors and gauges, and all actuators (dampers and valves) on this piece of equipment shall be calibrated. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.

3.04 TEST PROCEDURES - GENERAL

- A. Provide skilled technicians to execute starting of equipment and to execute the Functional Tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
- B. Provide all necessary materials and system modifications required to produce the flows, pressures, temperatures, and conditions necessary to execute the test according to the specified conditions. At completion of the test, return all affected equipment and systems to their pre-test condition.
- C. Manual Testing: Use hand-held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").
- D. Simulating Conditions: Artificially create the necessary condition for the purpose of testing the response of a system; for example apply hot air to a space sensor using a hair dryer to see the response in a VAV box.
- E. Simulating Signals: Disconnect the sensor and use a signal generator to send an amperage, resistance or pressure to the transducer and control system to simulate the sensor value.
- F. Over-Writing Values: Change the sensor value known to the control system in the control system to see the response of the system; for example, change the outside air temperature value from 50 degrees F to 75 degrees F to verify economizer operation.
- G. Indirect Indicators: Remote indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100 percent closed, are considered indirect indicators.

- H. Monitoring: Record parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending capabilities of the relevant control systems; where monitoring of specific points is called for in Functional Test Procedures:
1. All points that are monitored by the relevant control system shall be trended by Contractor; at the Commissioning Authority's request, Contractor shall trend up to 20 percent more points than specified at no extra charge.
 2. Other points will be monitored by the Commissioning Authority using dataloggers.
 3. At the option of the Commissioning Authority, some control system monitoring may be replaced with datalogger monitoring.
 4. Provide hard copies of monitored data in columnar format with time down left column and at least 5 columns of point values on same page.

3.05 OPERATION AND MAINTENANCE MANUALS

- A. Add design intent documentation furnished by Architect to manuals prior to submission to Owner.
- B. Submit manuals related to items that were commissioned to Commissioning Authority for review; make changes recommended by Commissioning Authority.

END OF SECTION 01 9113

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SUBMITTALS

- A. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.02 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Use of explosives is not permitted.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Provide, erect, and maintain temporary barriers and security devices.
- B. Do not begin removal until built elements to be salvaged or relocated have been removed.
- C. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- D. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- E. Perform demolition in a manner that maximizes salvage and recycling of materials.

3.02 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.

3.03 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- C. Remove existing work as indicated and as required to accomplish new work.
- D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
- E. Protect existing work to remain.

3.04 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.

END OF SECTION 02 4100

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- B. Test Reports: Submit report for each test or series of tests specified.
- C. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
- D. Sustainable Design Submittal: If any fly ash, ground granulated blast furnace slag, silica fume, rice hull ash, or other waste material is used in mix designs to replace Portland cement, submit the total volume of concrete cast in place, mix design(s) used showing the quantity of portland cement replaced, reports showing successful cylinder testing, and temperature on day of pour if cold weather mix is used.

1.02 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Comply with requirements of Section 03 1000.

2.02 REINFORCEMENT MATERIALS

- A. Comply with requirements of Section 03 2000.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
- C. Lightweight Aggregate: ASTM C330/C330M.
- D. Fly Ash: ASTM C618, Class C or F.
- E. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
- E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- F. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
- G. Accelerating Admixture: ASTM C494/C494M Type C.
- H. Retarding Admixture: ASTM C494/C494M Type B.
- I. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

- A. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

2.06 BONDING AND JOINTING PRODUCTS

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
- B. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.

2.07 CURING MATERIALS

- A. Curing and Sealing Compound, High Gloss: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C1315 Type 1 Class A.
- B. Water: Potable, not detrimental to concrete.

2.08 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
 - 1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. CONCRETE MIX TYPES
 - 1. Maximum Aggregate Size: 5/8 inch.

PART 3 EXECUTION

3.01 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.

3.02 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

3.03 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.

3.04 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.

3.05 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

END OF SECTION 03 3000

SECTION 05 5000
METAL FABRICATIONS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.
- F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

2.04 FABRICATED ITEMS

- A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.
 - 1. 6" i.d. Standard Schedule 40 steel pipe.
- B. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.
- C. Lintels: As detailed; prime paint finish.
- D. Foot Scrapers and Mud and Foot Grilles: As detailed; steel, galvanized finish.
- E. Elevator Hoistway Divider Beams: Beam sections; prime paint finish.
- F. Slotted Channel Framing: Fabricate channels and fittings from structural steel complying with the referenced standards; factory-applied, rust-inhibiting thermoset acrylic enamel finish.

2.05 FINISHES - STEEL

- A. Prime paint steel items.
 - 1. Exceptions: Galvanize items to be embedded in concrete and items to be embedded in masonry.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.

END OF SECTION 05 5000

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SUBMITTALS

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
 - 2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
 - 3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Western Wood Products Association; WWPA G-5.
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
 - 1. Blocking: 2x6 minimum.
- C. Moisture Content: S-dry or MC19.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
 - 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
 - 3. Anchors: Toggle bolt type for anchorage to hollow masonry.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
 - 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.

- B. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 INSTALLATION OF CONSTRUCTION PANELS

END OF SECTION 06 1000

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SUBMITTALS

- A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.02 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) thick base metal.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
 - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: As selected by Architect from manufacturer's standard colors.
- C. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 28 gage, (0.0156 inch) thick; smooth No. 4 - Brushed finish.

2.02 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

2.03 ACCESSORIES

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Underlayment: ASTM D226/D226M, organic roofing felt, Type I (No. 15).
- C. Primer: Zinc chromate type.
- D. Concealed Sealants: Non-curing butyl sealant.
- E. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- F. Plastic Cement: ASTM D4586/D4586M, Type I.
- G. Reglets: Surface mounted type, galvanized steel; face and ends covered with plastic tape.
- H. Solder: ASTM B32; Sn50 (50/50) type.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- B. Seal metal joints watertight.

END OF SECTION 07 6200

SECTION 07 7200
ROOF ACCESSORIES

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used.

1.02 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 ROOF HATCHES AND VENTS, MANUAL AND AUTOMATIC OPERATION

- A. Roof Hatches and Smoke Vents: Factory-assembled aluminum frame and cover, complete with operating and release hardware.
1. Style: Provide flat metal covers unless otherwise indicated.
 2. Mounting Substrate: Provide frames and curbs suitable for mounting on corrugated metal roof deck with insulation.
- B. Frames and Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.
1. Material: Mill finished aluminum, 11 gauge, 0.0907 inch thick.
 2. Insulation: Manufacturer's standard; 1 inch rigid glass fiber, located on inside hollow curb.
- C. Metal Covers: Flush, insulated, hollow metal construction.
1. Capable of supporting 40 psf live load.
 2. Material: Mill finished aluminum; outer cover 11 gauge, 0.0907 inch thick, liner 0.04 inch thick.
 3. Insulation: Manufacturer's standard 1 inch rigid glass fiber.
- D. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.
1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf load.
 2. Hinges: Heavy duty pintle type.
 3. Hold open arm with vinyl-coated handle for manual release.
 4. Latch: Upon closing, engage latch automatically and reset manual release.
 5. Locking: Padlock hasp on interior.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

END OF SECTION 07 7200

SECTION 07 8400
FIRESTOPPING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- B. Sustainable Design Submittal: Submit VOC content documentation for nonpreformed materials.

1.02 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.

1.03 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

PART 2 PRODUCTS

2.01 FIRESTOPPING SYSTEMS

- A. Firestopping: Any material meeting requirements.
 - 1. Fire Ratings: Use system that is listed by UL (FRD) and tested in accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authorities having jurisdiction.
- C. Install labeling required by code.

END OF SECTION 07 8400

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
- B. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- D. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.
- E. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

1.02 QUALITY ASSURANCE

- A. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 1. Deliver to manufacturer sufficient samples for testing.
 - 2. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
 - 3. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 - 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
 - 3. Do not seal the following types of joints.
 - a. Intentional weepholes in masonry.

- b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
 - e. Joints between suspended panel ceilings/grid and walls.
- B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
- 1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing.
 - 2. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant.
- C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
- 1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
 - 2. Wall and Ceiling Joints in Wet Areas: Non-sag polyurethane sealant for continuous liquid immersion.
 - 3. Floor Joints in Wet Areas: Non-sag polyurethane "non-traffic-grade" sealant suitable for continuous liquid immersion.
 - 4. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; clear.
 - 5. Type ____ - In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
- D. Interior Wet Areas: restrooms, food service areas, and food processing areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.
- E. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

2.02 NONSAG JOINT SEALANTS

- A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
- 1. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
 - 2. Color: To be selected by Architect from manufacturer's standard range.
 - 3. Cure Type: _____.
 - 4. Service Temperature Range: Minus 20 to 180 degrees F.
- B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
- 1. Color: Clear.
- C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
- 1. Movement Capability: Plus and minus ____ percent, minimum.
 - 2. Color: To be selected by Architect from manufacturer's standard range.
- D. Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface .
- 1. Movement Capability: Plus and minus 35 percent, minimum.
 - 2. Color: To be selected by Architect from manufacturer's standard range.
- E. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
- 1. Color: Standard colors matching finished surfaces, Type OP (opaque).
- F. Non-Curing Butyl Sealant: Solvent-based; ASTM C1311; single component, non-sag, non-skinning, non-hardening, non-bleeding; vapor-impermeable; intended for fully concealed applications.

2.03 SELF-LEVELING SEALANTS

- A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multi-component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Color: To be selected by Architect from manufacturer's standard range.
- B. Rigid Self-Leveling Polyurethane Joint Filler: Two part, low viscosity, fast setting; intended for cracks and control joints not subject to significant movement.
 - 1. Hardness Range: Greater than 100, Shore A, and 50 to 80, Shore D, when tested in accordance with ASTM C661.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Install bond breaker backing tape where backer rod cannot be used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- G. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

END OF SECTION 07 9200

**SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

1.02 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Correct defective work within two years after Date of Final Completion. Replace parts that fail under normal use at no additional charge to owner.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage and for compliance with the Contract Documents.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Requirements for Hollow Metal Doors and Frames:
 - 1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
 - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
 - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
 - 4. Door Edge Profile: Manufacturers standard for application indicated.
 - 5. Typical Door Face Sheets: Flush.
 - 6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
 - 7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
 - 8. Zinc Coating for Typical Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
 - a. Based on SDI Standards: Provide at least A40/ZF120 (galvanized) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvanized) for corrosive locations.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.02 HOLLOW METAL DOORS

- A. Exterior Doors: Thermally insulated. Fully welded.
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 3 - Extra Heavy-duty.

- b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 1 - Full Flush.
 - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
 - e. Zinc Coating: A60/ZF180 galvanized coating; ASTM A653/A653M.
 2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
 3. Door Thermal Resistance: R-Value of 2.7, min; U-Value of .37, max.
 4. Door Thickness: 1-3/4 inches, nominal.
 5. Weatherstripping: Refer to Section 08 7100.
 6. Door Finish: Factory primed and field finished.
- B. Interior Doors, Non-Fire Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 3 - Extra Heavy-duty.
 - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 1 - Full Flush.
 - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
 2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
 3. Door Thickness: 1-3/4 inches, nominal.
 4. Door Finish: Factory primed and field finished.

2.03 HOLLOW METAL FRAMES

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Factory primed and field finished.
- C. Exterior Door Frames: Full profile/continuously welded type.
 1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvanized) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
 2. Frame Metal Thickness: 14 gage, 0.067 inch, minimum.
 3. Weatherstripping: Separate, see Section 08 7100.
- D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
 1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
- E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.
- F. Mullions for Pairs of Doors: Removable type, with profile similar to jambs.
- G. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.
- H. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

2.04 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.05 ACCESSORIES

- A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- B. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Coordinate frame anchor placement with wall construction.

END OF SECTION 08 1113

SECTION 08 1416
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- B. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
- C. Samples: Submit accepted manufacturer's stain color selector guide. After initial color selection, submit two samples of door construction, 12 x 12 inches in size cut from top corner of door, illustrating selected stain color, face veneers, and specified finishes.

1.02 QUALITY ASSURANCE

1.03 WARRANTY

- A. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 DOORS

- A. Doors: See drawings for locations and additional requirements.
 - 1. Quality Standard: Custom Grade, Extra Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
 - 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated. Faces are bonded to core using a hot press
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 - 1. Provide solid core doors at each location.
 - 2. Wood veneer facing with factory transparent finish.

2.02 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type structural composite lumber core (SCLC), plies and faces as indicated.

2.03 DOOR FACINGS

- A. Veneer Facing for Transparent Finish: Birch, Select White; or Maple, Select White, HPVA Grade A, plain sliced (flat cut), with slip match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
 - 1. Vertical Edges: Same species as face veneer.
 - 2. "Pair Match" each pair of doors; "Set Match" pairs of doors within 10 feet of each other when doors are closed.
- B. Facing Adhesive: Type I - waterproof.

2.04 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- C. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

2.05 FINISHES - WOOD VENEER DOORS

- A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:

1. Transparent:
 - a. System - 11, Polyurethane, Catalyzed.
 - b. Stain: As selected by Architect. - Wheat color, match WD-1, see interior finish schedule.
 - c. Sheen: Satin.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

2.06 ACCESSORIES

- A. Metal Louvers:
 1. Material and Finish: Roll formed steel; pre-painted finish to bronze color.
 2. Louver Blade: Inverted Y blade, sight proof.
 3. Louver Free Area: 50 percent.
- B. Glazing Stops: Rolled steel channel shape, mitered corners; prepared for countersink style tamper proof screws.
- C. Door Hardware: See Section 08 7100.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Coordinate installation of doors with installation of frames and hardware.

END OF SECTION 08 1416

SECTION 08 3100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND PANELS ASSEMBLIES

- A. Wall-Mounted Units with Return Air Grille:
 - 1. Size: 16 inch by 16 inch.
- B. Gypsum Board Ceiling-Mounted Units:
 - 1. Size - 16 inch by 16 inch.

2.02 WALL AND CEILING MOUNTED ACCESS UNITS

- A. Wall and Ceiling Mounted Units: Factory fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
 - 1. Material: Steel.
 - 2. Style: Exposed frame with door surface flush with frame surface.
 - 3. Door Style: Single thickness with rolled or turned in edges.
 - 4. Heavy Duty Frames: 14 gage, 0.0747 inch, minimum thickness.
 - 5. Heavy Duty Single Steel Sheet Door Panels: 14 gage, 0.0747 inch, minimum thickness.
 - 6. Steel Finish: Primed.
 - 7. Hardware:
 - a. Hinges for Non-Fire-Rated Units: Continuous piano hinge.
 - b. Latch/Lock: Screw driver slot for quarter turn cam latch.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings, and secure units rigidly in place.

END OF SECTION 08 3100

**SECTION 08 71 00
DOOR HARDWARE**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
2. Field verification, preparation and modification of existing doors and frames to receive new door hardware.
3. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
3. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
4. Division 26 sections for connections to electrical power system and for low-voltage wiring.
5. Division 28 sections for coordination with other components of electronic access control system.

1.03 REFERENCES

- A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
 2. UL 10C - Positive Pressure Test of Fire Door Assemblies
 3. UL 1784 - Air Leakage Tests of Door Assemblies
 4. UL 305 - Panic Hardware
- B. DHI - Door and Hardware Institute
1. Sequence and Format for the Hardware Schedule
 2. Recommended Locations for Builders Hardware
 3. Key Systems and Nomenclature
- C. ANSI - American National Standards Institute
1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.04 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.

B. Action Submittals:

1. Product Data: Technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index; include door number, heading number, and Architects hardware set number.
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Quantity, type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.
 - e. Fastenings and other pertinent information.
 - f. Location of each hardware set cross-referenced to indications on Drawings.

- g. Explanation of all abbreviations, symbols, and codes contained in schedule.
- h. Mounting locations for hardware.
- i. Door and frame sizes and materials.
- j. Name and phone number for local manufacturer's representative for each product.
- k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components).
Operational description should include operational descriptions for: egress, ingress (access), and fire/smoke alarm connections.

1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

4. Key Schedule:

- a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
- b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
- d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
- f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

5. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.

C. Informational Submittals:

- 1. Product data for electrified door hardware:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- 2. Warranty: Special warranty specified in this Section.

D. Closeout Submittals:

- 1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Name, address, and phone number of local representative for each manufacturer.
 - d. Final approved hardware schedule, edited to reflect conditions as-installed.

- e. Final keying schedule
- f. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.05 QUALITY ASSURANCE

- A. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project.
 - 1. Warehousing Facilities: In Project's vicinity.
 - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 - 4. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.
- B. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
- C. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- D. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- E. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.
- F. Keying Conference
 - 1. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - b. Preliminary key system schematic diagram.
 - c. Requirements for key control system.
 - d. Requirements for access control.
 - e. Address for delivery of keys.
- G. Pre-installation conference is MANDATORY and shall include:
 - 1. D9R PM
 - 2. D9R FD
 - 3. D9R FD designated Locksmith

4. D9R SSD
5. Architect
6. General Contractor
7. Door and Frame Contractor
8. Hardware Supplier (and Installer if separate)

H. Pre-installation Conference details:

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. Inspect and discuss preparatory work performed by other trades.
3. Inspect and discuss electrical roughing-in for electrified door hardware.
4. Review sequence of operation for each type of electrified door hardware.
5. Review required testing, inspecting, and certifying procedures.
6. Conference can be done remotely via web or conference call.

I. Coordination Conferences:

1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

J. Hardware and keying conferences are mandatory and must be conducted within 30 days of contract award.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 2. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Protection and Damage:
1. Promptly replace products damaged during shipping.
 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

1.07 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.08 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Beginning from date of Substantial Completion, for durations indicated by manufacturer.
 - 2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

- A. Fasteners

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 3. Install hardware with fasteners provided by hardware manufacturer.
- B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.
1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
 2. Use materials which match materials of adjacent modified areas.
 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.
- C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.03 HINGES

- A. Manufacturers and Products:
1. Scheduled Manufacturer and Product: Ives 5BB series.
 2. Acceptable Manufacturers and Products: Hager BB series, McKinney TB/T4B series, Stanley FBB Series.
- B. Requirements:
1. Provide hinges conforming to ANSI/BHMA A156.1.
 2. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
 3. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
 4. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
 5. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
 6. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
 7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins

- b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
8. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
 9. All hinges to be ball bearing.

2.04 CONTINUOUS HINGES

A. Aluminum Geared

1. Manufacturers:
 - a. Scheduled Manufacturer: Ives.
 - b. Acceptable Manufacturers: Select, Stanley.
2. Requirements:
 - a. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
 - b. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
 - c. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
 - d. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
 - e. On fire-rated doors, provide aluminum geared continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
 - f. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware.
 - g. Install hinges with fasteners supplied by manufacturer.
 - h. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage ND series.
2. Acceptable Manufacturers and Products: None.

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3 hour fire doors.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw. Provide proper latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.

5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets.
8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

2.06 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Von Duprin 35A/ 98 series.
2. Acceptable Manufacturers and Products: None.

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide flush end caps for exit devices.
7. Provide exit devices with manufacturer's approved strikes.
8. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
9. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
10. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
11. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.07 ELECTRIC STRIKES

A. Manufacturers and Products:

1. Scheduled Manufacturer: Von Duprin, Locknetics.
2. Acceptable Manufacturers: HES.

B. Requirements:

1. Provide electric strikes designed for use with type of locks shown at each opening.
2. Provide electric strikes UL Listed as burglary-resistant.
3. Where required, provide electric strikes UL Listed for fire doors and frames.
4. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.08 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Schlage

B. Requirements:

1. Provide permanent cylinders/cores to match Owner's existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide the following keyway: verify with Durango School District 9-R prior to ordering all materials.

2.09 KEYING

- ### A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

- ### B. Provide cylinders/cores keyed into Owner's existing factory registered keying system.

- ### C. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

D. Requirements:

1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - a. Master Keying system as directed by the Owner.
2. Forward biting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
3. Provide keys with the following features:
 - a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
4. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Do not provide blind code marks with actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Owner.
 - c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - d. Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
5. Quantity: Furnish in the following quantities.
 - a. Change (Day) Keys: 3 per cylinder/core.

- b. Permanent Control Keys: 3.
- c. Master Keys: 6.
 - 1) Confirm all key quantities with Durango School District 9-R prior to ordering all materials.

2.10 DOOR CLOSERS

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product: LCN 4040XP series.
- 2. Acceptable Manufacturers and Products: None.

B. Requirements:

- 1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
- 2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
- 3. Cylinder Body: 1-1/2 inch (38 mm) diameter with 5/8 inch (16 mm) diameter double heat-treated pinion journal.
- 4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
- 5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
- 6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
- 7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
- 8. Pressure Relief Valve (PRV) Technology: Not permitted.
- 9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
- 10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.11 ELECTRO-HYDRAULIC AUTOMATIC OPERATORS

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product: LCN 4600 series.
- 2. Acceptable Manufacturers and Products: None.

B. Requirements:

- 1. Provide low energy automatic operator units with hydraulic closer complying with ANSI/BHMA A156.19.
- 2. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
- 3. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check, and opening and closing speed adjustment valves to control door

4. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay.
5. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check valve, sweep valve, latch valve to control door.
6. Provide drop plates, brackets, or adapters for arms as required for details.
7. Provide hard-wired actuator switches for operation as specified.
8. Provide weather-resistant actuators at exterior applications.
9. Provide key switches with LED's, recommended and approved by manufacturer of automatic operator as required for function described in operation description of hardware group below. Cylinders: Refer to "KEYING" article, herein.
10. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.
11. Provide units with vestibule inputs that allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.

2.12 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood.

B. Requirements:

1. Provide kick plates minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:
 - a. Kick Plates: 12 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors and pairs of doors with a hardware mullion, 1 inch (25 mm) less width of door on pairs

2.13 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood.

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.14 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International.
2. Acceptable Manufacturers: National Guard, Reese.

B. Requirements:

1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Size of thresholds:
 - a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
 - b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width
4. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.15 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood.

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.16 DOOR POSITION SWITCHES

A. Manufacturers:

1. Scheduled Manufacturer: Schlage.
2. Acceptable Manufacturers: GE-Interlogix, Sargent.

B. Requirements:

1. Provide recessed or surface mounted type door position switches as specified.
2. Coordinate door and frame preparations with door and frame suppliers. If switches are being used with magnetic locking device, provide minimum of 4 inches (102 mm) between switch and magnetic locking device.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Where on-site modification of doors and frames is required:
 - 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 - 2. Field modify and prepare existing door and frame for new hardware being installed.
 - 3. When modifications are exposed to view, use concealed fasteners, when possible.
 - 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- H. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Testing and labeling wires with Architect's opening number.
- I. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- J. Closer/holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- K. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- L. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- M. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- N. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- O. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- P. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 FIELD QUALITY CONTROL

- A. Engage qualified manufacturer trained representative to perform inspections and to prepare inspection reports.
 - 1. Representative will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.05 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

3.06 CLEANING AND PROTECTION

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

3.07 DOOR HARDWARE SCHEDULE

- A. Hardware items are referenced in the following hardware schedule as the Basis of Design (BOD) Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

B. Hardware Sets:

Abbreviation	Name
IVE	H.B. Ives
LCN	Lcn Commercial Division
LOC	Locknetics Security Engineering
SCE	Schlage Electronic Security
SCH	Schlage Lock Company
VON	Von Duprin
ZER	Zero International Inc

SECTION 08 8000

GLAZING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data on Insulating Glass Unit, Glazing Unit, and Plastic Sheet Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
- B. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
- C. Samples: Submit two samples 12 by 12 inch in size of glass and plastic units, showing coloration and design.

1.02 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods. Maintain one copy on site.

1.03 WARRANTY

- A. Insulating Glass Units: Provide a ten (10) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

- A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
 - 1. Design Pressure: Calculated in accordance with applicable codes.
 - 2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
 - 3. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
 - 4. Glass thicknesses listed are minimum.
- B. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
 - 1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - 2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 - 3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

- A. Float Glass: Provide float glass based glazing unless otherwise indicated.
 - 1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
 - 2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
 - 3. Fully Tempered Safety Glass: Complies with ANSI Z97.1 and 16 CFR 1201 criteria; Class A/Category II.
 - 4. Tinted Type: ASTM C1036, Class 2 - Tinted, Quality - Q3, with color and performance characteristics as indicated.
 - 5. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

2.04 INSULATING GLAZING UNITS

- A. Insulating Glazing Units: Types as indicated.
 - 1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
 - 2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
 - 3. Metal Edge Spacers: Aluminum, bent and soldered corners.
 - 4. Spacer Color: Black.
 - 5. Edge Seal:
 - a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
 - 6. Color: Black.
 - 7. Purge interpane space with dry air, hermetically sealed.
- B. Type IG-1 - Insulating Glazing Units: Vision glass, double glazed.
 - 1. Applications: Exterior glazing unless otherwise indicated.
 - 2. Glass Type IG-1 and all subsets of IG-1 below are to be installed on the NORTH elevations only.
 - 3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
 - a. Tint: Gray.
 - 1) Basis of Design: Vitro Glass (formerly PPG Glass), *Optigray*
 - b. Coating: Low-E (passive type), on #2 surface.
 - 1) Basis of Design: Vitro Glass (formerly PPG Glass), *Solarban 60*
 - 4. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.
 - a. Tint: Clear.
 - 5. Total Thickness: 1 inch.
 - 6. Thermal Transmittance (U-Value), Winter - Center of Glass:.32, maximum.
 - 7. Visible Light Transmittance (VLT): 50 percent, nominal.
 - 8. Solar Heat Gain Coefficient (SHGC):.30, maximum.
 - 9. Glazing Method: Dry glazing method, gasket glazing.
- C. Type IG-1T - Insulating Glazing Units: Safety glazing.
 - 1. Applications:
 - a. Glazed lites in exterior doors.
 - b. Glazed sidelights and panels next to doors.
 - c. Other locations required by applicable federal, state, and local codes and regulations.
 - d. Other locations indicated on drawings.
 - 2. Glass Type: Same as Type IG-1 except with fully tempered float glass for both outboard and inboard lites.
 - 3. Total Thickness: 1 inch.
- D. Type [IG-1F] Insulated Glazing Units - Intrusion Resistant
 - 1. Applications: As indicated on drawings.
 - 2. Glass Type: Same as Type [IG-1] except with plastic film F-1 applied to #1 surface of outboard lite.
- E. Type [IG-1TF] Insulated Glazing Units, Safety Glazing - Intrusion Resistant
 - 1. Applications: As indicated on drawings.
 - 2. Glass Type: Same as Type [IG-1T] except with plastic film F-1 applied to #1 surface of outboard lite.
- F. Type IG-2 - Insulating Glazing Units: Vision glass, double glazed.
 - 1. Applications: Exterior glazing unless otherwise indicated.
 - 2. Glass Type IG-2 and all subsets of IG-2 below are to be installed on the EAST, WEST and SOUTH Elevations.
 - 3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.

- a. Tint: Gray.
 - 1) Basis of Design: Vitro Glass (formerly PPG Glass), *Optigray*
 - b. Coating: Low-E (passive type), on #2 surface.
 - 1) Basis of Design: Vitro Glass (formerly PPG Glass), *Solarban 70*
 4. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.
 - a. Tint: Clear.
 5. Total Thickness: 1 inch.
 6. Thermal Transmittance (U-Value), Winter - Center of Glass:.28, maximum.
 7. Visible Light Transmittance (VLT): 46 percent, nominal.
 8. Solar Heat Gain Coefficient (SHGC):.23, maximum.
 9. Glazing Method: Dry glazing method, gasket glazing.
- G. Type IG-2T - Insulating Glazing Units: Safety glazing.
1. Applications:
 - a. Glazed lites in exterior doors.
 - b. Glazed sidelights and panels next to doors.
 - c. Other locations required by applicable federal, state, and local codes and regulations.
 - d. Other locations indicated on drawings.
 2. Glass Type: Same as Type IG-2 except with fully tempered float glass for both outboard and inboard lites.
 3. Total Thickness: 1 inch.
- H. Type [IG-2F] Insulated Glazing Units - Intrusion Resistant
1. Applications: As indicated on drawings.
 2. Glass Type: Same as Type [IG-2] except with plastic film F-1 applied to #1 surface of outboard lite.
- I. Type [IG-2TF] Insulated Glazing Units, Safety Glazing - Intrusion Resistant
1. Applications: As indicated on drawings.
 2. Glass Type: Same as Type [IG-2T] except with plastic film F-1 applied to #1 surface of outboard lite.
- J. Type [IG-2TS] Insulated Glazing Units, Safety Glazing - Spandrel Glazing
1. Applications: As indicated on drawings.
 2. Glass Type: Same as Type [IG-2T] except with Opaci-Coat-300 spandrel coating to #4 surface of inboard lite.
 3. Color: 3-1870 Solar Moon
- K. Type [IG-2S] Insulated Glazing Units, Spandrel Glazing
1. Applications: As indicated on drawings.
 2. Glass Type: Same as Type [IG-2] except with Opaci-Coat-300 spandrel coating to #4 surface of inboard lite.
 3. Color: 3-1870 Solar Moon

2.05 GLAZING UNITS

- A. Type G-1 - Monolithic Interior Vision Glazing:
1. Applications: Interior glazing unless otherwise indicated.
 2. Glass Type: Annealed float glass.
 3. Tint: Clear.
 4. Thickness: 1/4 inch, nominal.
- B. Type G-1T - Monolithic Safety Glazing
1. Applications:
 - a. Glazed lites in interior doors.
 - b. Glazed sidelights to doors, except in fire-rated walls and partitions.
 - c. Glazed view windows and panels in partitions enclosing athletic activity rooms.
 - d. Other locations required by applicable federal, state, and local codes and regulations.
 - e. Other locations indicated on drawings.

2. Glass Type: Fully tempered float glass.
 3. Tint: Clear.
 4. Thickness: 1/4 inch, nominal.
- C. Type [G-1TF] - Monolithic Safety Glazing - Intrusion Resistant
1. Applications: As indicated on drawings.
 2. Glass Type: Fully tempered float glass with plastic film F-1 applied to #1 surface.
 3. Tint: Clear.
 4. Thickness: 1/4 inch, nominal.
- D. Type G-2 - Fire-Resistance-Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and blocks radiant heat, as required to achieve indicated fire-rating period exceeding 45 minutes.
1. Applications:
 - a. Glazing in fire-rated door assembly.
 - b. Glazing in fire-rated window assembly.
 - c. Glazing in sidelites, borrowed lites, and other glazed openings in fire-rated wall assemblies.
 - d. Other locations as indicated on drawings.
 2. Glass Type: Multi-laminate annealed glass with intumescent fire retardant interlayers.
 3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
 4. Safety Glazing Certification: 16 CFR 1201 Category II.
 5. Glazing Method: As required for fire rating.
 6. Fire-Rating Period: As indicated on drawings.
 7. Markings for Fire-Resistance-Rated Glazing Assemblies: Provide permanent markings on fire-resistance-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction.
 - a. "W" - meets wall assembly criteria of ASTM E119 or UL 263 fire test standards.
 - b. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
 - c. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire test standards.
 - d. "T" - meets temperature rise of not more than 450 degrees F above ambient at end of 30 minutes fire exposure in accordance with NFPA 252, UL 10B, or UL 10C fire test standards.
 - e. "XXX" - placeholder that represents fire-rating period, in minutes.
- E. Type G-3 - Fire-Resistance-Rated Frame and Glazing System: Type, thickness, and configuration of glazing that contains flame, smoke, and blocks radiant heat, as required to achieve indicated fire-rating period exceeding 60 minutes.
1. Applications:
 - a. Glazing in fire-rated window assembly.
 - b. Other locations as indicated on drawings.
 2. Glass Type: Multi-laminate annealed glass with intumescent fire retardant interlayers.
 3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
 4. Safety Glazing Certification: 16 CFR 1201 Category II.
 5. Glazing Method: As required for fire rating.
 6. Fire-Rating Period: 60 minutes.
 7. Markings for Fire-Resistance-Rated Glazing Assemblies: Provide permanent markings on fire-resistance-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction.
 - a. "W" - meets wall assembly criteria of ASTM E119 or UL 263 fire test standards.
 - b. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.

- c. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire test standards.
 - d. "T" - meets temperature rise of not more than 450 degrees F above ambient at end of 30 minutes fire exposure in accordance with NFPA 252, UL 10B, or UL 10C fire test standards.
 - e. "XXX" - placeholder that represents fire-rating period, in minutes.
- F. Type M-1 - Transparent One-Way Mirror: Mirror quality float glass with pyrolytic (hard coat) type coating located on high light level surface of glass; ASTM C1376.
- 1. Applications: Locations as indicated on drawings.
 - 2. Thickness: 1/4 inch.
 - 3. Glass Tint: Grey.
 - 4. Glass Type: Annealed.
 - 5. Lighting Ratio: Maintain at least 8:1 lighting level ratio between coated side (bright-observed side) and uncoated side (dim-observer side).
 - 6. Glazing Method: Interior wet/dry method, tape and sealant.

2.06 PLASTIC FILMS

- A. Type F-1 - Safety and Security Plastic Film: Polyester type.
- 1. Application: Locations as indicated on drawings.
 - 2. Surface Burning Characteristics: Flame Spread Index (FSI)/Smoke Developed Index (SDI) of Class A, 25/450, maximum, when tested in accordance with ASTM E84.
 - 3. Impact Resistance: Comply with ANSI Z97.1 and 16 CFR 1201 impact test requirements when applied to 1/8 inch thick annealed glass; Class A / Category II.
 - 4. Color: Clear.
- B. Type F-2 - Decorative Plastic Film: Polyester type.
- 1. Application: Locations as indicated on drawings.
 - 2. Series Type: Frost.
 - 3. Color: Acid Etch.

2.07 GLAZING COMPOUNDS

- A. Butyl Sealant: Single component; ASTM C920, Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20; black color.
- B. Polyurethane Sealant: Single component, chemical curing, non-staining, non-bleeding; ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 20 to 35; black color.
- C. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; black or clear color.

2.08 ACCESSORIES

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
- D. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.01 INSTALLATION - DRY GLAZING METHOD (TAPE AND GASKET SPLINE GLAZING)

- A. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
- C. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

3.02 INSTALLATION - WET/DRY GLAZING METHOD (TAPE AND SEALANT)

- A. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- C. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
- D. Install removable stops, spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.
- E. Fill gaps between pane and applied stop with None - N/Asealant to depth equal to bite on glazing, to uniform and level line.
- F. Carefully trim protruding tape with knife.

3.03 INSTALLATION - PRESSURE GLAZED SYSTEMS

- A. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- C. Install pressure plates without displacing glazing gasket; exert pressure for full continuous contact.
- D. Install cover plate.

END OF SECTION 08 8000

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
- B. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
 - 1. See PART 3 for finishing requirements.
- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
 - 1. Acoustic Attenuation: STC of 45 - 50 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 METAL FRAMING MATERIALS

- A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
 - 1. See Part 3 for minimum opening jamb stud requirements.
 - 2. Studs: C-shaped with knurled or embossed faces.
 - 3. Runners: U shaped, sized to match studs.
 - 4. Ceiling Channels: C-shaped.
 - 5. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch.
- B. Loadbearing Studs for Application of Gypsum Board: As specified in Section 05 4000.
- C. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.

2.03 BOARD MATERIALS

- A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
 - b. Ceilings: 5/8 inch.
 - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
- B. Impact Resistant Wallboard:
 - 1. Application: High-traffic areas indicated.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 3. Paper-Faced Type: Gypsum wallboard, as defined in ASTM C1396/C1396M.
 - 4. Type: Fire-resistance-rated Type X, UL or WH listed.
 - 5. Thickness: 5/8 inch.
 - 6. Edges: Tapered.
- C. Backing Board For Wet Areas: One of the following products:
 - 1. Application: Surfaces behind tile in wet areas including toilet rooms.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

3. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
 4. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288.
 5. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
- D. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
1. Application: Ceilings and vertical surfaces in "wet" areas but not behind thinset tile.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
 4. Type: Regular and Type X, in locations indicated.
 5. Type X Thickness: 5/8 inch.
 6. Regular Board Thickness: 5/8 inch.
 7. Edges: Tapered.
- E. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
 4. Thickness: 5/8 inch.
 5. Edges: Square.

2.04 GYPSUM WALLBOARD ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: 3 1/2 inch.
- B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- C. Finishing Accessories: ASTM C1047, extruded aluminum alloy (6063 T5) or galvanized steel sheet ASTM A924/A924M G90, unless noted otherwise.
1. Types: As detailed or required for finished appearance.
 2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.
 3. Control joints: One-piece, V-grooved control joint with integral perforated flanges; removable tape to protect V-groove during finishing.
- D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
 2. Ready-mixed vinyl-based joint compound.
 3. Chemical hardening type compound.
- E. High Build Drywall Surfer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.
- F. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- G. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

PART 3 EXECUTION

3.01 SHAFT WALL INSTALLATION

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
- B. Shaft Wall Liner: Cut panels to accurate dimensions and install sequentially between special friction studs.

3.02 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

3.04 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Exterior Sheathing: Comply with ASTM C1280. Install sheathing horizontally, with edges butted tight and ends occurring over firm bearing.

3.05 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Paper Faced Gypsum Board: Use paper joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction.

END OF SECTION 09 2116

SECTION 09 3000

TILING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- C. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.

1.02 FIELD CONDITIONS

- A. Maintain ambient and substrate temperature above 50 degrees F and below 100 degrees F during installation and curing of setting materials.

PART 2 PRODUCTS

2.01 TILE

- A. Refer to Materials Schedule for Manufacturers and Product Information
- B. Glazed Wall Tile: ANSI A137.1, standard grade.
 - 1. Size: as indicated on drawings.
 - 2. Color(s): As indicated on drawings.
 - 3. Trim Units: Matching bullnose shapes in sizes coordinated with field tile.
- C. Porcelain Floor Tile: ANSI A137.1, standard grade.
 - 1. Size: as indicated on drawings.
 - 2. Thickness: 3/8 inch.
 - 3. Edges: Cushioned.
 - 4. Surface Finish: Matte glazed.
 - 5. Color(s): As indicated on drawings.

2.02 SETTING MATERIALS

- A. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4 or ANSI A118.15.

2.03 GROUTS

- A. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 - 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.

2.04 MAINTENANCE MATERIALS

- A. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
 - 1. Composition: Water-based colorless silicone.

2.05 ACCESSORY MATERIALS

- A. Underlayment at Floors: Specifically designed for bonding to thin-set setting mortar; not primarily a waterproofing material and having the following characteristics:
 - 1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
 - 2. Uncoupling Function: Allow for separation between membrane and the mortar adhering tile to the membrane when subjected to excessive substrate movement.
 - 3. Type: Thin-Set Mortar Adhered Sheet.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.13, manufacturer's instructions, and TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than 4" tall or wide.

3.02 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
 - 1. Use uncoupling membrane under all tile unless other underlayment is indicated.
 - 2. Where epoxy or furan grout is indicated, but not epoxy or furan bond coat, install in accordance with TCNA (HB) Method F115.

3.03 INSTALLATION - WALL TILE

- A. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.

END OF SECTION 09 3000

SECTION 09 5100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on suspension system components and acoustical units.
- B. Samples: Submit two samples 6 x 6 inch in size illustrating material and finish of acoustical units.
- C. Samples: Submit two samples each, 8 inches long, of suspension system main runner.

1.02 QUALITY ASSURANCE

1.03 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

- A. Acoustical Ceiling Tile -: Painted mineral fiber, ASTM E1264 Type III, with the following characteristics:
 - 1. Size: 24 by 48 inches.
 - 2. Thickness: 3/4 inches.
 - 3. Composition: Wet felted.
 - 4. Light Reflectance: 90 percent, determined in accordance with ASTM E1264.
 - 5. NRC Rating: 55, determined in accordance with ASTM E1264.
 - 6. Ceiling Attenuation Class (CAC): 40, determined in accordance with ASTM E1264.
 - 7. Edge: Square.
 - 8. Surface Color: White.
 - 9. Surface Pattern: Non-directional fissured.
 - 10. Suspension System: Exposed grid.
- B. Acoustical Ceiling Tile -: Painted mineral fiber, ASTM E1264 Type III, with the following characteristics:
 - 1. Size: 24 by 24 inches.
 - 2. Thickness: 3/4 inches.
 - 3. Composition: Wet felted.
 - 4. Light Reflectance: 90 percent, determined in accordance with ASTM E1264.
 - 5. NRC Range: .40 to .60, determined in accordance with ASTM E1264.
 - 6. Ceiling Attenuation Class (CAC): 40, determined in accordance with ASTM E1264.
 - 7. Edge: Square.
 - 8. Surface Color: White.
 - 9. Surface Pattern: Non-directional fissured.
 - 10. Suspension System: Exposed grid.

2.02 SUSPENSION SYSTEM(S)

- A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.
- B. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; intermediate-duty.
 - 1. Profile: Tee; 15/16 inch wide face.
 - 2. Finish: White painted.

2.03 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Hanger Wire: 12-gage 0.08 inch galvanized steel wire.
- C. Perimeter Moldings: Same metal and finish as grid.
- D. Acoustical Insulation: Specified in Section 07 2100.

PART 3 EXECUTION

3.01 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

3.02 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

END OF SECTION 09 5100

SECTION 09 6500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- B. Verification Samples: Submit two samples, 6 by 6 inch in size illustrating color and pattern for each resilient flooring product specified.

1.02 FIELD CONDITIONS

PART 2 PRODUCTS

2.01 SHEET FLOORING

- A. Vinyl Sheet Flooring: Homogeneous without backing, with color and pattern throughout full thickness.
 - 1. Minimum Requirements: Comply with ASTM F1913.
 - 2. Thickness: 0.080 inch nominal.
 - 3. Seams: Heat welded.
 - 4. Color: To be selected by Architect from manufacturer's full range.
- B. Welding Rod: Solid bead in material compatible with flooring, produced by flooring manufacturer for heat welding seams, and in color matching field color.

2.02 TILE FLOORING

- A. Vinyl Tile: Printed film type, with transparent or translucent wear layer.
 - 1. BASIS OF DESIGN Product:
 - a. Mannington Commercial: Color Anchor LVT - Groove:
<https://www.manningtoncommercial.com/products/hard-surface/lvt/groove/>
 - 2. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
 - 3. Wear Layer Thickness: 0.020 inch.
 - 4. Total Thickness: 0.125 inch.
 - 5. Color: As indicated on drawings.
- B. Rubber Tile: - RT-4 Recycled SBR (styrene butadiene rubber) and colored EPDM (ethylene propylene diene monomer) granules with urethane binder.
 - 1. Backing: Recycled black rubber, laminated to colored top layer.
 - 2. Size: 24 by 24 inch.
 - 3. Thickness: 3/8 inch minimum.
 - 4. Tile Edge: Interlocking shape.
 - 5. Color: As indicated on drawings.

2.03 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove.
 - 1. Height as indicated on drawings
 - 2. Thickness: 0.125 inch.
 - 3. Finish: Satin.
 - 4. Length: Roll.
 - 5. Color: To be selected by Architect from manufacturer's full range.

2.04 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Transition Strips: color and material to match adjacent resilient base.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.

3.02 INSTALLATION - SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.

3.03 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

3.04 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

END OF SECTION 09 6500

SECTION 09 6813
TILE CARPETING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- B. Shop Drawings: Indicate layout of joints, direction of carpet pile, and location of edge moldings.
- C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Tile Carpeting: Tufted, manufactured in one color dye lot.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product.
 - 2. Color: as indicated on drawings.
 - 3. Pattern: as indicated on drawings.
 - 4. Weight – 18 OZ/SQ YD
 - 5. Primary Backing Material: Polypropylene.
 - 6. Primary Backing Weight: ____ oz/sq yd.
- B. Roll Carpet: Same manufacturer, type, color and pattern, and face fiber characteristics as carpet tile, 12 feet wide manufactured in same color dye lot as tile.

2.02 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Edge Strips: Embossed aluminum, silver color.
- C. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Blend carpet from different cartons to ensure minimal variation in color match.
- B. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- C. Lay carpet tile in _____ pattern, with pile direction alternating to next unit, set parallel to building lines.

END OF SECTION 09 6813

SECTION 09 9123
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Mechanical and Electrical:
 - a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - b. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - c. Paint dampers exposed behind louvers and grilles, to match face panels.
- B. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Floors, unless specifically indicated.
 - 6. Ceramic and other tiles.
 - 7. Glass.
 - 8. Concrete masonry units in utility, mechanical, and electrical spaces.
 - 9. Acoustical materials, unless specifically indicated.
 - 10. Concealed pipes, ducts, and conduits.

1.02 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
 - 2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 4. Supply each paint material in quantity required to complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Colors: To be selected from manufacturer's full range of available colors.
1. Color selections are as indicated on drawings.
 2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
 3. Extend colors to surface edges; colors may change at any edge as directed by Architect.
 4. In finished areas, finish exposed pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - INTERIOR

- A. INTERIOR - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete, concrete masonry units, and shop primed steel.
1. Two top coats and one coat primer.
 2. Top Coat(s): Interior Latex; MPI #44, #53, or #54.
 3. Top Coat Sheen:
 - a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
 - b. Eggshell: MPI gloss level 3; use this sheen for typical wall surfaces.
 4. Primer: As recommended by top coat manufacturer for specific substrate.
- B. MEDIUM DUTY - Door/Trim: For surfaces subject to frequent contact by occupants, including metals:
1. Two top coats and one coat primer.
 2. Top Coat(s): Interior Light Industrial Coating, Water Based; MPI #153.
 3. Top Coat Sheen:
 - a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations for metal doors and frames, stairs and railings.
 4. Primer: As specified under "PRIMERS" below.
- C. EPOXY Medium Duty Vertical and Overhead: Including gypsum board, concrete masonry units, shop primed steel, and galvanized steel.
1. Two top coats and one coat primer.
 2. Top Coat(s): Interior Light Industrial Coating, Water Based; MPI #151, 153, or 154.
 3. Top Coat Sheen:
 - a. Semi-Gloss: MPI gloss level 5; use this sheen for walls in corridors, restrooms, and janitor closets.
 4. Primer: As recommended by top coat manufacturer for specific substrate.
- D. DRY FALL - Dry Fall: Metals; exposed structure and overhead-mounted services in utilitarian spaces, including shop primed steel deck, structural steel, metal fabrications, galvanized ducts, galvanized conduit, and galvanized piping.
1. One top coat .
 2. Top Coat: Latex Dry Fall; MPI #118.
 3. Top Coat Sheen:
 - a. Flat: MPI gloss level 1; use this sheen at all locations.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 - 1. Interior/Exterior Latex Block Filler; MPI #4.
 - 2. Interior Latex Primer Sealer; MPI #50.
 - 3. Interior Rust-Inhibitive Water Based Primer; MPI #107.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

END OF SECTION 09 9123

SECTION 10 1100
VISUAL DISPLAY UNITS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturer's data on chalkboard, markerboard, tackboard, tackboard surface covering, trim, and accessories.
- B. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.
- C. Samples: Submit two samples 2 by 2 inch in size illustrating materials and finish, color and texture of markerboard, tackboard, tackboard surfacing, and trim.

1.02 WARRANTY

- A. Provide five year warranty for chalkboard and markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.

PART 2 PRODUCTS

2.01 VISUAL DISPLAY UNITS

- A. Markerboards: Porcelain enamel on steel, laminated to core.
 - 1. Color: Low gloss White, suitable as projection surface..
 - 2. Core: Particleboard, manufacturer's standard thickness, laminated to face sheet.
 - 3. Backing: Aluminum foil, laminated to core.
 - 4. Size: As indicated on drawings.
 - 5. Board Properties: Magnetic, Scratch and stain resistant.
 - 6. Frame: Extruded aluminum, with concealed fasteners.
 - 7. Frame Finish: Anodized, natural.
- B. Tackboards: Fabric laminated to cork.
 - 1. Cork Thickness: 1/4 inch.
 - 2. Fabric: Self Healing Vinyl coated fabric.
 - 3. Color: As indicated on drawings.
 - 4. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.
 - 5. Size: As indicated on drawings.
 - 6. Frame: Extruded aluminum, with concealed fasteners.
 - 7. Frame Profile: Manufacturer's standard
 - 8. Frame Finish: Anodized, natural.

2.02 MATERIALS

- A. Porcelain Enameled Steel Sheet: ASTM A424/A424M, Type I, Commercial Steel, with fired-on vitreous finish.
- B. Vinyl Coated Fabric: ASTM F793/F793M Category VI.
- C. Particleboard: ANSI A208.1; wood chips, set with waterproof resin binder, sanded faces.
- D. Foil Backing: Aluminum foil sheet, 0.005 inch thick.
- E. Aluminum Sheet Backing: 27 gage, 0.014 inch thick.

2.03 ACCESSORIES

- A. Marker Tray: Aluminum, manufacturer's standard profile, one piece full length of marker board, molded ends, concealed fasteners, same finish as frame.
- B. Mounting Brackets: Concealed.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install boards in accordance with manufacturer's instructions.

B. Secure units level and plumb.

END OF SECTION 10 1100

SECTION 10 1400
SIGNAGE

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
- C. Samples: Submit one sample of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- D. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- E. Manufacturer's Qualification Statement.

PART 2 PRODUCTS

2.01 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 , unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs: Provide a sign for every new doorway, or reconfigured room or space not including corridors, lobbies, and similar open areas.
 - 1. Sign Type: Flat signs with injection molded panel media to match existing.
 - 2. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
 - 3. Character Height: 1 inch.
 - 4. Sign Height: 8 x 8 inches, unless otherwise indicated.
 - 5. Office Doors: Identify with room numbers to be determined later, not the numbers indicated on drawings; in addition, provide "window" section for replaceable occupant name.
 - 6. Classroom Doors: Identify with room numbers to be determined later, not the numbers indicated on drawings; in addition, provide "window" section for replaceable occupant name.
 - 7. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers indicated on drawings.
 - 8. Service Rooms: Identify with room names and numbers to be determined later, not those indicated on drawings.
 - 9. Rest Rooms: Identify with pictograms, the names "BOYS" and "GIRLS", room numbers to be determined later,
 - 10. Single occupant rest rooms: Identify as "RESTROOM", room numbers to be determined later.
 - 11. Locker Rooms: Identify as "LOCKER ROOM", room numbers to be determined later, not the numbers indicated on drawings; in addition, provide "window" section for changeable gender label.

2.02 SIGN TYPES

- A. Flat Signs: Signage media without frame.
 - 1. Edges: Square.
 - 2. Corners: Radiused.
 - 3. Wall Mounting of One-Sided Signs: Tape adhesive.
- B. Color and Font: Match existing.
 - 1. Character Font: Helvetica, Arial, or other sans serif font.
 - 2. Character Case: Upper case only.

3. Background Color: Clear.
4. Character Color: Contrasting color.

2.03 ACCESSORIES

- A. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.

END OF SECTION 10 1400

**SECTION 10 2123
CUBICLE CURTAINS AND TRACK**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data for curtain fabric characteristics.
- B. Shop Drawings: Indicate a reflected ceiling plan view of curtain track, hangers and suspension points, attachment details, schedule of curtain sizes.
- C. Samples: Submit two fabric samples, 6 by 6 inch in size illustrating fabric color.

PART 2 PRODUCTS

2.01 TRACKS AND TRACK COMPONENTS

- A. Tracks: Extruded aluminum sections; one piece per track run.
 - 1. Structural Performance: Capable of supporting vertical test load of 50 lbs without visible deflection of track or damage to supports, safely supporting moving loads, and sufficiently rigid to resist visible deflection and without permanent set.
 - 2. Track End Stop, Tees, Y's, and Switches: To fit track section.
 - 3. Track Bends: Minimum 12 inch radius; fabricated without deformation of track section or impeding movement of carriers.
 - 4. Finish on Exposed Surfaces: Clear anodized.
- B. Curtain Carriers: Nylon slider, size and type compatible with track; designed to eliminate bind when curtain is pulled; fitted to curtain to prevent accidental curtain removal.
- C. Wand: Plastic, attached to lead carrier, for pull-to-close action.
- D. Installation Accessories: Types required for specified mounting method and substrate conditions.

2.02 CURTAINS

- A. Cubicle Curtains:
 - 1. Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - 2. Material: Close weave polyester; anti-bacterial, self deodorizing, sanitized, and preshrunk.
 - 3. Color/Pattern: Selected from manufacturer's full range of available standards..
 - 4. Open Mesh Cloth: Open weave to permit air circulation; flameproof material, manufacturer's standard color.
- B. Curtain Fabrication:
 - 1. Width of curtain to be ____ percent wider than track length.
 - 2. Length of curtain to end 15 inches above finished floor.
 - 3. Include open mesh cloth at top 20 inches of curtain for room air circulation, attached to curtain as specified above.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install curtain track to be secure, rigid, and true to ceiling line.
- B. Secure track to ceiling system.
- C. Install curtains on carriers ensuring smooth operation.

END OF SECTION 10 2123

SECTION 10 2600
WALL AND DOOR PROTECTION

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.

1.02 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer and installer warranty for metal crash rails.

PART 2 PRODUCTS

2.01 PRODUCT TYPES

- A. Corner Guards - Surface Mounted:
 - 1. Material: High impact vinyl with full height extruded aluminum retainer.
 - 2. Performance: Resist lateral impact force of 100 lbs at any point without damage or permanent set.
 - 3. Width of Wings: 2 inches.
 - 4. Corner: Radiused.
 - 5. Color: As selected from manufacturer's standard colors.
 - 6. Preformed end caps.

2.02 FABRICATION

- A. Fabricate components with tight joints, corners and seams.
- B. Pre-drill holes for attachment.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.
- B. Position corner guard 4 inches above finished floor. .

END OF SECTION 10 2600

SECTION 10 2800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide products of each category type by single manufacturer.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Keys: Provide five keys for each accessory to Owner.
- C. Stainless Steel Sheet: ASTM A666, Type 304.
- D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.
- E. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.
- F. Mirror Glass: Tempered safety glass, ASTM C1048; and ASTM C1036 Type I, Class 1, Quality Q2, with silvering as required.

2.03 FINISHES

- A. Stainless Steel: Satin finish, unless otherwise noted.
- B. Chrome/Nickel Plating: ASTM B456, SC 2, satin finish, unless otherwise noted.
- C. Baked Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats epoxy baked enamel.

2.04 DIAPER CHANGING STATIONS

- A. Diaper Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
 - 1. Material: Polyethylene.
 - 2. Mounting: Surface.
 - 3. Minimum Rated Load: 250 pounds.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As indicated on Drawings and as required by accessibility regulations, unless otherwise indicated.

END OF SECTION 10 2800

**SECTION 10 4400
FIRE PROTECTION SPECIALTIES**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide extinguisher operational features, color and finish, and anchorage details.

1.02 FIELD CONDITIONS

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 - 1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as indicated.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
 - 1. Class: A:B:C type.
 - 2. Size: 10 pound.
 - 3. Finish: Baked polyester powder coat, red color.
 - 4. Temperature range: Minus 40 degrees F to 120 degrees F.
- C. Dry Chemical Type Fire Extinguishers: Stainless steel tank, with pressure gauge.
 - 1. Class: K type.
 - 2. Size: 1.6 gallons.
 - 3. Finish: Polished stainless steel.
 - 4. Temperature range: Minus 20 degrees F to 120 degrees F.

2.02 FIRE EXTINGUISHER CABINETS

- A. Cabinet Construction: Non-fire rated.
- B. Cabinet Configuration: Semi-recessed type.
 - 1. Trimless type.
- C. Door Glazing: Acrylic plastic, clear, 1/8 inch thick, flat shape and set in resilient channel glazing gasket.
- D. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- E. Finish of Cabinet Exterior Trim and Door: No. 4 - Brushed stainless steel.

2.03 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Secure rigidly in place.
- C. Place extinguishers in cabinets.

END OF SECTION 10 4400

**SECTION 10 5113
METAL LOCKERS**

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Manufacturer's published data on locker construction, sizes and accessories.
- B. Shop Drawings: Indicate locker plan layout, numbering plan and combination lock code.
- C. Full Size Sample: One full-size locker of each construction specified for evaluation of construction.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Place and secure on prepared base.
- C. Install lockers plumb and square.

END OF SECTION 10 5113

SECTION 12 2400
WINDOW SHADES - MECHOSHADE SYSTEMS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product to be used including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
 - 1. Motorized Shades: Include power requirements and standard wiring diagrams solely for the specified products.
- B. Shop Drawings: Include shade schedule indicating size, location and keys to details.
 - 1. Motorized Shades: Include one-line diagrams, wire counts, coverage patterns, and physical dimensions of each item. Include location plan showing all switch and control zones, switches, sensors and other control accessories.
- C. Selection Samples: Include fabric samples in full range of available colors and patterns.

PART 2 PRODUCTS

2.01 ROLLER SHADES

- A. General:
 - 1. Provide shade system components that are capable of being removed or adjusted without removing mounted shade brackets or cassette support channel.
 - 2. Provide shade system that operates smoothly when shades are raised or lowered.
 - 3. Electrical Components: Listed, classified, and labeled as suitable for the purpose intended. Individual testing of components will not be acceptable in lieu of system testing. Where applicable, system components to be FCC compliant.
- B. Roller Shades - Basis of Design: MechoShade Systems LLC; ElectroShade with WhisperShade IQ2 EDU, line voltage (120 VAC); www.mechoshade.com/#sle.
 - 1. Description: Single roller, motor operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and accessories.
 - 2. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
 - 3. Roller Tubes:
 - a. Material: Extruded aluminum.
 - b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
 - c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
 - 4. Hembars: Designed to maintain bottom of shade straight and flat.
 - 5. Accessories:
 - a. Fascia: Removable extruded aluminum fascia, size as required to conceal shade mounting, attachable to brackets without exposed fasteners; baked enamel finish.
 - 1) Fascia to be capable of installation across two or more shade bands in one piece.
 - 2) Color: White.
 - 3) Profile: Square.

2.02 SHADE FABRIC

- A. Fabric: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.

2.03 INTELLIGENT ENCODED ELECTRONIC DRIVE SYSTEM

- A. Electronic Drive Unit (EDU) System - General Requirements:

1. System to be certified and labelled as a UL 325 listed solution. Recognized component certification is not acceptable in lieu of system testing. Listing label and motor rating to be readily visible for inspection without requiring dismounting of shade assembly for motor or EDU to be removed from shade roller tube.
 2. EDU size and configuration to be as recommended by manufacturer for the type, size, and arrangement of shades to be operated.
 3. Conceal EDU inside shade roller tube.
 4. Use EDU's rated at the same nominal speed for shades in the same room.
 5. Total hanging weight of shade band not to exceed 80 percent of rated lifting capacity of shade EDU and tube assembly.
- B. Line Voltage EDU (120 VAC):
1. Basis of Design: MechoShade Systems LLC; WhisperShadeIQ2 System; www.mechoshade.com/#sle.
 2. Description: Tubular, asynchronous (non-synchronous), with integral AC motor and reversible capacitor operating at 120 VAC, single phase, 60 Hz; temperature Class B, thermally-protected, totally enclosed, maintenance-free; powered by line voltage power supply connection equipped with locking disconnect plug assembly furnished with EDU.
 3. Audible Noise: 46 dBA or less measured 3 feet from the motor unit, depending on motor torque.
 4. Nominal Speed: Minimum of 34 RPM; does not vary due to load/lift capacity.
 5. EDU to provide isolated, low voltage power supply for powering external accessories connected to either the dry contact port or the network port. Products that require accessories to be powered by a plug-in or externally-supplied power supply are not acceptable.
- C. Modes of Operation:
1. Uniform Mode: Allows for shades to move only to defined intermediate stop positions in order to maintain aesthetic uniformity.
 2. Normal Mode: Allows for shades to move to defined intermediate stop positions plus any position between defined upper and lower limits.
 3. Maintenance Mode: Prevents shade from moving to newly commanded positions via dry contact or network control commands until EDU has been serviced and/or Maintenance Mode has been cleared/disabled.
- D. Local Switch Presets:
1. Provide a minimum of three customizable preset positions accessible over the local dry contact control inputs and over the network connection.
 2. Preset positions to be customizable to any position between and including the defined upper and lower limits (initially defaults to 25, 50, and 75 percent of shade travel).
 3. Support configuration of custom preset positions using either a handheld removable program module/configurator or a local switch.

2.04 MOTOR CONTROLS

- A. Unless specifically indicated to be excluded, provide all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the control intent indicated.
- B. Provide all components and connections necessary to interface with other systems as indicated.
- C. Wireless Controls:
 1. MechoNet Wireless Controllers:
 - a. Serves as gateway, router, and controller between EnOcean wireless devices and MechoNet network.
 - b. Communicates with EnOcean wireless devices via 902 MHz RF; supports wireless daylight sensors, wireless occupancy/vacancy sensors, and wireless switches.
 - c. Each controller manages up to 16 EnOcean wireless devices.

- d. Multiple sensors can be configured to automate the same shade control zone in order to ensure operation based on worst case comfort conditions across the zone.
- e. Each sensor can be configured to automate multiple shade control zones.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

3.02 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.

END OF SECTION 12 2400

SECTION 12 3200
MANUFACTURED WOOD CASEWORK

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Component dimensions, configurations, construction details, joint details, attachments.
- B. Shop Drawings: Indicate casework types, sizes, and locations, using large scale plans, elevations, and cross sections. Include rough-in and anchors and reinforcements, placement dimensions and tolerances, clearances required, and keying information.

1.02 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience and approved by manufacturer.

1.03 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion, at no additional cost to Owner. Defects include, but are not limited to:
 - 1. Ruptured, cracked, or stained finish coating.
 - 2. Discoloration or lack of finish integrity.
 - 3. Cracking or peeling of finish.
 - 4. Delamination of components.
 - 5. Failure of adhesives.
 - 6. Failure of hardware.

PART 2 PRODUCTS

2.01 CASEWORK, GENERAL

- A. Quality Standard: AWI/AWMAC/WI (AWS), unless noted otherwise.
- B. Plastic Laminate Faced Cabinets: Custom Grade.

2.02 FABRICATION

- A. Assembly: Shop assemble casework items for delivery to site in units easily handled and to permit passage through building openings.
- B. Construction: As required for selected grade.
- C. Structural Performance: Safely support the following minimum loads:
 - 1. Base Units: 500 pounds per linear foot across the cabinet ends.
 - 2. Suspended Units: 300 pounds static load.
 - 3. Drawers: 125 pounds, minimum.
 - 4. Hanging Wall Cases: 300 pounds.
 - 5. Shelves: 100 pounds, minimum.
- D. Fittings and Fixture Locations: Cut and drill components for fittings and fixtures.
- E. Hardware Application: Factory-machine casework members for hardware that is not surface applied.
- F. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- G. Scribes and Fillers: Panels of matching construction and finish, for locations where cabinets do not fit tight to adjacent construction.
- H. Apron Frames: Construction similar to other cabinets, with modifications.

2.03 PLASTIC-LAMINATE-CLAD CASEWORK

- A. Plastic-Laminate-Clad Casework: Solid wood and wood panel construction; each unit self-contained and not dependent on adjacent units or building structure for rigidity; in sizes necessary to avoid field cutting except for scribes and filler panels. Include adjustable levelers for base cabinets.
 - 1. Style: Frameless; Flush overlay. Ease doors and drawer fronts slightly at edges.
 - 2. Cabinet Nominal Dimensions: Unless otherwise indicated, provide cabinets of widths and heights indicated on drawings, and with following front-to-back dimensions:
 - a. Base Cabinets: 24 inch.
 - b. Tall Cabinets: 24 inches.
 - c. Wall Cabinets: 12 inches.
 - 3. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline.
 - a. Finish: Matte or suede, gloss rating of 5 to 20.
 - b. Surface Color and Pattern: As indicated on drawings.
 - c. Exposed Interior Surfaces: Thermally fused laminate.

2.04 COUNTERTOPS

- A. Countertops: See Section 12 3600.

2.05 CABINET HARDWARE

- A. Comply with BHMA A156.9 requirements.
 - 1. Acceptable base materials for plated finishes include brass, bronze, and steel.
- B. Locks: Provide locks on drawers and base cabinet doors. Lock with 5 pin cylinder and 2 keys per lock.
 - 1. Hinged Doors: Cam type lock, satin chromium plated over nickel on base material.
 - 2. Tall Hinged Doors: Three-point latching system.
 - 3. Master Key System: All locks operable by master key.
- C. Shelves in Cabinets:
 - 1. Shelf Standards and Rests: Vertical standards with rubber button fitted rests, satin chromium plated over nickel on base material.
- D. Swinging Doors: Hinges, pulls, and catches.
 - 1. Hinges: Concealed, number as required by referenced standards for width, height, and weight of door.
 - 2. Pulls: Chrome wire pulls, 4 inches wide.
 - 3. Catches: Magnetic.
- E. Drawers: Pulls and slides.

2.06 MATERIALS

- A. Wood-Based Materials:
 - 1. Composite Wood Panels: Containing no urea-formaldehyde resin binders.
- B. Solid Wood: Clear, dry, sound, plain sawn, selected for compatible species, grain and color, no defects.
- C. Concealed Solid Wood or Plywood: Any species and without defects affecting strength or utility.
- D. High Pressure Decorative Laminate (HPDL): NEMA LD 3, type HGS and VGS, as specified for specific applications. Complying with Grade requirements, and standard with the manufacturer.
- E. Thermally Fused Laminate (TFL): Melamine resin, NEMA LD 3, Type VGL laminate panels.
- F. Laminate Backing Sheet: NEMA LD 3, BKL; undecorated plastic laminate.

2.07 ACCESSORIES

- A. Plastic Edge Banding: Extruded PVC, flat shaped; smooth finish; self locking serrated tongue; of width to match component thickness.
- B. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- C. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Site Verification of Environmental Conditions:
 - 1. Do not deliver casework until the following conditions have been met:
 - a. Building has been enclosed (windows and doors sealed and weather-tight).
 - b. An operational HVAC system that maintains temperature and humidity at occupancy levels has been put in place.
 - c. Ceiling, overhead ductwork, piping, and lighting have been installed.
 - d. Installation areas do not require further "wet work" construction.

3.02 INSTALLATION

- A. Perform installation in accordance with manufacturer's instructions.
- B. Use anchoring devices to suit conditions and substrate materials encountered. Use concealed fasteners to the greatest degree possible. Use exposed fasteners only where allowed by approved shop drawings, or where concealed fasteners are impracticable.
- C. Set casework items plumb and square, securely anchored to building structure.
- D. Align cabinets to adjoining components, install filler and/or scribe panels where necessary to close gaps.
- E. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch. In addition, do not exceed the following tolerances:
 - 1. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
 - 2. Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet.
 - 3. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
 - 4. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.
- F. Secure wall and floor cabinets to concealed reinforcement at gypsum board assemblies.
- G. Base Cabinets: Fasten cabinets to service space framing and/or wall substrates, with fasteners spaced not more than 16 inches on center. Bolt adjacent cabinets together with joints flush, tight, and uniform.
- H. Wall Cabinets: Fasten to hanging strips, and/or wall substrates. Fasten each cabinet through back, near top, at not less than 16 inches on center.
- I. Install hardware uniformly and precisely.
- J. Replace units that are damaged, including those that have damaged finishes.

END OF SECTION 12 3200

SECTION 12 3600
COUNTERTOPS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Specimen warranty.
- B. Shop Drawings: Complete details of materials and installation; combine with shop drawings of cabinets and casework specified in other sections.
- C. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.

PART 2 PRODUCTS

2.01 COUNTERTOPS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Plastic Laminate Countertops: High-pressure decorative laminate (HPDL) sheet bonded to substrate.
 - 1. Laminate Sheet: NEMA LD 3, Grade HGS, 0.048 inch nominal thickness.
 - a. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - b. Finish: Matte or suede, gloss rating of 5 to 20.
 - c. Surface Color and Pattern: As indicated on drawings.
 - 2. Exposed Edge Treatment: Molded 3mm PVC, hot melt glue applied, sized to completely cover edge of panel.
 - a. Color: As indicated on drawings.
 - 3. Back and End Splashes: Same material, same construction.
 - 4. Fabricate in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 11 - Countertops, Custom Grade.
- C. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting over continuous substrate.
 - 1. Flat Sheet Thickness: 1/2 inch, minimum.
 - 2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
 - a. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - b. Sinks and Bowls: Separate units for undercounter mounting; minimum 3/4 inch wall thickness; comply with IAPMO Z124.
 - c. Finish on Exposed Surfaces: Semi-gloss, gloss rating of 25 to 50.
 - d. Color and Pattern: As indicated on drawings.
 - 3. Other Components Thickness: 1/2 inch, minimum.
 - 4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch thick; radiused edge; use marine edge at sinks.
 - 5. Back and End Splashes: Same sheet material, square top; minimum 4 inches high.
 - 6. Skirts: As indicated on drawings.
 - 7. Fabricate in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 11 - Countertops, Premium Grade.

2.02 MATERIALS

- A. Particleboard for Supporting Substrate: ANSI A208.1 Grade 2-M-2, 45 pcf minimum density; minimum 3/4 inch thick; join lengths using metal splines.
- B. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.

2.03 FABRICATION

- A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
- B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
- C. Wall-Mounted Counters: Provide brackets and braces as indicated on drawings.
 - 1. Best Brackets ADA Workstation Support Standard Steel Bracket, or equivalent.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.
- B. Attach plastic laminate countertops using screws with minimum penetration into substrate board of 5/8 inch.
- C. Seal joint between back/end splashes and vertical surfaces.

END OF SECTION 12 3600