

USD 320 Wamego-Phase 2-Bid Package 3- Wamego Middle School Science Addition

Addendum 3

Issue Date: 12-12-17

Architect: BBN Architects Inc.

MEP: Orazem & Scalora Engineering, P.A.

Civil Engineer: SMH Consultants

Construction Manager: Coonrod & Associates Construction Co., Inc.

Owner: USD 320 Wamego

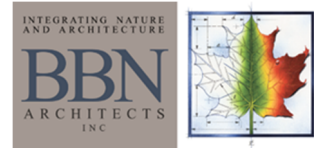
The attached documents and / or items below shall hereby become part of the Construction Documents for the referenced project above.

3-1: Please REPLACE / ADD the existing specification pages, plan sheets listed below, with the new, attached.

- ***Table of Contents***
- ***081416-Flush Wood Doors***
- ***087130-Door Hardware-Science Wing***
- ***088000-Glazing***
- ***101116-Glass Markerboards***
- ***104400-Fire Protection Specialties***
- ***104416-Fire Extinguishers***
- ***Plan Sheet S103-Roof Framing Plan***

3-2: Please delete the following specification section(s).

- ***102800-Toilet & Bath Accessories***



3-3: Please ADD the following bid scopes (see attached revise bid scopes).

- **12B-Plastic Clad Tops**
- **12E-Laboratory Fume Hoods and Related Products**

3-4: Please DELETE the following bid scopes (see attached revise bid scopes).

- **10B-Toilet & Bath Accessories**

3-5: Please ADD the attached schedule to the bid documents. This schedule shows duration (in working days i.e.- 5 days = 1 week) and approximate dates of start and finish. The CM reserves the right to modify this schedule as needed.

3-6: A reminder that no additional overtime charges will be granted after the bid unless situations arise that are not in the bidders control (i.e.- weather delays). If a bidder requires overtime work to be done to meet the durations, that bidder must include those overtime costs in their bid amount.

3-7: It will be the mechanical subcontractor's responsibility to protect the duct work from weather conditions while the roof is being installed and dried in. This may include but is not limited to covering insulated duct with plastic and sealing the openings.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors with wood-veneer faces.
 - 2. Factory finishing flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Requirements:
 - 1. Section 08 80 00 "Glazing" for ~~fire protection rated~~ **tempered** glass view panels in flush wood doors.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
 - 1. Dimensions and locations of blocking.
 - 2. Dimensions and locations of mortises and holes for hardware.
 - 3. Dimensions and locations of cutouts.
 - 4. Undercuts.
 - 5. Requirements for veneer matching.
 - 6. Doors to be factory finished and finish requirements.
 - 7. Fire-protection ratings for fire-rated doors.
- C. Samples for Initial Selection: For factory-finished doors.
- D. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges representing actual materials to be used.
 - a. Provide Samples for each species of veneer and solid lumber required.
 - b. Finish veneer-faced door Samples with same materials proposed for factory-finished doors.
3. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of door, from manufacturer.
- B. Sample Warranty: For special warranty.
- C. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during remainder of construction period.

1.8 WARRANTY

- A. A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.

- b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.
2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eggers Industries.
 2. Graham Wood Doors; ASSA ABLOY Group company.
 3. Marshfield DoorSystems, Inc.
 4. VT Industries Inc.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
 1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
 2. Contract Documents contain selections chosen from options in quality standard and additional requirements beyond those of quality standard. Comply with those selections and requirements in addition to quality standard.
- B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 1. Temperature-Rise Limit: At exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
 2. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
 3. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

-
4. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- D. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.
 - E. Structural-Composite-Lumber-Core Doors:
 1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf (3100 N).
 - b. Screw Withdrawal, Edge: 400 lbf (1780 N).
 - F. Mineral-Core Doors:
 1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
 2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as follows:
 - a. 5-inch (125-mm) top-rail blocking.
 - b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.
 - c. 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
 - d. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
 - a. Screw-Holding Capability: 550 lbf (2440 N) per WDMA T.M.-10.

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
 1. Grade: Premium, with Grade AA faces.
 2. Species: Red oak.
 3. Cut: Plain sliced (flat sliced).
 4. Match between Veneer Leaves: Book match.
 5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
 6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
 7. Exposed Vertical Edges: Same species as faces - edge Type A.
 8. Core: Either glued wood stave or structural composite lumber.
 9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

~~2.4~~ LIGHT FRAMES

- ~~A. Metal Frames for Light Openings in Fire Rated Doors: Manufacturer's standard frame formed of 0.048 inch (1.2 mm) thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated.~~

~~2.52.4~~ FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
 2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Factory cut and trim openings through doors.
1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 08 80 00 "Glazing."

~~2.62.5~~ FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
1. Grade: Premium.
 2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" System 11, catalyzed polyurethane.
 3. Staining: None required.
 4. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- A. Hardware: For installation, see Section 08 71 30 "Door Hardware - Science Wing."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Install fire-rated doors according to NFPA 80.
 - 2. Install smoke- and draft-control doors according to NFPA 105.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

SECTION 08 71 30 – DOOR HARDWARE - SCIENCE WING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
1. Swinging doors.
 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
1. Mechanical door hardware.
 2. Electromechanical door hardware.
 3. Cylinders specified for doors in other sections.
- C. Related Sections:
1. Section 08 11 13 "Hollow Metal Doors and Frames."
 2. Section 08 14 16 "Flush Wood Doors."
 3. Section 08 41 13 "Aluminum-Framed Entrances and Storefronts."
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 2. ICC/IBC - International Building Code.
 3. NFPA 70 - National Electrical Code.
 4. NFPA 80 - Fire Doors and Windows.
 5. NFPA 101 - Life Safety Code.
 6. NFPA 105 - Installation of Smoke Door Assemblies.
 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
1. ANSI/BHMA Certified Product Standards - A156 Series
 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. **Product Data:** Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. **Door Hardware Schedule:** Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. **Format:** Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. **Organization:** Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. **Content:** Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. **Submittal Sequence:** Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. **Shop Drawings:** Details of electrified access control hardware indicating the following:
1. **Wiring Diagrams:** Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

-
- b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
 - D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
 - E. Informational Submittals:
 - 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
 - F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Section 01 77 00 "Closeout Procedures."

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Section 01 31 00 "Project Management and Coordination." Keying conference to incorporate the following criteria into the final keying schedule document:
1. Function of building, purpose of each area and degree of security required.
 2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Section 01 31 00 "Project Management and Coordination" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

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

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Five years for exit hardware.
 - 3. Twenty five years for manual surface door closer bodies.
 - 4. Five years for motorized electric latch retraction exit devices.
 - 5. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

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

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

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

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'7" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 - 4. Hinge Options: Comply with the following:

-
5. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 6. Acceptable Manufacturers:
 - a. Bommer Industries (BO).
 - b. Hager Companies (HA).
 - c. McKinney Products (MK).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Acceptable Manufacturers:
 - a. Bommer Industries (BO).
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
 - c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

- A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
1. Acceptable Manufacturers:
 - a. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE) – EL-CEPT Series.
 - b. Securitron (SU) - EL-CEPT Series.
 - c. Von Duprin (VD) - EPT-10 Series.
- B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.

- b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
 2. Acceptable Manufacturers:
 - a. McKinney Products; (MK) – QC-C Series

2.4 CYLINDERS AND KEYING

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

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

1. Acceptable Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

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

1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) – ML2000 Series.
 - b. Sargent Manufacturing (SA) – 8200 Series.
 - c. Stanley Best (BE) – 40H Series.

2.6 LOCK AND LATCH STRIKES

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

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

- B. Standards: Comply with the following:

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

2.7 CONVENTIONAL EXIT DEVICES

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

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 3. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 4. Electromechanical Options: Subject to same compliance standards and requirements as mechanical exit devices, electrified devices to be of type and design as specified in hardware sets. Include any specific controllers when conventional power supplies are not sufficient to provide the proper inrush current.
 5. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) - 80 Series.
 - c. Stanley Precision (PR) - Apex 2000 Series.
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
1. Provide keyed removable feature where specified in the Hardware Sets.
 2. Provide stabilizers and mounting brackets as required.

3. Provide electrical quick connection wiring options as specified in the hardware sets.
4. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - 700/900 Series.
 - b. Sargent Manufacturing (SA) - 980S Series.
5. Stanley Precision (PR) - 822 Series

2.8 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
 1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) – DC6000 Series.
 - b. Sargent Manufacturing (SA) - 351 Series.

- c. Norton Door Controls (NO) - 7500 Series.
- d. Yale Locks and Hardware (YA) - 4400 Series.

2.9 SURFACE MOUNTED CLOSER HOLDERS

- A. Electromagnetic Door Holders: Certified ANSI A156.15 electromagnetic door holder/releases with a minimum 20 to 40 pounds holding power and single coil construction able to accommodate 12VDC, 24VAC, 24VDC and 120VAC. Coils to be independently wound, employing an integral fuse and armatures to include a positive release button.

- 1. Acceptable Manufacturers:
 - a. Rixson (RF) - 980/990 Series.
 - b. Sargent Manufacturing (SA) - 1560 Series

2.10 ARCHITECTURAL TRIM

- A. Door Protective Trim

- 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
- 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW). Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
- 3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
- 4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
- 5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
- 6. Acceptable Manufacturers:
 - a. Burns Manufacturing (BU).
 - b. Rockwood Manufacturing (RO).
 - c. Trimco (TC).

2.11 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
1. Acceptable Manufacturers:
 - a. Burns Manufacturing (BU).
 - b. Rockwood Manufacturing (RO).
 - c. Trimco (TC).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
1. Acceptable Manufacturers:
 - a. Rixson Door Controls (RF).
 - b. Rockwood Manufacturing (RO).
 - c. Sargent Manufacturing (SA).

2.12 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- E. Acceptable Manufacturers:

1. National Guard Products (NG).
2. Pemko Manufacturing (PE).
3. Reese Enterprises, Inc. (RE).

2.13 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - DPS Series.
 - b. Securitron (SU) - DPS Series.
 - B. Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
 1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - 630 Series.
 - b. Securitron (SU) - BPS Series.

2.14 FABRICATION

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

2.15 FINISHES

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

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

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

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Section 07 92 00 "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

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

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

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

3.7 DOOR HARDWARE SETS

- A. Door Hardware Sets begin on the following page.

Hardware Sets

Manufacturer Name Abbreviation:

- 1. MK - McKinney**
- 2. PE - Pemko**
- 3. RF - Rixson**
- 4. RO - Rockwood**
- 5. SA - Sargent**
- 6. BE - Stanley Security Solutions Inc (BE)**
- 7. HS - HES**
- 8. NO - Norton**
- 9. SU - Securitron**
- 10. RU - Corbin Russwin**
- 11. YA - Yale**
- 12. HI - Hiawatha**
- 13. LU - Lund Equipment Co., Inc.**

Set: 1.0

Doors: E100, E108

| | | | |
|---------------------------|--|-------|-----------------------------|
| 2 Continuous Hinge | CFMHD1 PT | | PE |
| 1 Removable Mullion | L980A | US28 | SA |
| 1 Rim Exit Device | LC 55 56 AD8504 862 | US32D | SA <input type="checkbox"/> |
| 1 Rim Exit Device | 55 56 AD8510 862 | US32D | SA <input type="checkbox"/> |
| 1 Mortise Cylinder | 1E-74 | 626 | BE |
| 1 Rim Cylinder | 1E-72 | 626 | BE |
| 2 Door Closer | CPS7500 | 689 | NO |
| 2 Bracket | 6890 | 689 | NO |
| 2 Blade Stop | 6891 | 689 | NO |
| 1 Threshold | 273x3AFG | | PE |
| 2 Gasketing | S88D | | PE |
| 1 Set Weatherstrip | by Door Manufacturer | | |
| 2 Sweep | 3452AV | | PE |
| 2 ElectroLynx Harness | QC-C1500P | | MK <input type="checkbox"/> |
| 2 ElectroLynx Harness | QC-CxxP (size to door width/hardware) | | MK <input type="checkbox"/> |
| 2 Electric Power Transfer | EL-CEPT | | SU <input type="checkbox"/> |
| 2 Position Switch | DPS | | SU <input type="checkbox"/> |
| 1 Power Supply | per the requirements of the hardware components | | SU <input type="checkbox"/> |
| 1 CARD READER | Wall Reader to be provided by Systems Integrator | | |

Notes: OPENING CAN BE ACCESSED VIA VALID CREDENTIAL OR MECHANICAL KEY. ALWAYS FREE EGRESS. CONTRACTOR TO PROVIDE WIRING DIAGRAMS FOR OPENING. ALUMINUM DOOR PROVIDER WILL NEED TO COORDINATE SPECIFIED HARDWARE WITH THE STILE AND RAILS OF THE ALUMINUM DOOR TO ENSURE ADEQUATE SPACE TO

USD 320 WAMEGO SCHOOL DISTRICT IMPROVEMENTS

BBN ARCHITECTS INC.

NOVEMBER 17, 2017

REVISED DECEMBER 1, 2017

INSTALL HARDWARE WITHOUT MODIFICATION TO HARDWARE OR USE OF A DROP PLATE. LINE MULLION WITH S88D GASKETING.

Set: 2.0

Doors: E103A

| | | | |
|---------------------------|----------------------|-------|----|
| 2 Continuous Hinge | CFMHD1 | | PE |
| 2 Concealed Vert Rod Exit | NB AD8415 ETL | US32D | SA |
| 2 Door Closer | CPS7500 | 689 | NO |
| 2 Bracket | 6890 | 689 | NO |
| 2 Blade Stop | 6891 | 689 | NO |
| 1 Set Weatherstrip | by Door Manufacturer | | |
| 1 Astragal Set | by Door Manufacturer | | |

Set: 3.0

Doors: E103B

| | | | |
|--------------------------|----------------------------|-------|------|
| 6 Hinge (heavy weight) | T4A3786 4-1/2" x 4-1/2" | US26D | MK |
| 2 Surface Vert Rod Exit | 12 NB8715 ETL | US32D | SA |
| 2 Door Closer | PR7500 | 689 | NO |
| 2 Kick Plate | K1050 10" x 2" LDW 4BE CSK | US32D | RO |
| 2 Electromagnetic Holder | 998 (tie into fire alarm) | 689 | RF □ |
| 1 Gasketing | S88D | | PE |
| 1 Astragal Set | 303AS (2 pc set) | | PE |

Set: 4.0

Doors: E104B, E106B, E109B, ~~E112A, E112B~~, E113B

| | | | |
|--------------------|----------------------|-------|----|
| 1 Continuous Hinge | CFMHD1 | | PE |
| 1 Rim Exit Device | LC AD8504 862 | US32D | SA |
| 1 Rim Cylinder | 1E-72 | 626 | BE |
| 1 Door Closer | CPS7500 | 689 | NO |
| 1 Bracket | 6890 | 689 | NO |
| 1 Blade Stop | 6891 | 689 | NO |
| 1 Threshold | 273x3AFG | | PE |
| 1 Set Weatherstrip | by Door Manufacturer | | |
| 1 Sweep | 3452AV | | PE |

Set: 4.1

Doors: E112A, E112B

| | | | |
|---------------------------|----------------------------|--------------|-------------|
| 1 Continuous Hinge | CFMHD1 PT | | PE |
| 1 Rim Exit Device | LC 55 56 AD8504 862 | US32D | SA □ |
| 1 Rim Cylinder | 1E-72 | 626 | BE |
| 1 Door Closer | CPS7500 | 689 | NO |
| 1 Bracket | 6890 | 689 | NO |
| 1 Blade Stop | 6891 | 689 | NO |

DOOR HARDWARE - SCIENCE WING

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ADDENDUM 3

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| | | | |
|----------------------------------|---|-----------|--------------------------|
| 1 Threshold | 273x3AFG | PE | |
| 1 Set Weatherstrip | by Door Manufacturer | | |
| 1 Sweep | 3452AV | PE | |
| 1 ElectroLynx Harness | QC-C1500P | MK | <input type="checkbox"/> |
| 1 ElectroLynx Harness | QC-CxxP (size to door width/hardware) | MK | <input type="checkbox"/> |
| 1 Electric Power Transfer | EL-CEPT | SU | <input type="checkbox"/> |
| 1 Position Switch | DPS | SU | <input type="checkbox"/> |
| 1 Power Supply | per the requirements of the hardware components | SU | <input type="checkbox"/> |
| 1 CARD READER | Wall Reader to be provided by Systems Integrator | | |

Notes: OPENING CAN BE ACCESSED VIA VALID CREDENTIAL OR MECHANICAL KEY. ALWAYS FREE EGRESS. CONTRACTOR TO PROVIDE WIRING DIAGRAMS FOR OPENING. ALUMINUM DOOR PROVIDER WILL NEED TO COORDINATE SPECIFIED HARDWARE WITH THE STILE AND RAILS OF THE ALUMINUM DOOR TO ENSURE ADEQUATE SPACE TO INSTALL HARDWARE WITHOUT MODIFICATION TO HARDWARE OR USE OF A DROP PLATE.

Set: 5.0

Doors: E104A, E106A, E109A, E113A

Not Used

| | | | |
|-------------------------------------|---------------------------------------|------------------|--|
| 3 Hinge (heavy weight) | T4A3786 4-1/2" x 4-1/2" | US26D | MK |
| 1 Classroom Lock | 45H7R 15H | 626 | BE |
| 1 Door Closer | PR7500 | 689 | NO |
| 1 Kick Plate | K1050 10" x 2" LDW 4BE CSK | US32D | RO |
| 1 Electromagnetic Holder | 998 (tie into fire alarm) | 689 | RF <input type="checkbox"/> |
| 1 Gasketing | S88D | | PE |

Set: 5.1

Doors: E104A, E106A, E109A, E113A

| | | | |
|-------------------------------|-----------------------------------|--------------|-----------|
| 3 Hinge (heavy weight) | T4A3786 4-1/2" x 4-1/2" | US26D | MK |
| 1 Classroom Lock | 45H7R 15H | 626 | BE |
| 1 Door Closer | PR7500H | 689 | NO |
| 1 Kick Plate | K1050 10" x 2" LDW 4BE CSK | US32D | RO |
| 1 Gasketing | S88D | | PE |

USD 320 WAMEGO SCHOOL DISTRICT IMPROVEMENTS

BBN ARCHITECTS INC.

NOVEMBER 17, 2017

REVISED DECEMBER 1, 2017

Set: 6.0

Doors: E115

| | | | |
|------------------------|----------------------------|-------|----|
| 3 Hinge (heavy weight) | T4A3786 4-1/2" x 4-1/2" | US26D | MK |
| 1 Classroom Lock | 45H7R 15H | 626 | BE |
| 1 Door Closer | 7500 | 689 | NO |
| 1 Kick Plate | K1050 10" x 2" LDW 4BE CSK | US32D | RO |
| 1 Wall Stop | 409 | US32D | RO |
| 1 Gasketing | S88D | | PE |

Set: 7.0

Doors: E111

| | | | |
|------------------------|-----------------------------|-------|----|
| 3 Hinge (heavy weight) | T4A3786 NRP 4-1/2" x 4-1/2" | US26D | MK |
| 1 Storeroom Lock | 45H7D 15H | 626 | BE |
| 1 Door Closer | CPS7500 | 689 | NO |
| 1 Gasketing | S88D | | PE |

Set: 8.0

Doors: E105, E107, E110, E114

| | | | |
|-------------------------|-------------------------|-------|----|
| 3 Hinge (heavy weight) | T4A3786 4-1/2" x 4-1/2" | US26D | MK |
| 1 Classroom Lock | 45H7R 15H | 626 | BE |
| 1 Surface Overhead Stop | 10-X36 | 630 | RF |
| 1 Surface Closer | 7500 SN-134 | 689 | NO |
| 1 Gasketing | S88D | | PE |

Set: 9.0

Doors: E101

| | | | |
|------------------------|-------------------------|-------|----|
| 3 Hinge (heavy weight) | T4A3786 4-1/2" x 4-1/2" | US26D | MK |
| 1 Storeroom Lock | 45H7D 15H | 626 | BE |
| 1 Door Closer | 7500 | 689 | NO |
| 1 Door Stop | 441 | US26D | RO |
| 1 Gasketing | S88D | | PE |

END OF SECTION 08 71 30

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Glass for windows, doors, interior borrowed lites, and storefront framing.
 - 2. Field-applied privacy film.
 - 3. Glazing sealants and accessories.
 - 4. ~~Fire protection rated glazing.~~
- B. Related Requirements:
 - 1. Section 08 14 16 "Flush Wood Doors."
 - 2. Section 10 28 00 "Toilet and Bath Accessories" for framed mirrors.

1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. IBC: International Building Code.
- D. Interspace: Space between lites of an insulating-glass unit.

1.4 COORDINATION

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

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review temporary protection requirements for glazing during and after installation.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Glass Samples: For each type of the following products; 12 inches (300 mm) square.
 1. Coated glass.
 2. Insulating glass.
 3. Glass film.
- C. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturers of insulating-glass units with sputter-coated, low-E coatings.
- B. Product Certificates: For glass.
- C. Product Test Reports: For coated glass insulating glass, for tests performed by a qualified testing agency.
 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- D. Preconstruction adhesion and compatibility test report.
- E. Sample Warranties: For special warranties.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

- D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

1.9 DELIVERY, STORAGE, AND HANDLING

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

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F (4.4 deg C).

1.11 WARRANTY

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. AGC Glass Company North America, Inc.
2. Cardinal Glass Industries.
3. Guardian Glass; SunGuard.
4. Oldcastle BuildingEnvelope™.
5. Pilkington North America.
6. Vetrotech Saint-Gobain.
7. Viracon, Inc.

- B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.
- C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design glazing.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.
1. Design Wind Pressures: As indicated on Drawings.
 2. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.
 3. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- D. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
 4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.

5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

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

2.4 GLASS PRODUCTS

- A. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
1. Flatness Tolerances: Overall bow and warp shall not exceed 50 percent of values tabulated in ASTM C 1048.
 2. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated. Direction of roller wave shall be consistent throughout building.
 - a. Roller wave peak-to-valley deviation shall not exceed 0.003 inch (0.076 mm) "Peak to Valley" in the central area and 0.008 inch (0.2 mm) within 10-1/2 inches (267 mm) of the leading and trailing edge.
 - b. Tempered architectural safety glass shall conform to ANSI Z97.1 and CPSC 16 CFR 1201.
 - c. Provide heat soak testing conforming to EN14179 which includes a 2-hour dwell at 550°F ± 18°F (290°C ± 10°C).

-
- B. Heat-Strengthened Float Glass: ASTM C 1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
- C. Sputter-Coated Float Glass: Float glass with metallic-oxide or metallic-nitride coating deposited by vacuum deposition process after manufacture and heat treatment.

2.5 GLASS FILM

- A. Decorative Film Overlay: Translucent, dimensionally stable, cast PVC film, 2-mil- (0.05-mm-) minimum thickness, with pressure-sensitive, clear adhesive back for adhering to glass and releasable protective backing.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. 3M Window Film
 - b. Avery Dennison Graphics
 - c. Decorative Films, LLC.
 - d. digitalFX by Reid Witlin.
 - e. FDC Graphic Films, Inc.
 - f. Llumar Decorative Films.
 - g. Madico Films.
- B. Materials: Flexible polyester materials with scratch resistant coatings.
- C. Performance Requirements:
1. Scratch Resistance: Decorative films shall average less than 12 percent increase in haze when tested according to ASTM D1044 using a Teledyne Taber Abrader using CS10F Type III wheels each loaded to 0.5 kg for 100 cycles in a 70 percent vacuum.
 - a. Scratch resistance testing shall be performed by an independent third party agency.
 2. Surface Burning Characteristics: Provide films that have Flame Spread Index of 0 and Smoke Developed Index of 30 or less when tested in accordance with ASTM E84.
- D. Decorative Film Accessories: General: Provide accessories either manufactured by or acceptable to Decorative film manufacturer for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
1. Pressure sensitive adhesive: This adhesive is activated by pressure and water. It is characterized by its permanently tacky nature and its installation ease.
 2. Cleaners, Primers, and Sealers: Types recommended by film manufacturer.

2.6 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
 2. Perimeter Spacer: Thermally broken aluminum with black, color anodic finish.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Technoform Glass Insulation NA, Inc.
 - 2) Thermix; a brand of Ensinger USA.
 3. Desiccant: Molecular sieve or silica gel, or a blend of both.

~~**2.7 FIRE PROTECTION RATED GLAZING**~~

- ~~A. Fire Protection Rated Glazing: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire protection ratings indicated, based on positive pressure testing according to NFPA 252 or UL 10C, including the hose stream test, and shall comply with NFPA 80.~~
- ~~B. Fire Protection Rated Glazing Labeling: Permanently mark fire protection rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name; test standard; whether glazing is permitted to be used in doors or openings; if permitted in openings, whether or not glazing has passed the hose stream test; whether or not glazing meets 450 deg F (250 deg C) temperature rise limitation; and the fire resistance rating in minutes.~~
- ~~C. Film Faced Ceramic Glazing: Clear, ceramic flat glass; 5-mm thickness; faced on one surface with a clear glazing film; and complying with ANSI Z97.1 and 16 CFR 1201, Category I and II.~~
- ~~1. Basis of Design Product: Subject to compliance with requirements, provide Technical Glass Products; FireLite NT (D-H NT-45) or comparable product by one of the following:

 - ~~a. AGC Glass Company North America, Inc.~~
 - ~~b. SAFTI-FIRST Fire Rated Glazing Solutions.~~
 - ~~c. Vetrotech Saint Gobain~~~~
 - ~~2. Fire Rating: 45 minutes~~
 - ~~3. Approximate Visible Transmission: 88 percent.~~
 - ~~4. Approximate Visible Reflection: 9 percent.~~
 - ~~5. Hardness (Vicker's Scale): 700.~~
 - ~~6. Surface Finish: Manufacturer's standard grade.~~

2.82.7 GLAZING SEALANTS

A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Corning Corporation.
 - b. GE Construction Sealants; Momentive Performance Materials Inc.
 - c. Pecora Corporation.
 - d. Tremco Incorporated.

~~C. Glazing Sealants for Fire Rated Glazing Products: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT. Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated.~~

- ~~1. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.~~

2.92.8 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.

2.102.9 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

~~F. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled indicated fire-resistant glazing product with which it is used for application and fire protection rating~~

2.112.10 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
 - 1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.
 - 3. Minimum required face and edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

-
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

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

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 FILM INSTALLATION

- A. Preparation:
 - 1. Clean surfaces thoroughly prior to installation.
 - 2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- B. General: Install in accordance with manufacturer's instructions.
 - 1. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant.
 - 2. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
 - 3. Apply film to glass and lightly spray film with slip solution.
 - 4. Squeegee from top to bottom of window. Spray slip solution to film and squeegee a second time.
 - 5. Remove air bubbles, blisters, and other defects.
 - 6. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.
- C. Decorative Film Overlay: Apply squarely aligned to glass edges, uniformly smooth, and free from tears, air bubbles, wrinkles, and rough edges, in single sheet completely overlaying with graphic image as indicated on Drawings to the back face of clean glass, according to manufacturer's written instructions, including surface preparation and application temperature limitations.

3.8 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry

surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.9 MONOLITHIC INTERIOR GLASS SCHEDULE

- A. Glass Type 3: Clear heat-strengthened float glass.
1. Minimum Thickness: 6 mm.
- B. Glass Type 4: Clear fully tempered float glass.
1. Minimum Thickness: 6 mm.
 2. Safety glazing required.
- C. Heat Treated Monolithic-Glass: Provide clear heat-strengthened float glass or fully tempered float glass where full tempering is required to resist thermal stresses induced by differential

3.10 MONOLITHIC INTERIOR FILM OVERLAY GLASS SCHEDULE

- A. Glass Type GL-5: Glass with decorative film overlay.
1. Glass Type: Clear, heat-strengthened or fully tempered float glass.
 2. Glass Thickness: 6.0 mm.
 3. Use: Suitable for interior applications.
 4. Pattern: As selected by Architect from manufacturer's full range.

3.11 INSULATING GLASS SCHEDULE

- A. Glass Type 1 (Item 8.6): Low-E Coated Clear Insulating Glass with Fully Tempered Lites:
1. Basis-of-Design Product: Viracon, Solarscreen 2000 VE 1-2M.
 2. Overall Unit Thickness: 1 inch (25 mm).
 3. Minimum Thickness of Each Glass Lite: 6 mm.
 4. Indoor Lite: Fully tempered float glass.
 5. Interspace Content: Argon.
 6. Outdoor Lite: Fully tempered float glass.
 7. Low-E Coating: Sputtered on second surface.
 8. Winter Nighttime U-Factor: 0.25 maximum.

9. Summer Daytime U-Factor: 0.21 maximum.
10. Visible Light Transmittance: 70 percent minimum.
11. Solar Heat Gain Coefficient: 0.37 maximum.
12. Shading coefficient: 0.43.
13. Relative heat gain: 89 BTU per hour per square foot.
14. Light to solar gain ratio (LSG): 1.9.
15. Safety glazing required for indoor lite.
16. Sealing system: Dual seal, with manufacturer's standard primary and secondary seals
17. Spacer: Thermoset structural silicone foam
18. Desiccant: Molecular sieve or silica gel, or blend of both.
19. IGCC certification: Level CBA.
20. Provide insulating glass units permanently marked either on spacers or on at least one component lite of units with certification label of IGCC.

B. Glass Type 2 (Item 8.xx6): Low-E Coated Clear Insulating Glass with Heat Strengthened Lites:

1. Basis-of-Design Product: Viracon, Solarscreen 2000 VE 1-2M.
2. Overall Unit Thickness: 1 inch (25 mm).
3. Minimum Thickness of Each Glass Lite: 6 mm.
4. Indoor Lite: Heat strengthened float glass.
5. Interspace Content: Argon.
6. Outdoor Lite: Heat strengthened float glass.
7. Low-E Coating: Sputtered on second surface.
8. Winter Nighttime U-Factor: 0.25 maximum.
9. Summer Daytime U-Factor: 0.21 maximum.
10. Visible Light Transmittance: 70 percent minimum.
11. Solar Heat Gain Coefficient: 0.37 maximum.
12. Shading coefficient: 0.43.
13. Relative heat gain: 89 BTU per hour per square foot.
14. Light to solar gain ratio (LSG): 1.9.
15. Safety glazing required for indoor lite.
16. Sealing system: Dual seal, with manufacturer's standard primary and secondary seals
17. Spacer: Thermoset structural silicone foam
18. Desiccant: Molecular sieve or silica gel, or blend of both.
19. IGCC certification: Level CBA.
20. Provide insulating glass units permanently marked either on spacers or on at least one component lite of units with certification label of IGCC.

END OF SECTION 08 80 00

SECTION 10 11 16 - GLASS MARKERBOARDS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Magnetic, optically clear, ghost-free, shatterproof, dry-erase marker.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, finishes, and accessories for markerboards.
- B. Shop Drawings: For markerboards.
 - 1. Include plans, elevations, sections, details, and attachment to other work.
- C. Samples: For each type of visual display unit indicated.
 - 1. Glass Markerboard: Not less than 8-1/2 by 11 inches (215 by 280 mm), with back coating indicated for final Work.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For markerboards to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
1. Store and handle materials in accordance with manufacturer's instructions.
 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
 3. Store materials indoors in a flat, clean and dry area.
 4. Protect materials during storage, handling, and installation to prevent damage.
- C. Deliver factory-fabricated markerboards completely assembled in one piece.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install markerboards until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Source Limitations: Obtain each type of visual display unit from single source from single manufacturer.

2.2 GLASS MARKERBOARDS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide deko Markerboards or comparable product by one of the following:
1. Best-Rite; MooreCo, Inc.
 2. Claridge Products and Equipment, Inc.
 3. Clarus Glassboards, LLC.
 4. Ghent Manufacturing, Inc.
 5. Krystal Glass Writing Boards, Inc.

- B. Glass Markerboards: 6-mm tempered glass markerboard, with smooth polished "Brilliance" edge and rounded "Radiance" corners; color coated on back surface.
- C. Product Attributes:
 - 1. Ghost-free: impervious to staining from dry-erase, wet-erase and permanent markers.
 - 2. Weight: 2.44 lbs per square foot (11.8 kg per square meter).
 - 3. Shatterproof.
 - 4. Optically clear hard coating on face, permanent opaque color on back
- D. Mounting: Z-Clips, holding glass approximately 1 inch (25 mm) from wall surface.
- E. Color and Surface: Diamond.
- F. Accessories: Magnetic buttons, marker holders, and eraser.
- G. Size and Weight: 48 by 96 inches (1219 by 2438 mm) and 78.08 lbs (35.4 kg).

2.3 MATERIALS

- A. Clear Tempered Glass: ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality Q3, with exposed edges seamed before tempering.
- B. Extruded Aluminum: ASTM B 221 (ASTM B 221M), Alloy 6063.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
- B. Examine walls and partitions for proper preparation and backing for markerboards.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install markerboards in landscape orientation, locations, and at mounting heights indicated on Drawings. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, and accessories necessary for complete installation.
- B. Leave manufacturer's protective peel-coat on markerboard during the installation process. Remove peel-coat prior to use.

3.3 CLEANING AND PROTECTION

- A. Clean markerboards according to manufacturer's written instructions. Attach one removable cleaning instructions label to visual display unit in each room.
 - 1. Do not use solvents, harsh chemicals, or abrasive cleaners on markerboard surface.
- B. Touch up factory-applied finishes to restore damaged or soiled areas.
- C. Cover and protect markerboards after installation and cleaning.

END OF SECTION 10 11 16

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES**PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section includes the following:
 - 1. Fire-protection cabinets for portable fire extinguishers.
 - 2. Mounting brackets for fire extinguishers.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to fire-protection cabinets including, but not limited to, the following:
 - a. Schedules and coordination requirements.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Show cabinet door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed-, semirecessed-, or surface-mounting method and relationships of box and trim to surrounding construction and mounting brackets.
- B. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of exposed finish required.
- D. Product Schedule: For fire-protection cabinets. Indicate whether recessed, semirecessed, or surface mounted.

1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.6 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

- A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINETS

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc.
 - b. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - c. Larsens Manufacturing Company.
- B. Cabinet Construction: Nonrated and 1-hour fire rated.
 - 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.043-inch- (1.09-mm-) thick cold-rolled steel sheet lined with minimum 5/8-inch- (16-mm) thick fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: Cold-rolled steel sheet.
 - 1. Shelf: Same metal and finish as cabinet.
- D. Recessed Cabinet:
 - 1. Exposed Flat Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
- E. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 - 1. Square-Edge Trim: 1-1/4- to 1-1/2-inch (32- to 38-mm) backbend depth.
- F. Surface-Mounted Cabinet: Cabinet box fully exposed and mounted directly on wall with no trim.

- G. Cabinet Trim Material: Aluminum sheet.
- H. Door Material: Aluminum sheet.
- I. Door Style: Vertical duo panel with frame.
- J. Door Glazing: Tempered float glass (clear).
- K. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - 1. Provide recessed, flush door pull and friction latch.
 - 2. Provide continuous hinge, of same material and finish as trim, permitting door to open 180 degrees.
- L. Accessories:
 - 1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as directed by Architect.
 - a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Pressure-sensitive vinyl letters.
 - 3) Lettering Color: Red.
 - 4) Orientation: Vertical.
- M. Materials:
 - 1. Cold-Rolled Steel: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
 - a. Finish: Baked enamel or powder coat.
 - b. Color: White.
 - 2. Aluminum: ASTM B 221 (ASTM B 221M), with strength and durability characteristics of not less than Alloy 6063-T5 for aluminum sheet. ASTM B 221 (ASTM B 221M) for extruded shapes.
 - a. Finish: Clear anodic.
 - 3. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).

2.3 MOUNTING BRACKETS

- A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or black baked-enamel finish.

- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
 - a. Orientation: Vertical.

2.4 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 - 1. Weld joints and grind smooth.
 - 2. Provide factory-drilled mounting holes.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
 - 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch (13 mm) thick.
 - 2. Fabricate door frames of one-piece construction with edges flanged.
 - 3. Miter and weld perimeter door frames.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.5 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where recessed and semi-recessed cabinets are to be installed.

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

3.2 PREPARATION

- A. Prepare recesses for recessed and semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for installing fire-protection specialties.
- B. General: Install mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
 - 1. Mounting Brackets: 54 inches (1372 mm) above finished floor to top of fire extinguisher.
- C. Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, in compliance with the requirements of NFPA 10.
 - 1. Prepare recesses for cabinets as required by type and size of cabinet and trim style.
 - 2. Fasten mounting brackets to structure and cabinets, square and plumb.
 - 3. Fasten cabinets to structure, square and plumb.
- D. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Unless otherwise indicated, provide recessed fire-protection cabinets. If wall thickness is inadequate for recessed cabinets, provide semirecessed fire-protection cabinets.
- E. Identification: Apply vinyl lettering at locations indicated.

3.4 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust cabinet doors to swing and operate freely.
- B. Refinish or replace cabinets and doors damaged during installation.
- C. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10 44 00

SECTION 10 44 16 - FIRE EXTINGUISHERS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers.
- B. Related Requirements:
 - 1. Section 10 44 13 "Fire Protection Specialties" for cabinets and mounting brackets.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to fire extinguishers including, but not limited to, the following:
 - a. Schedules and coordination requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.
- B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function.

1.5 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.7 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Badger Fire Protection
 - b. J.L. Industries, Inc.
 - c. Larsen's Manufacturing Company.
 - d. Potter-Roemer; Div. of Smith Industries, Inc.
 2. Valves: Manufacturer's standard.
 3. Handles and Levers: Stainless steel.
 4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

- B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:60-B:C, 10-lb (4.5-kg) nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.
- C. Regular Dry-Chemical Type in Steel Container: UL-rated 60-B:C, 10-lb (4.5-kg) nominal capacity, with sodium bicarbonate-based dry chemical in enameled-steel container.
- D. Wet-Chemical Type: UL-rated 2-A:1-B:C:K, 2.5-gal. (9.5-L) nominal capacity, with potassium citrate-based chemical in stainless-steel container; with pressure-indicating gage.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 10 44 16

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SECTION 12 36 23 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes plastic-laminate countertops.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products, high-pressure decorative laminate, and adhesive for bonding plastic laminate.
 - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other items installed in plastic-laminate countertops.
- C. Samples for Verification:
 - 1. Plastic laminates, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.
- B. Product Certificates: For each type of product.
 - 1. Composite wood products.
 - 2. High-pressure decorative laminate.
 - 3. Adhesives.
- C. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Fabricator of products.
- C. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver countertops until painting and similar operations that could damage countertops have been completed in installation areas. If countertops must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 43 and 70 percent during the remainder of the construction period.
- B. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

PART 2 - PRODUCTS**2.1 PLASTIC-LAMINATE COUNTERTOPS**

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades indicated for construction, installation, and other requirements.
 - 1. Provide labels from AWI certification program indicating that countertops, including installation, comply with requirements of grades specified.
 - 2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom.
- C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGP.

1. Basis-of-Design Product: The design is based on the products named in the Material Finish Legend. Subject to compliance with requirements, provide either the named products or comparable products by one of the following:
 - a. Abet Laminati Inc.
 - b. Formica Corporation.
 - c. Lamin-Art, Inc.
 - d. Nevamar; a Panolam Industries International, Inc. brand.
 - e. Pionite; a Panolam Industries International, Inc. brand.
 - f. Wilsonart LLC.
 2. Colors, Patterns, and Finishes: As selected by the Architect from the manufacturer's full range of colors.
- D. Edge Treatment: Same as laminate cladding on horizontal surfaces with 1/2-inch (12.7 mm) radius waterfall edge.
- E. Core Material: Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.
- F. Core Thickness: 3/4 inch (19 mm). Build up countertop thickness to 1-1/2 inches (38 mm) at front, back, and ends with additional layers of core material laminated to top.

2.2 WOOD MATERIALS

- A. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated. Urea formaldehyde free.
1. Medium-Density Fiberboard: ANSI A208.2, Grade 130.
 2. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Environ Biocomposites Manufacturing LLC.
 - 2) Sierra Pine Composite Solutions.
 - 3) Sorm Incorporated.
- B. Fire-retardant-treated materials.

2.3 MISCELLANEOUS MATERIALS

- A. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.
- B. Adhesives: Urea formaldehyde free.

2.4 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch (25 mm) over base cabinets. Ease edges to radius indicated for the following:
- C. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.

PART 3 - EXECUTION**3.1 PREPARATION**

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.
- B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
 - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
 - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
 - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches (150 mm) of front and back edges and at intervals not exceeding

24 inches (600 mm). Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

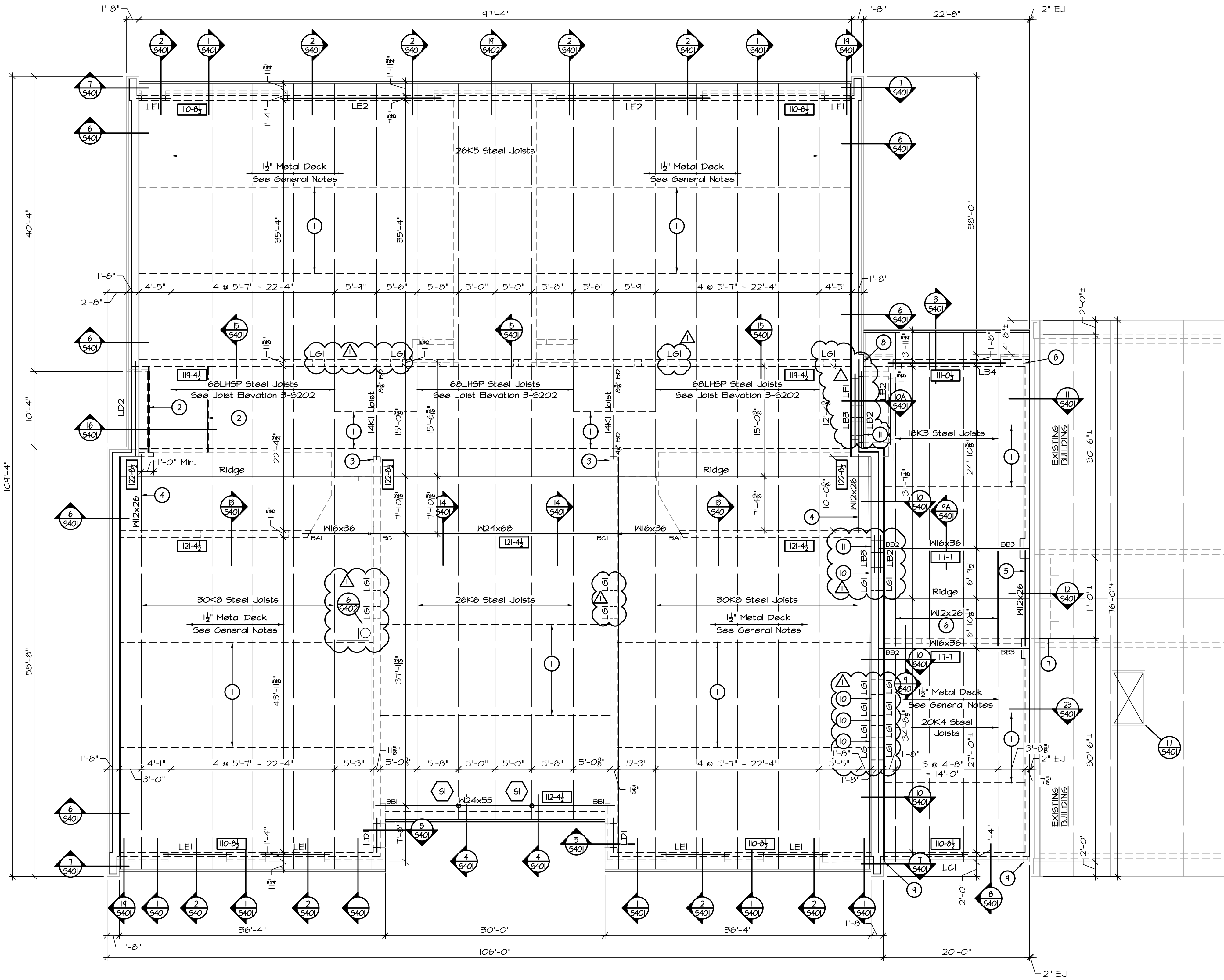
- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
 - 2. Seal junctures of tops and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 12 36 23

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ROOF FRAMING PLAN
1/8" = 1'-0"

PLAN MARKS:

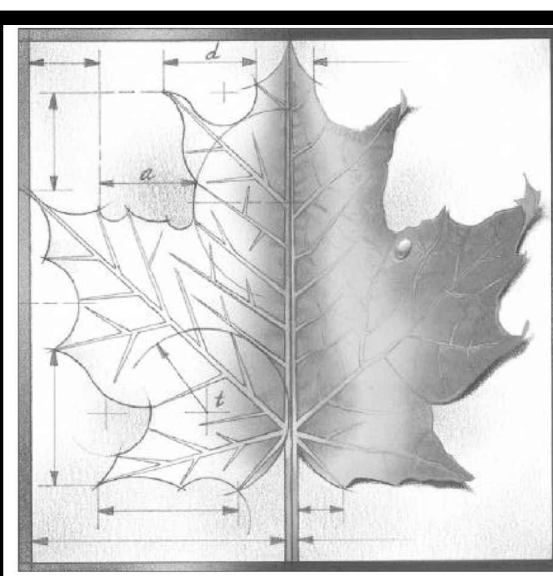
- (S#) Steel Column Mark, See Schedule on Sheet S203
- (XXX-X) Joist Bearing Elevation/Top of Steel Beam
Steel Beams Parallel to Joists Shall Match
Top of Joist, Unless Noted Otherwise.
- L## Lintel Mark, See Schedule on Sheet S203
- ## Beam Bearing Plate, See Schedule on Sheet S203
- ## BD Joist Bearing Depth

GENERAL PLAN NOTES:

1. See General Structural Notes on Sheet S201 for additional notes and information.
2. Dimensions on the exterior of the building are to the face of concrete masonry or masonry veneer. See plans for specific relationships.
3. See sheet S203 for lintel schedule. See Architectural drawings for sizes and locations of door and window openings. See Mechanical/Electrical/Plumbing drawings for M/E/P opening sizes and locations.
4. See Architectural and Mechanical drawings for size and location of roof openings. Provide angle framing around all openings in metal deck, including roof drains per Detail 6-5402. Fasten metal roof deck to angle frames at openings with the specified fastener type and spacing for deck end supports.
5. Fabricate all K-series roof joists with end bearing depths as indicated on sections. See plan, sections, and joist elevation for additional end bearing depths. Provide minimum 2" deep extended ends where noted and/or shown on framing plans and sections.
6. See Section 9-5402 for joist reinforcing detail at concentrated loads. See Mechanical, Electrical and Architectural for miscellaneous concentrated load locations.
7. Top of all 8" interior non-load bearing walls shall be braced to the structure above per Details 12, 13, and 14-5402, unless noted otherwise.
8. See Details 7 and 8-5402 for typical bridging to masonry wall connections.
9. See Details on Sheet 5402 for typical steel framing details.

REFERENCED PLAN NOTES:

- 1 Provide horizontal and diagonal joist bridging as shown on framing plans and as per SJI specifications. Design roof joists for the wind design uplift pressures defined in the Roof Component and Cladding Minimum Wind Design Pressures Table, associated diagram, and table notes on Sheet S203. Provide a single row of horizontal bridging at the first bottom chord panel point at each end of each roof joist.
Connect bridging to masonry walls per Details 7 or 8-5402 as applicable.
- 2 Provide H56x6x4 tube girt above glazing per Detail 16-5401. Provide connection to masonry wall at each end per Detail 17-5401.
- 3 Provide joist bearing FLxTxll with 2-1/2"x0-4 headed anchor studs with top of plate at I22-8 1/2 and 1" width perpendicular to masonry wall. Joist supplier coordinate end depth with top of joist elevation and top of joist bearing plate.
- 4 Provide splice at ridge per Detail 4-5402. Provide end bearing per Detail 3-5402 at each end of beam. Provide embed plate per Section 1-5401 and 5 1/8" end bearing at north end of beam. Provide embed plate and match joist bearing depth at south end per Section 13-5401.
- 5 Provide splice at ridge per Detail 4-5402. Provide framing connection per Detail 15-5402 at each end of beam.
- 6 Provide splice at ridge per Detail 4-5402. Provide end bearing per Detail 3-5402 at each end of beam. See Plan and Sections 9 and 22-5401 for additional notes and information.
- 7 Face of new concrete masonry wall to align with face of existing brick veneer at door pocket.
- 8 Extend deck support channel for full length of overhang. Provide 2 anchors at 8" o.c. adjacent to overhang. See Section 10A or 11-5401 for additional anchorage requirements.
- 9 Extend deck support angle for full length of overhang. Clip vertical leg of angle to 3" at overhang. Provide 2 anchors at 8" o.c. adjacent to overhang. See Section 10 or 23-5401 for additional anchorage requirements.
- 10 Provide 16" minimum masonry between adjacent mechanical rough openings.
- 11 Steel lintel continuous above two mechanical openings.

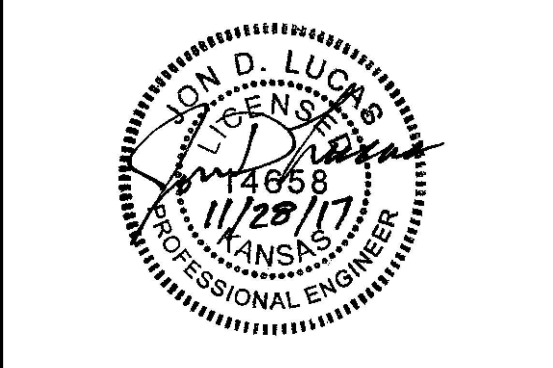


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Information provided on the drawings regarding existing conditions has been obtained from the best sources available, but cannot be guaranteed as all respects. Contractor shall verify all such information prior to proceeding with any new work that may be affected. Include as part of the contract all work required to produce the indicated result. All drawings and written material appearing herein constitute the original and unpublished work of the Architect, and same may not be duplicated, used or disclosed without the written consent of the Architect.

| | | |
|-----|--------------------|----------|
| REV | DESC | DATE |
| 1 | Additional Lintels | 12/11/17 |



Project Number: **16036**
Date: **11/28/17**

Project Name:
USD 320 WAMEGO MIDDLE SCHOOL SCIENCE ROOM ADDITION

Project Address:
**1701 KAW VALLEY ROAD
WAMEGO, KS 66547**

Sheet Title:
ROOF FRAMING PLAN

Sheet:
S103

DWA Dudley Williams and Associates, PA
2301 Laura • Suite 200 • Wichita, KS 67211-1514
316-263-7591 • www.dwase.com

S103 in 17-045\17-045.05\5-1X
12/8/2017 [JOW]

USD 320 Wamego- PH2 BP3- WMS Science Addition

These are the preferred bid scopes. It is the intent to select the lowest, responsible bidder or combination of bidders to provide the most benefit economically to the owner. The owner, architect, engineer and / or construction manager reserve the right to reject any and all bids.

BID SCOPES

| BID SCOPES | Specification Section Name | Description |
|--|--|--|
| 02A-Demolition | | |
| 02.41.19 | Selective Demolition | Complete- Labor and equipment to demo items per plans. |
| 03A- Concrete | | |
| 03.30.00 | Cast-In-Place Concrete | Complete- Labor, material and equipment |
| 03.33.00 | Architectural Concrete | Complete- Labor and equipment to demo items per plans. |
| 04A- Masonry | | |
| 04.20.00 | Unit Masonry | Complete- Labor and equipment to demo items per plans. |
| 05A- Steel | | |
| 05.12.00 | Structural Steel Framing | Furnish material only to jobsite |
| 05.21.00 | Steel Joist Framing | Furnish material only to jobsite |
| 05.31.00 | Steel Decking | Furnish material only to jobsite |
| 05.50.00 | Metal Fabrications | Furnish material only to jobsite |
| 05B- Steel Erection | | |
| 05.12.00 | Structural Steel Framing | Labor and equipment to install |
| 05.21.00 | Steel Joist Framing | Labor and equipment to install |
| 05.31.00 | Steel Decking | Labor and equipment to install |
| 05.50.00 | Metal Fabrications | Labor and equipment to install |
| 06A- Rough Carpentry | | |
| 06.10.00 | Rough Carpentry | Complete- Labor, material and equipment |
| 07A- Sealants | | |
| 07.92.00 | Joint Sealants | Complete- Labor, material and equipment |
| 07B- Roofing | | |
| 07.41.16 | Standing Seam Metal Roof Panels | Complete- Labor, material and equipment |
| 07.42.93 | Soffit Panels | Complete- Labor, material and equipment |
| 07.71.00 | Roof Specialties | Complete- Labor, material and equipment |
| 07.72.53 | Snow Guards | Complete- Labor, material and equipment |
| 07C- Expansion Joint Assemblies | | |
| 07.95.00 | Expansion Joint Cover Assemblies | Furnish material only to jobsite |
| 08A- Doors, Hardware, Frames | | |
| 08.11.13 | Hollow Metal Doors & Frames | Furnish material only to jobsite |
| 08.14.16 | Flush Wood Doors | Furnish material only to jobsite |
| 08.31.13 | Access Doors & Frames | Furnish material only to jobsite |
| 08.71.30 | Door Hardware - Science Wing-EXCLUDING ALUMINUM HARDWARE | Furnish material only to jobsite |
| 08B- Glass, Glazing | | |
| 08.80.00 | Glazing | Complete- Labor, material and equipment |
| 08.41.13 | Aluminum-Framed Entrances & Storefronts | Complete- Labor, material and equipment |
| 08.71.30 | Door Hardware - Science Wing-EXCLUDING ALUMINUM HARDWARE | Complete- Labor, material and equipment |
| 08.51.13 | Aluminum Windows | Complete- Labor, material and equipment |
| 09A- Drywall & Acoustics | | |

USD 320 Wamego- PH2 BP3- WMS Science Addition

These are the preferred bid scopes. It is the intent to select the lowest, responsible bidder or combination of bidders to provide the most benefit economically to the owner. The owner, architect, engineer and / or construction manager reserve the right to reject any and all bids.

BID SCOPES

| BID SCOPES | Specification Section Name | Description |
|--|--|--|
| 05.40.00 | Cold-Formed Metal Framing | Complete- Labor, material and equipment |
| 07.21.00 | Thermal Insulation | For this bid package ONLY- Labor, material and equipment |
| 09.21.16 | Gypsum Board Assemblies | Complete- Labor, material and equipment |
| 09.51.13 | Acoustical Panel Ceilings | Complete- Labor, material and equipment |
| 09.84.23 | Fabric Wrapped Sound-Absorbing Panels | Complete- Labor, material and equipment |
| 09B- Flooring | | |
| 09.65.13 | Resilient Base & Accessories | Complete- Labor, material and equipment |
| 09.65.16 | Resilient Sheet Flooring | Complete- Labor, material and equipment |
| 09.65.19 | Resilient Tile Flooring | Complete- Labor, material and equipment |
| 09.68.13 | Tile Carpeting | Complete- Labor, material and equipment |
| 09C- Painting | | |
| 09.61.13 | Floor Sealers | Complete- Labor, material and equipment |
| 09.91.13 | Exterior Painting | Complete- Labor, material and equipment |
| 09.91.23 | Interior Painting | Complete- Labor, material and equipment |
| 10A- Glass Markerboards | | |
| 10.11.16 | Glass Markerboards | Furnish material only to jobsite |
| 10B- Toilet & Bath Accessories | | |
| 10.28.00 | Toilet & Bath Accessories | Furnish material only to jobsite |
| 10C- Fire Protection Specialties | | |
| 10.44.00 | Fire Protection Specialties | Furnish material only to jobsite |
| 10D- Fire Extinguishers | | |
| 10.44.16 | Fire Extinguishers | Furnish material only to jobsite |
| 11A- Projection Screens | | |
| 11.52.13 | Projection Screens | Furnish material only to jobsite |
| 12A- Roller Window Shades | | |
| 12.24.13 | Roller Window Shades | Complete- Labor, material and equipment |
| 12B- Plastic Clad Tops | | |
| 12.36.23 | Plastic Laminate Clad Countertops | Furnish material only to jobsite |
| 12C- Wood Laboratory Casework | | |
| 12.35.59 | Wood Laboratory Casework | Complete- Labor, material and equipment |
| 12D- Solid Surfacing Countertops | | |
| 12.24.13 | Solid Surfacing Countertops | Complete- Labor, material and equipment |
| 12E- Laboratory Fume Hoods and Related Products | | |
| 11.53.13 | Laboratory Fume Hoods and Related Products | Complete- Labor, material and equipment |
| 22A- Plumbing | | |
| 22.00.00 | Plumbing | Complete- Labor, material and equipment |
| 23A- HVAC | | |
| 23.01.00 | Basic Mechanical Requirements | Complete-Labor, material and equipment |

USD 320 Wamego- PH2 BP3- WMS Science Addition

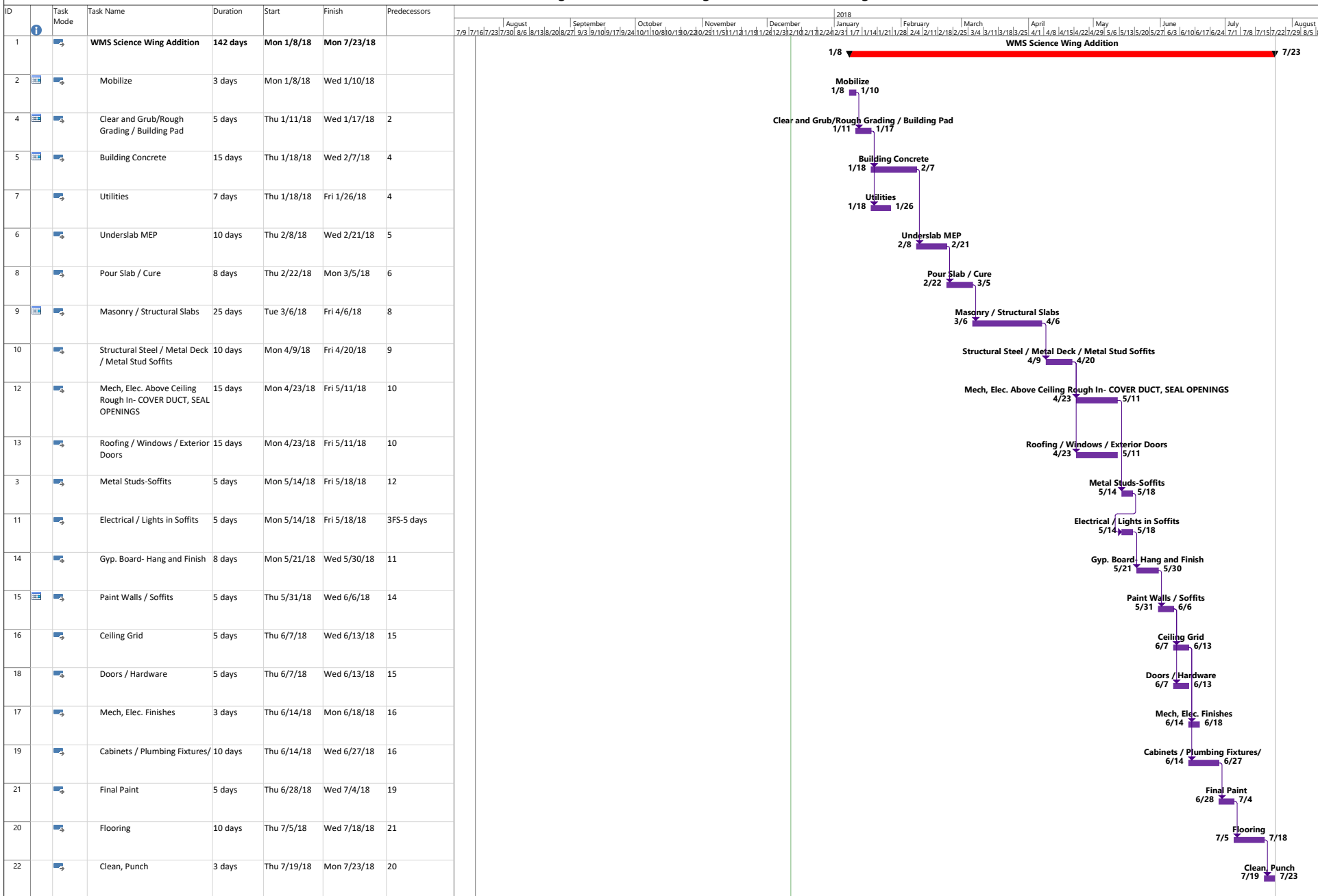
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BID SCOPES

| BID SCOPES | Specification Section Name | Description |
|----------------------------------|--|--|
| 23.25.00 | Insulation (Mechanical) | Complete-Labor, material and equipment |
| 23.60.00 | Heating Equipment | Complete-Labor, material and equipment |
| 23.65.10 | Rooftop Heating/Cooling Units | Complete-Labor, material and equipment |
| 23.65.75 | Rooftop Heating Only Outside Air Supply Units | Complete-Labor, material and equipment |
| 23.80.00 | HVAC Equipment - Air Side | Complete-Labor, material and equipment |
| 23.85.00 | Ductwork & Accessories | Complete-Labor, material and equipment |
| 23.99.00 | Testing, Adjusting, and Balancing (HVAC) | Complete-Labor, material and equipment |
| 25.90.00 | Temperature Controls | Complete- Labor, material and equipment |
| 26A- Electrical | | |
| 26.01.00 | Basic Electrical Requirements | Complete- Labor, material and equipment |
| 26.01.50 | Ice & Snow Melting for Pavement | Complete- Labor, material and equipment |
| 26.16.00 | Power Distribution Equipment | Complete- Labor, material and equipment |
| 26.17.00 | Motor & Circuit Disconnects | Complete- Labor, material and equipment |
| 26.41.30 | Standby Generator Systems - Natural Gas Engine | Complete- Labor, material and equipment |
| 26.41.60 | Automatic Transfer Switches | Complete- Labor, material and equipment |
| 26.50.00 | Lighting | Complete- Labor, material and equipment |
| 26.51.00 | Site Lighting | Complete- Labor, material and equipment |
| 27.88.00 | Intercom Systems | |
| 28.72.10 | Fire-Alarm Systems | Complete- Labor, material and equipment |
| 31A- Sitework / Site Demo | | |
| 31.20.00 | Earth Moving | Complete- Labor, material and equipment |
| 31B- Termite Control | | |
| 31.31.16 | Termite Control | Complete- Labor, material and equipment |
| 32A- Paving | | |
| | Concrete Paving | Complete- Labor, material and equipment |
| 33A- Site Utilities | | |
| Div. 33 | Site Utilities | Complete- Labor, material and equipment- within 5 ft. of building, furnish and install rain leaders and adapters |
| 50A- Carpentry | | |
| 07.95.00 | Expansion Joint Cover Assemblies | Labor and equipment to install |
| 08.11.13 | Hollow Metal Doors & Frames | Labor and equipment to install |
| 08.14.16 | Flush Wood Doors | Labor and equipment to install |
| 08.31.13 | Access Doors & Frames | Labor and equipment to install |
| 08.71.30 | Door Hardware - Science Wing-EXCLUDING ALUMINUM HARDWARE | Labor and equipment to install |
| 10.11.16 | Glass Markerboards | Labor and equipment to install |
| 10.28.00 | Toilet & Bath Accessories | Labor and equipment to install |
| 10.44.00 | Fire Protection Specialties | Labor and equipment to install |
| 10.44.16 | Fire Extinguishers | Labor and equipment to install |
| 11.52.13 | Projection Screens | Labor and equipment to install |
| 12.36.23 | Plastic Laminate Clad Countertops | Labor and equipment to install |

Bidders can bid on any of these items.

USD 320 Wamego-Phase 2-Bid Package 3- WMS Science Wing



Project: Science Wing Schedule
Date: Tue 12/12/17

■ Summary ■ Inactive Milestone ■ Duration-only ■ Start-only ■ External Milestone ■ Manual Progress
⋯ Project Summary ■ Inactive Summary ■ Manual Summary Rollup ■ Finish-only ■ Deadline ■ Progress
★ Inactive Task ■ Manual Task ■ Manual Summary ■ External Tasks