

ADDENDUM

PROJECT NAME	CSI: UPGRADE WINDOWS/DOOR, SHIELDS BLDG, TWIN FALLS, ID				
PROJECT NUMBER	DPW 21-101 COLE 24-006				
CONTRACTOR	N/A				
DATE	12/13/2024	ADDENDUM	01	ISSUED BY	COLE/ARCHITECTS

THIS ADDENDUM IS HEREBY MADE PART OF THE CONTRACT DOCUMENTS TO THE EXTENT AS THOUGH IT WAS ORIGINALLY INCLUDED THEREIN. THE CONTRACTOR MUST ACKNOWLEDGE THE ADDENDUM ON THEIR BID FORM.

GENERAL:

PRE-BID ATTENDANCE

Please see the attached pre-bid attendance sheet for a list of pre-bid attendees.

DRAWINGS:

ARCHITECTURE

Refer to attachments for updates.

- A201 – FLOOR PLAN - SHIELDS FIRST FLOOR
 - o Updated general note (F) with exterior glazing update to include Solar ban 60(2) Clear + Clear. The contractor is responsible for matching and verifying the tint with the existing north-facing windows prior order and installation.
 - o Added general note (G) indicating that interior glazing is to be ¼" single-pane, clear glass.
 - o Added a new general note (I) indicating the location of the electrical room, to which all existing and new electrical will be routed.
 - o Updated Keynote (1) with Solar ban 60(2) Clear + Clear.
 - o Updated 'Existing Hardware Locations' to show new wireless actuator locations for Door 128.
 - o Revised the specifications for the keyed removable mullion. Provide Best Precision, K822/FLKR822 w/ Best rim and cylinder J keyway.

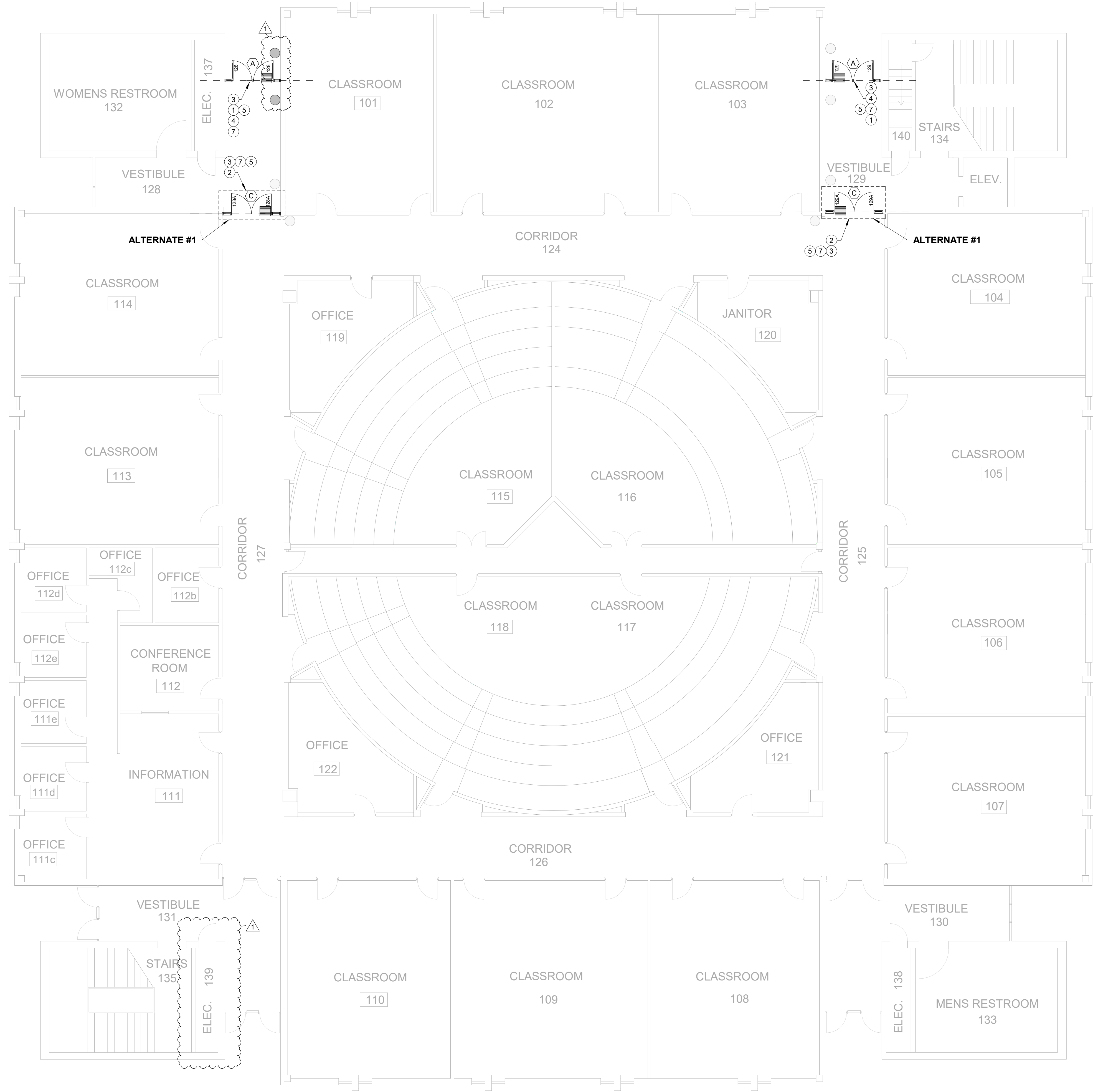
- A202 – FLOOR PLAN – SHEILDS SECOND FLOOR
 - o Updated general note (F) with exterior glazing update to include Solar ban 60(2) Clear + Clear. The contractor is responsible for matching and verifying the tint with the existing north-facing windows prior order and installation.
 - o Added general note (G) indicating that interior glazing is to be ¼" single-pane, clear glass.
 - o Added a new general note (I) indicating the location of the electrical room, to which all existing and new electrical will be routed.
 - o Updated Keynote (3) with Solar ban 60(2) Clear + Clear.
 - o Updated 'Existing Hardware Locations' to show new wireless actuator locations for Door 232. (Alternate #2)

- Revised the specifications for the keyed removable mullion. Provide Best Precision, K822/FLKR822 w/ Best rim and cylinder J keyway.

SPECIFICATIONS:

Refer to attachments for updates.

- SECTION 087100 – FINISH HARDWARE
 - Revised 'Cylinder and Cores' section with small format interchangeable cylinders with cylinder accepting 7-pin, small format interchangeable cores.
- SECTION 088000 – GLAZING
 - Revised 'Glass Products' section 2.2 with Vitro Solarban 60 products for the north facing exterior glazing and 1/4" single pane clear glass for interior glazing.



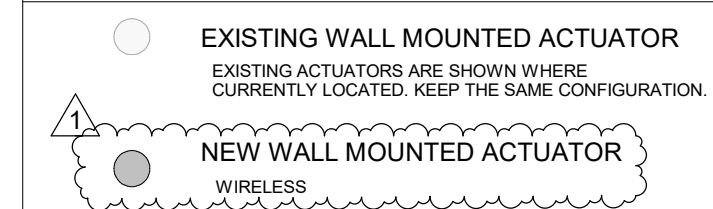
GENERAL NOTES FLOOR PLAN:

- A. GENERAL NOTES APPLY TO ALL DRAWING SETS.
- B. RE: SHEET A203 FOR WINDOW TYPES AND DETAILS.
- C. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. NOTIFY ARCHITECT IMMEDIATELY IF ANY CONFLICTS OR DISCREPANCIES OCCUR BEFORE PROCEEDING WITH WORK.
- D. CROSS REFERENCES SHOWN ON DRAWINGS DO NOT NECESSARILY INDICATE ALL LIKE CONDITIONS AND DO NOT LIMIT APPLICATION OF ANY DRAWING OR DETAIL WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED. CONSULT THE ARCHITECT PRIOR TO PROCEEDING WITH WORK. IF DESIGN INTENT REMAINS UNCLEAR THEN PROVIDE MOST EXPENSIVE OPTION IN BID.
- E. ALL EXISTING SEALANTS (GASKETS) ARE TO BE REPLACED ON WINDOW UNITS IN SCOPE.
- F. EXTERIOR GLAZING AT NORTH SIDE OF SHIELDS BUILDING TO BE VITRO SOLARBAN 60(2) CLEAR+CLEAR GLASS. CONTRACTOR TO VERIFY THE TINT WITH THE ARCHITECT/OWNER BEFORE ORDER/INSTALL. SEE SPECIFICATIONS.
- G. ALL INTERIOR GLAZING TO BE 1/4" SINGLE PANE, CLEAR GLASS.
- H. GENERAL CONTRACTOR TO DISCONNECT POWER AND DATA AT EXISTING ELECTRIFIED DOOR HARDWARE AND RECONNECT TO NEW HARDWARE AS REQUIRED BY HARDWARE MANUFACTURER. COORDINATE WITH THE INTEGRATOR AND CONVERGINT ACCESS CONTROL SYSTEMS IS REQUIRED TO ENSURE PROPER INSTALLATION AND FUNCTIONALITY.
- I. ELECTRICAL POWER FOR ALL DOORS IS ROUTED TO AND FROM ROOM ELEC. 139.

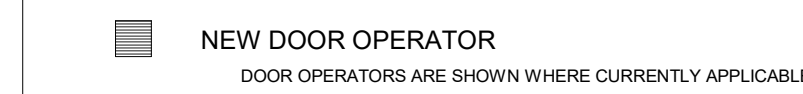
KEY NOTES: (#)

- 1. REPLACE WITH ANODIZED FINISH OF # 21 DARK BRONZE BY TRULITE TO MATCH EAST, WEST AND SOUTH SIDE OF BUILDING BUT WITH SOLARBAN 60 (2) CLEAR (68% TRANSMITTANCE).
- 2. REPLACE INTERIOR STOREFRONT WINDOWS AND DOOR SYSTEM.
- 3. REPLACE FRAME AND GLAZING: ALL EXISTING SEALANTS (GASKETS) ARE TO BE REPLACED ON WINDOW UNITS IN SCOPE.
- 4. REPLACE EXTERIOR DOOR SYSTEM WITH KEY REMOVABLE MULLION. SEE DOOR HARDWARE & SPECIFICATIONS FOR MORE DETAILS.
- 5. PROVIDE/RE-ROUTE ELECTRICAL AS REQUIRED FOR OPENERS.
- 6. NOT USED.
- 7. CONTRACTOR TO PROVIDE INFRASTRUCTURE AND COORDINATE WITH GENETEC INTEGRATOR AND CONVERGINT ACCESS CONTROL DEVICE FOR EXTERIOR DOORS: 128 & 129.
- 8. CONTRACTOR TO COORDINATE WITH GENETEC INTEGRATOR FOR MOTORIZED LATCH RETRACTION FOR DOORS 128 & 129.

EXISTING HARDWARE LOCATIONS



NEW HARDWARE LOCATIONS



DOOR HARDWARE

- HW SET NO. 01 - EXTERIOR DOORS**
DOORS: 128, 129
- (6) PIVOT HINGES IVES, 68B1 4.5 x 4.5-NRP, 662
 - (1) KEYED REMOVABLE MULLION BEST PRECISION, KR822/FLKR822
 - (1) PANIC EXIT DEVICE W/BEST RIM & CYLINDER J KEYWAY VON DUPRIN; 99NLOP RIM DEVICE; NIGHT LATCH VON DUPRIN, 99EO RIM DEVICE, EXIT ONLY ROCKWOOD, BF 157 313 10" CTC 90DEG PULL, 1" DIA DARK BRONZE SCHLAGE, ELECT MT11-485 MULTI-TECH READER, MULLION MOUNT MT RS485, BLACK VON DUPRIN EPT10 SP313
 - (1) PANIC EXIT DEVICE
 - (2) PULL
 - (1) ACCESS CONTROL
 - (2) ELEC. POWER TRANSFER
 - (1) CYLINDER w/ CORE
 - (1) SURFACE CLOSER
 - (1) DOOR OPERATOR
 - (2) REQ. TO EXIT
 - (2) MOTORIZED LATCH RETRACTION VON DUPRIN, MLRKL-V0 ZERO, 429D 20' PERIMETER GASKETING
 - (2) DOOR SWEEPS
 - (2) FLOOR STOP
 - (1) THRESHOLD
 - WEATHER SEAL SET BY MANUFACTURER
 - ACTUATOR NABCO OR LCN
 - RECEIVER NABCO
- HW SET NO. 02 - INTERIOR DOORS**
DOORS: 128A, 129A, 232, 234
- (6) PIVOT HINGES IVES, 58B1 4.5 X 4.5 652
 - (2) PUSH IVES, 8200 3.5x15 US10B
 - (1) SURFACE CLOSER IVES, 3305 3.5x15 US10B
 - (1) DOOR OPERATOR LCN, 4040 XP-HCUSH 695 TBWMS
 - (2) GASKETING LCN, 4642 REGARM 695 AUTO ZERO, 429D 20' PERIMETER GASKETING
 - (2) DOOR SWEEPS ZERO, 39D 36" DOOR SWEEP
 - (2) FLOOR STOP IVES, FS439 US10B
 - WEATHER SEAL SET BY MANUFACTURER
 - ACTUATOR NABCO OR LCN
 - RECEIVER NABCO



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CONSULTANT

PROJECT INFORMATION



315 FALLS AVENUE TWIN FALLS, IDAHO 83301

KEY PLAN

ISSUES

99.5% CD SET - FOR REVIEW
DATE 08/29/2024
JOB NUMBER 24-006

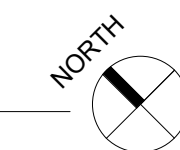
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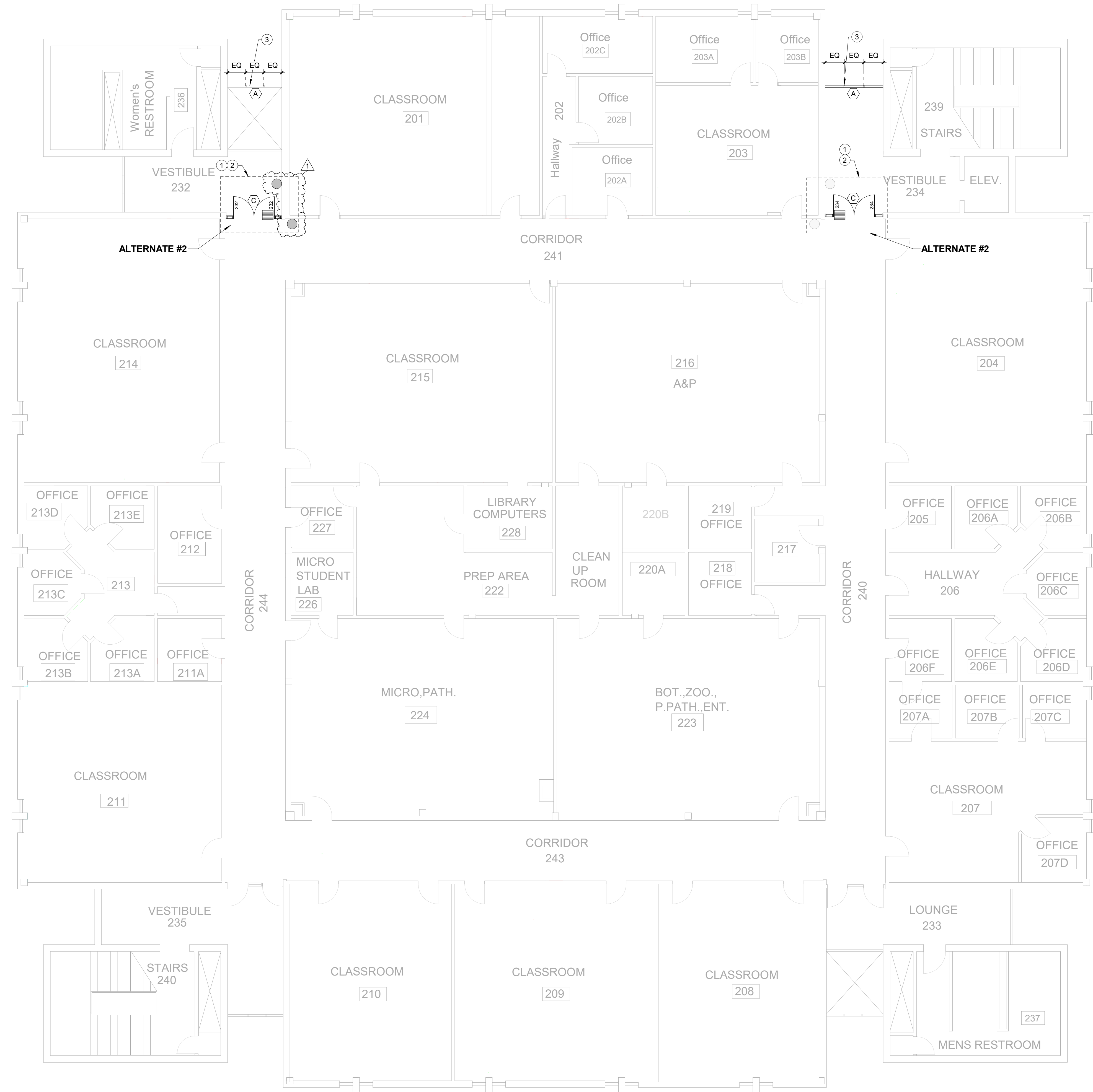
SHEET NAME

FLOOR PLAN - SHIELDS FIRST FLOOR

SHEET NUMBER

A201





GENERAL NOTES FLOOR PLAN:

- A. GENERAL NOTES APPLY TO ALL DRAWING SETS.
- B. RE: SHEET A203 FOR WINDOW TYPES AND DETAILS.
- C. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. NOTIFY ARCHITECT IMMEDIATELY IF ANY CONFLICTS OR DISCREPANCIES OCCUR BEFORE PROCEEDING WITH WORK.
- D. CROSS REFERENCES SHOWN ON DRAWINGS DO NOT NECESSARILY INDICATE ALL LIKE CONDITIONS AND DO NOT LIMIT APPLICATION OF ANY DRAWING OR DETAIL WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED. CONSULT THE ARCHITECT PRIOR TO PROCEEDING WITH WORK. IF DESIGN INTENT REMAINS UNCLEAR THEN PROVIDE MOST EXPENSIVE OPTION IN BID.
- E. ALL EXISTING SEALANTS (GASKETS) ARE TO BE REPLACED ON WINDOW UNITS IN SCOPE.
- F. EXTERIOR GLAZING AT NORTH SIDE OF SHIELDS BUILDING TO BE VITRO SOLARBAN 60(2) CLEAR+CLEAR GLASS. CONTRACTOR TO VERIFY THE TINT WITH THE ARCHITECT/OWNER BEFORE ORDER/INSTALL. SEE SPECIFICATIONS.
- G. ALL INTERIOR GLAZING TO BE 1/4" SINGLE PANE, CLEAR GLASS.
- H. GENERAL CONTRACTOR TO DISCONNECT POWER AND DATA AT EXISTING ELECTRIFIED DOOR HARDWARE AND RECONNECT TO NEW HARDWARE AS REQUIRED BY HARDWARE MANUFACTURER. COORDINATE WITH THE INTEGRATOR AND CONVERGENT ACCESS CONTROL SYSTEMS IS REQUIRED TO ENSURE PROPER INSTALLATION AND FUNCTIONALITY.
- I. ELECTRICAL POWER FOR ALL DOORS IS ROUTED TO AND FROM ROOM ELEC. 139.

KEY NOTES: (#)

- 1. PROVIDE/RE-ROUTE ELECTRICAL AS REQUIRED FOR OPENERS.
- 2. REPLACE INTERIOR STOREFRONT SYSTEMS AT SECOND FLOOR.
- 3. REPLACE WITH BRONZE ANODIZE TO MATCH EAST, WEST AND SOUTH SIDE OF BUILDING BUT WITH SOLARBAN 60(2) CLEAR + CLEAR(68% TRANSMITTANCE). SEE WINDOW DETAILS ON SHEET A203.

EXISTING HARDWARE LOCATIONS

- EXISTING WALL MOUNTED ACTUATOR
EXISTING ACTUATORS ARE SHOWN WHERE CURRENTLY LOCATED. KEEP THE SAME CONFIGURATION.

- NEW WALL MOUNTED ACTUATOR
WIRELESS

NEW HARDWARE LOCATIONS

- NEW DOOR OPERATOR
DOOR OPERATORS ARE SHOWN WHERE CURRENTLY APPLICABLE.

DOOR HARDWARE

HW SET NO. 01 - EXTERIOR DOORS

- DOORS: 128, 129**
- (6) PIVOT HINGES IVES-6BR1-4.5 x 4.5-NRP-652
 - (1) KEYED REMOVABLE MULLION BEST PRECISION, KR622/FLKR822
 - (1) PANIC EXIT DEVICE VON DUPRIN, 99NLOP RIM DEVICE, NIGHT LATCH VON DUPRIN, 99EO RIM DEVICE, EXIT ONLY ROCKWOOD, BF 157 313 10" CTC 90DEG PULL, 1" DIA DARK BRONZE SCHLAGE, ELECT MT11-485 MULTI-TECH READER, MULLION MOUNT MT RS485, BLACK VON DUPRIN EPT10 SP313 POWER TRANSFER, TEN 24 GAUGE WISPRAYED DURANODIC SCHLAGE, 7 PIN, SFIC, EVEREST LCN, 4040XP-HCUSH 695 TBWMS LCN, 4642 REGARM 695 AUTO VON DUPRIN, VDREXKIT-ED EXIT DEVICE 3335 AND 98/99 SERIES VON DUPRIN, MLRKT1-VD ZERO, 429D 20" PERIMETER GASKETING ZERO, 39D 36" DOOR SWEEP IVES, FS439 US10B ZERO, 545A-223 A
 - (1) PANIC EXIT DEVICE
 - (2) PULL
 - (1) ACCESS CONTROL
 - (2) ELEC. POWER TRANSFER
 - (1) CYLINDER w/ CORE
 - (1) SURFACE CLOSER
 - (1) DOOR OPERATOR
 - (2) REQ. TO EXIT
 - (2) MOTORIZED LATCH RETRACTION VON DUPRIN, MLRKT1-VD ZERO, 429D 20" PERIMETER GASKETING ZERO, 39D 36" DOOR SWEEP IVES, FS439 US10B ZERO, 545A-223 A
 - (2) DOOR SWEEPS
 - (2) FLOOR STOP
 - (1) THRESHOLD
 - WEATHER SEAL SET BY MANUFACTURER
 - ACTUATOR NABCO OR LCN
 - RECEIVER NABCO

HW SET NO. 02 - INTERIOR DOORS

- DOORS: 128A, 129A, 232, 234**
- (6) PIVOT HINGES IVES, 5BB1 4.5 X 4.5 652
 - (2) PUSH IVES, 8200 3.5x15 US10B
 - (2) PULL IVES, 3305 3.5x15 US10B
 - (1) SURFACE CLOSER LCN, 4040 XP-HCUSH 695 TBWMS LCN, 4642 REGARM 695 AUTO VON DUPRIN, VDREXKIT-ED EXIT DEVICE 3335 AND 98/99 SERIES VON DUPRIN, MLRKT1-VD ZERO, 429D 20" PERIMETER GASKETING ZERO, 39D 36" DOOR SWEEP IVES, FS439 US10B FLOOR STOP
 - (2) DOOR SWEEPS
 - (2) FLOOR STOP
 - WEATHER SEAL SET BY MANUFACTURER
 - ACTUATOR NABCO OR LCN
 - RECEIVER NABCO



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CONSULTANT

PROJECT INFORMATION



UPGRADE WINDOWS/DOORS SHIELDS BUILDING

315 FALLS AVENUE TWIN FALLS, IDAHO 83301

KEY PLAN

ISSUES

99.5% CD SET - FOR REVIEW
DATE 08/29/2024
JOB NUMBER 24-006

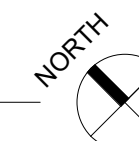
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1	12/12/2024	Addendum 01

SHEET NAME

FLOOR PLAN - SHIELDS SECOND FLOOR

SHEET NUMBER

A202



SECTION 087100 - FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Finish hardware for doors as scheduled and specified herein, including:
 - a. Mechanical hardware for swinging wood and hollow metal doors.
 - b. Mechanical hardware for swinging aluminum storefront and glass entrances.
2. Electro-mechanical devices and access control components as specified herein.
3. Any parts, components, materials, and accessories, whether specified or not, that are required for a complete and operational access control system. Provide access control system with features, capabilities, and operation at each door as specified herein.

B. Related Sections

1. Provide hardware complying with division 01 section "references" as well as the following publications to the extent referenced within this specification.
 - a. Division 08 Section: "Aluminum-Framed Entrances and Storefronts"

C. REFERENCED STANDARDS

D. Provide hardware in accordance with the following standards in addition to those specified in Division 01 Section "References."

1. American National Standards Institute (ANSI), A117.1: Accessible and Usable Buildings and Facilities, edition as adopted by local AHJ.
2. Builders Hardware Manufacturer's Association (BHMA).
 - a. ANSI/BHMA A156.3: Exit Devices, 2008 edition.
 - b. ANSI/BHMA A156.4: Door Controls - Closers, 2008 edition.
 - c. ANSI/BHMA A156.13: Mortise Locks and Latches, 2012 edition.
 - d. ANSI/BHMA A156.18: Materials and Finishes, 2006 edition.
3. Door and Hardware Institute (DHI)
 - a. Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames, 2004 edition.
 - b. Installation Guide for Doors and Hardware, 1994 edition.
 - c. Keying Systems and Nomenclature, 2003 edition.
 - d. Sequence and Format for the Hardware Schedule, 2001 edition.
4. National Fire Protection Association (NFPA)
 - a. NFPA 80: Standard for Fire Doors and Other Opening Protectives, edition as adopted by local AHJ.
 - b. NFPA 105: Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives, edition as adopted by local AHJ.
 - c. NFPA 252: Standard Methods of Fire Tests of Door Assemblies, edition as adopted by local AHJ.

E. ADMINISTRATIVE REQUIREMENTS

1. Coordination

- a. Coordinate layout, templating, and installation of work with other sections as required. Provide templates, product information, schedules, and diagrams required to fully coordinate the work.
- b. Coordinate blocking for wall stops and other surface-applied hardware with Division 06 Section "Rough Carpentry."
- c. Coordinate hardware locations and templating with the appropriate Division 08 door and frame sections.
- d. Coordinate conduit and raceways as required for electrical and pneumatic hardware items with the appropriate electrical, access control, intrusion detection, and fire alarm sections.
- e. Coordinate wiring and connections to electrified hardware items with the appropriate electrical, access control, intrusion detection, and fire alarm sections.
- f. Fire Rated Openings: Coordinate with door and frame manufacturer to ensure that total opening complies with requirements for fire doors.

2. Pre-installation Meetings

- a. Upon approval of hardware schedule and wiring diagram submittals and before hardware installation, conduct a pre-installation meeting complying with Division 01 Section "Project Management and Coordination."
- b. Meeting attendees shall include the owner's representative, architect, contractor, hardware supplier, hardware installer, other affected trades, and manufacturer representative(s) for locks, exit hardware, operators, and closers.
- c. Discuss the installation of continuous hinges, locksets, door closers, exit devices, electromechanical finish hardware, and finish hardware. Coordinate installation between trades.
 - 1) Discuss special installation requirements.
 - 2) Inspect and discuss electrical rough-in and other preparatory work performed by other trades.
 - 3) Review sequence of operation for each electrified door opening.
 - 4) Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 5) Review required testing, inspecting, and certifying procedures.
- d. At the meeting, distribute installation manuals, templates, wiring diagrams, and approved hardware schedule submittals to each attendee.
- e. Notify participants at least five (5) working days before meeting.

3. Keying Meetings

- a. Upon approval of hardware schedule and before ordering locking hardware and key system, conduct a keying meeting complying with Division 01 Section "Project Management and Coordination."
- b. Meeting attendees shall include the owner, owner's security consultant, construction manager, contractor, architect, and hardware supplier's Architectural Hardware Consultant.
- c. Discuss key system requirements and incorporate decisions made during the meeting into the keying schedule submittal.
 - 1) Review each locking function and determine degree of security required at each opening.
 - 2) Review function of building, flow of traffic, and purpose of each area.
 - 3) Determine degree of security at each opening.
 - 4) Determine requirements for future expansion.
 - 5) Discuss requirements for shipping and delivery of keys [and permanent cores].
 - 6) Discuss requirements to interface new cylinders/cores with owner's existing key system.

F. SUBMITTALS

1. General

- a. Provide submittals in accordance with Division 01 Section "Submittal Procedures."
- b. Advise architect within the submittal package of incompatibility or issues which may detrimentally affect the work of this section.
- c. Submittals shall be prepared by or under the supervision of Architectural Hardware Consultant. Stamp submittals with the DHI certification seal and signature of the supervising Architectural Hardware Consultant.
 - 1) Submittals submitted without the above certification seal shall be marked incomplete and returned.
- d. Submittal sequence: Submit product data, hardware schedule, samples, and qualification data concurrently. Coordinate submission of finish hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in project construction schedule. Upon approval of first submittal package, submit wiring diagrams and key schedule.

2. Product Data

- a. Submit manufacturer's technical product data for each item of finish hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- b. Highlight relevant product information such as model, function, trim, finish, options, electrical requirements, and accessories.

3. Hardware Schedule

- a. Submit hardware schedule detailing fabrication and assembly of finish hardware, as well as procedures and diagrams. Coordinate the final finish hardware sets with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of finish hardware.
 - b. Check specified hardware for suitability and adaptability to details and surrounding conditions. Indicate unsuitable or incompatible items and proposed substitutions.
 - 1) Numerical door index indicating door number, heading number, and architect's specified hardware set number.
 - 2) Identification number, location, hand, fire rating and material of each door and frame.
 - 3) Type, style, function, size, quantity, and finish of each finish hardware item. Include description and function of each lockset and exit device.
 - 4) Complete designations of every item required for each door or opening including name and manufacturer.
 - 5) Fastenings and other pertinent information.
 - a) Where universal-type closers are scheduled, indicate the application method to be used for installation at each door (e.g. regular arm, parallel arm, or top jamb).
 - 6) Location of each finish hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - 7) Explanation of abbreviations, symbols, and codes contained in schedule.
 - 8) Mounting locations for finish hardware.
 - 9) Door and frame sizes and materials.
 - 10) Description of each electrified finish hardware function, including location, sequence of operation, and interface with other building control systems.
 - a) Sequence of Operation: Include description of component functions that occur in the following situations: authorized person wants to enter; authorized person wants to exit; unauthorized person wants to enter; unauthorized person wants to exit; loss of power; fire alarm sounds.
 - 11) List of related door devices specified in other Sections for each door and frame.
 - c. Submit, with the hardware schedule, a list of lead times for hardware items.
4. Keying Schedule
- a. Submit keying schedule detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations complying with DHI's "Keying Systems and Nomenclature" publication.
5. Shop Drawings

- a. Submit details of electrified finish hardware, indicating the following:
 - 1) System schematic.
 - 2) Point-to-point wiring diagram.
 - 3) Riser diagram.
 - 4) Elevation of each door.
- b. Operation Narrative: Describe the operation of doors controlled by electrified finish hardware
- c. Include specific cable requirements; indicate twisted, shielded, and plenum rated cable requirements where required by manufacture or relevant building codes and standards.

6. Manufacturer's Templates

- a. After final approval of the hardware schedule, provide templates for doors, frames, and other work specified to be factory prepared for the installation of finish hardware. Check shop drawings of other work to ensure that adequate provisions are made for locating and installing finish hardware to comply with indicated requirements. Provide additional templates, template lists, hardware schedules, and product information to other trades upon request.

7. Qualification Certificates

- a. For installer, supplier, and Architectural Hardware Consultant provide letters of certification that indicate compliance with the requirements specified herein. Submit certifications concurrently with hardware schedule submittal. Submittals will not be considered without certifications.
 - 1) Installer: Provide documentation showing installer's past experience.
 - 2) Supplier: Provide letters of certification from the hardware manufacturer stating that the supplier is a factory direct authorized distributor. Provide documentation showing suppliers past experience.
 - 3) Architectural Hardware Consultant: Provide certificate showing consultant holds the required certificate(s) from DHI.

G. CLOSE OUT SUBMITTALS

1. General

- a. Upon substantial completion, provide two (2) copies of the closeout submittals complying with Division 01 Section "Close Out Submittals."

2. Operation and Maintenance Data

- a. Provide operation and maintenance manuals that include the following for each hardware item:
 - 1) Project information including contact information for architect, contractor, supplier, installer, Architectural Hardware Consultant, and local representative of each hardware manufacturer.
 - 2) Complete information on care, maintenance, adjustment, repair and replacement of parts, and preservation of finishes.

- 3) Product data, templates, installation information, service manual, and parts lists.
 - 4) Copy of final hardware and keying schedules and wiring diagrams for each opening connected to either 120V or low voltage power. Edit schedules and diagrams to reflect "As installed" conditions.
3. Warranty Documentation
- a. Provide information required for warranty service or replacement of each hardware item including:
 - 1) Warranty certificates from manufacturer stating warranty period and conditions, complying with warranty requirements specified herein.
 - 2) Copy of manufacturer's order confirmation or original packing slip with manufacturer's original order #, date of manufacture, and ship date.
4. Maintenance Material Submittals
- a. Maintenance Tools: Furnish a complete set of specialized tools and maintenance instructions need for owner's continued adjustment, maintenance, removal, and replacement of finish hardware.
5. Qualifications
- a. Supplier Qualifications: Supplier shall have documented experience in the supply of finish hardware for five (5) years or for three prior projects similar in scope, size, and quality. Supplier shall have an Architectural Hardware Consultant, complying with the requirements specified herein, available to properly handle, detail, and service hardware in a satisfactory manner. Architectural Hardware Consultant shall be available during the course of the work to consult with contractor, architect, and owner about finish hardware and keying.
 - 1) Supplier shall be a certified direct distributor and be a full sales and service organization for the manufacturer(s) listed.
 - 2) Supplier shall have warehousing facilities within 50 miles of the project site.
 - b. Installer Qualifications: Installer shall have documented experience in the installation of finish hardware for five (5) years or for three prior projects similar in scope, size, and quality.
 - c. Manufacturer Sourcing Qualifications: Obtain each type of finish hardware (hinges, latch & locksets, exit devices, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
 - d. Architectural Hardware Consultant Qualifications: A person who is certified by DHI as an Architectural Hardware Consultant (AHC) or Architectural Openings Consultant (AOC) and is enrolled in the DHI Continuing Education Program. Consultant shall be experienced in providing consulting services for finish hardware installations that are comparable in material, design, and extent indicated.

H. DELIVERY, STORAGE, AND HANDLING

1. Marking and Packaging

- a. Package hardware items manufacturer's standard packaging, clearly marked with hardware set number correlating to finish hardware schedule and architect's door number.

2. Delivery and Acceptance

- a. Coordinate with construction schedule and deliver packaged hardware items to place of installation (e.g. project site, fabrication shop). Upon delivery, inspect and inventory finish hardware. Immediately notify supplier of defective or missing items.
- b. Deliver keys and cores to owner by registered mail or overnight package service. Ship keys separately from cores.

3. Storage and Handling

- a. Provide secure, dry storage area complying with Division 01 Section "Product Storage and Handling Requirements" for finish hardware delivered to the project site, but not yet installed. Store items on shelves or pallets to prevent damage.
- b. Control handling and installation of hardware items that are not immediately replaceable so that completion of work will not be delayed by hardware losses both before and after installation.

I. WARRANTY

1. General Warranty

- a. Provide a written warranty, executed by the product manufacturer agreeing to repair or replace components of finish hardware that fail in materials or workmanship within the specified warranty period.

1) Failures include, but are not limited to, the following:

- a) Structural failures including excessive deflection, cracking, or breakage.
- b) Faulty operation of operators and finish hardware.
- c) Deterioration of metals, metal finishes, and other materials beyond normal wear.

2) Warranty Period: Two (2) years from date of Substantial Completion except for:

- a) Structural failures including excessive deflection, cracking, or breakage.
- b) Faulty operation of operators and finish hardware.
- c) Deterioration of metals, metal finishes, and other materials beyond normal wear.

3) Warranty Period: Two (2) years from date of Substantial Completion, except for:

- a) Mortise Locksets: Five (5) years from date of Substantial Completion.

b) Exit Devices: Three (3) years from date of Substantial Completion.

c) Door Closers: Ten (10) years from date of Substantial Completion.

d) Electrified Hardware Items: One (1) year from date of Substantial Completion.

J. PRODUCTS

1. Manufacturers

- a. Provide hardware from the approved manufacturers as noted in hardware schedule.
- b. Substitutions submitted, no later than 10 business days prior to bid and complying with Division 01 Section "Substitutions" requirements will be reviewed for conformance to basis of design. Substitutions found in compliance will be approved by bid addendum.

K. MATERIALS

1. General

- a. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
- b. Base Metals: Produce hardware units of basic metal and forming method indicated using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units for finish designations indicated.
- c. Provide hardware manufactured to conform to published templates generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.

2. Fasteners

- a. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Furnish stainless steel (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
- b. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Use through bolts only as indicated in this section unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

3. Hinges

a. Requirements:

- 1) Screws: Provide Phillips flat-head screws complying with the following requirements.
 - a) For metal doors and frames install machine screws into drilled and tapped holes.
 - b) For wood doors and frames install wood screws.
 - c) For fire-rated wood doors install #12 x 1-1/4-inch, threaded-to-the-head steel wood screws.
 - 2) Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a) Out-Swing Doors with Locks: Non-Removable Pins (NRP).
 - b) Interior Doors: Non-rising pins.
 - c) For fire-rated wood doors install #12 x 1-1/4-inch, threaded-to-the-head steel wood screws.
 - 3) Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a) Out-Swing Doors with Locks: Non-Removable Pins (NRP).
 - b) Interior Doors: Non-rising pins.
 - c) Tips: Flat button and matching plug, finished to match leaves.
 - 4) Number of Hinges: At non-rated openings, provide two hinges for each door leaf 60 inches or less in height and one additional hinge for each 30 inches of additional height or portion thereof. At fire rated openings, provide no less than three ball bearing hinges for each door leaf 86 inches or less in height and one additional hinge for each 30 inches of additional height or portion thereof.
 - 5) Hinge Width: Where applied trim or closer templating require hinge widths wider than 4-1/2 inches, provide minimum width required. Otherwise, provide hinges 4-1/2 inches in width.
 - 6) Hinge Height: Provide hinges 5 inches in height where door leaf exceeds 3'0 in width or where door is a high-use door utilizing panic or push/pull hardware. Otherwise, provide hinges 4-1/2 inches in height.
 - 7) Hinge Weight: Provide heavy weight hinges where door leaf exceeds 3'0 in width, at exterior doors, where swing clear hinges are used, and where door utilizes panic or push/pull hardware. Otherwise provide standard weight hinges.
4. Operating Door Trim
- a. Door Bolts:
- 1) Requirements:
 - a) Provide bolt model recommended by manufacturer for door material type.
 - b) Provide 1 inch throw stainless steel bolt with 12 inch length unless otherwise scheduled in the sets.

c) Provide a dust proof strike for bottom bolt at all locations where there is not a threshold.

b. Push Plates, Pull Plates, and Pulls:

1) Requirements:

a) Push Plate: Provide 4 inch by 16 inch by .050 inch push plate constructed of stainless steel. Bevel all four edges.

b) Pull Plate: Provide 4 inch by 16 inch by .050 inch push plate constructed of stainless steel, bevel all four edges. Provide 10 inch center to center (CTC) pull constructed of stainless steel with a diameter of 1 inch.

c) Offset Pull: Provide 10 inch center to center (CTC) pull with a 4 inch offset constructed of stainless steel with a diameter of 1 inch.

d) Push: Push bar shall be constructed of stainless steel with a diameter of 1 inch.

e) Push/Pull Bar: Provide 10 inch center to center (CTC) pull with a 4 inch offset and door pull equal to door width less 3 inches. Push/pull bar shall be constructed of stainless steel with a diameter of 1 inch.

5. Locks and Latches

a. General:

1) Lock Chassis: Shall be made from steel, with locking spindles of stainless steel.

2) Latch Bolt: Shall be constructed of stainless steel with 3/4 inch throw on mortise locks and 1/2 inch throw otherwise. Latch to be deadlocking on keyed functions.

3) Lever Trim: Shall be pressure cast brass, bronze, zinc, or steel with wrought rose design. Levers are to be solid with no voids or plastic inserts.

4) Fire Rating: Lock shall be listed for up to 3 hours.

5) Strike Plates: Provide ANSI 4-7/8 inch strike plates. At pairs of doors, provide strike with 7/8 inch flat lip. At single doors, provide round-lipped strike with lip length as required to minimally clear jamb and trim. Provide dust box at each strike location.

b. Mortise Locks

1) Requirements:

a) ANSI Grade: BHMA/ANSI A156.13, Series 1000, Grade 1.

b) Deadbolt: Shall be constructed of stainless steel and include security roller pins. Shall have a minimum 1 inch throw.

c) Spring Cages: Lock shall have individual external spring cages for each lever.

d) Lever Spindles: Provide lockset with independent, breakaway type lever spindles. Spindles that are continuous through the lock case are not acceptable.

- e) Hub Blocking: Provide lockset with a hub blocking plate to resist unauthorized entry.
- f) Thumbturns: Provide thumbturns as enlarged, ADA designated style thumbturns.
- g) Visual Indicator: Where scheduled, provide visual indicator showing "Vacant" or "Occupied."

6. Cylinders and Cores

1

a. Requirements:

1) Small Format Interchangeable Cylinders: Provide cylinders of quantity and type and with the appropriate cam/tailpiece to be compatible with the locking hardware provided. Provide cylinder housings ready to accept 7-pin, Small Format Interchangeable Cores.

a) Temporary Construction Keying: Provide each cylinder housing and/or lock lever with keyed construction core during the construction period. Cores will remain property of the contractor and will be returned upon installation of the owner's permanent key system.

b) Permanent Cores: Provide factory keyed cores that are utility patented until at least 2029. Provide cores with a geographically exclusive factory-restricted keyway. Ship cores directly to owner's representative. At substantial completion, accompany the owner's representative while replacing temporary construction cores with the owner's permanent key system.

2) Conventional Cylinders: Provide cylinders of quantity and type and with the appropriate cam/tailpiece to be compatible with the locking hardware provided. Provide factory keyed 6-Pin conventional cylinders that are utility patented until at least 2029. Provide cylinders with a geographically exclusive factory-restricted keyway.

3) Keys: Provide cylinder manufacturer's standard keys. Keys shall be shipped separate from cores directly to owner's representative. For estimating purposes, provide keys in the following quantities:

- a) Construction Control Keys: 2 each
- b) Construction Change Keys: 12 each
- c) Permanent Control Keys: 2 each
- d) Permanent Master Keys: 2 each
- e) Permanent Change Keys: 4 per core

7. Exit Devices

a. Acceptable Manufacturers:

- 1) Von Duprin: 99 Series
- 2) No Substitution - Facility standard

b. Requirements:

- 1) ANSI Grade: BHMA/ANSI A 156.3, Grade 1.
- 2) Device Construction:

- a) Exit device(s) shall have a mechanism case constructed of extruded aluminum, base plates constructed of cold rolled or cast steel, push pad of extruded aluminum with stainless steel covering, and end caps with flush mounted, sloped design. At full-glass doors, provide exit devices with no exposed fasteners or rivets visible through glass. Where required by stile width, provide narrow-stile type device.
 - b) Latchbolt: Provide Pullman-type deadlocking latch bolts constructed of stainless steel. Latch return springs shall be compression type. Tension and Torsion latch return springs are not acceptable.
 - c) Dogging Mechanism: where dogging or latch-retraction options are not specifically scheduled for non-fire rated doors, provide device with a thumb-turn activated hook-type dogging mechanism constructed of steel.
 - d) Plastic or nylon used for the push pad, or parts in the dogging mechanism or latchbolt mechanism are unacceptable.
 - e) Sound Dampening: Device shall be provided with factory-installed sound dampening materials.
 - f) Provide device type, function, and trim style as indicated in hardware schedules.
- 3) Where exit device(s) are provided for fire rated door, provide with fire listing and label indicating "Fire Exit Hardware". If device is mounted on wood doors, provide sex nuts and bolts.
 - 4) Provide shim kits, filler plates, and other accessories as required for each opening.
 - 5) Unless otherwise indicated in the sets, provide device with roller-type strike.
 - 6) Where scheduled, provide removable mullions by same manufacturer as provided exit devices. Provide mullion stabilizers, key removable option, strike preps, and fire rating as indicated in sets.
8. Overhead Stops and Holders
- a. Requirements:
 - 1) Provide overhead stops and holders as scheduled, sized per manufacturer's recommendations based on door width.
 - 2) Provide concealed overhead stops with adjustable jamb bracket.
 - 3) Where possible without conflicting with other hardware, mount surface overhead stops on least public side of door.
 - 4) Provide stops with any special templates, brackets, plates, or other accessories required for interface with header, door, wall, and other hardware.
9. Weatherstrip and Gasket
- a. General

- 1) Provide weather strip and gasketing as scheduled.
- 2) Size weather strip and gasket to provide a continuous seal around opening and at meeting stiles.

b. Perimeter Seals

- 1) Acceptable Manufacturers:
 - a) Zero: 8305AA 429A 188S-BK 488S-BK
 - b) National Guard: A626A 700SA 5050B 2525B
 - c) Pemko: 45041CNB 2891AS S88D PK33D
 - d) Substitutions as approved by Architect/ Owner.

c. Astragals, Meeting Stiles, and Mullion Seals

- 1) Acceptable Manufacturers:
 - a) Zero: 8042S-BK 8193AA 44
 - b) National Guard: 5070B 9605A 139
 - c) Pemko: S772D 18041CNB 357
 - d) Substitutions as approved by Architect/ Owner.

d. Door Bottoms

- 1) Acceptable Manufacturers:
 - a) Zero: 8198AA 8192AA
 - b) National Guard: C627A 601
 - c) Pemko: 3452CNB 18100CNB
 - d) Substitutions as approved by Architect/ Owner.

e. Rain Drips

- 1) Acceptable Manufacturers:
 - a) Zero: 142A
 - b) National Guard: 16A
 - c) Pemko: 346C
 - d) Substitutions as approved by Architect/ Owner.

10. Miscellaneous Hardware

a. Silencers

- 1) Acceptable Manufacturers:
 - a) Ives: SR64 SR65 SR66
 - b) Rockwood: 608 609 608CA
 - c) Hager: 307D 308D
 - d) Substitutions as approved by Architect/ Owner.
- 2) Requirements:
 - a) Where indicated on single openings, provide 3 each grey rubber silencers on lock jamb.
 - b) Where indicated on paired openings, provide 2 each grey rubber silencers on header.

11. Electronic Accessories

a. Power Supplies

1) Requirements:

- a) Provide power supplies, recommended and approved by the manufacturer of the electrified locking component, for the operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring a power supply.
- b) Provide the appropriate quantity of power supplies necessary for the proper operation of the electrified locking component and/or components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component utilizing the power supply, the location of the power supply, and the approved wiring diagrams. Locate the power supplies as directed by the Architect.
- c) Provide a power supply that is regulated and filtered 24 VDC, or as required, and UL class 2 listed.
- d) Options: Provide the following options:

- 2) Provide a power supply, where specified, with the internal capability of charging optional sealed backup batteries 24 VDC, or as required, in addition to operating the DC load.
- 3) Provide sealed batteries for battery back-up at each power supply where specified.
- 4) Provide a power supply complete requiring only 120VAC to the fused input and shall be supplied in an enclosure.

b. Keyswitches and Push Buttons

1) Requirements:

- a) Keyswitches: Provide single gang keyswitch with momentary/maintained switches as indicated in the sets. Provide with LED indicator lights as indicated in the sets.
- b) Push Buttons: Provide mushroom style push buttons with color and text as indicated in the sets. Where indicated, provide LED indicator lights and delayed return push button.

L. FINISHES

1. Match items to the manufacturer's standard color and texture finish for the latch and locksets (or push-pull units if no latch or locksets).
2. 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.
3. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

4. The designations used in schedules and elsewhere to indicate hardware finishes are the industry-recognized standard commercial finishes, except as otherwise noted.
 - a. Brushed Stainless Steel, no coating: ANSI 630.
 - b. Satin Chrome, Bronze Coated: ANSI 626, ANSI 652.
 - c. Powder Coated Aluminum finish: ANSI 689.
 - d. Saddle and Panic Thresholds: Mill Aluminum finish.
 - e. Weatherstrip and Gasket: Clear Anodized Aluminum finish.

M. EXECUTION

1. EXAMINATION

- a. Verify conditions of walls, flooring, doors, frames, and hardware are satisfactory for installation of hardware.
 - 1) Prior to installing doors and hardware, wash down of masonry and painting or staining of doors and frames shall be completed.
 - 2) Verify that walls have blocking behind wall mounted stop locations. Verify that flooring does not interfere with door or hardware operation.
 - 3) Ensure that frames are installed plumb, square, and true. Verify that doors and frames are properly sized and handed and are correctly prepared for hardware installation.
 - 4) Verify function, quantity, type, hand, and finish of hardware to be installed with the approved hardware schedule.
 - 5) Verify that electrical rough-in is complete and correctly located for each door.
- b. Conditions that do not allow proper installation of hardware shall be corrected before proceeding.

2. INSTALLATION

a. General

- 1) Install door hardware in accordance with manufacturer's recommended procedures and methods.

b. Hardware Mounting Heights

- 1) Mount door hardware units at heights indicated, as follows, unless otherwise indicated or required to comply with governing regulations.
 - a) Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - b) Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."
 - c) Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

c. Clearances

- 1) Install doors, both rated and non-rated, in accordance with NFPA 80 requirements for door clearances as follows.
 - a) 1/8 inch between door and frame head and jambs for wood doors.
 - b) 3/8 inch between door and frame head and jambs for metal doors.
 - c) 1/8 inch at meeting stiles of pairs of doors.
 - d) 3/4 inch undercut maximum.
 - d. Surface Mounted Door Closers
 - 1) Install surface mounted door closers on room side of openings, except where prohibited by scheduled hardware. Use appropriate arms, spacers, brackets, and accessories to properly install surface mounted door closers. Adjust spring power to the appropriate setting to ensure the doors reliably close under normal operating conditions
 - e. Wall Mounted Door Stops and Holders
 - 1) Locate wall mounted door stops at the appropriate height and location to properly contact protruding door trim.
 - f. Gasketing
 - 1) Install gasketing to provide a continuous seal around the perimeter of the opening. Install soffit mounted hardware using the proper brackets, spacers, and accessories to allow proper installation without cutting or notching gasketing material or mounting channels.
 - g. Thresholds and Saddles
 - 1) Trim, cut, and notch thresholds and saddles neatly to minimally fit the profile of the door frame. Thresholds and saddles shall be set in full bed of butyl-rubber or polyisobutylene mastic sealant.
3. FIELD QUALITY CONTROL
- a. Architectural Hardware Consultant: Architect will engage a qualified Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - b. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.
4. ADJUSTING
- a. After building HVAC system is balanced and adjusted, conduct final adjustment of door closers. Verify spring power of the surface mounted door closer is properly adjusted to close and latch the door and to comply with the opening force requirements of ANSI A117.1 as follows:
 - 1) Doors with Closers shall take five (5) seconds to close from 90 degrees to 12 degrees.

- 2) Interior, non-fire rated swinging doors shall open with a maximum of 5 lbs of pressure.
- 3) Exterior doors and fire rated doors shall open with the minimum amount of pressure required to positively close and latch the door.

5. CLEANING AND PROTECTION

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

6. SCHEDULE

- a. The following schedule of hardware sets shall be considered a guide and the supplier is cautioned to refer to special conditions, and the full requirements of this section. It shall be the hardware supplier's responsibility to furnish all required hardware.
- b. Where items of hardware are not definitely or correctly specified and are required for completion of the Work, a written statement of such omission, error, conflict, or other discrepancy shall be sent to the Architect, prior to date specified for receipt of bids, for clarification by addendum.
- c. Adjustments to the Contract Sum will not be allowed for omissions or items of hardware not clarified prior to bid opening.

END OF SECTION 087100

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section.

1.2 PERFORMANCE REQUIREMENTS

1.3 ACTION SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.4 QUALITY ASSURANCE

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
 - 2. 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 labeling is indicated, permanently mark glazing with certification label. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

1.5 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form in which coated-glass 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 on Insulating Glass: Manufacturer's standard form in which 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 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thickness as needed to comply with requirements indicated.

2.2 Products: Subject to compliance with requirements, provide one of the following] available products that may be incorporated into the Work include, but are not limited to, the following:

A. Vision Glazing – Vitro; - Solar ban 60 (2)

1. North facing Exterior glazing

a. Vision Glazing –Vitro; - Solar ban 60 (2) Clear + Clear Glass

b. Vision Glazing – Vitro; - Solarban 60 (2) Optigray + Clear Glass

2. Interior glazing

a. 1/4" Single Pane, Clear Glass

B. Heat-Treated Float Glass: ASTM C 1048, Type 1, Quality-Q3, Class I (Clear) unless otherwise indicated; of kind and condition indicated.

2.3 GLAZING SEALANTS

A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will 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. Sealants used inside the weatherproofing system, shall have a VOC content of not more than 250 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 MISCELLANEOUS GLAZING MATERIALS

A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

B. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

C. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

- D. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
- E. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.5 INSULATING-GLASS TYPES

A. Glass Type: Insulated Vision Glass: Insulating glass. Heat Strengthened

1. Overall Unit Thickness: 1" (24.7mm)
2. Thickness of Each Glass Lite: 1/4" (6.0mm)
3. Outdoor Lite: Guardian Midnight Gray (North American)
4. Interspace Content: Air
5. Indoor Lite: Clear float
6. Low-E Coating: Third Surface – Sun Guard SN68(#3) – color gray
7. Visible Light Transmittance: 7% percent minimum.
8. Winter Nighttime U-Factor: 0.29 maximum.
9. Summer Daytime U-Factor: 0.28 maximum.
10. Solar Heat Gain Coefficient: 0.12 or 0.13 maximum.

B. Glass Type: Insulated Vision Glass: Insulating glass. Heat Strengthened

1. Overall Unit Thickness: 1" (24.7mm)
2. Thickness of Each Glass Lite: 1/4" (6.0mm)
3. Outdoor Lite: Guardian Crystal Gray (North American)
4. Interspace Content: Air
5. Indoor Lite: Clear Float
6. Visible Light Transmittance: 48% percent minimum
7. Winter Nighttime U-Factor: 0.29 maximum.
8. Summer Daytime U-Factor: 0.28 maximum.
9. Solar Heat Gain Coefficient: 0.35 maximum

C. Glass Type : Ceramic-coated, low-E, insulating spandrel glass.

Coating Color: As selected by Architect from manufacturer's full range.

Overall Unit Thickness: 1 inch (25 mm).

Minimum Thickness of Each Glass Lite: 6 mm.

Outdoor Lite: Fully tempered float glass.

Interspace Content: Argon.

Indoor Lite: Fully tempered float glass.

Opaque Coating Location: Fourth surface.

Winter Nighttime U-Factor: .29 maximum.

PART 3 - ION

3.1 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. Adjust glazing channel dimensions as required by Project conditions during

- installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
 - D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
 - E. 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.
 - F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
 - G. Provide spacers for glass lites where length plus width is larger than 50 inches.
 - H. 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.

3.2 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

END OF SECTION