



Oregon State University

KERR ADMIN BASEMENT INFO SERVICES TENANT IMPROVEMENTS

PROJECT NUMBER: 2074-18

ITB #199446

ADDENDUM NO. 1

ISSUE DATE: June 14, 2019

CONTRACT ADMINISTRATOR:

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Construction Contracts Administration

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This Addendum is hereby issued to inform you of the following revisions and or clarifications to the above-referenced ITB and/or the Contract Documents for the Project, to the extent they have been modified herein. Any conflict or inconsistency between this Addendum and the Solicitation Document or any previous addenda will be resolved in favor of this Addendum. Bids shall conform to this Addendum. Unless specifically changed by this Addendum, all other requirements, terms and conditions of the Solicitation Document and or Contract Documents, and any previous addenda, remain unchanged and can be modified only in writing by OSU. The following changes are hereby made:

TECHNICAL SPECIFICATIONS:

Item 1 – Sections 08 71 01 and 23 09 00 are hereby replaced in their entirety with the revised sections provided in Attachment 1.

DRAWINGS:

Item 2 – Sheet A902 is hereby replaced in its entirety with the revised sheet provided in Attachment 2.

APPROVED SUBSTITUTION REQUESTS:

Item 3 - Section 26 05 00 Common Work Results for Electrical, 2.6 Lighting: Add the following manufacturers as approved for bidding for the corresponding light fixture types:

Type A: Day-Brite, Metalux

Type B: Day-Brite, Metalux

Type C: Ledalite, Neoray

Type D: Lightolier, Halo Comm

Type EX: Chloride, Sure-Lites

Type F: Halo-Trac

Type X: Chloride, Sure-Lites

QUESTIONS:

- Item 4 Q: Will on-site parking be permitted?
A: There is limited vehicular access, therefore there is not a designated parking area for the Contractor. Contractor parking permits can be purchased through OSU Transportation Services (<https://fa.oregonstate.edu/parking/parking-permits>). A loading dock is available for short-term delivery/loading and a large elevator serves the basement level.
- Item 5 Q: Will contractors be required to pay a parking fee? If so, what will the fee be?
A: Contractor is responsible for parking. See OSU Parking requirements and contact OSU Transportation Services (<https://fa.oregonstate.edu/parking/parking-permits>).
- Item 6 Q: If required, will hazardous material testing and potential abatement be handled by the Owner?
A: Yes.
- Item 7 Q: Please confirm that existing furnishings in areas that work occurs for this project will be removed by owner.
A: Some existing furnishings will need to remain in the work area at a designated space.
- Item 8 Q: What are the projected start and end dates?
A: See Section 01 11 00
- Item 9 Q: Will the spaces that work will be occurring be occupied during construction?
A: Yes
- Item 10 Q: Please confirm that the existing door frame near gridlines A/2 is the only door frame to remain, and all other frames are to be removed.
A: Refer to schedule on A902.
- Item 11 Q: Is attic stock is available for contractors use in areas to receive new carpet and carpet patching?
A: No
- Item 12 Q: Please confirm that the existing open to structure ceilings are not to receive new paint.
A: Confirmed
- Item 13 Q: Please confirm that P-4 Ideapaint is not required on this project.
A: P-4 marker board paint shall be used where shown in the drawings.
- Item 14 Q: Are as-builts for the space available?
A: There are a limited amount of archive/as-builts that can be provided after contract award.
- Item 15 Q: What are the working hours and noise requirements?
A: Working hours can be flexible, as this is an interior only project. Noise is not anticipated to be a problem, but when working on structure above ceiling, notifications should be made and attempts should be made to do this work prior to 8am or after 5pm.
- Item 16 Q: Who is the building fire alarm contractor?
A: This information will be available at the pre-construction meeting.
- Item 17 Q: Are there any other proprietary vendors or contractors for the building?
A: None known at this time.

- Item 18 Q: Is a hazardous material survey available?
A: There is a survey available and abatement will be performed prior to the execution of the resulting Contract
- Item 19 Q: Where will laydown be located?
A: Laydown space will need to be within the work area at a designated space that has a limited scope of work. It will need to be protected.
- Item 20 Q: Is there a space for a jobsite trailer on site? If not, will space within the existing building be provided for the contractor's office?
A: No. The contractor may use space within the existing building or at a designated space that has a limited scope of work in the work area/office suite.
- Item 21 Q: Will background checks and/or badging be required? If so, what is the time commitment and cost associated?
A: No
- Item 22 Q: Will phasing be required? If so, is there a desired phasing plan?
A: No
- Item 23 Q: Where will storage for salvaged items be located?
A: Inside the building or office suite in a designated area with limited scope of work, to be scheduled for pick up by OSU Surplus Property.
- Item 24 Q: Where will construction access be located?
A: Access may be obtained from the building's south entry doors, and the loading dock area.
- Item 25 Q: Please clarify if existing light fixtures are to be salvaged for re-use, or disposed of.
A: TBD, based on outcome of the add-alternate. (OSU Electrical Shop will have first right of refusal for reuse if alternate is exercised).
- Item 26 Q: Please confirm that there is no plumbing scope required for on this project and that Sheet A100 Note 4 no longer applies.
A: Confirmed
- Item 27 Q: Please confirm that no corner guard is required at the new south wall at office B0046
A: Confirmed
- Item 27 Q: Please provide low voltage consultant drawings.
A: Additional information will be provided at pre-construction meeting.

END OF ADDENDUM NO. 1

ATTACHMENT 1

SECTION 08 71 01
DOOR HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hardware for wood doors.

1.2 RELATED REQUIREMENTS

- A. Section 08 11 13 - Hollow Metal Frames.
- B. Section 08 14 16 - Flush Wood Doors.

1.3 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities; Final Rule; current edition; (ADA Standards for Accessible Design).
- B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- C. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
- D. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.
- E. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- C. Convey Owner's keying requirements to manufacturers.
- D. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.
- E. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- B. Samples: Prior to preparation of hardware schedule:
 - 1. Submit 1 sample of hinge, latchset, lockset, closer, and door actuator illustrating style, color, and finish.
 - 2. Samples will be returned to supplier.
- C. Hardware Schedule: Submit for approval six copies of schedule per Division 1. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Type, style, function, size, quantity and finish of hardware items.
 - a. Use BHMA Finish codes per ANSI A156.18.
 - 2. Name, part number and manufacturer of each item.
 - 3. Fastenings and other pertinent information.
 - 4. Location of hardware set coordinated with floor plans and door schedule.
 - 5. Explanation of abbreviations, symbols, and codes contained in schedule.
 - 6. Mounting locations for hardware.

7. Door and frame sizes, materials, hand, rating, degrees of swing, and jamb depth.
 8. List of manufacturers used and their nearest representative with address and phone number.
 9. Catalog cuts.
 10. Manufacturer's technical data and installation instructions for electronic hardware.
 11. Date of jobsite visit if existing conditions.
 12. Cylinder Schedule less the keying. Include key system description and keys to be provided.
 13. Provide point to point wiring and riser diagrams for each electric hardware application. Include electrical items provided by others where specified. Include a system description.
- D. Keying Schedule: Submit for approval separate detailed keying schedule for Owner's review after Hardware Schedule has been approved by Architect and keying requirements established with Owner.
- E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- F. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- H. Closeout Submittals: Furnish 2 copies of the as-built/as-installed hardware schedule with closeout documents including copy of keying schedule, wiring diagrams, manufacturers installation instructions, and suppliers final inspection report.

1.6 QUALITY ASSURANCE

- A. Supplier Qualifications:
1. Direct factory contract supplier who has been furnishing hardware in the projects vicinity for a period of not less than 5 years.
 2. Employs a certified architectural hardware consultant (AHC), available at reasonable times during course Work for project hardware consultation to Owner, Architect and Contractor. Responsible for detailing, scheduling and ordering of finish hardware.
 3. Supplier willing to agree in writing to maintain parts inventory of items supplied for future service to Owner.
 4. Supplier must meet manufacturers requirements to provide and install power operators where specified. Hardware supplier shall provide an installation cost estimate to the GC at time of bid for GC to include in bid package. Local factory authorized installation companies can be obtained through the automatic operator representatives.
- B. Hardware: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.
- C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- D. Notify Architect and Owner's Authorized Representative of any code conflicts before ordering material.
- E. Fire-Rated Openings: In compliance with NFPA 80. Hardware UL10C/UBC-7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, plus resilient and required intumescent seals. Furnish openings complete.
1. Note: scheduled seals may exceed selected door manufacturer's requirements. See 2.6.E for clarification.
- F. Pre-Installation Meetings: Initiate and conduct with supplier, installer, and related trades through Architect. Coordinate materials and techniques, and sequence complex mechanical

and electrical hardware items and systems installation. Convene at least two weeks prior to commencement of related work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.8 WARRANTY

- A. Closers: Ten years mechanical, 2 years electrical
- B. Exit Devices: Three years mechanical, 1 year electrical.
- C. Hinges: Life of Building.
- D. Locksets Five years
- E. Other Hardware: Two years.

1.9 MAINTENANCE:

- A. Tools: After final adjustment of door hardware turn over to Owner tools furnished during construction used for installation and adjustment.

PART 2 PRODUCTS

2.1 MANUFACTURERS - BASIS OF DESIGN

- A. Listed below are specified manufacturers and acceptable alternates:

B. ITEM:	MANUFACTURER:	ACCEPTABLE SUB:
C. Hinges	(IVE) Ives	Bommer, Hager
D. Locks	(SCH)Schlage	Owner's Standard
E. Cylinders	(SCH) Schlage	Owner's Standard
F. Exit Devices	(VON) Von Duprin	Owner's Standard
G. Closers	(LCN) LCN	Owner's Standard
H. Flush Bolts	(IVE) Ives	Trimco
I. Kickplates	(IVE) Ives	Trimco
J. Thresholds	(NGP) NGP	Pemko
K. Automatic Operators	(LCN) LCN	Owners Standard
L. ADA Actuators	(SED) MS Sedco	Owner's Standard
M. Provide hardware items required to complete the work in accordance with these specifications and manufacturers' instructions.		
1. Include items inadvertently omitted from this specification. Note these items in submittal for review.		

2.2 DOOR HARDWARE - GENERAL

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide all items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. ADA Standards for Accessible Design.
 - 3. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
 - 4. Fire-Rated Doors: NFPA 80.

5. All Hardware on Fire-Rated Doors: Listed and classified by UL as suitable for the purpose specified and indicated.
 6. Hardware for Smoke and Draft Control Doors (Indicated as "S" on Drawings): Provide hardware that enables door assembly to comply with air leakage requirements of the applicable code.
 7. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.
- D. Function: Lock and latch function numbers and descriptions of manufactures series as listed in hardware schedule.
- E. Electrically Operated and/or Controlled Hardware: Provide all power supplies, power transfer hinges, relays, and interfaces required for proper operation; provide wiring between hardware and control components and to building power connection.
- F. Finishes: Identified in schedule.
- 2.3 HANGING MEANS:
- A. Conventional Hinges: Hinge open widths minimum, but, of sufficient throw to permit maximum door swing. Steel or stainless steel pins and concealed bearings.
1. Three hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height, or any fraction thereof.
 - a. Heavy weight hinges on all doors. 5 X 4 ½ on doors over 3 foot 5 inches in width.
 - b. Out swinging exterior doors: non-ferrous with non-removable (NRP) pins.
 - c. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
 - d. Provide shims and shimming instructions for proper door adjustment.
- 2.4 LOCKSETS, LATCHSETS, DEADBOLTS:
- A. Mortise locksets and latchsets:
- B. Cylinders: Best 7 Pin Cylinders per owner's standard
1. Case: heavy gauge steel, handing field-changeable without disassembly.
 - a. Latchbolts: 3/4 inch throw with stainless steel inserts.
 - b. Lever Trim: through-bolted, accessible design.
 - c. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
 - d. Deadbolts: stainless steel 1-inch throw.
 - e. Strikes: 16 gauge curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
- 2.5 EXIT DEVICES/PANIC HARDWARE
- A. Product: Von Duprin 99 series or approved equal.
1. General features:
 - a. Independent lab-tested 1,000,000 cycles.
 - 1) Push-through touch pad design. No exposed touch bar fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
 - 2) ¾" throw deadlocking latch bolts.
 - 3) No exposed screws to show through glass doors.
 - 4) Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
 - 5) Releasable with 32 lb. maximum pressure under 250 lb. load to the door.
- B. Specific features:
1. Non-Fire Rated Devices: cylinder dogging.
 - a. Lever Trim: Breakaway type, forged brass or bronze escutcheon min.130" thickness, match lockset lever design.

- b. Fire-Labeled Devices: UL label indicating “Fire Exit Hardware”. Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
- c. Electrically Operated Devices: Single manufacturer source for electric latch retraction devices, electrically controlled trim, power transfers, power supplies, monitoring switches and controls.
- d. Removable Mullions: Removable with single turn of building key. Securely reinstalled without need for key. Furnish storage brackets for securely stowing the mullion away from the door when removed.

2.6 CLOSERS

A. Surface Closers:

- 1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast aluminum body.
 - a. Thru-bolts at all doors. Non-sized and adjustable. Place closers inside building, stairs and rooms.
 - b. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and hardware.
 - c. Opening pressure: Exterior doors 8.5 lb., interior doors 5 lb., labeled fire doors 15 lb.
 - d. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
 - e. Heavy duty arms (PR) for doors scheduled with parallel arm units.

2.7 OTHER HARDWARE

A. Flush Bolts: Low operating force design.

B. Kick Plates: Four beveled edges,.050 inches minimum thickness, height and width as scheduled.

- 1. Sheet-metal screws of bronze or stainless steel to match other hardware.

C. Door Stops: Provide stops to protect walls, casework or other hardware.

- 1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.

D. Thresholds: As scheduled and per details. Substitute products: certify that the products equal or exceed specified material’s thickness. Proposed substitutions: submit for approval.

- 1. Exteriors: Set in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 “Thermal and Moisture Protection”. Non-ferrous ¼ inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
 - a. Sound control openings: Set in bed of mastic sealant.

E. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

F. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

2.8 KEYING REQUIREMENTS:

A. Key System: Existing Best Key System. Initiate and conduct meeting(s) with Owner to determine system structure, furnish Owner’s written approval of the system.

- 1. Construction keying: brass keyed-alike temporary cores plus 10 operating keys. Temporary cores and keys remain property of hardware supplier.
- 2. Provide the following permanent keys:
 - a. 6 Grandmaster keys

- b. 6 Masterkeys
 - c. 6 Construction keys
 - d. 1 Control Key
 - e. 1 Construction Control Key
 - f. 3 Keys per lock
- B. Interchangeable Core cylinders at all cylinders.
 - C. Permanent cores: factory-keyed.
 - D. Permanent keys and cores: secured shipment direct from point of origination to Owner.
 - E. Bitting List: Secured shipment direct from point of origination to Owner upon completion.
 - F. Pinning for lock cylinders: provided by Owner

PART 3 EXECUTION

3.1 ACCEPTABLE INSTALLER

- A. Factory trained, certified, and carries a factory-issued card certifying that person as a “Certified installer”. Alternative: can demonstrate suitably equivalent competence and experience.

3.2 PREPARATION

- A. Ensure that walls and frames are square and plumb before hardware installation.
- B. Clarify placement if new hardware is to be installed near existing doors/hardware scheduled to remain.
- C. Mounting Heights: Locate hardware units at heights indicated in DHI’s recommended locations unless otherwise indicated or required to comply with governing regulations.
- D. Existing frames and doors scheduled to receive new hardware: carefully remove existing hardware, tag and bag, and turn over to Owner.
 - 1. Patch and fill wood frames and doors with solid wood stock or dowel material before cutting for new hardware. Do not reuse existing screw holes - - fill and re-pilot.
 - 2. Metal doors/frames: Weld or fasten with screws: filler pieces in existing hardware cut-outs and mortises not scheduled for re-use by new hardware. Leave surfaces smooth - - no applied patches.

3.3 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available to power operated devices and of the correct characteristics.

3.4 INSTALLATION

- A. Install hardware per manufacturer’s instructions and recommendations. do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation.
 - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
 - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
- B. Use templates provided by hardware item manufacturer.
- C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.
- D. Mounting heights for hardware from finished floor to center line of hardware item: As listed in Schedule, unless otherwise noted:

1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
 - E. Locate floor stops not more than 4 inches from the wall.
 - F. Drill pilot holes for fasteners in wood doors and/or frames.
 - G. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.
- 3.5 FIELD QUALITY CONTROL
- A. Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.
- 3.6 ADJUSTING
- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
 1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to Owner's satisfaction
 - B. Inspection: Use hardware supplier. Include suppliers with closeout documents.
 - C. Follow-up inspection: Installer to provide letter of agreement to Owner that approximately 6 months after substantial completion, installer will visit Project with representatives of the manufacturers of the locking devices and door closers to accomplish following:
 1. Re-adjust hardware.
 2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
 3. Identify items that have deteriorated or failed.
 4. Submit written report identifying problems and likely future problems.
- 3.7 CLEANING
- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.
- 3.8 PROTECTION
- A. Do not permit adjacent work to damage hardware or finish.

3.9 SCHEDULE OF FINISH HARDWARE.

HW SET: 01

FOR USE ON DOOR(S):

(E)1 (E)3

EACH OPENING TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	CONSTRUCTION CORE	1CC	626	BES
1	EA	MORTISE CYLINDER	1E74 C265 RP3	622	BES
1	EA	PERMANENT CORE	1C7	626	BES
1	EA	SURFACE CLOSER	4111 EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	FLOOR STOP	FS13	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HW SET: 02

FOR USE ON DOOR(S):

(E)2

EACH OPENING TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	CONSTRUCTION CORE	1CC	626	BES
1	EA	MORTISE CYLINDER	1E74 C265 RP3	622	BES
1	EA	PERMANENT CORE	1C7	626	BES
1	EA	SURFACE CLOSER	4111 EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HW SET: 03

FOR USE ON DOOR(S):

B0008.2

EACH OPENING TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	MORTISE CYLINDER	1E74 C265 RP3	622	BES
1	EA	CONSTRUCTION CORE	1CC	626	BES
1	EA	PERMANENT CORE	1C7	626	BES
1	EA	SURFACE CLOSER	4111 EDA TBWMS	689	LCN
1	EA	BLADE STOP SPACER	4110-61	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
PERIMETER SEALS BY FRAME MANUFACTURER					

HW SET: 04

FOR USE ON DOOR(S):

B0008A	B0008B	B0008C	B0008D	B0012	B0021
B0026	B0028	B0030	B0037	B0042	B0046
B0048	B0049	B0050	B0051	B0052	

EACH OPENING TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	OFFICE/ENTRY LOCK	L9050L 06A L583-363	626	SCH
1	EA	MORTISE CYLINDER	1E74 C265 RP3	622	BES
1	EA	CONSTRUCTION CORE	1CC	626	BES
1	EA	PERMANENT CORE	1C7	626	BES
1	EA	WALL STOP	WS406/407CVX	630	IVE
PERIMETER SEALS BY FRAME MANUFACTURER					

HW SET: 05

FOR USE ON DOOR(S):

B0010 B0054

EACH OPENING TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	PASSAGE SET	L9010 06A	626	SCH
1	EA	WALL STOP	WS406/407CVX	630	IVE
PERIMETER SEALS BY FRAME MANUFACTURER					

HW SET: 06

FOR USE ON DOOR(S):

B0011.1 B0011.2

EACH OPENING TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	MORTISE CYLINDER	1E74 C265 RP3	622	BES
1	EA	CONSTRUCTION CORE	1CC	626	BES
1	EA	PERMANENT CORE	1C7	626	BES
1	EA	FLOOR STOP	FS13	626	IVE
			PERIMETER SEALS BY FRAME MANUFACTURER		

END OF SECTION

**SECTION 23 09 00
 BUILDING AUTOMATION SYSTEMS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Work hereunder includes ~~extending central Automated Logic control system providing stand-alone controls~~ to control new ~~and revised~~ terminal units for zones located in the Areas of Work shown on Drawings. Existing induction terminal units are served by an existing electric/pneumatic control system. Associated work includes but is not limited to:
 1. Terminal unit controls for new and existing zones, communication, control wiring, power, and power wiring as required.
 2. Building operation and energy management software and related programming including complete licensing agreement for complete use and access of software required for installation, configuration, programming, and operation.
 3. Field Mounted Devices as specified in SECTION 23 09 30 – FIELD INSTALLED CONTROL SYSTEM COMPONENTS.
 4. Develop sequences of operations, suitable for control of zones within the area of work, and implementation with existing systems. Provide submittals to Engineer, along with product
 5. Other materials and devices not shown as part of other work but necessary to provide mechanical and electrical system control and monitoring sequences specified.
 6. Integrate systems installed under this project with campus EMS.

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Control Contractor to coordinate with other trades to ensure delivery and correct installation of products furnished but not installed under this section. Coordination to include a review of schedule, manufacturer’s installation requirements, and equipment locations. Such products include but are not limited to the following:
 1. Control Valves

1.3 RELATED SECTIONS

- A. SECTION 23 09 30– FIELD INSTALLED CONTROL SYSTEM COMPONENTS

1.4 SUBMITTALS

- A. Provide submittals for products listed in the Product Table below in accordance with Section 23 05 00 – General Mechanical Provisions. Submittal requirements indicated by column number designation as follows:
 1. Materials List
 2. Catalog Data
 3. Product Data
 4. Performance Data
 5. Wiring Diagrams
 6. Shop Drawings
 7. Installation Instructions
 8. Special Requirement listed herein.

PRODUCT TABLE	1	2	3	4	5	6	7	8
All Products This Section								X

- B. Special Requirements:
 1. Provide all control submittals including Sections 23 09 00 – BUILDING AUTOMATION SYSTEMS and 23 09 30 - FIELD INSTALLED COMPONENTS, as a single package.
 2. Submittals prior to starting work:
 - a. Submit in accordance with Division 1, Submittal Procedures and Section 23 05 00 – GENERAL MECHANICAL PROVISIONS within 6 weeks of project award.
 - b. All required schematics and plans prepared on AutoCAD 2012 or higher.

- c. When manufacturers' product information applies to a product series rather than a specific product, the data specifically applicable to the project shall be highlighted or clearly indicated by other means.
- d. Building Automation System Hardware
- e. Controlled Systems:
 - 1) Provide an instrumentation list for each controlled system including all controlled system elements in table format. Tables to show element name, type of device, manufacturer, model number, and product data sheet number.
 - 2) Provide a schematic diagram of each controlled system. Include control points labeled with appropriate point names. Graphically show the location of all control elements.
 - 3) Provide a schematic wiring diagram for each controlled system. Label all elements. Label all terminals.
 - 4) Provide a mounting, wiring, and routing plan-view drawing. Layout to account for HVAC, electrical, and other system design and layout requirements.
 - 5) Provide a complete description of the function of each controlled system including sequence of operation.
 - 6) Provide a points list for each system controller including both input and output (I/O) points. Note point designations, point function, controlled device associated with the I/O point, location of the I/O device, and point alarm requirements.
- 3. Closeout Submittals
 - a. Submit in accordance with Division 1, Project Record Documents. Submit 15 days prior to final completion for approval.
 - b. Record documents shall include the following.
 - 1) Project record drawings. Project record drawings will be as-built versions of the shop drawings. Include one set of magnetic media including CAD drawings in .DWG format.
 - 2) Provide copy of testing and commissioning reports. Include trend logs used for verification.
 - 3) Material to be included in Project Operation and Maintenance Manuals
 - a) Names, addresses and 24-hour telephone numbers of installing Contractors and the service representatives for each.
 - b) Operators manual with procedures for operating the control systems including logging on/off, alarm handling, producing point reports, trending data, overriding computer control, and changing set points and other variables.
 - c) A listing and documentation of all custom software created using the programming language including set points, tuning parameters, and object database.
 - d) A list of recommended spare parts with part numbers and suppliers.
 - e) Recommended preventive maintenance procedures for all system components including a schedule of tasks, time between tasks, and task descriptions.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Automated Logic, installed by Clima-Tech.
- B. Siemens Industries, installed by local or regional branch office.
- C. JCI, installed by local or regional branch office.
- D. Alerton, installed by Environmental Controls Corporation

2.2 WORKSTATION GRAPHICS

- A. System Graphics: Provide graphics for equipment within the project scope. Include floor plans depicting zone and terminal unit locations.

2.3 SYSTEM CONTROLLERS

- A. First-tier Controllers (Building Controllers): Independent, stand-alone, microprocessor-based controller to manage global control and communication. Provide the number of first-tier controllers needed to meet specified performance requirements. As a minimum, provide one first-tier controller per building. Controllers shall have the following general characteristics.
 - 1. Sufficient memory in each controller to support its operating system, database, and programming requirements including specified spare capacity.
 - 2. Controller operating system to manage input and output communications allowing distributed controllers to share real and virtual object information and allow central monitoring and alarms.
 - 3. Controller shall continually check the status of its processor and memory circuits. If an abnormal condition is detected, the controller shall assume a pre-determined failure mode, and generate an alarm notification.
 - 4. Controller shall maintain all BIOS and programming information in the event of a power loss for at least 72 hours.
 - 5. Controller shall include a service communication port allowing connection to a portable operator's terminal.
- B. Application Specific Controllers: Independent, stand-alone microprocessor-based controller to control local equipment or systems where the associated sequence of operation can be met using pre-programmed control routines. Controllers should have the following general characteristics.
 - 1. Sufficient memory in each controller to control the target system.
 - 2. Non-volatile memory to maintain the BIOS and programming information in the event of a power failure.

2.4 POWER SUPPLIES AND LINE FILTERING

- A. Provide UL listed control transformers. Provide class 2 current-limiting type or furnish over-current protection in both primary and secondary circuits in accordance with NEC requirements. Limit connected loads to 80% of rated capacity.
- B. Provide transient voltage and surge suppression for all workstations and controllers either internally or as an external component. Surge suppression shall have the following minimum performance criteria.
 - 1. Dielectric strength of 1000 volts minimum.
 - 2. Response time of 10 nanoseconds.
 - 3. Transverse mode noise attenuation of 65 dB or greater.
 - 4. Common mode noise attenuation of 150 dB or better at 40 Hz to 100 Hz.

2.5 WIRING AND RACEWAYS

- A. Provide wiring, plenum cable, and raceways in accordance with Division 16.
- B. All insulated wire to have copper conductor. UL labeled for 90 degree C service.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Testing and Balancing
 - 1. Provide to the Testing and Balancing Contractor a set of all tools and temporary licenses necessary to interface to the control system for testing and balancing purposes. Tools to be returned at the completion of test and balancing work.
 - 2. Provide training in the use of the tools.
 - 3. Provide a qualified technician to assist in the testing and balancing process where required.

3.2 WORKMANSHIP

- A. Install all equipment in accordance with manufacturers' recommendations.
- B. Install equipment, piping, and wiring/raceway parallel to building lines wherever possible.
- C. Provide sufficient slack and flexible connections in wiring to allow for vibration of piping and equipment.
- D. Install all equipment in readily accessible locations as defined by Chapter 1, Article 100, Part A of the National Electric Code.

3.3 ELECTRICAL POWER

- A. Provide power for control components as required. Utilize spare circuits at nearest electrical panels, or as indicated in Division 26. Coordinate with Division 26.

3.4 EXISTING EQUIPMENT

- A. Existing Wiring: Contractor may reuse existing wiring, provided the quality of the existing installation meets this specification. Verify the integrity of existing wiring and re-label in accordance with this specification. Remove wiring abandoned as the result of this work.
- B. Contractor is not responsible for the repair or replacement of existing control system equipment to be reused.

3.5 GENERAL WIRING

- A. All control and interlock wiring shall comply with national and electrical codes and Division 26. Where requirements of this section differ from those in Division 26, the requirements of this section shall take precedence.
- B. ALL NEC Class 1 (line voltage) wiring shall be UL listed in approved raceway according to NEC and Division 26 requirements.
- C. All low-voltage wiring shall meet NEC Class 2 requirements. Low voltage power circuits shall be sub-fused when required to meet Class 2 limits.
- D. Where NEC Class 2 (current-limited) wires are in concealed and accessible locations, including ceiling plenum return air plenums, approved cable not in raceway may be used provided cables are UL listed for the intended application.
- E. All wiring in mechanical, electrical, or service rooms and wiring located where it may be subject to damage shall be installed in raceway.
- F. Do not install Class 2 wiring in raceways containing Class 1 wiring. Boxes and panels containing high-voltage wiring may not be used for low-voltage wiring except for the purpose of interfacing the two.
- G. Do not install wiring in raceway containing tubing.
- H. Where Class 2 wiring is installed exposed, wiring is to be routed parallel or perpendicular to building lines and neatly tied at a maximum of 10-foot intervals.
- I. Where plenum cables are used without raceway, support or anchor cable from building structure. Do not anchor or support cable from ductwork, electrical raceways, piping, or suspended ceiling systems.
- J. Provide all wire-to-device connections at terminal block or terminal strip. Provide all wire-to-wire connections at terminal block.
- K. Neatly bundle wiring located within enclosures to permit access to devices and terminals.
- L. Maximum allowable voltage for control wiring shall be 120V. If only higher voltages are available, Contractor shall provide a step-down transformer.
- M. All wiring shall be installed as continuous lengths with no splices permitted between termination points.
- N. Install plenum wiring in sleeves where it passes through walls and floors. Provide fire-stopping where necessary to maintain fire rating.

- O. Provide size of raceway and size and type of wire as required by NEC and as required to meet manufacturers' recommendations for connected equipment.
- P. Include one pull string in each raceway 1-inch or larger.
- Q. Use color coded conductors throughout.
- R. Locate control and status relays in designated enclosures only. Such enclosures include packaged equipment control cabinets unless such cabinets also contain Class 1 starters.
- S. Conceal all raceways except within mechanical, electrical, or service rooms. Maintain minimum raceway clearance of 6-inches from high temperature equipment such as steam piping or boiler flues.
- T. Secure raceways with raceway clamps fastened to the structure and spaced in accordance with code requirements. Raceways and pull boxes may not be hung on flexible duct strap or tie rods. Raceways may not be supported from ductwork, electrical raceways, piping, or suspended ceiling systems.
- U. Install insulated bushings on all raceway ends and openings to enclosures. Seal top end of all raceways.
- V. Maintain updated wiring diagrams (as-built) at site with terminations identified.

3.6 COMMUNICATION WIRING

- A. Install in accordance with 3.5 above.
- B. Follow manufacturers' recommendations for all communications cabling including but not limited to maximum pulling, tension, and bend radius.
- C. Do not install communications cabling in a raceway or enclosure containing Class 1 or other Class 2 wiring.
- D. Verify the integrity of the entire network immediately following cable installation using test measures appropriate for each cable.
- E. All communications wiring shall be un-spliced length when that length is commercially available.
- F. All communications wiring shall be labeled to indicate origination and destination.
- G. Ground coaxial cable in accordance with NEC regulations article on "Communications Circuits, Cable and Protector Grounding."

3.7 IDENTIFICATION OF HARDWARE AND WIRING

- A. Label all wiring and cabling, including wiring and cabling terminating within factory-fabricated panels, within 2 inches of termination with the BAS address or termination number.
- B. Permanently label or code each point of field terminal strips to show the instrument or item served.
- C. Identify control panels with minimum ½-inch letters on laminated plastic nameplate.
- D. Identify all other control components with permanent labels. All plug-in components shall be labeled so that removal of component does not remove label.
- E. Identify room sensors relating to terminal box or valves with nameplate located within sensor cover.
- F. Arrange components so that UL or CSA labels are visible after equipment is installed.
- G. Identifiers shall match record documents.
- H. Provide laminated network communication diagrams, point-to-point wiring diagrams, and process control diagrams in each control panel for control components contained therein.

3.8 BAS CONTROLLER INSTALLATION

- A. Provide sufficient internal memory for the specified sequences of operation and trend logging. Provide a minimum of 25% available memory free for future use.

3.9 SEQUENCE OF OPERATIONS

- A. Provide sequence of operations for new and existing terminal unit zones in Areas of Work.

3.10 PROGRAMMING

- A. Provide programming for the system as required to perform the sequence of operation, as developed under this section. Provide all other programming necessary for proper operation of the system but not specified including but not limited to time delays, control deadbands, equipment interlocks, equipment sequencing, alarm notification, and control sequences recommended by equipment manufacturers.
- B. All control setpoints and loop tuning parameters accessible for review and adjustment at workstation graphics or through workstation menus without requiring modification of program code.
- C. For systems using text-based programming, imbed comments in the programming code to clearly describe each section of the program.

3.11 GRAPHICS

- A. Provide graphics for all controlled systems and floor plans of the building.
- B. Meet with Owners Authorized Representative prior to beginning development of graphic displays to discuss Owner's preferences.
- C. Show terminal unit information on a "graphic" summary table. Provide dynamic information on each point shown.

3.12 CONTROL SYSTEM CHECKOUT AND TESTING

- A. Contractor shall completely test and verify specified control system performance. Compile test results and include with written certification.
- B. Contractor shall furnish all labor and test apparatus required to calibrate and prepare for service all instruments, controls, and accessory equipment furnished hereunder.
- C. After system operation is completely verified, provide written certification to Owner that systems have been fully tested and are operating according to specifications and ready for functional testing. Provide copies of documentation signed by person performing tests. Documentation to include:
 - 1. Calibration logs
 - 2. BAS Loop Response Trends
 - 3. Demand Limiting Trends
 - 4. Operational Logs

3.13 DEMONSTRATION AND ACCEPTANCE

- A. Demonstrate operation of control system to Owner's Authorized Representative including:
 - 1. Menu functions
 - 2. Point overrides
 - 3. Control loop response after point modification
 - 4. Alarm response time

3.14 TRAINING

- A. Provide a minimum of two hours orientation to Owner's personnel of project scope, installed hardware locations, device types and project equipment control demonstration on BAS.

END OF SECTION

ATTACHMENT 2

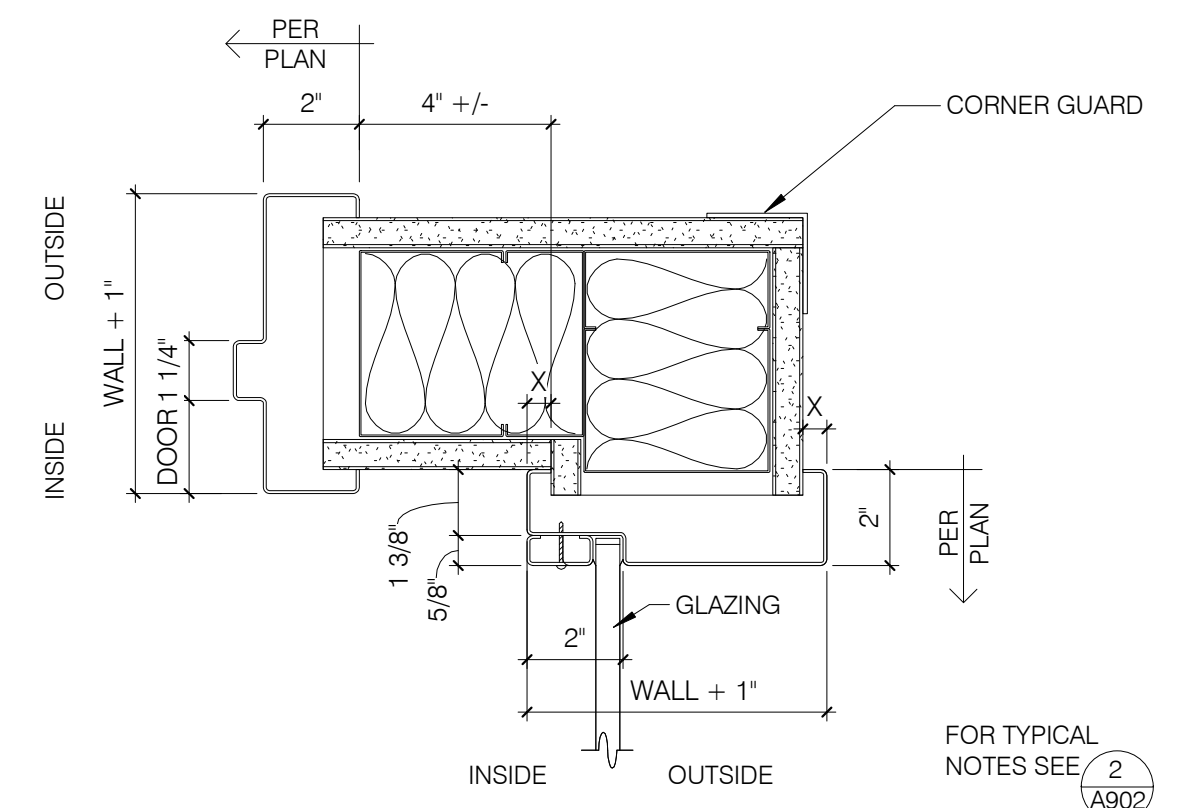
DOOR SCHEDULE												
NO.	TYPE	DOOR SIZE				FRAME			HARDWARE GROUP	ASSEMBLY RATING	NOTES	
		WIDTH	HEIGHT	MATERIAL	FINISH	TYPE	MATERIAL	FINISH				
(E)1	(E)	3'-0"	7'-0"	(E)	(E)	(E)	(E)	P-2	01	(E)	(E) DOOR & FRAME. NEW HARDWARE AS INDICATED	
(E)2	(E)	3'-0"	7'-0"	(E)	(E)	(E)	(E)	P-2	02	(E)	(E) DOOR & FRAME. NEW HARDWARE AS INDICATED	
(E)3	(E)	3'-0"	7'-0"	(E)	(E)	(E)	(E)	P-2	01	(E)	(E) DOOR & FRAME. NEW HARDWARE AS INDICATED	
B0008.2	B	3'-0"	7'-0"	WD	CLR	2	ALUM	P-2	03	--		
B0010	B	3'-0"	7'-0"	WD	CLR	2	ALUM	P-2	05	--	MEETING ROOM	
B0011.1	B	3'-1"	8'-4"	WD	CLR	3	ALUM	P-2	06	--	CONFERENCE ROOM	
B0011.2	B	3'-1"	8'-4"	WD	CLR	3	ALUM	P-2	06	--	CONFERENCE ROOM	
B0008A	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0008B	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0008C	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0008D	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0012	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0021	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0026	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0028	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0030	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0037	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0042	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0046	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0048	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0049	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0050	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0051	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0052	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	04	--		
B0054	C	3'-0"	7'-0"	WD	CLR	1	ALUM	P-2	05	--	MEETING ROOM	

ABBREVIATIONS: DOOR SCHEDULE

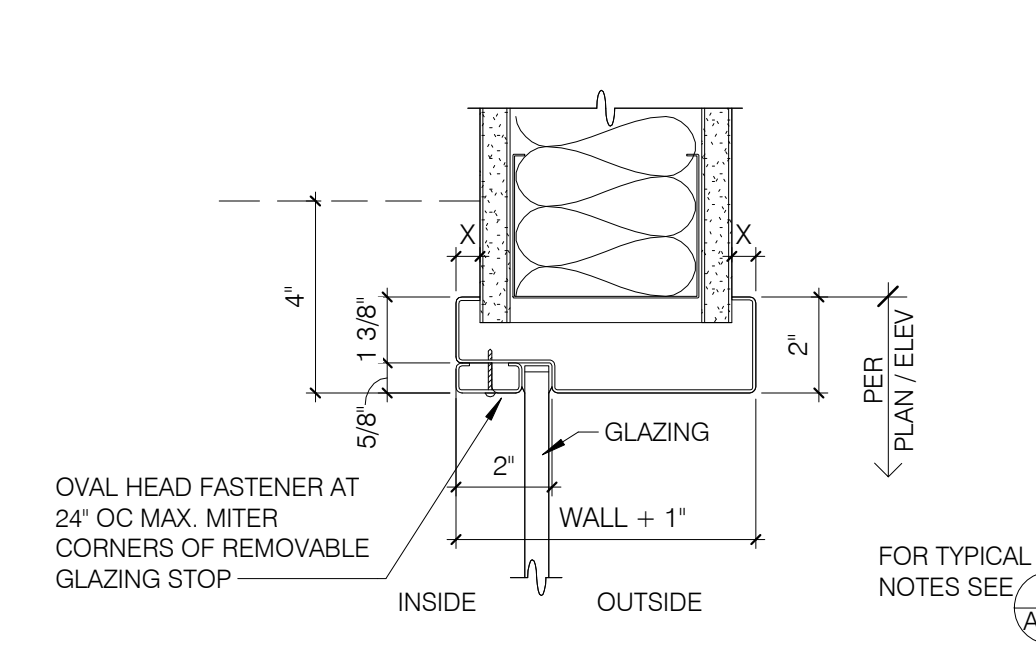
MATERIAL:		FINISH:	
ALUM	ALUMINUM	ANOD	ANODIZED
STL	STEEL	CLR	CLEAR
WD	WOOD	P-#	PAINT
GL	GLASS	LOCK FUNCTION:	
TG	TEMPERED GLAZING, ANSI Z97.1 CLASS A	PA	PASSAGE
LG	LAMINATED GLAZING, ANSI Z97.1 CLASS A	PR	PRIVACY
		E	ENTRANCE/OFFICE
		C	CLASSROOM
		S	STORE/ROOM
		PP	PUSH/PULL

DOOR SCHEDULE GENERAL NOTES

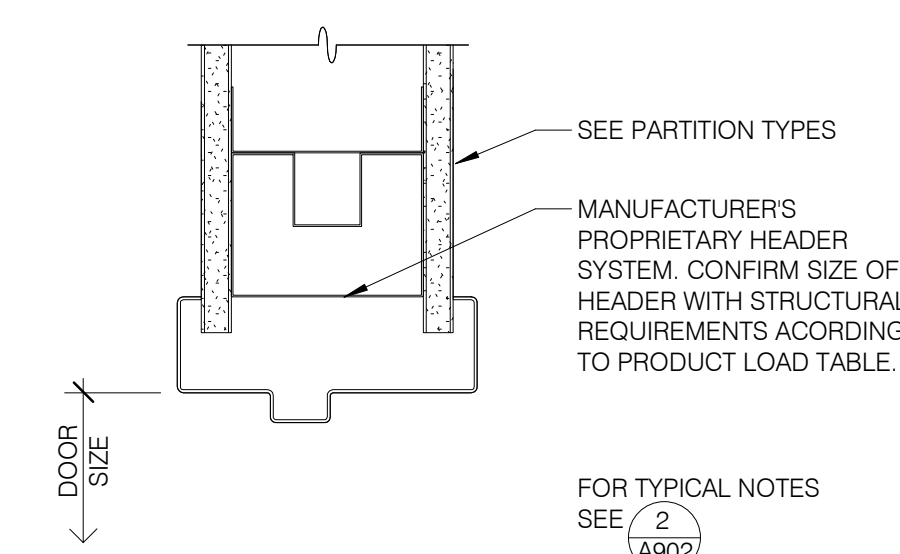
- THICKNESS OF DOOR 1 3/4" UNLESS NOTED OTHERWISE
- PROVIDE ADA COMPLIANT LEVER HARDWARE AT ALL HINGED DOORS, TYPICAL
- PROVIDE DOOR SILENCERS WHERE GASKETING IS NOT SPECIFIED. THE COLOR OF BRUSH GASKETING (IF USED) SHALL MATCH THE COLOR OF SURROUNDING FRAME
- ALL GLAZING IN DOORS AND FRAMES TO BE TEMPERED GLAZING (TG) OR LAMINATED GLAZING (LG), UNLESS OTHERWISE NOTED.
- EACH PANE OF TEMPERED OR LAMINATED GLASS SHALL BE PERMANENTLY IDENTIFIED BY MANUFACTURER WITH A MARK THAT ONCE APPLIED, CANNOT BE REMOVED WITHOUT BEING DESTROYED.
- THE OPENING FORCE OF DOORS ALONG AN ACCESSIBLE ROUTE SHALL NOT EXCEED 8 1/2 POUNDS-FORCE FOR EXTERIOR DOORS AND 5 POUNDS-FORCE FOR INTERIOR DOORS.



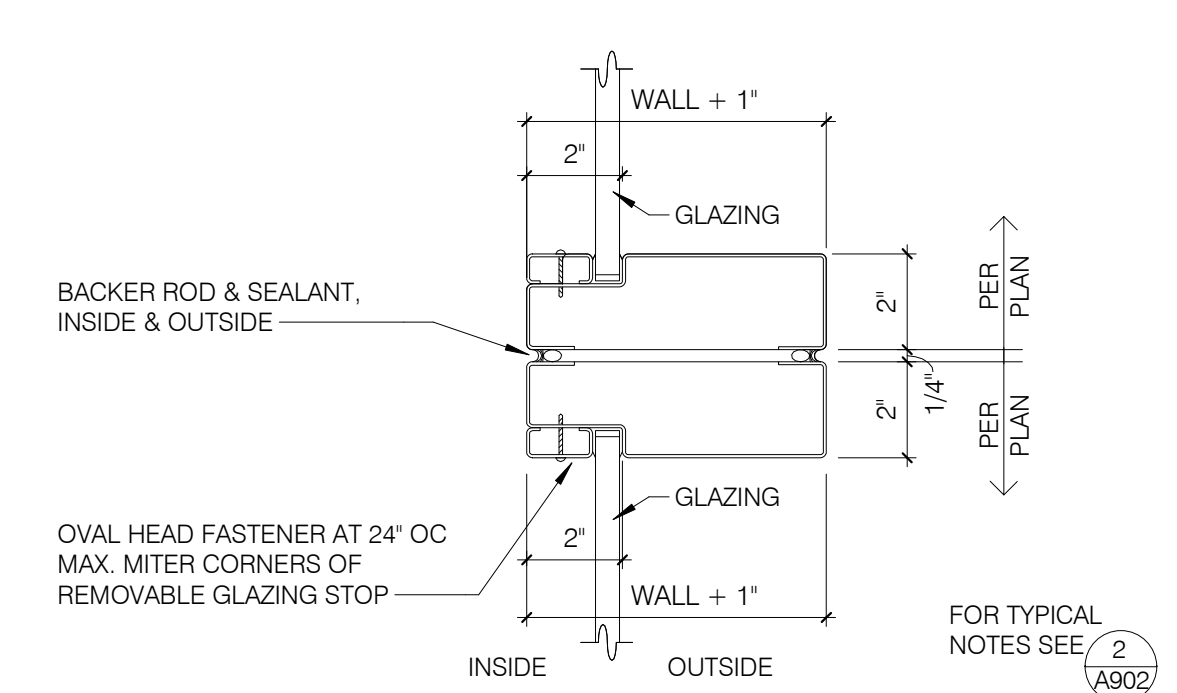
7
A902 HM RELITE FRAME AT CORNER
3' = 1'-0"



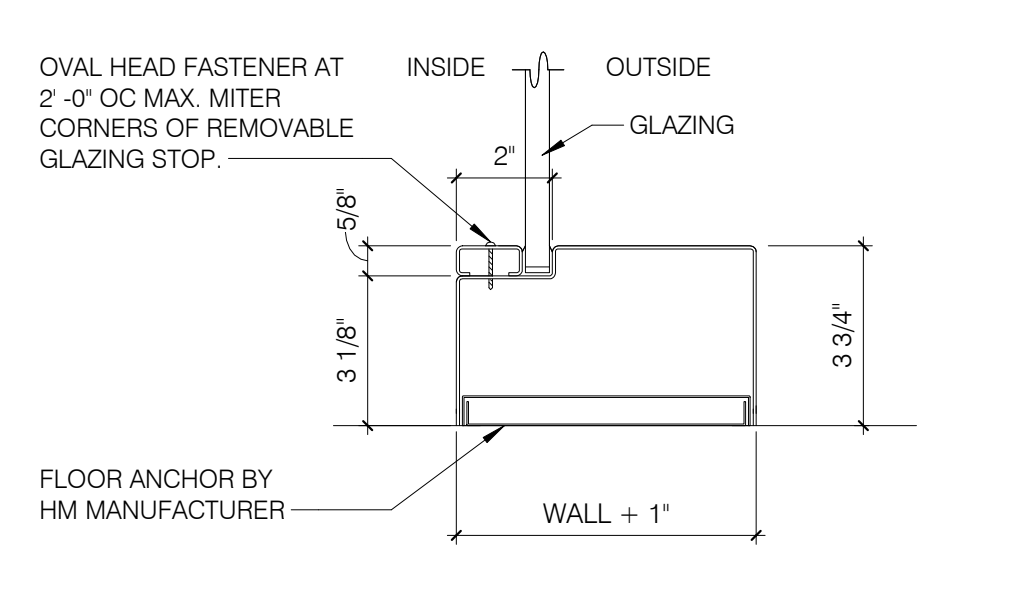
4
A902 HM RELITE FRAME - HEAD/ JAMB
3' = 1'-0"



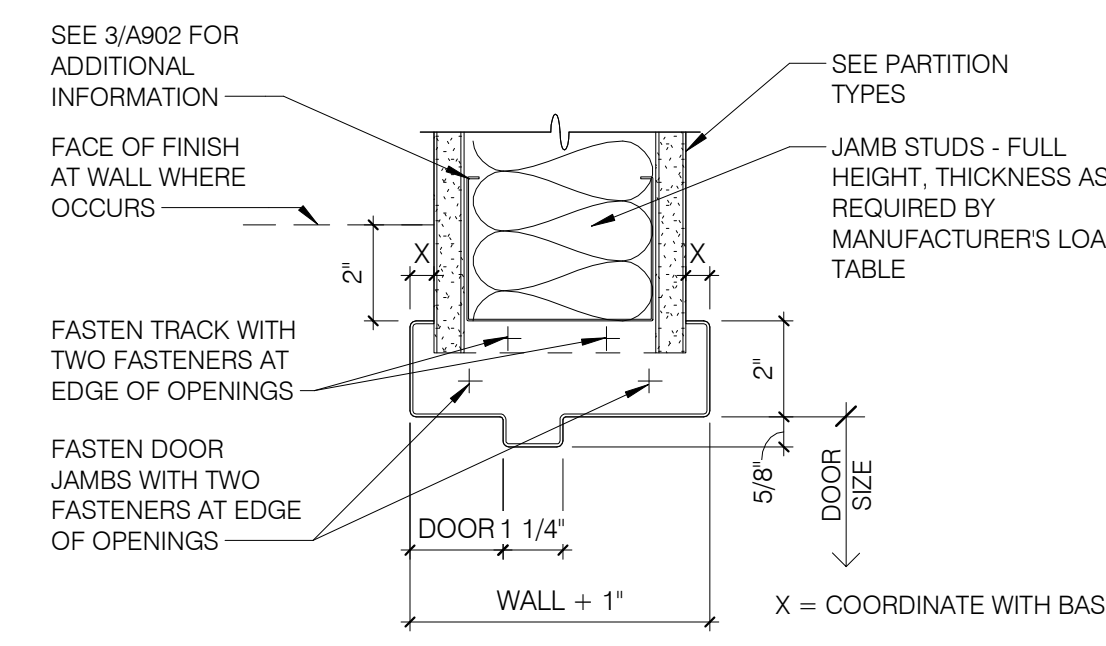
1
A902 HM DOOR FRAME - HEAD
3' = 1'-0"



8
A902 STEEL RELITE FRAME - JAMB TO JAMB
3' = 1'-0"

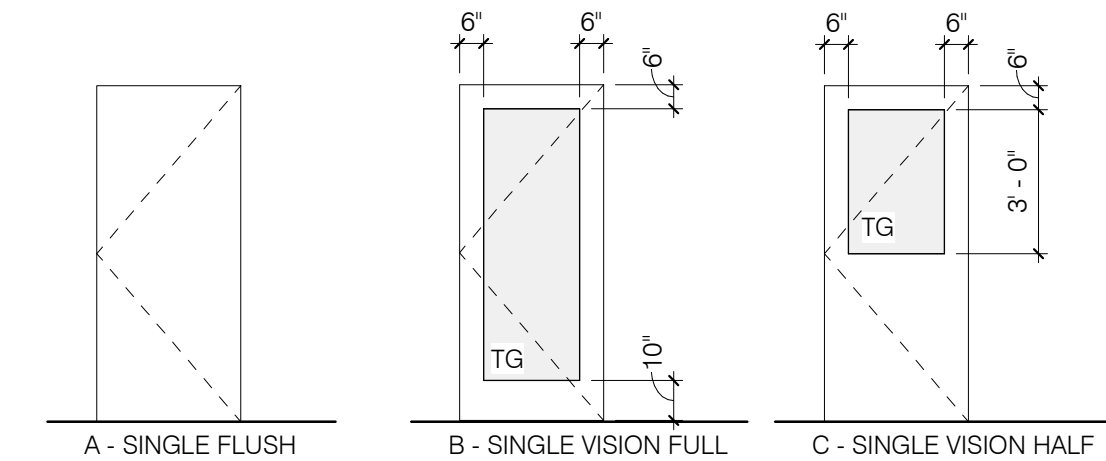


5
A902 HM RELITE FRAME - BASE
3' = 1'-0"

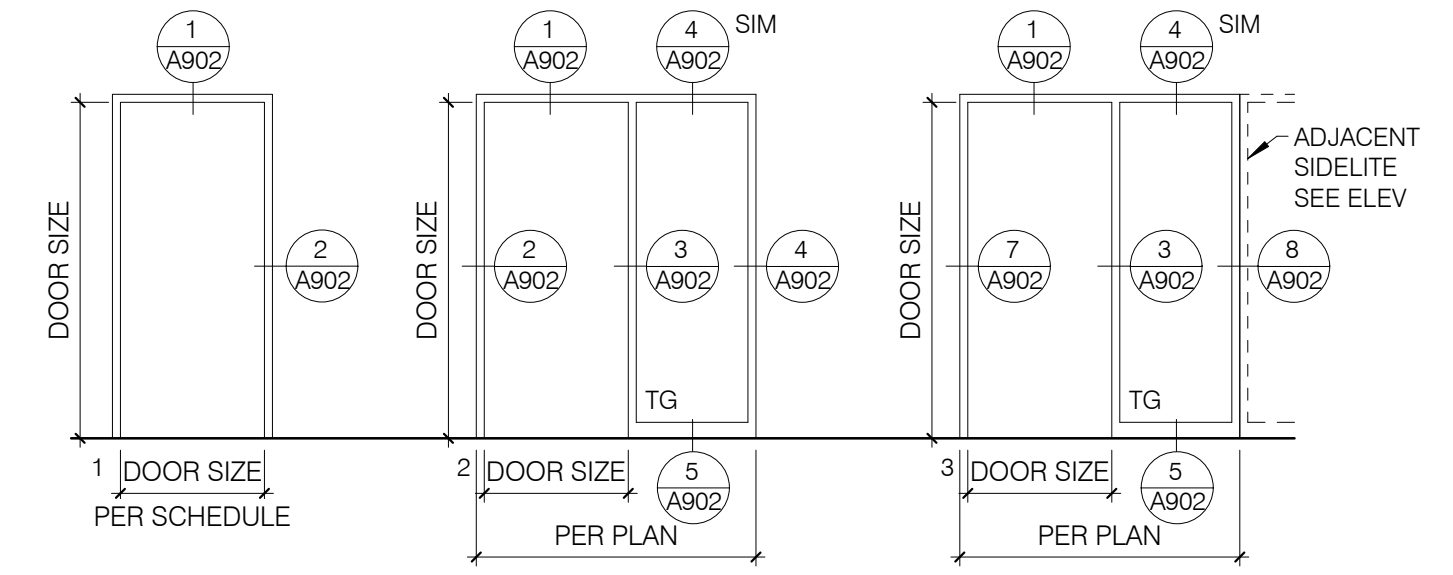


2
A902 HM DOOR FRAME - JAMB
3' = 1'-0"

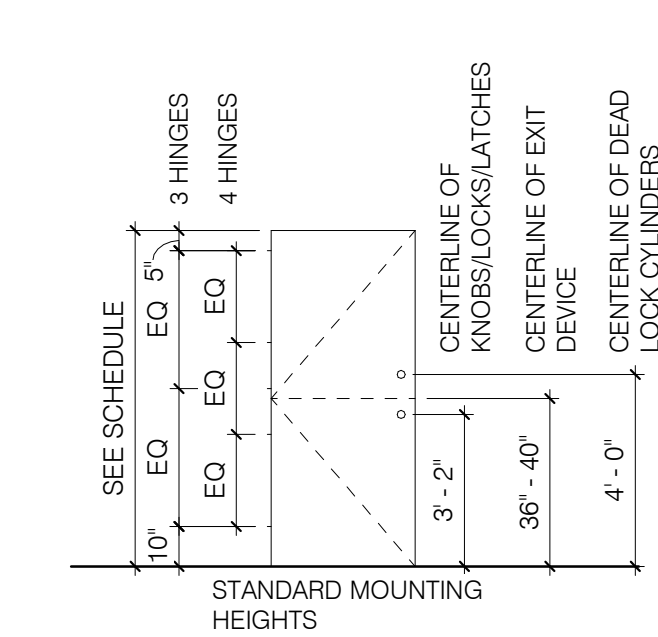
DOOR TYPE LEGEND



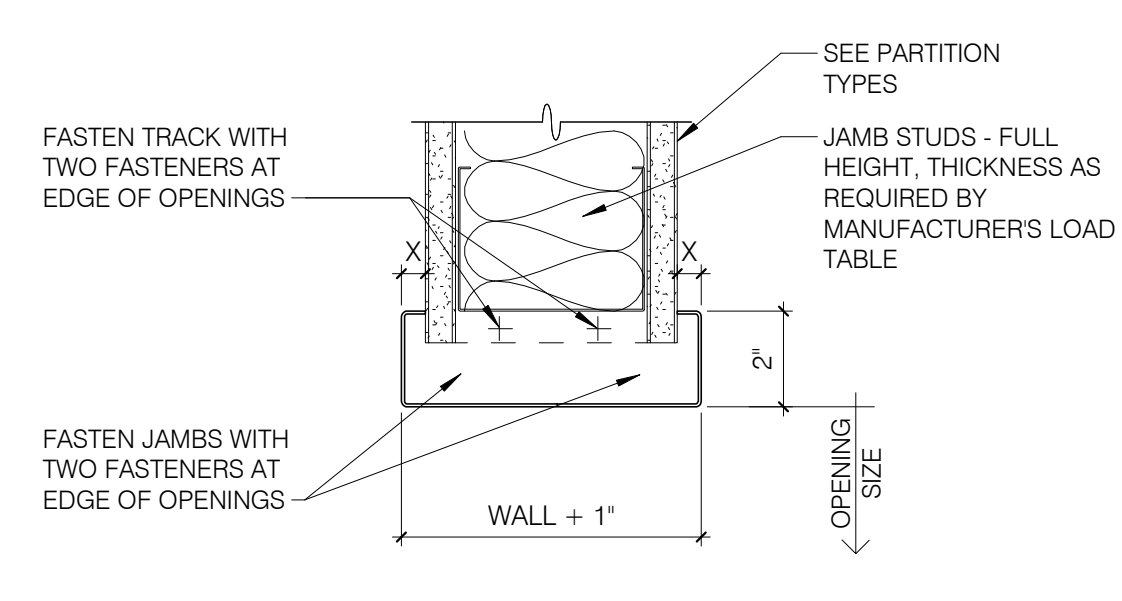
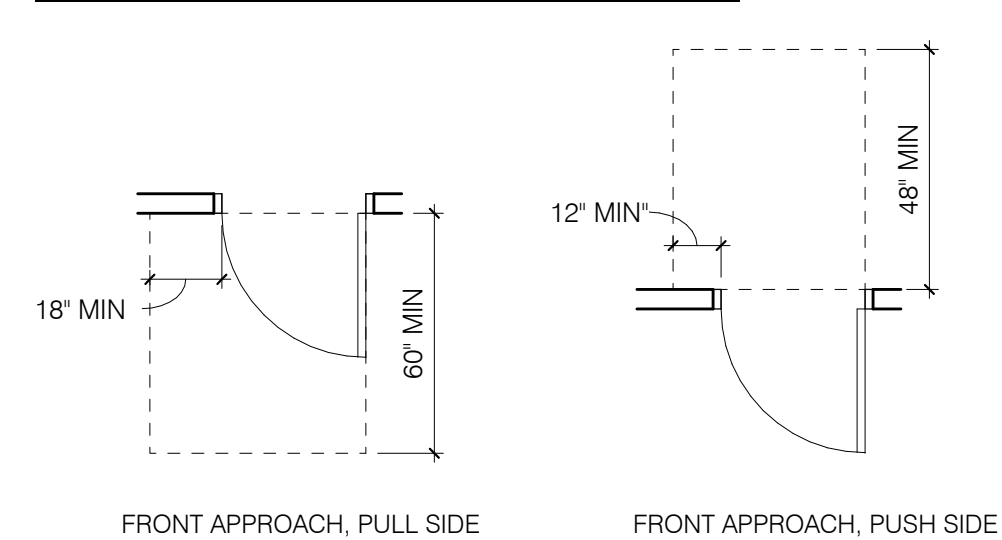
FRAME TYPE LEGEND



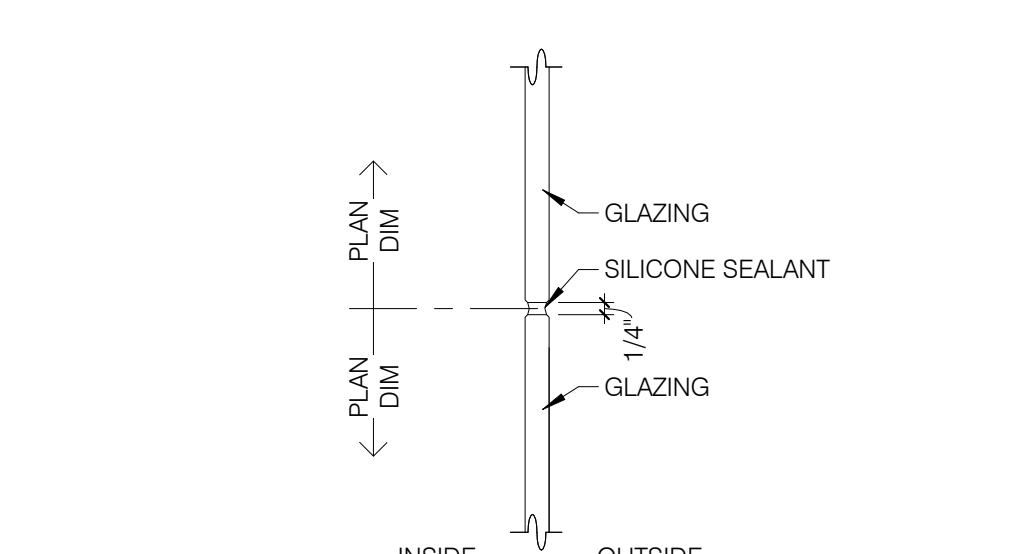
STANDARD MOUNTING HEIGHTS



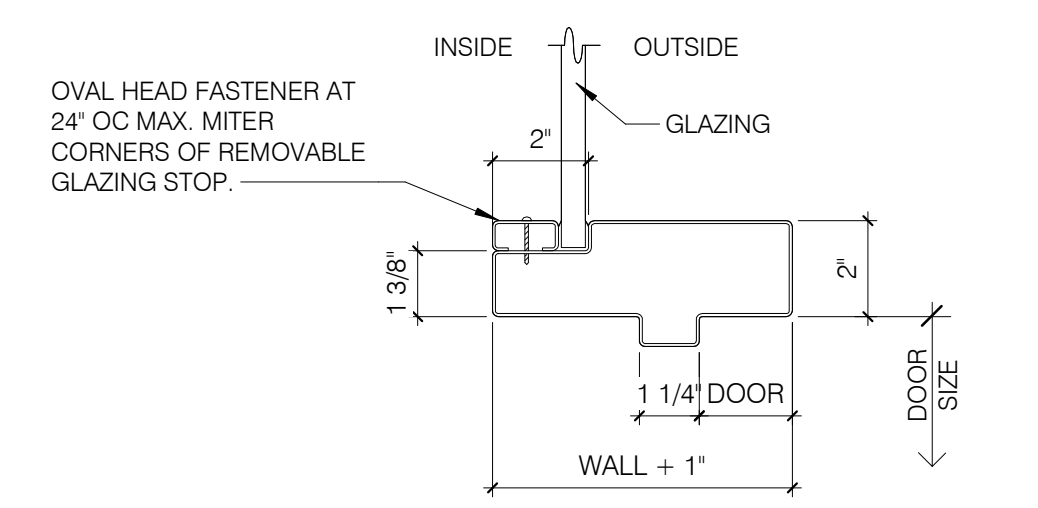
TYPICAL DOOR CLEARANCES



9
A902 HEAD/ JAMB DETAIL - WALL OPENING
3' = 1'-0"



6
A902 HM RELITE FRAME - GLAZING JOINT
3' = 1'-0"



3
A902 HM RELITE FRAME AT DOOR
3' = 1'-0"



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CORVALLIS, OR 97331

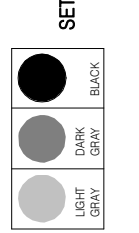
HEA Project no. 17118
Date: 1 MAY 2019
CONSTRUCTION SET

1	5.1.19	Addendum 1
2	5.17.19	Addendum 2

Drawn by: DC
Checked by: DR
Sheet: **DOOR SCHEDULE AND DETAILS**

A902
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THE ADJACENT SAMPLES SHOW THREE LEVELS OF SHADING. SETTINGS FOR VIEWING AND PRINTING CONTENT ARE OPTIMIZED WHEN ALL THREE DOTS ARE VISIBLE. THIS GUIDANCE IS FOR REFERENCE ONLY.



CONSTRUCTION SET