

**SECTION 07 2100
THERMAL INSULATION**

PART 1 GENERAL V.22

1.01 SECTION INCLUDES

- A. ***Board insulation at cavity wall construction, perimeter foundation wall, underside of floor slabs, exterior wall behind masonry or siding wall finish, and over roof deck.***
- B. Batt insulation in exterior and interior wall, ceiling, and roof construction.
- C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 REFERENCE STANDARDS

- A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2009a.
- B. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.
- C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013.
- D. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2015a.
- E. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014.
- F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.
- H. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2024c.
- I. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials; National Fire Protection Association; 2006.
- J. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components; 2012.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Installation schedule: Provide description of locations where each proposed product will be installed. Include description of compliance with fire rated, acoustical and NFPA 285 details.

- D. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.04 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATION SCHEDULE

- A. Insulation Under Concrete Slabs: Extruded polystyrene (XPS) board.
- B. Insulation at Perimeter of Foundations, below grade: Extruded polystyrene (XPS) board.
- C. Insulation at Perimeter of Foundations, above grade: Mineral Wool Board.
- D. Insulation as Protection Board at Foundations, below grade only: Extruded polystyrene (XPS) board.
- E. Insulation Inside Cavity of Masonry Veneer Walls, below grade only: Extruded polystyrene (XPS) board.
- F. Insulation on Inside Cavity of Masonry Veneer Walls, above grade: Mineral Wool board.
- G. Insulation on exterior face of sheathing: Mineral Wool board.
- H. Insulation behind exterior Metal Wall Panels: Mineral Wool board.
- I. Insulation inside STC and Fire Rated partitions: SAFB Mineral Wool Insulation, no vapor retarder.
- J. Insulation inside exterior metal framing walls: Batt insulation with no vapor retarder
- K. Insulation inside metal framed partitions: Batt insulation with no vapor retarder.
- L. Insulation inside Wood Framed Walls: Batt insulation with no vapor retarder.
- M. Insulation in Framed Ceiling Structure: Batt insulation with separate vapor retarder.
- N. Insulation Above Lay-In Acoustical Ceilings: Batt insulation with no vapor retarder.
- O. ***Insulation Over Roof Deck: Composite Ventilated Polyisocyanurate (ISO) Board Insulation with EPS Spacers and Oriented Strand Board (OSB) or Plywood: board.***

2.02 BOARD INSULATION MATERIALS

- A. Extruded Polystyrene Board Insulation (**XPS**): ASTM C578, Type IV; Extruded polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:
 1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 3. Board Size: 48 x 96 inch.
 4. Board Thickness: 1-1/2 inches, or unless indicated otherwise.

5. Board Edges: Shiplap.
 6. Thermal Conductivity (k factor) at 25 degrees F: 0.18 (R= 5 minimum per inch).
 7. Compressive Resistance: 25 psi.
 8. Manufacturers:
 - a. Dow Chemical Company: www.dow.com/#sle.
 - b. Kingspan Insulation LLC; GreenGuard XPS Type IV, 25 psi: www.kingspan.com/#sle.
 - c. Owens Corning Corporation; FOAMULAR Extruded Polystyrene (XPS) Insulation: www.ocbuildingspec.com/#sle.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Composite Ventilated Polyisocyanurate (ISO) Board Insulation with EPS Spacers and Oriented Strand Board (OSB) or Plywood: Rigid cellular foam with 1 inch EPS spacers between foam and OSB or plywood; complying with ASTM C1289.**
1. **Top Layer Material: 3/4 inch (19 mm) CDX plywood.**
 2. **Complies with fire resistance requirements indicated on drawings as part of an exterior non-load-bearing exterior assembly when tested in accordance with NFPA 285.**
 3. **Board Size: 48 by 96 inch.**
 4. **Composite Insulation Board Thickness: 4.0 inch.**
 5. **Board Edges: Square.**
 6. **Manufacturers:**
 - a. **Atlas Roofing Corporation; AC Foam CrossVent Insulation Board:** www.atlasroofing.com/#sle.
 - b. **GAF; ThermaCal Nail Base Roof Insulation Panels:** www.gaf.com/#sle.
 - c. **Hunter Panels; Cool-Vent:** www.hunterpanels.com/#sle.
 - d. **Substitutions: See Section 01 6000 - Product Requirements.**
- C. Mineral Wool Board Insulation: Rigid or semi-rigid stone wool insulation, ASTM C612 or ASTM C553; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.**
1. Combustibility: Behavior of material at 750 degrees as non-combustible per ASTM E136.
 2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
 3. Board Size: 16 by 48 inches standard, size varies by manufacturer,.
 4. Board Thickness: 2 inches and/or as indicated on drawings.
 5. Thermal Resistance: R-value of 4.3 per inch at 75 degrees F, minimum, when tested according to ASTM C518.
 6. Minimum Density: 4.3 pound per cubic foot, nominal.
 7. Manufacturers:
 - a. Johns Manville; CladStone 45 ____: www.jm.com/#sle.
 - b. ROCKWOOL (ROXUL, Inc); CAVITYROCK: www.rockwool.com/#sle.
 - c. Thermafiber, Inc; RainBarrier ic HC 80 ____: www.thermafiber.com/#sle.
 8. Substitutions: See Section 01 6000 - Product Requirements.

2.03 BATT INSULATION MATERIALS

- A. Where batt insulation is indicated, either glass fiber or SAFB mineral wool insulation may be used, at Contractor's option, unless specifically noted or required otherwise.
 1. Use Sound Attenuation Fire Blanket (SAFB) Mineral Wool at all fire rated assemblies and STC rated wall per drawings and partition schedule and as required by code/UL test.

- B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
 - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 50 or less, when tested in accordance with ASTM E84.
 - 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136.
 - 4. Formaldehyde Content: Zero.
 - 5. Thermal Resistance: R-value of 3.5 per inch minimum.
 - 6. Thickness: Match cavity thickness or as indicated on drawings or insulation schedule.
 - 7. Facing: Unfaced.
 - 8. Manufacturers:
 - a. CertainTeed Corporation: www.certainteed.com/#sle.
 - b. Johns Manville: www.jm.com/#sle.
 - c. Knauf Insulation GmbH: www.knaufinsulation.us.
 - d. Owens Corning Corp: www.owenscorning.com.
 - 9. Substitutions: See Section 01 6000 - Product Requirements.
- C. Sound Attenuation Fire Blanket (SAFB) Mineral Wool: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
 - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
 - 3. Thermal Resistance: R-value of 3.5 per inch, minimum.
 - 4. Thickness: Match cavity thickness, indicated on drawings or per insulation schedule.
 - 5. Manufacturers:
 - a. Knauf Insulation; EcoBatt Insulation: www.knaufinsulation.com/#sle.
 - b. Thermafiber, Inc; SAFB: www.thermafiber.com/#sle.
 - c. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

- A. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.
- B. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
- C. Wire Mesh: Galvanized steel, hexagonal wire mesh.
- D. Protection Board for Below Grade Insulation: XPS, 1 inch thick.
- E. Adhesive: Type recommended by insulation manufacturer for application.
- F. Spray-foam Insulation: See also Section 07 2119.
 - 1. Polyurethane expanding foam.
 - 2. Products: DuPont Great Stuff; www.greatstuff.dupont.com
 - 3. Dupont Great Stuff

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

- B. Verify substrate surfaces are flat.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

- A. Adhere a 6 inch wide strip of polyethylene sheet over construction, control, and expansion joints with double beads of adhesive each side of joint.
 - 1. Tape seal joints.
 - 2. Extend sheet full height of joint.
- B. Apply adhesive to back of boards:
 - 1. Three continuous beads per board length.
 - 2. Full bed 1/8 inch thick.
- C. Install boards horizontally on foundation perimeter.
 - 1. Place boards to maximize adhesive contact.
 - 2. Install in running bond pattern.
 - 3. Butt edges and ends tightly to adjacent boards and to protrusions.
- D. Extend boards over expansion joints, unbonded to foundation on one side of joint.
- E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- F. Immediately following application of board insulation, place protective boards over exposed insulation surfaces.
 - 1. Apply adhesive in five continuous beads per board length.
 - 2. Install boards horizontally from base of foundation to top of insulation.
 - 3. Butt boards tightly, with joints staggered from insulation joints.

3.03 BOARD INSTALLATION AT EXTERIOR WALLS

- A. Adhere a 6 inch wide strip of polyethylene sheet over building expansion joints with double beads of adhesive each side of joint.
 - 1. Tape seal joints between sheets.
 - 2. Extend sheet full height of joint.
- B. Mechanically fasten insulation boards to sheathing with rust resistant screws and 2" diameter rigid plastic washers to allow secure attachment.
 - 1. Install 24 inches each way or as prescribed by insulation manufacturer.
- C. Install boards horizontally on walls.
 - 1. Install in running bond pattern.
 - 2. Butt edges and ends tightly to adjacent boards and protrusions.
- D. Extend boards over expansion joints, unbonded to wall on one side of joint.
- E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- F. Fill voids in walls and cavities around perimeter of openings with spray-foam insulation.

3.04 BOARD INSTALLATION AT CAVITY WALLS

- A. Secure impale fasteners to substrate at following frequency:
 - 1. Six (6) per insulation board.

- B. Adhere a 6 inches wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.
 - 1. Tape seal joints between sheets.
 - 2. Extend sheet full height of joint.
- C. Install boards to fit snugly between wall ties.
- D. Install boards horizontally on walls.
 - 1. Install in running bond pattern.
 - 2. Butt edges and ends tightly to adjacent boards and protrusions.
 - 3. Place impale fastener locking discs.
- E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- F. Fill voids in walls and cavities around perimeter of openings with spray-foam insulation.

3.05 BOARD INSTALLATION UNDER CONCRETE SLABS

- A. Place insulation under slabs on grade after base for slab has been compacted.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.
- D. Install spray-foam insulation around gaps and voids in penetrations through board insulation.

3.06 BOARD INSTALLATION OVER STEEP SLOPE ROOF SHEATHING OR ROOF STRUCTURE

- A. Installation of board insulation over steep slope roof structure or roof sheathing is specified in Section 06 1000.

3.07 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in interior sound attenuated and exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Cut and form insulation as necessary to fully fill all cavities and void spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. At attic locations with gyp-bd ceilings, use spray foam around all penetrations through gyp-bd layer. Apply to seal all air leakage around penetrations and to insulate around device. Fill voids around plumbing pipes, conduits, wiring, junction boxes, etc poking through attic ceiling layer.
- F. Install insulation in thicknesses required to achieve minimum desired R-values below; unless noted otherwise.
 - 1. Walls: R-19
 - 2. Floors: R-13
 - 3. Floors above unconditioned spaces: R-19

- 4. Ceilings at unconditioned attic spaces: R-29
- G. Fill voids in walls and cavities around perimeter of openings with spray-foam insulation. Fill shim spaces around window perimeters full with batt insulation or low-expansion spray-foam insulation.

3.08 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

**SECTION 087100
DOOR HARDWARE**

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

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

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
 - c. "Stile and Rail Wood Doors"
 - d. "Interior Aluminum Doors and Frames"
 - e. "Aluminum-Framed Entrances and Storefronts"
 - f. "Stainless Steel Doors and Frames"
 - g. "Special Function Doors"
 - h. "Entrances"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
3. Door Hardware Schedule:

- a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
- b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
- c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

4. Key Schedule:

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

C. Informational Submittals:

- 1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
- 2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.

D. Closeout Submittals:

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

- e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
- f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

- 1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
 - a. Fire door assemblies, in compliance with NFPA 80.
 - b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

- 1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
- 2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
- 3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
- 4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

- 1. Fire-Rated Door Openings:
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- 2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105

- b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
 - 3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 - 4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
 - 1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.
 - 2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
 - 3. Electrified Hardware Coordination Conference:
 - a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

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

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
 - a. Mechanical Warranty
 - 1) Locks
 - a) Schlage L Series: 10 years
 - b) Schlage ND Series: 10 years
 - c) Schlage PT Series: 5 years
 - 2) Exit Devices
 - a) Von Duprin: 10 years
 - 3) Closers
 - a) LCN 4000 Series: 30 years
 - b) LCN 1460 Series: 30 years
 - b. Electrical Warranty
 - 1) Locks
 - a) Schlage: 3 years
 - 2) Exit Devices
 - a) Von Duprin: 3 years

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

- A. Fabrication
 - 1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
 - 2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 - 3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
 - 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.
- C. Cable and Connectors:
 - 1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
 - 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
 - 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 3CB series
2. Acceptable Manufacturers and Products:
 - a. Hager AB700/800 series
 - b. McKinney TA314/714 TA386/786 series
 - c. Best CB1900 series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide 3 knuckle, concealed bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
9. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5PB series
2. Acceptable Manufacturers and Products:

- a. Hager 1191/1279 series
- b. McKinney T series
- c. Best F series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, plain bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. Doors over 1-3/4 inch (44 mm) thick or over 36 inches (914 mm) wide:
 - a. Exterior: Bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Steel, 5 inches (127 mm) high
5. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
6. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins

2.05 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
 - a. Hager BB1191/1279 series
 - b. McKinney TB series
 - c. Best FBB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high

6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.06 SPRING HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 3SP series
2. Acceptable Manufacturers and Products:
 - a. Hager 1250 series
 - b. McKinney 1502 series
 - c. Best 2060 series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide 3 knuckle, steel based, spring full mortise hinges.
3. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
4. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Do not use spring hinges of door 96 inches and greater in height.

2.07 ELECTRIC POWER TRANSFER

A. Manufacturers:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin EPT-10
2. Acceptable Manufacturers and Products:
 - a. ABH PT1000
 - b. Securitron CEPT-10
 - c. Security Door Controls PTM
 - d. Precision EPT-12C

B. Requirements:

1. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.

2. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.08 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.09 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco
 - c. Rockwood

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.10 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage L9000 series

2. Acceptable Manufacturers and Products:
 - a. Sargent 8200 series
 - b. Best 45H series
 - c. Corbin-Russwin ML2000 series

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified and motor based latch retraction locksets that comply with the following requirements:
 - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.
 - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
 - c. Low maximum current draw – maximum 0.4 amps (Lever control) and maximum 2.0 amps (Latch retraction) to allow for multiple locks on a single power supply.
 - d. Low holding current (Lever control or latch retraction) – maximum 0.01 amps to produce minimal heat, eliminate "hot levers" in electrically locked applications and motorized latch retraction applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
 - e. Connections – provide quick-connect Molex system standard.
8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

2.11 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage ND series
2. Acceptable Manufacturers and Products:
 - a. Best 9K
 - b. Sargent 11-Line
 - c. Corbin-Russwin CL3100 series

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
 - a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
 - b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
 - c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
 - d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.
 - e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.
3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

2.12 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin 98 series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide grooved touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturer's approved strikes.
9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.

12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.13 EXIT DEVICES – BAR TYPE

A. Manufacturer and Product:

1. Scheduled Manufacturer:
 - a. Von Duprin 55/88 series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide bar type exit devices, cast or forged of brass, bronze, or stainless steel, plated to standard architectural finishes to match balance of the door hardware.
4. Latch Bolt Throw: 3/4 inch (19 mm) for rim and mortise devices, 5/8 inch (16 mm) for surface and concealed vertical rod devices.
5. Mechanism Case: One piece without cover plate. Mount flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
6. Provide UL labeled fire exit devices for fire rated openings.
7. Provide manufacturer's standard strikes.
8. Provide exit devices cut to door width and height. Locate exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
9. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
10. Provide electrified options as scheduled in the hardware sets.
11. Furnish all necessary wood door kits and cover plates, for proper installation of exit device.
12. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.14 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage/Von Duprin PS900 Series

B. Requirements:

1. Provide power supplies approved by manufacturer of supplied electrified hardware.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Provide power supplies with the following features:
 - a. 12/24 VDC Output, field selectable.
 - b. Class 2 Rated power limited output.
 - c. Universal 120-240 VAC input.
 - d. Low voltage DC, regulated and filtered.
 - e. Polarized connector for distribution boards.
 - f. Fused primary input.
 - g. AC input and DC output monitoring circuit w/LED indicators.
 - h. Cover mounted AC Input indication.
 - i. Tested and certified to meet UL294.
 - j. NEMA 1 enclosure.
 - k. Hinged cover w/lock down screws.
 - l. High voltage protective cover.

2.15 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage Everest 29 S
2. Acceptable Manufacturers and Products:
 - a. Best Preferred Patented
 - b. Corbin-Russwin Patented Keyway
 - c. Sargent DG1

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. Patented Open: cylinder with interchangeable core with open keyway.
3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
4. Nickel silver bottom pins.

2.16 KEYING

A. Scheduled System:

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

B. Requirements:

1. Construction Keying:
 - a. Replaceable Construction Cores.
 - 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - a) 3 construction control keys
 - b) 12 construction change (day) keys.
 - 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.
 2. Permanent Keying:
 - a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
 - b. Forward biting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
 - c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
 - d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
 - e. Quantity: Furnish in the following quantities.
 - 1) Permanent Control Keys: 3.
 - 2) Master Keys: 6.
 - 3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
 - 4) Key Blanks: Quantity as determined in the keying meeting.

2.17 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Telkee
2. Acceptable Manufacturers:
 - a. HPC
 - b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.18 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4040XP series
2. Acceptable Manufacturers and Products:
 - a. Corbin-Russwin DC8000 series
 - b. Sargent 281 series

B. Requirements:

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

2.19 DOOR CLOSERS

A. Manufacturers and Products:

UAFAPH24.01
 UA Alpha Phi House

DOOR HARDWARE
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1. Scheduled Manufacturer and Product:
 - a. LCN 1460 series
 2. Acceptable Manufacturers and Products:
 - a. Corbin-Russwin DC6000 series
 - b. Stanley QDC 200
- B. Requirements:
1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory.
 2. Provide door closers with fully hydraulic, full rack and pinion action cast iron cylinder.
 3. Closer Body: 1-1/4-inch (32 mm) diameter, with 5/8-inch (16 mm) diameter heat-treated pinion journal.
 4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
 5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
 6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
 7. Pressure Relief Valve (PRV) Technology: Not permitted.
 8. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.20 DOOR CLOSERS

- A. Manufacturers and Products:
1. Scheduled Manufacturer and Product:
 - a. LCN 1250 series
 2. Acceptable Manufacturers and Products:
 - a. Falcon SC60A series
 - b. Norton 1600 series
 - c. Sargent 1131 series
- B. Requirements:
1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory.
 2. Provide door closers with fully hydraulic, full rack and pinion action with cast aluminum cylinder.
 3. Closer Body: 1-3/8-inch (35 mm) diameter with 5/8-inch (16 mm) diameter pinion journal diameter heat-treated pinion journal and full complement bearings.
 4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
 5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
 6. Pressure Relief Valve (PRV) Technology: Not permitted.
 7. Provide stick on and special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.21 ELECTROMECHANICAL CLOSER/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. LCN SEM7800 Series
2. Acceptable Manufacturers:
 - a. Norton
 - b. Rixson

B. Requirements:

1. Provide single-point or multi-point hold-open electromechanical closer/holders as specified. Coordinate voltage requirements and provide transformer if necessary.
2. Provide closer/holders that function as full rack and pinion door closer when current is interrupted or continuous hold-open is not engaged.
3. Provide door closers with fully hydraulic, full rack and pinion action with high strength cylinder and full complement bearings at shaft.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Pressure Relief Valve (PRV) Technology: Not permitted.
8. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.22 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco
 - c. Rockwood

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.23 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives

2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco
 - c. Rockwood

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Size plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.24 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
 - a. Glynn-Johnson
2. Acceptable Manufacturers:
 - a. Rixson
 - b. Sargent
 - c. ABH

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.25 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco
 - c. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.26 HINGE PIN DOOR STOP

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 74/75 Series
2. Acceptable Manufacturers and Products:
 - a. Door Saver III
 - b. Don Jo 1513/1518

B. Requirements:

1. Provide hinge pin door stops in carbon steel.
2. Removable bushings shall accommodate 1/4-inch to 5/16-inch diameter hinge pins (74 series).
3. Removable bushings shall accommodate 5/16-inch to 3/8-inch diameter hinge pins (75 series).
4. Shall be capable of adjustment from 40-degrees to 180-degrees.

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

A. Manufacturers:

B. Scheduled Manufacturer:

1. Zero International

C. Acceptable Manufacturers:

1. National Guard
2. Reese
3. Pemko

D. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.

1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.
 - a. Provide non-corrosive fasteners for all exterior applications.
 - b. Provide security fasteners where indicated.
2. (NOTE TO SPECIFIER Remove Seals and Gasketing subparagraph 2 in full if Zero Everyday products are scheduled in any hardware set) Provide Neoprene, EPDM, Silicone, or Nylon Brush inserts. Provide non brush inserts of solid or sponge cell, as indicated in hardware sets.

E. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.

- F. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.
 - 1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.
- G. (NOTE TO SPECIFIER Remove Sound-Rated Gasketing paragraph if Zero Everyday products are scheduled in any hardware set) Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.
- H. Meeting-Stile Gasketing: Where indicated, provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.
- I. Door Sweeps or Shoes: Where indicated, apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.
 - 1. (NOTE TO SPECIFIER Remove Door Sweeps or Shoes subparagraph 1 in full if Zero Everyday products are scheduled in any hardware set) Provide solid neoprene, EPDM, Silicone, or nylon brush type of seal as indicated in hardware sets.
- J. Automatic Door Bottoms:
 - 1. Door bottom to be minimum of 0.72 inch thickness mortised, semi mortised, or surface mount as required.
 - 2. Provide closed cell sponge, bulb neoprene. or EPDM type of seal as indicated in hardware sets.
- K. Rain Drips:
 - 1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.
 - 2. Door sweeps or shoes with integral rain drip must meet ADA requirements
- L. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.
 - 1. Threshold extrusion to be a minimum of .125 inches thick, as indicated in the hardware sets.
 - 2. Provide thresholds conforming to ANSI/BHMA A156.21

2.28 SILENCERS

- A. Manufacturers:
 - 1. Scheduled Manufacturer:
 - a. Ives
 - 2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood

c. Trimco

B. Requirements:

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

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

A. Manufacturers:

1. Acceptable Manufacturers:
 - a. National Guard
 - b. Reese
 - c. Pemko

2.30 ROLLER LATCHES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco
 - c. Rockwood

B. Requirements:

1. Provide roller latches with 4-7/8 inches (124 mm) strike at single doors to fit ANSI frame prep. If dummy levers are used in conjunction with roller latch mount roller latch at a height as to not interfere with proper mounting and height of dummy lever.
2. Provide roller latches with 2-1/4 inches (57 mm) full lip strike at pair doors. Mount roller in top rail of each leaf per manufacturer's template.

2.31 MAGNETIC HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. LCN
2. Acceptable Manufacturers:
 - a. Rixson
 - b. Sargent

B. Requirements:

1. Provide wall or floor mounted electromagnetic door release as specified with minimum of 25 pounds of holding force. Coordinate projection of holder and armature with other hardware and wall conditions to ensure that door sits parallel to wall when fully open. Connect magnetic holders on fire-rated doors into the fire control panel for fail-safe operation.

2.32 DOOR POSITION SWITCHES

A. Manufacturers:

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

B. Requirements:

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

2.33 FINISHES

A. FINISH: BHMA 643E/716 (US11); EXCEPT:

1. Door Closers: Powder Coat to Match.
2. Weatherstripping: Dark Bronze Anodized Aluminum.
3. Thresholds: Extruded Architectural Bronze, Oil-Rubbed

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
 - 1. Install construction cores to secure building and areas during construction period.
 - 2. Replace construction cores with permanent cores as indicated in keying section.
 - 3. Furnish permanent cores to Owner for installation.
- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

- M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- N. Overhead Stops/holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- P. Thresholds:
 - 1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
 - 2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
 - 3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.
- Q. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- R. Perimeter Gasketing:
 - 1. Apply to head and jamb, forming seal between door and frame.
 - 2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.
- S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

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

3.05 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware sets are a guideline provide as required by door type being used.
- E. Hardware Sets:

HARDWARE GROUP NO. 000

FOR USE ON DOOR #(S):

| | | | | | |
|--------|--------|--------|---------|--------|--------|
| C101.1 | C101.2 | | C103.2 | C103.3 | C103.4 |
| C103.5 | C114.2 | C114.1 | C111C.1 | C102.1 | C117.1 |
| C117.2 | C105.1 | C106.1 | C110.1 | C201.1 | C200.1 |
| C200.4 | C200.5 | C200.8 | C200A | C200B | C225.2 |
| C225.1 | C203.1 | C208.1 | C312.1 | C317.1 | C304.1 |
| C304.2 | C300.1 | C300.2 | C312.2 | C312.3 | C312.4 |
| C221.1 | C221.2 | C224.1 | C224.2 | C222.1 | C317.2 |

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| | | | | |
|-----|-------------|----------------|--------|-----|
| QTY | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-------------|----------------|--------|-----|

-CASED OPENING. NO HARDWARE REQUIRED.

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DOOR HARDWARE
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HARDWARE GROUP NO. 001

FOR USE ON DOOR #(S):

110B.2

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-------------|----------------|--------|-----|
|-----|-------------|----------------|--------|-----|

-ALL HARDWARE BY OVERHEAD DOOR MANUFACTURER.

HARDWARE GROUP NO. 002

FOR USE ON DOOR #(S):

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| SH-1 | SH-2 | SH-3 | SH-4 | SH-5 | SH-6 |
| SH-7 | SH-8 | SH-9 | SH-10 | SH-11 | SH-12 |
| SH-13 | SH-14 | SH-15 | | | |

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-------------|----------------|--------|-----|
|-----|-------------|----------------|--------|-----|

-ALL HARDWARE BY GLASS SHOWER DOOR MANUFACTURER.

HARDWARE GROUP NO. 201C

FOR USE ON DOOR #(S):

113.1 200A.1 300A.1 304A.1 118.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|------------------------|------------------------|--------|-----|
| 3 | EA HINGE | 5BB1 4.5 X 4.5 NRP | F643E | IVE |
| 1 | EA STOREROOM LOCK | L9080T 07A | 643E | SCH |
| 1 | EA FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA SURFACE CLOSER | 1461 SCUSH FC | 695 | LCN |
| 1 | EA KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 3 | EA SILENCER | SR64 | GRY | IVE |

HARDWARE GROUP NO. 203

FOR USE ON DOOR #(S):

321.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|------------------------|----------------|--------------|-----|
| 3 | EA HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA STOREROOM LOCK | L9080T 07A | 643E | SCH |
| 1 | EA FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 1 | EA WALL STOP | WS406/407CCV | 643E/7 16 | IVE |
| 3 | EA SILENCER | SR64 | GRY | IVE |

HARDWARE GROUP NO. 203S

FOR USE ON DOOR #(S):

100A.1

100B.1

117A.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|--------------------|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 NRP | F643E | IVE |
| 1 | EA | STOREROOM LOCK | L9080T 07A | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | OH STOP | 90S X SIZE AS REQ | SP313 | GLY |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

HARDWARE GROUP NO. 210R

FOR USE ON DOOR #(S):

G002.1

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|------------------------|--------|-----|
| 6 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P AS REQ | 613 | IVE |
| 1 | EA | DUST PROOF STRIKE | DP2 | 643E | IVE |
| 1 | EA | Exit Device | 98L-996L-R/V-07 | 643E | VON |
| 1 | EA | Rim Housing | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | COORDINATOR | COR X FL | 315AN | IVE |
| 2 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 2 | EA | KICK PLATE | 8400 10" X 1" LDW B-CS | 695 | IVE |
| 2 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |
| 1 | EA | ASTRAGAL | 47D | D | ZER |

HARDWARE GROUP NO. 210S

FOR USE ON DOOR #(S):

103A.1 114A.1 105B.1 114B.1

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|---------------------------------|--------|-----|
| 6 | EA | HINGE | 5BB1 4.5 X 4.5 NRP | F643E | IVE |
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P AS REQ | 613 | IVE |
| 1 | EA | DUST PROOF STRIKE | DP2 | 643E | IVE |
| 1 | EA | STOREROOM LOCK | L9080T 07A | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | OH STOP | 90S X SIZE AS REQ (INACTIVE) | SP313 | GLY |
| 1 | EA | SURFACE CLOSER | 1461 SCUSH FC (ACTIVE) | 695 | LCN |

HARDWARE GROUP NO. 265I

FOR USE ON DOOR #(S):

201.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-----|---------------------|------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1HW 4.5 X 4.5 | B643E | IVE |
| 1 | EA | Exit Device | 98L-996L-R/V-07 | 643E | SCH |
| 1 | EA | Rim Housing | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | SURFACE CLOSER | 4040XP | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | SET | GASKETING | 328D (HEAD & JAMBS) | D | ZER |
| 1 | EA | THRESHOLD | 175D | D | ZER |
| 1 | EA | INTERLOCKING HOOK | 23 | | ZER |

HARDWARE GROUP NO. 341

FOR USE ON DOOR #(S):

102A.1 104.1 109.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|--|---------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PRIVACY W/DEADBOLT W/ OUTSIDE INDICATOR | L9440 07A L583-363 OS-OCC | 643E | SCH |
| 1 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 8" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

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DOOR HARDWARE
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HARDWARE GROUP NO. 401

FOR USE ON DOOR #(S):

207.1 229.1 215.1 301.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PASSAGE SET | L9010 07A | 643E | SCH |
| 1 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

HARDWARE GROUP NO. 401R

FOR USE ON DOOR #(S):

G003.1 320.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | CLASSROOM LOCK | L9070T 07A | 643E | SCH |
| 1 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |

HARDWARE GROUP NO. 463

FOR USE ON DOOR #(S):

101A.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|------------------|----------------|--------|-----|
| 3 | EA | INVISIBLE HINGE | 418 | DKB | SOS |
| 1 | EA | INVISIBLE LATCH | CL12 | 626 | IVE |
| 1 | EA | EDGE PULL | 885 | 10BE | RCK |
| 1 | EA | AUXILIARY PUSHER | CL14 | 626 | IVE |

HARDWARE IS A GUIDELINE. PROVIDE AS REQUIRED BY DOOR TYPE BEING USED.

HARDWARE GROUP NO. 512S

FOR USE ON DOOR #(S):

105A.1

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|--------------------|--------|-----|
| 6 | EA | HINGE | 5BB1 4.5 X 4.5 NRP | F643E | IVE |
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P AS REQ | 613 | IVE |
| 1 | EA | DUST PROOF STRIKE | DP2 | 643E | IVE |
| 1 | EA | CLASSROOM LOCK | L9070T 07A | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 2 | EA | OH STOP | 410S SIZE AS REQ | SP313 | GLY |

HARDWARE GROUP NO. 738R

FOR USE ON DOOR #(S):

200.2

200.3

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|------------------------|--------|-----|
| 4 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 2 | EA | SPRING HINGE | 3SP1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | FIRE EXIT HARDWARE | 99-L-BE-F-LON | 643E | VON |
| 1 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 1 | EA | COORDINATOR | COR42 | 315AN | IVE |
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P | 613 | IVE |
| 2 | EA | KICK PLATE | 8400 10" X 1" LDW B-CS | 695 | IVE |
| 2 | EA | FIRE/LIFE WALL MAG | SEM7850 | 695 | LCN |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |
| 1 | EA | MEETING STILE | 8195D | D | ZER |

-PROVIDE FIRE ALARM CONNECTIONS FOR WALL MAGNETIC HOLD OPENS.

-CONNECT THE MAGNETIC HOLD OPENS TO THE FIRE ALARM SYSTEM.

-THE MAGNETIC HOLD OPENS ARE TO RELEASE UPON ACTIVATION OF THE FIRE ALARM SYSTEM.

HARDWARE GROUP NO. 801H

FOR USE ON DOOR #(S):

119.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1HW 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PUSH PLATE | 8200 4" X 16" | 695 | IVE |
| 1 | EA | PULL PLATE | 8303 10" 4" X 16" F | 643E | IVE |
| 1 | EA | SURFACE CLOSER | 1461 H FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

HARDWARE GROUP NO. 801HN

FOR USE ON DOOR #(S):

105.1

108.2

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1HW 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PUSH PLATE | 8200 4" X 16" | 695 | IVE |
| 1 | EA | PULL PLATE | 8303 10" 4" X 16" F | 643E | IVE |
| 1 | EA | SURFACE CLOSER | 1461 HW/PA FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

HARDWARE GROUP NO. 902P

FOR USE ON DOOR #(S):

102.1

117.1

115.1

201.2

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|----------------------|--------|-----|
| 2 | EA | POCKET DOOR FRAME | 1500SC X SIZE AS REQ | | JOH |
| 1 | EA | CONVERGING DOOR KIT | 1555PPK3 | | JOH |
| 4 | EA | FLUSH PULL | 227 | B643E | IVE |
| 2 | EA | DOOR EDGE PULL | 230 | B643E | IVE |

HARDWARE GROUP NO. 903P

FOR USE ON DOOR #(S):

116.1 115.2 107.3 107.2 107.1 112E.1

204C

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-------------------|----------------------|--------|-----|
| 1 | EA | POCKET DOOR FRAME | 1500SC X SIZE AS REQ | | JOH |
| 2 | EA | FLUSH PULL | 227 | B643E | IVE |
| 1 | EA | DOOR EDGE PULL | 230 | B643E | IVE |

HARDWARE GROUP NO. C741R

FOR USE ON DOOR #(S):

1ST3.2 2ST3.1 3ST3.1 GST1.1 1ST2.2 2ST2.1

3ST2.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------------------|--|--------|-----|
| 2 | EA | HINGE | 5BB1HW 4.5 X 4.5 | F643E | IVE |
| 1 | EA | ELECTRIC HINGE | 5BB1HW 4.5 X 4.5 CON TW8 | F643E | IVE |
| 1 | EA | ELEC FIRE EXIT HARDWARE | RX-98-L-F-M996-LON-FS-CON (FAIL SAFE) | 643E | VON |
| 1 | EA | RIM CYLINDER | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |
| 1 | EA | WIRE HARNESS (IN DOOR) | ALLEGION CONNECT TYPE & LENGTH AS REQ | | SCH |
| 1 | EA | WIRE HARNESS (IN FRAME) | CON-6W - CONNECTION LEADS | | SCH |
| 1 | EA | CREDENTIAL READER | BY OWNER | | UNK |
| 1 | EA | DOOR CONTACT | 679-05 TYPE AS REQ | BLK | SCE |
| 1 | EA | POWER SUPPLY | BY OWNER | | |

-INGRESS BY THE CREDENTIAL READER OR KEY OVERRIDE.

-FREE EGRESS BY THE PANIC HARDWARE.

-CONNECT THE ELECTRIFIED TRIM TO THE FIRE ALARM SYSTEM.

-THE ELECTRIFIED TRIM WILL UNLOCK UPON ACTIVATION OF THE FIRE ALARM SYSTEM FOR STIREWELL REENTRY.

HARDWARE GROUP NO. CY714

FOR USE ON DOOR #(S):

G001.5

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-----|-----------------------|---|--------|-----|
| 4 | EA | HINGE | 5BB1HW 4.5 X 4.5 NRP | B643E | IVE |
| 2 | EA | ELECTRIC HINGE | 5BB1HW 4.5 X 4.5 CON TW8 | B643E | IVE |
| 1 | EA | ELEC PANIC HARDWARE | RX-8847-EO | 643E | VON |
| 1 | EA | ELEC PANIC HARDWARE | RX-8847-L-BE-E373-07-FSE (FAIL SECURE) | 643E | VON |
| 1 | EA | RIM CYLINDER | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX (FOR DOOR PROP ALARM) | 622 | SCH |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 2 | EA | SURFACE CLOSER | 4040XP SCUSH X MTG BRKT, SPCR & PLATE AS REQ | 695 | LCN |
| 2 | EA | KICK PLATE | 8400 10" X 1" LDW B-CS | 695 | IVE |
| 1 | SET | GASKETING | 328D (HEAD & JAMBS) | D | ZER |
| 2 | EA | DOOR SWEEP | 39D | D | ZER |
| 1 | EA | MEETING STILE | 8195D | D | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | CREDENTIAL READER | BY OWNER | | UNK |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK4 | BLK | DET |
| 1 | EA | POWER SUPPLY | BY OWNER | | |

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HARDWARE GROUP NO. CY715

FOR USE ON DOOR #(S):

108.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-----|----------------------------|---|--------|-----|
| 3 | EA | HINGE | 5BB1HW 4.5 X 4.5 NRP | B643E | IVE |
| 1 | EA | POWER TRANSFER | EPT10 CON | SP313 | VON |
| 1 | EA | ELEC PANIC HARDWARE | RX-QEL-98-L-NL-LON-CON | 643E | VON |
| 1 | EA | RIM CYLINDER | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX | 622 | SCH |
| | | | (FOR DOOR PROP ALARM) | | |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | SURFACE CLOSER | 4040XP SCUSH X MTG BRKT, SPCR & PLATE AS REQ | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | SET | GASKETING | 328D (HEAD & JAMBS) | D | ZER |
| 1 | EA | DOOR SWEEP | 39D | D | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | WIRE HARNESS (IN DOOR) | ALLEGION CONNECT TYPE & LENGTH AS REQ | | SCH |
| 1 | EA | WIRE HARNESS (IN FRAME) | CON-6W - CONNECTION LEADS | | SCH |
| 1 | EA | CREDENTIAL READER | BY OWNER | | UNK |
| 1 | EA | DOOR CONTACT | 679-05 TYPE AS REQ | BLK | SCE |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK3 | BLK | DET |
| 1 | EA | POWER SUPPLY | BY OWNER | | VON |

-INGRESS BY THE CREDENTIAL READER OR KEY OVERRIDE.

-FREE EGRESS BY THE PUSH PAD.

-COORDINATE POWER SUPPLY WITH SECURITY CONTRACTOR PRIOR TO SUBMITTALS.

-OMIT POWER SUPPLY WHERE PROVIDED BY SECURITY.

HARDWARE GROUP NO. CYE715

FOR USE ON DOOR #(S):

100.1 103.1 114.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-----|----------------------------|---|--------|-----|
| 2 | EA | HINGE | 5BB1HW 4.5 X 4.5 NRP | B643E | IVE |
| 1 | EA | ELECTRIC HINGE | 5BB1HW 4.5 X 4.5 CON TW8 | B643E | IVE |
| 1 | EA | ELEC PANIC HARDWARE | RX-55-NL | 643E | VON |
| 1 | EA | RIM CYLINDER | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX | 622 | SCH |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | ELECTRIC STRIKE | 9500 | 613 | HES |
| 1 | EA | SURFACE CLOSER | 4040XP SCUSH X MTG BRKT, SPCR & PLATE AS REQ | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | SET | GASKETING | 328D (HEAD & JAMBS) | D | ZER |
| 1 | EA | DOOR SWEEP | 39D | D | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | WIRE HARNESS (IN DOOR) | ALLEGION CONNECT TYPE & LENGTH AS REQ | | SCH |
| 1 | EA | WIRE HARNESS (IN FRAME) | CON-6W - CONNECTION LEADS | | SCH |
| 1 | EA | CREDENTIAL READER | BY OWNER | | UNK |
| 1 | EA | DOOR CONTACT | 679-05 TYPE AS REQ | BLK | SCE |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK3 | BLK | DET |
| 1 | EA | POWER SUPPLY | BY OWNER | | |

-INGRESS BY THE CREDENTIAL READER OR KEY OVERRIDE.

-FREE EGRESS BY THE PANIC HARDWARE.

HARDWARE GROUP NO. S343

FOR USE ON DOOR #(S):

119A.1 119B.1 119C.1 221A.1 221B.1 221C.1
 221D.1 224A.1 224B.1 224C.1 312A.1 312B.1
 312C.1 312D.1 312E.1 312F.1 312G.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|--------------------------------------|------------------|--------|-----|
| 1 | EA | HINGE | 3CB1 4.5 X 4.5 | F643E | IVE |
| 2 | EA | SPRING HINGE | 3SP1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PRIVACY LOCK W/ OUTSIDE INDICATOR | ND40S ATH OS-OCC | 643E | SCH |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

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HARDWARE GROUP NO. U201

FOR USE ON DOOR #(S):

202.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|---|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | STOREROOM LOCK | ND80TD ATH | 643E | SCH |
| 1 | EA | SURFACE CLOSER | 1250 REG | 695 | LCN |
| 1 | EA | HINGE PIN STOP | 75 | F10B | IVE |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |
| 1 | EA | DOOR SHOE | 253A | A | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | VIEWER COVER | 890311 | 643E | IVE |
| 1 | EA | VIEWER | U698 (PROVIDE 2 @ ACCESSIBLE UNITS) | B643E | IVE |

HARDWARE GROUP NO. U303

FOR USE ON DOOR #(S):

112D.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|---------------------------|--------|-----|
| 3 | EA | HINGE | 5PB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PRIVACY LOCK | PT40 ATH - BACKSET AS REQ | 643E | SCH |
| 1 | EA | HINGE PIN STOP | 75 | F10B | IVE |

HARDWARE GROUP NO. U403

FOR USE ON DOOR #(S):

112B.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|----------------|----------------|--------|-----|
| 3 | EA | HINGE | 5PB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PASSAGE SET | PT10 ATH | 643E | SCH |
| 1 | EA | HINGE PIN STOP | 75 | F10B | IVE |

HARDWARE GROUP NO. U802

FOR USE ON DOOR #(S):

| | | | | | |
|--------|--------|--------|--------|--------|--------|
| 204A.1 | 204B.1 | 205A.1 | 205B.1 | 206A.1 | 206B.1 |
| 212A.1 | 212B.1 | 211A.1 | 211B.1 | 209A.1 | 209B.1 |
| 206D.1 | 206C.1 | 210A.1 | 210B.1 | 226A.1 | 226B.1 |
| 226C.1 | 227A.1 | 227B.1 | 228A.1 | 228B.1 | 230A.1 |
| 230B.1 | 230C.1 | 219A.1 | 219B.1 | 220A.1 | 220B.1 |
| 230D.1 | 231B.1 | 231A.1 | 223A.1 | 223B.1 | 232B.1 |
| 232A.1 | 218A.1 | 218B.1 | 213A.1 | 213B.1 | 217A.1 |
| 217B.1 | 307A.1 | 307B.1 | 307C.1 | 307D.1 | 306A.1 |
| 306C.1 | 306B.1 | 305A.1 | 305B.1 | 305C.1 | 305D.1 |
| 303A.1 | 303B.1 | 303C.1 | 303C.1 | 302A.1 | 309A.1 |
| 309B.1 | 302B.1 | 302C.1 | 310A.1 | 310B.1 | 302D.1 |
| 323A.1 | 313A.1 | 313B.1 | 315A.1 | 315B.1 | 314A.1 |
| 314B.1 | 323B.1 | 323C.1 | 323D.1 | 322A.1 | 322B.1 |
| 322C.1 | 322D.1 | 315C.1 | 315D.1 | 316A.1 | 316B.1 |
| 316C.1 | 316D.1 | 318A.1 | 318B.1 | 318C.1 | 319A.1 |
| 319B.1 | 319C.1 | 319D.1 | 311A.1 | 311B.1 | 303D.1 |

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-------------------|----------------|--------|-----|
| 6 | EA | HINGE | 5PB1 4.5 X 4.5 | F643E | IVE |
| 2 | EA | ROLLER LATCH | RL32 | 643E | IVE |
| 2 | EA | SINGLE DUMMY TRIM | PT170 ATH | 643E | SCH |
| 2 | EA | HINGE PIN STOP | 75 | F10B | IVE |

HARDWARE GROUP NO. UK201

FOR USE ON DOOR #(S):

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| 112.2 | 232.1 | 204.1 | 223.1 | 205.1 | 231.1 |
| 206.1 | 230.1 | 209.1 | 228.1 | 210.1 | 227.1 |
| 220.1 | 211.1 | 226.1 | 219.1 | 212.1 | 218.1 |
| 213.1 | 217.1 | 323.1 | 302.1 | 314.1 | 313.1 |
| 322.1 | 303.1 | 318.1 | 305.1 | 315.1 | 316.1 |
| 306.1 | 319.1 | 311.1 | 307.1 | 310.1 | 309.1 |

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-----------------|---|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PASSAGE SET | PT10 ATH | 643E | SCH |
| 1 | EA | KEYPAD DEADBOLT | BE365NF20 PLY | 716 | SCH |
| 1 | EA | SURFACE CLOSER | 1250 REG | 695 | LCN |
| 1 | EA | HINGE PIN STOP | 75 | F10B | IVE |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |
| 1 | EA | DOOR SHOE | 253A | A | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | VIEWER COVER | 890311 | 643E | IVE |
| 1 | EA | VIEWER | U698 (PROVIDE 2 @ ACCESSIBLE UNITS) | B643E | IVE |

HARDWARE GROUP NO. UY205

FOR USE ON DOOR #(S):

112.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-----------------------|-------------------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 NRP | B643E | IVE |
| 1 | EA | PASSAGE SET | PT10 ATH | 643E | SCH |
| 1 | EA | KEYPAD DEADBOLT | BE365NF20 PLY | 716 | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX (FOR DOOR PROP ALARM) | 622 | SCH |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 1 | EA | SURFACE CLOSER | 1461 SCUSH FC | 695 | LCN |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |
| 1 | EA | DOOR SWEEP | 39D | D | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK3 | BLK | DET |

HARDWARE GROUP NO. Y264

FOR USE ON DOOR #(S):

105.5 105.7

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-----------------------|-----------------------|--------|-----|
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P AS REQ | 613 | IVE |
| 1 | EA | DBL CYL STORE W/DB | L9466T 07A | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX | 622 | SCH |
| | | | (FOR DOOR PROP ALARM) | | |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 2 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | OH STOP | 100S SIZE AS REQ | SP313 | GLY |
| | | | (INACTIVE LEAF) | | |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK4 | BLK | DET |

HARDWARE GROUP NO. Y714

FOR USE ON DOOR #(S):

G001.1 G001.2 G001.3 G001.4 105.2 105.3
105.4

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-----------------------|-----------------------|--------|-----|
| 1 | EA | PANIC HARDWARE | 8847L-371L-07 | 643E | VON |
| 1 | EA | PANIC HARDWARE | 8847L-371L-07 | 643E | VON |
| 2 | EA | MORTISE CYLINDER | 30-008ICX | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX | 606 | SCH |
| | | | (FOR DOOR PROP ALARM) | | |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 2 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | MEETING STILE | 8195D | D | ZER |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK4 | BLK | DET |

HARDWARE GROUP NO. Y800

FOR USE ON DOOR # (S):

G004.1

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|------------------------|--------|-----|
| 3 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | Exit Device | 98L-996L-R/V-07 | 643E | SCH |
| 1 | EA | Rim Housing | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | SURFACE CLOSER | 1461 SCUSH FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 1" LDW B-CS | 695 | IVE |
| 1 | EA | GASKETING | 9188SBK (HEAD & JAMBS) | BK | ZER |

HARDWARE GROUP NO. Y264

FOR USE ON DOOR #(S):

105.6

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|-----------------------|-----------------------|--------|-----|
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P AS REQ | 613 | IVE |
| 1 | EA | DBL CYL STORE W/DB | L9466T 07A | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX | 622 | SCH |
| | | | (FOR DOOR PROP ALARM) | | |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 2 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | ELECTRIC STRIKE | 6221 | 613 | VON |
| 1 | EA | OH STOP | 100S SIZE AS REQ | SP313 | GLY |
| | | | (INACTIVE LEAF) | | |
| 1 | EA | GASKETING | 328D (HEAD & JAMBS) | D | ZER |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK4 | BLK | DET |
| 1 | EA | POWER SUPPLY | BY OWNER | 1 | EA |

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DOOR HARDWARE
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HARDWARE GROUP NO. CY715

FOR USE ON DOOR #(S):

1ST3.1 1ST2.1

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|-----|-----------------------|---|--------|-----|
| 3 | EA | HINGE | 5BB1HW 4.5 X 4.5 NRP | B643E | IVE |
| 1 | EA | PANIC HARDWARE | 98L-996L-R/V-07 | 643E | VON |
| 1 | EA | RIM CYLINDER | 20-057 ICX | 643E | SCH |
| 1 | EA | FSIC MORTISE CYLINDER | 20-061 ICX (FOR DOOR PROP ALARM) | 622 | SCH |
| 1 | EA | FSIC PERMANANT CORE | 23-030 | 622 | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | SURFACE CLOSER | 4040XP SCUSH X MTG BRKT, SPCR & PLATE AS REQ | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | SET | GASKETING | 328D (HEAD & JAMBS) | D | ZER |
| 1 | EA | DOOR SWEEP | 39D | D | ZER |
| 1 | EA | THRESHOLD | 655D | D | ZER |
| 1 | EA | DOOR PROPPED ALARM | EAX-300 X SK3 | BLK | DET |
| EA | | POWER SUPPLY | PS902 900-2RS 900-BBK | | VON |

HARDWARE GROUP NO. 210R.1

FOR USE ON DOOR #(S):

222A.1 222B.1 214A.1 214B.1 300A 308A.1

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|-----|----|---------------------|--------------------|--------|-----|
| 6 | EA | HINGE | 5BB1 4.5 X 4.5 | F643E | IVE |
| 1 | EA | CONST LATCHING BOLT | FB51P/FB61P AS REQ | 613 | IVE |
| 1 | EA | DUST PROOF STRIKE | DP2 | 643E | IVE |
| 1 | EA | STOREROOM LOCK | L9080T 07A | 643E | SCH |
| 1 | EA | FSIC PERMANENT CORE | 23-030 | 606 | SCH |
| 1 | EA | COORDINATOR | COR X FL | 315AN | IVE |
| 2 | EA | SURFACE CLOSER | 1461 REG FC | 695 | LCN |
| 2 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 1 | EA | ASTRAGAL | 47D | D | ZER |

HARDWARE GROUP NO. 801H.1

FOR USE ON DOOR #(S):

221.1 224.1 216.1 312.1 312.2

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

| QTY | | DESCRIPTION | CATALOG NUMBER | FINISH | MFR |
|------------|----|--------------------|------------------------|---------------|------------|
| 3 | EA | HINGE | 5BB1HW 4.5 X 4.5 | F643E | IVE |
| 1 | EA | PASSAGE LOCK | L9010 07A | 643E | IVE |
| 1 | EA | SURFACE CLOSER | 1461 H FC | 695 | LCN |
| 1 | EA | KICK PLATE | 8400 10" X 2" LDW B-CS | 695 | IVE |
| 1 | EA | WALL STOP | WS406/407CCV | 643E | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

SECTION 08 9100
LOUVERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Louvers, frames, and accessories.

1.02 REFERENCE STANDARDS

- A. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; 2012.
- B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- C. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.

1.03 SUBMITTALS

- A. Test Reports: Independent agency reports showing compliance with specified performance criteria.

1.04 WARRANTY

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Louvers:
 - 1. Greenheck Wind-Driven Rain Louver, Horizontal Blade, Extruded Aluminum: www.greenheck.com/products. See Louver Schedule.
 - 2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 LOUVERS

- A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.
 - 1. Wind Load Resistance: Design to resist positive and negative wind load of 25 psf without damage or permanent deformation.
 - 2. Construction: Mechanically fastened
 - 3. Intake Louvers: Design to allow maximum of 0.01 oz/sq ft water penetration at calculated intake design velocity based on design air flow and actual free area, when tested in accordance with AMCA 500-L.
 - a. Louver Depth 4 in. (102 mm)
 - 4. Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.
 - a.
 - 5. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.
 - 6. Hinged Units: Provide secondary frame to which louver frame is attached; non-ferrous hinges.

2.03 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
 - 1. Heavy gauge extruded 6063-T5 aluminum, 4 in. (102 mm) x 0.081 in. (2 mm) nominal wall thickness

- B. Bird Screen: Interwoven wire mesh of steel, 0.063 inch diameter wire, 1/2 inch open weave, diagonal design.
- C. Insect Screen: As shown on drawings size aluminum mesh.
- D. Primer: Zinc chromate, alkyd type.

2.04 FINISHES

- A. High Performance Organic Coatings: AAMA 2604; multiple coats, thermally cured fluoropolymer system.
- B. Color: As selected from manufacturer's standard colors.

2.05 ACCESSORIES

- A. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.
- B. Bird Screen: Interwoven wire mesh of steel, 14 gage, 0.0641 inch diameter wire, 1/2 inch open weave, diagonal design.
- C. Insect Screen: 18 x 16 size aluminum mesh.
- D. Fasteners and Anchors: Galvanized steel.
- E. Flashings: Of same material as louver frame, formed to required shape, single length in one piece per location.
- F. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that prepared openings and flashings are ready to receive this work and opening dimensions are as indicated on shop drawings.
- B. Verify that field measurements are as indicated.

3.02 INSTALLATION

- A. Install louver assembly in accordance with manufacturer's instructions.
- B. Install louvers level and plumb.
- C. Install flashings and align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.
- D. Secure louver frames in openings with concealed fasteners.

3.03 ADJUSTING

- A. Adjust operable louvers for freedom of movement of control mechanism. Lubricate operating joints.

3.04 CLEANING

- A. Strip protective finish coverings.

B. Clean surfaces and components.

END OF SECTION

**SECTION 09 9123
INTERIOR PAINTING**

PART 1 GENERAL V.20

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Prime surfaces to receive wall coverings.
 - 3. Mechanical and Electrical:
 - a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - b. In finished areas, paint shop-primed items.
 - c. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
 - 6. Marble, granite, slate, and other natural stones.
 - 7. Floors, unless specifically indicated.
 - 8. Ceramic and other tiles.
 - 9. Glass.
 - 10. Concealed pipes, ducts, and conduits.

1.02 DEFINITIONS

- A. Comply with ASTM D16 for interpretation of terms used in this section.

1.03 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

- E. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).
- F. SSPC-SP 2 - Hand Tool Cleaning; 1982 (Ed. 2004).
- G. SSPC-SP 3 - Power Tool Cleaning; 1982 (Ed. 2004).
- H. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
 - 4. Manufacturer's installation instructions.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 3. Label each container with color in addition to the manufacturer's label.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.06 MOCK-UP

- A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.
- B. Provide mock-up on-site of each paint color selected by Architect, minimum 3 feet long by 3 feet wide, in location as directed by Architect. Colors to be reviewed by Architect for final approval PRIOR to starting painting. Proceeding with painting without approval is done so at Contractor's own risk.
- C. Provide door and frame assembly illustrating paint color, texture, and finish.
- D. Locate where directed by Architect.
- E. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Base Manufacturer: Sherwin Williams Company.
 - 2. Behr Process Corporation: www.behr.com/#sle.
 - 3. Pittsburgh Paints: www.ppgpaints.com/#sle.
- C. Primer Sealers: Same manufacturer as top coats.
- D. Block Fillers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Colors: As indicated on drawings.
 - 1. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
 - 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - INTERIOR

- A. Paint WI-OP-3L - Wood, Opaque, Latex, 3 Coat:
1. One coat of latex primer sealer. PrepRite ProBlock Latex Primer Sealer B51 Series
 2. Semi-gloss: Two coats of latex enamel; Pro Industrial Acrylic Semi Gloss B66-650 Series.
- B. Paint MI-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
1. One coat of acrylic primer. ProCryl Universal Primer B66-310 Series
 2. Semi-gloss: Two coats of acrylic enamel; Pro Industrial Semi-Gloss B66-650 Series.
- C. Paint MI-OP-2A - Ferrous Metals, Primed, Acrylic, 2 Coat:
1. Touch-up with recommended primer.
 2. Semi-gloss: Two coats of acrylic enamel; Pro Industrial Semi Gloss B66-650 Series.
- D. Paint MI-OP-2L - Ferrous Metals / Roof Deck / Exposed Interior Structure, Primed, Latex, 2 Coat:
1. Touch-up with recommended primer. Pro-Cryl B66-310 Series
 2. Semi-gloss: Two coats of water borne acrylic dryfall Pro Industrial Semi Gloss B42-80 Series. .
- E. Paint CI-OP-3E - Concrete/Masonry, Epoxy Enamel, 3 Coat:
1. One coat of catalyzed epoxy primer. Loxon Block Surfacer A24W200
 2. Gloss: ~~Two coats of catalyzed epoxy enamel: Full Gloss. Pro Industrial Precatalyzed Gloss Epoxy B73-300 Series.~~ **Eggshell and Semi-gloss. Locations as noted on finish schedule.**
 - a. **Eggshell: Two coats of single-component water based pre-catalyzed epoxy enamel; Pro Industrial Epoxy K45 Series**
 - b. **Semi-gloss: Two coats of single-component water based pre-catalyzed epoxy enamel; Pro Industrial Epoxy K46 Series**
- F. Paint GI-OP-3L - Gypsum Board/Plaster, Latex, 3 Coat:
1. One coat of alkyd primer sealer. ProMar 200 Primer B28W2600 Series
 2. Semi-gloss: Two coats of latex enamel.
 3. Eggshell: Two coats of latex enamel; ProMar 200 B20-2600 Series.
 4. Flat: Two coats of latex enamel; B30-2600 Series (ceilings).
- G. Paint GI-OP-3M - Gypsum Board/Plaster, Epoxy Enamel, 3 Coat:
1. One coat of latex primer sealer. ProMar 200 Latex Primer B28W2600 Series
 2. Gloss: Two coats of water based catalyzed epoxy enamel; Pro Industrial Epoxy B73-300 Series.
- H. Paint FI-OP-3A - Fabrics/Insulation Jackets, Alkyd, 3 Coat:
1. One coat of alkyd primer sealer.
 2. Eggshell: Two coats of alkyd enamel.

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete:
 - 1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- G. Masonry:
 - 1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
- H. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- I. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- J. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- K. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- L. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.
- M. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 10 2800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL V.20

1.01 SECTION INCLUDES

- A. Commercial toilet accessories.
- B. Commercial shower and bath accessories.
- C. Residential toilet, shower, and bath accessories.
- D. Utility room accessories.

1.02 REFERENCE STANDARDS

- A. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.
- B. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004 (Reapproved 2010).

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
 - 1. Grind welded joints smooth.
 - 2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.
- B. Stainless Steel Sheet: ASTM A666/A666M, Type 304.
- C. Adhesive: Two component epoxy type, waterproof.
- D. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.
- E. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.02 TOILET ACCESSORIES

- A. Toilet Paper Dispenser (**TA-1**): Double Roll, surface-mounted
 - 1. Products: Aplusee Wall Mounted Toilet Paper Holder

- a. Product: ABUS1027 / A8912PG4
- b. Finish: Gold
- B. Grab Bars ~~(TA-7)~~ **(GB1)** **(GB2)**:
 - 1. Products: Kohler ~~Purist~~ **Traditional**
 - a. Finish: Vibrant Brushed Moderne Brass
 - b. 42" Grab Bar: ~~K-11896-2MB~~ **K-10545**
 - c. 36" Grab Bar: ~~K-11895-2MB~~ **K-10544**
 - d. **24" Grab Bar: K-10542**
 - e. 18" Grab Bar: ~~K-11892-2MB~~ **K-10541**
- C. In-Cabinet Trash Bin: **(TA-12)**:

- 1. Product: Lavex 23 Gallon Gray Square Trash Can
- 2. Size: 23 gallon; 16" x 16" x 30" H
- 3. Color: Gray
- 4. Item #: 475sq23gy
- 5. Weblink:

2.03 SHOWER AND BATH ACCESSORIES

A. Shower Curtain Rod ~~(TA-13)~~:

- 1. ~~Products: Kohler Elate~~
- 2. ~~K-33810-2MB~~
- 3. ~~Finish: Vibrant Brushed Moderne Brass~~

B. Shower Curtain Rod **(TA-13** and **TA-13B)**:

- 1. ~~Products: Sotcan, The Shower Curtain Rod 34-96 Inches~~
- 2. ~~Finish: Gold~~
- 3. **Rod**
 - a. **Basis of Design: The Closet Company, Round Matte Brass Closet Rod**
 - b. **Diameter: 1 - 5/16"**
 - c. **Finish: Matte Brass**
 - d. **Weblink: <https://www.closetrod.com/products/round-matte-brass-closet-rod?variant=42437228757144>**
- 4. **End Supports**
 - a. **Basis of Design: The Closet Company, Round Matte Brass Closet Rod Screw-In End Supports**
 - b. **Diameter: 1 - 5/16"**
 - c. **Finish: Matte Brass**
 - d. **Weblink: <https://www.closetrod.com/products/round-matte-brass-closet-rod-screw-in-end-supports>**
- 5. **Installation:**
 - a. **Cut to fit on site.**
 - b. **Install brass screws to match.**
- 6. **Size: As indicated on drawings.**

C. Robe Hook **(TA-15)**:

- 1. Products: Etsy, Brass Leaf Wall Hook: Nordic Coat/Towel Hanger
- 2. Finish: Gold
- 3. Website Link: https://www.etsy.com/listing/1716996418/brass-leaf-wall-hook-nordic-coattowel?ref=collection_page&pro=1

2.04 UTILITY ROOM ACCESSORIES

- A. Combination Utility Shelf/Mop and Broom Holder (**MBH-1**): 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.
 - 1. Provide one at each mop sink, typical.
 - 2. Hooks: Two, 0.06 inch stainless steel rag hooks at shelf front.
 - 3. Mop/broom holders: Three spring-loaded rubber cam holders at shelf front.
 - 4. Length: 36 inches.
 - 5. Products: B239 manufactured by Bobrick.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.
 - 1. Grab Bars: As indicated on drawings.
 - 2. Mirrors: _____ inch, measured from floor to bottom of mirrored surface. **As indicated on drawings.**

3.04 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

**SECTION 233300
AIR DUCT ACCESSORIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Air turning devices/extractors.
- B. Backdraft dampers - metal.
- C. Combination fire and smoke dampers.
- D. Duct access doors.
- E. Fire dampers.
- F. Flexible duct connectors.
- G. Volume control dampers.

1.02 REFERENCE STANDARDS

- A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2024.
- B. NFPA 92 - Standard for Smoke Control Systems; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations; 2024.
- D. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2020.
- E. UL 33 - Safety Heat Responsive Links for Fire-Protection Service; Current Edition, Including All Revisions.
- F. UL 555 - Standard for Fire Dampers; Current Edition, Including All Revisions.
- G. UL 555S - Standard for Smoke Dampers; Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide for shop-fabricated assemblies including volume control dampers, duct access doors, duct test holes, and hardware used. Include electrical characteristics and connection requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protect dampers from damage to operating linkages and blades.

PART 2 PRODUCTS

2.01 AIR TURNING DEVICES/EXTRACTORS

- A. Multi-blade device with blades aligned in short dimension; steel construction; with individually adjustable blades, mounting straps.

2.02 BACKDRAFT DAMPERS - METAL

- A. Gravity Backdraft Dampers, Size 18 by 18 inches (450 by 450 mm) or Smaller, Furnished with Air Moving Equipment: Air moving equipment manufacturer's standard construction.

2.03 COMBINATION FIRE AND SMOKE DAMPERS

- A. Fabricate in accordance with NFPA 90A, UL 555, UL 555S, and as indicated.
- B. Provide factory sleeve and collar for each damper.
- C. Multiple Blade Dampers: Fabricate with 16 gauge, 0.0598 inch (1.52 mm) galvanized steel frame and blades, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, stainless steel jamb seals, 1/8 by 1/2 inch (3.2 by 12.7 mm) plated steel concealed linkage, stainless steel closure spring, blade stops, and lock, and 1/2 inch (12.7 mm) actuator shaft.

- D. Operators: UL listed and labeled; spring-return, pneumatic-type suitable for operation on 0-20 psig (0-140 kPa) instrument air. Provide end switches to indicate damper position. Locate damper operator on interior of duct and link to damper operating shaft.

2.04 DUCT ACCESS DOORS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.

2.05 FIRE DAMPERS

- A. Fabricate in accordance with NFPA 90A and UL 555, and as indicated.
- B. Horizontal Dampers: Galvanized steel, 22-gauge, 0.0299-inch (0.76 mm) frame, stainless steel closure spring, and lightweight, heat-retardant, non-asbestos fabric blanket.
- C. Curtain Type Dampers: Galvanized steel with interlocking blades. Provide stainless steel closure springs and latches for horizontal installations and vertical installations. Configure with blades out of air stream.
- D. Multiple Blade Dampers: 16-gauge, 0.0598-inch (1.52 mm) galvanized steel frame and blades, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, 1/8 by 1/2 inch (3.2 by 12.7 mm) plated steel concealed linkage, stainless steel closure spring, blade stops, and lock.
- E. Fusible Links: UL 33, separate at 160 degrees F (71 degrees C) with adjustable link straps for combination fire/balancing dampers.

2.06 FLEXIBLE DUCT CONNECTORS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Flexible Duct Connections: Fabric crimped into metal edging strip.
- C. Maximum Installed Length: 14 inch (356 mm).

2.07 VOLUME CONTROL DAMPERS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Single Blade Dampers:
 - 1. Fabricate for duct sizes up to 6 by 30 inch (150 by 760 mm).
 - 2. Blade: 24 gauge, 0.0239 inch (0.61 mm), minimum.
- C. Multi-Blade Damper: Fabricate consisting of opposed blades with maximum blade sizes 8 by 72 inches (200 by 1825 mm). Assemble center- and edge-crimped blades in prime-coated or galvanized-channel frame with suitable hardware.
 - 1. Blade: 18 gauge, 0.0478 inch (1.21 mm), minimum.
- D. End Bearings: Except in round ducts 12 inches (300 mm) and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon, thermoplastic elastomer, or sintered bronze bearings.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify that electric power is available and of the correct characteristics.

3.02 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). See Section 233100 for duct construction and pressure class.
- B. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
- C. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, combination fire and smoke dampers, and elsewhere as indicated. Provide for cleaning kitchen exhaust ducts in accordance with NFPA 96 Provide minimum 8 by 8 inch (200 by 200 mm) size access door for hand and shoulder access, or as

indicated on drawings. Provide minimum 4 by 4 inch (100 by 100 mm) size access door for balancing dampers only. Review locations prior to fabrication.

- D. Provide fire dampers and combination fire and smoke dampers at locations indicated, where ducts and outlets pass through fire-rated components, and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
- E. Install combination smoke and fire dampers in accordance with NFPA 92.
- F. Demonstrate re-setting of fire dampers to Owner's representative.
- G. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
- H. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.
- I. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

END OF SECTION