PART 1 – GENERAL

1.1 SUMMARY

A. NOTE: THE FOLLOWING IS GENERAL INFORMATION ABOUT THE REQUIREMENTS FOR DOORS AND HARDWARE. DETAILED SPECIFICATIONS WHICH MUST BE FOLLOWED ARE INCLUDED. ANY DEVIATIONS NEED TO BE APPROVED IN WRITING BY THE SUPERVISOR OF STRUCTURAL SERVICES.

1.2 REFERENCES

A. No content.

1.3 DESIGN REQUIREMENTS

A. Use floor closers, panic hardware, evaluate need for handicap operators and thresholds where needed. Materials can include hollow metal, store front, solid core wood or plastic laminate. Exterior trim is pull handle---rim panic bars are dogged down for daytime operation. Minimum size 3’ 6” X 7’ 0”.

PART 2 – PRODUCTS

2.1 Preferred Manufacturers:

1. Panic Hardware
   Sargent Manufacturing Company

2. Handicap Operators
   NABCO GT 710 Low Energy
   Horton 7000 low energy

3. Locksets
   Best Access System

4. Cylinders
   Best Access System

5. Hollow Metal
   Phillip Manufacturing Company
   Ceco Corporation
   Pioneer Industries
   Curries
6. **Plastic Laminate Doors**  
   Special-lite

7. **Hinges**  
   Hager Hinge Company

**PART 3- EXECUTION**

3.1 **DO’s**

   A. DO use only BB hinges.
   B. DO use detailed specifications attached.
   C. DO use thru bolting for Door Closer mounting.

3.2 **DON’T**

   A. DO NOT use automatic flush bolts.
   B. DO NOT use vertical rod panic hardware.
   C. DO NOT substitute styles, types, finish, or manufacturers without written approval.
   D. DO NOT use plain bearing hinges.
   E. DO NOT use floor closers of any type.
   F. DO NOT use cylinder dogging.
   G. DO NOT use electric latch retraction.
   H. DO NOT use guarded latches.

**PART 4 - ATTACHMENTS**

4.1 No content.

**End of Section**
PART 1 – GENERAL

1.1 SUMMARY
   A. The Drawings and General Provisions of the Contract, including the Conditions of the Contract (General, Supplementary, and other Conditions, if any) and Divisions 1 as appropriate, apply to the Work specified in this Section.

1.2 WORK INCLUDED
   A. Standard and fire rated type pressed steel hollow metal doors and panels with flush faces.
   B. Standard and fire rated pressed steel hollow metal door frames and borrowed light frames.

1.3 RELATED WORK
   A. Section 06100: Installation of doors and frames.
   B. Section 08210: Wood doors.
   C. Section 08700: Hardware for doors.
   D. Section 08800: Glass and glazing for doors and borrowed light frames.
   E. Section 09900: Finish painting of doors and frames.

1.4 Reference Standards
   A. ANSI A250.8 - Recommended Specifications-Standard Steel Doors and Frames of Steel Door Institute.
   B. ANSI A250.11 - Recommended Erection Instructions for Steel Frames.
   C. Underwriters' Laboratories, Inc. (UL) Warnock-Hersey (WH) and Factory Mutual (FM), as applicable to fire rated hollow metal doors.
   D. NFPA No. 80 - Fire Doors and Windows.
   E. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron alloy coated (Galvanized) by the Hot-Dip Process, General Requirements.
   F. ASTM A569 - Steel, Carbon, Hot-Rolled Sheet and Strip, Commercial Quality.
   G. ASTM A591 - Steel Sheet, Cold-Rolled, Electrolytic Zinc-Coated.
   H. ASTM A366 - Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
   I. NFPA-105

1.5 Shop Drawings and Product data
   A. Shop Drawings and Product Data in accordance with Section 01300.
      1. Indicate general construction, configurations, jointing methods, reinforcements, anchorage methods, hardware locations and locations of cutouts for glass and louvers.

1.6 Delivery, Storage, Handling and Protection
   A. Deliver hollow metal doors in cartons or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.
B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided finish items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

C. Store doors and frames at building site under cover. Place units on wood sills at least 4" high, or otherwise store on floors in manner that will prevent rust and damage. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4" spaces between stacked doors to promote air circulation.

PART 2 – PRODUCTS

2.1 Acceptable Manufacturers

A. 1. Phillip Manufacturing Company
    2. Curries Co.
    3. Ceco Corporation
    4. Pioneer Industries

B. Substitutions: Items of same function and performance are acceptable in conformance with Section 01600.

2.2 Hardware Locations

A. Locate hardware on doors and frames as follows, unless otherwise indicated or as required by NFPA-80.

B. Unit and Integral Type Locks and:
   - Latches 38 inches to centerline of knob
   - Deadlocks 48 inches to centerline of cylinder
   - Panic Hardware 38 inches to centerline of cross bar
   - Door Pulls 42 inches to center of grip
   - Push-Pull Bars 42 inches to centerline
   - Arm Pulls 47 inches to centerline
   - Push Plates 48 inches to centerline of plate
   - Roller Latches... 45 inches to centerline

C. *For purposes of hardware location, consider finished floor, in all cases, to be top of concrete, ignoring thickness of applied floor finish.

2.3 Clearances

A. Between Doors and Frames, at Head and Jambs: 1/8 inch.

B. At Door Sills: Where no threshold is used - 3/8 inch maximum; where threshold is used - 3/4 inch maximum above finished floor.

C. Between Meeting Edges of Pairs of Doors: 1/8 inch
2.4 Materials


C. Galvanized Steel Sheets: Zinc-coated or Zinc – Iron alloy- coated carbon steel sheets of commercial quality, complying with ASTM A526, with ASTM A653, G-60 zinc coating, mill phosphatized. Use for all exterior units.

D. Supports and Anchors: Fabricate of not less than 18 gauge galvanized sheet steel.

E. Inserts, Bolts, and Fasteners: Manufacturer’s custom units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A-153, Class C or D as applicable.

F. Shop Applied Paint:
   1. Shop Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

2.5 Hollow Metal Doors

A. Materials: Commercial quality, level, cold-rolled steel conforming to ASTM A-366 and free of scale, pitting or other surface defects. Face sheets not less than 16 gauge. Face sheets for exterior doors shall have a zinc coating of not less than 0.20 ounces per square foot and not less than 14 gauge.

B. Design and Construction

1. All doors shall be of the types and sizes shown and shall be fully welded seamless construction with no visible seams or joints on their faces or vertical edges. Minimum door thickness shall be 1-3/4 inch. Minimum door size shall be 3'0" X 7'0".

2. All doors shall be rigid and neat in appearance, free from warp, age or buckle. Corner bends shall be true and straight, and of minimum radius for the gauge of metal used.

3. Door faces shall be jointed at their vertical edges by a continuous weld extending the full height of the door. All such welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.

4. Top and bottom edges of all doors shall be closed with a continuous recessed steel channel not less than 16 gauge, extending the full width of the door and spot welded to both faces. Exterior doors shall have an additional flush closing channel at their top edges and, where required for attachment of weather-stripping, a flush closure also at their bottom edges. Openings shall be provided in the bottom closure of exterior doors to permit the escape of entrapped moisture.
5. Edge profiles shall be provided on both vertical edges of doors as follows:
   b. Double-Acting Swing Doors: Rounded on 2-1/8 inch radius.

6. All hardware furnished by the hardware contractor for single-acting doors shall be designed for beveled edges as specified in subparagraph 5 above.

7. Hardware Reinforcements
   a. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated hardware only, in accord with the approved hardware schedule and templates provided by the hardware contractor. Where surface-mounted hardware is to be applied, door shall have reinforcing plates only; all drilling and tapping will be performed under Section 06100.
   b. Minimum gauges for hardware reinforcing plates shall be as follows:
      i. Hinge and Pivot Reinforcements: 7 gauge.
      ii. Reinforcements for Lock Face, Panic devices, Flush Bolts Concealed Holders, Concealed or Surface-Mounted Closers: 12 gauge.
      iii. Reinforcements for All Other Surface-Mounted Hardware: 16 gauge.

8. Glass Moldings and Stops
   a. Where specified or scheduled, doors shall be provided with hollow metal moldings to secure glazing provided under Section 08800 in accordance with glass opening sizes shown.
   b. Fixed moldings shall be securely welded to the door on the security side.
   c. Loose stops shall be not less than 20 gauge steel, with mitered corner joints, secured to the framed opening by cadmium or zinc-coated countersunk screws. Snap-on attachments not permitted.

9. Louvers shall be minimum 18 gauge, inverted "V", of welded blade type of construction providing the free air area indicated.

10. Labeled Doors: See Article titled "Labeled Doors and Frames".

2.6 Hollow Metal Frames

   A. Materials
   1. Frames for exterior openings shall be made of commercial grade cold-rolled steel conforming to ASTM A-366, not less than 14 gauge, and shall have a zinc coating of not less than 0.10 ounces per square foot.
   2. Frames for interior openings shall be either, commercial grade cold-rolled steel conforming to ASTM A-366 or commercial grade hot rolled and pickled steel conforming to ASTM A-569. Frame metal thickness shall be not less than 16 gauge.
   3. Mortar Guard Boxes: Minimum 22 gauge welded in place.
B. Design and Construction

1. All frames shall be welded units with integral trim, of the sizes and shapes shown on approved Shop Drawings.

2. All finished work shall be rigid, neat in appearance, square, true and free of defects, warp or buckle. Molded members shall be clean-cut, straight and of uniform profile throughout their lengths.

3. Jamb depths, trim, profile and backbends shall be as shown.

4. Corner joints shall have all contact edges closed tight, with trim faces mitered and continuously welded, and stops mitered. The use of gussets will not be permitted.

5. Minimum depth of stops shall be 5/8 inch.

6. Hardware Reinforcements

1. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accord with approved hardware schedule and templates provided by the hardware contractor. When surface-mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping will be performed under Section 06100.

2. Minimum thickness of hardware reinforcing plates shall be as follows:
   - Hinge and Pivot Reinforcements: 7 gauge, 1-1/4 inch x 10 inch minimum size.
   - Strike Reinforcements: 12 gauge.
   - Flush Bolt Reinforcements: 12 gauge.
   - Closer Reinforcements: 12 gauge.
   - Reinforcements for: Surface-mounted hardware - 12 gauge; hold-open arms - 12 gauge; surface panic devices - 12 gauge.

7. Floor Anchors

   - Floor anchors shall be securely welded inside each jamb, with two holes provided at each jamb for floor anchorage.
   - Where so scheduled or specified, adjustable floor anchors, providing not less than 2 inch height adjustment, shall be provided.
   - Minimum thickness of floor anchors shall be 14 gauge.

8. Jamb Anchors

   - Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the T-strap type. Anchors shall be not less than 16 gauge steel. The number of anchors provided on each jamb shall be as follows:
     a. Frames up to 7 feet 6 inch height: 3 anchors.
     b. Frames 7 feet 6 inches to 8 feet height: 4 anchors.
     c. Frames over 8 feet height: 1 anchor for each 2 feet, or fraction thereof, in height.
o Frames for installation in stud partitions shall be provided with steel anchors of suitable design to allow passage of grout, not less than 18 gauge thickness; securely welded inside each jamb as follows:
  a. Frames up to 7 feet 6 inch height: 4 anchors.
  b. Frames 7 feet 6 inches to 8 feet height: 5 anchors.
  c. Frames over 8 feet height: 5 anchors plus 1 additional for each 2 feet, or fraction thereof, over 8 feet.
  d. Frames over 5 feet wide shall be provided with anchors in the head of the frame (similar to jamb anchors) located approximately 8 inches from each jamb and at 24 inches maximum spacing between.

o Where frames occur in concrete walls, or in new openings cut into existing masonry walls, provide pipe spacers, 3/8 inch steel bars, and No. 12 gauge plates attached to inside jamb frame 2 feet o.c., to receive expansion bolts; minimum of 4 bolts per 7 foot high jamb. Fasteners for such anchors shall be provided under Section 06100.

9. Frames for installation in masonry wall openings more than 4 feet in width shall have an angle or channel stiffener factory welded into the head. Such stiffeners shall be not less than 12 gauge steel and not longer than the opening width, and shall not be used as lintels or load-bearing members.

10. Dust cover boxes (or mortar guards) of not thinner than 26 gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.

11. All frames shall be provided with a steel spreader temporarily attached to the feet of both jambs to serve as a brace during shipping and handling.

12. Loose glazing stops shall be of cold-rolled steel, not less than 20 gauge thickness, butted at corner joints and secured to the frame with countersunk, flat head cadmium or zinc-plated screws.

13. Labeled Frames: See Article titled "Labeled Doors and Frames".

2.7 Labeled Doors and Frames

A. Conform to requirements of NFPA-80.

B. Provide for those openings requiring fire protection ratings as indicated. Such doors and frames shall be constructed as tested and approved by UL or other nationally recognized testing agency having a factory inspection service.

C. If any door or frame specified to be fire rated cannot qualify for appropriate labeling because of its design, hardware or any other reason, the Architect shall be so advised before fabrication work on that item is started.

1. Fabricate fire rated hollow metal frames of materials in accordance with requirements of Underwriters' laboratories Inc. (UL), Warnock-Hersey (WH) and Factory Mutual (FM). Place UL metal labels where visible when frames are installed in position. Refer to drawings for class requirements.
D. Pairs of doors in Corridors shall be products of a manufacturer who can furnish such doors without astragals and meet the UL requirements.

2.8 Finish

A. After fabrication, all tool marks and surface imperfections shall be dressed, filled and sanded as required to make all faces and vertical edges smooth, level and free of all irregularities. Products shall then be chemically treated to insure maximum paint adhesion and shall be coated on all exposed surfaces with a rust-inhibitive primer which shall be cured before shipment.

1. Doors and frames shall receive field applied painted finish provided under Section 09900.

PART 3- EXECUTION

3.1 INSTALLATION - FRAMES

A. Erect frames in accordance with ANSI A250.11
   1. Install frames plumb, rigid and in true alignment, and fasten them so as to retain their position and clearance during construction of partitions.
   2. Fill frames in masonry walls with mortar as the wall is laid up.
   3. Frames in solid plaster shall be completely filled with plaster.
   4. When an additive is used in the plaster or mortar to prevent freezing, frames shall be coated on the inside with a corrosion inhibiting bituminous material.

3.2 INSTALLATION – DOORS

A. Install doors plumb and in true alignment in a prepared opening and fasten them to achieve the maximum operational effectiveness and appearance of the unit.

   1. Coordinate installation of hardware, glass and glazing.

3.3 FINISH PAINTING

A. Unless factory finish is specified herein, finish painting of doors and frames will be performed in the field under the provisions of Section 09900, PAINTING. There are to be no hi-lights.

3.4 TOUCH-UP AND CLEANING

A. After installation, touch-up scratched, rusted or damaged surfaces. Use type of primer recommended for galvanized surfaces or identical to that used for shop coat.

   1. Clean doors and frames and protect from damage until completion of project.
   2. Damaged work will be rejected and shall be replaced.
PART 4 - ATTACHMENTS
4.1 No content.

End of Section
SECTION 08 14 16 _ SUMMARY

PART 1 – GENERAL

1.1 SUMMARY

A. The drawings and General Provisions of the contract, including the Conditions of the Contract (General, Supplementary, and other Conditions, if any) and Divisions 1 as appropriate, apply to the Work specified in this section.

1.2 WORK INCLUDED

A. Premium type wood doors, with flush faces.
   Pre-fitting, pre-machining, pre-finishing at factory.

1.3 RELATED WORK

A. Section 06100: Carpentry and millwork
B. Section 08710: Door hardware.
C. Section 08100: Hollow Metal Doors and Frames.
D. Section 08800: Glass and glazing for doors.
E. Section 09900: Finishing of metal doors and frames.
F. Section 10201: Metal wall door louvers.

1.4 REFERENCE STANDARDS

A. WDMA – Quality Standards of Window and Door Manufacturer’s Association.
   2. IBC 2003 714.2.1 OR UL 10C Positive Pressure Fire Door Test Method.
   4. NFPA – 105 Recommended Practice for Installation of Smoke Control Door Assemblies

1.5 SHOP DRAWINGS AND PRODUCT DATA

A. Submit Shop Drawings and Product Data: Submit four (6) copies for initial review(s).
   Six (6) copies will be needed for files and distribution:
   1. Indicate general construction, jointing methods, hardware locations and locations of cutouts for glass.
   2. Certification: Submit certification that the doors and frames comply with IBC 2003 714.2.1 or UL 10C Positive Pressure Fire Door Test.

1.6 SAMPLES

A. Provide two Samples, 12 inch x 12 inch of each type of door specified, showing construction and finish.

1.7 QUALITY ASSURANCE
A. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies in accordance IBC 2003 714.2.1 OR UL10C. Positive Pressure Fire Door Test Method and which are labeled and listed for ratings indicated by ITS-Warnock Hersey, UR or other testing and inspection agency acceptable to authorities having jurisdiction.

1. Doors: Comply with IBC2003 714.2.1 or UL10C where required.
2. Provide smoke gaskets as required by manufacturer’s individual authorities in compliance with IBC2003 714.2.1 or UL10C.

B. WDMA I.S. 1A Quality Standard: Window and Door Manufacturers Association Quality Standards for grade of door, core, construction, finish, and other requirements.

C. Temperature Rise Rating: At stairwell enclosures, provide doors which have Temperature Rise Rating of 250 degrees F maximum in 30 minutes of fire exposure.

1.8 DELIVERY

A. Package in heavy Kraft paper or polyethylene bags. Deliver and store in areas of temperature and humidity such as will not adversely affect doors.

B. Doors shall be packaged in individual cartons.

1.9 PROTECTION

A. Protect work from damage until final acceptance.

1.10 WARRANTY

A. Provide written warranty from manufacturer in accordance the following: Warranty: Provide for replacing, including cost of re-hanging and refinishing, at no cost to Owner, wood doors exhibiting defects in materials or workmanship including warp and delaminating for the life of installation.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS (Must Meet Paragraph C)

A. VT Industries, Inc.
B. Oshkosh Architectural Door Company.
C. Graham

2.2 DOOR TYPES

A. Flush faced type wood doors.

2.3 DOORS

A. Flush Interior Doors: WDMA Type SCLC-5 OR 7; 1-3/4 inches thick; structural composites.
Construction, with Red Oak species face veneers and edges; A grade; face veneers (5 or 7 ply): Plain Sliced.

B. Fire Rated Flush Doors: WDMA Type FDPP 5 or 7; 1-3/4 inches thick; Red Oak species face Veneers; A grade. Provide solid lumber of sufficient dimension to accept and hold all screws or bolts, at all hardware locations. Refer to drawings for UL Label requirements.

C. Fire doors shall be in strict conformance with the WDMA quality standards. Fire doors shall be provided and installed in accordance with N.F.P.A. - 101 Life Safety codes, N.F.P.A. – 80 UL10C, IBC 2003 Building.

1. Construction: Category A, Labeled fire doors shall be tested in conformance with UL-10-C, N.F.P.A. – 252 AND A.S.T.M., E-152. Performance test shall be as conducted by Underwriters Laboratory, or by Warnock-Hersey INTL. U.S.A. All 90 minute and above Labeled fire doors shall be Hollow Metal.

2. Faces Veneers: Shall be same as non-rated doors.

3. Cores: Shall be the door manufacturers standard non-combustible.

4. Reinforcements: Provide stile edge, top, bottom, and latch case reinforcement’s per the manufacturer’s standard fire door approvals. Hinge edge shall be reinforced on all able fire doors to accommodate full mortise hinges and to provide additional screw holding power when hinge is installed.

5. The following options must be included:
   - Top, bottom, mid rail and both stiles shall be a minimum of 6”.
   - Additional blocking at lock locations for hardware specified.
   - Place UL metal labels on the hinge edge of the door.

2.4 FABRICATION

A. Fabricate premium type doors in accordance with requirements of WDMA Quality Standards (SCLC-5 or 7) unless specifically indicated otherwise.

B. 1. Fabricate fire rated doors in accordance with requirements of Underwriter’s Laboratories (UL).

2. Provide doors with edge strips of wood species to match face veneers.

3. Make cutouts and provide stops for glass.

4. Pairs of doors shall be products of a manufacturer who can furnish such doors without astragals and meet the UL requirements.

5. Pre-fit doors at factory with 1/8 inch tolerance on each vertical face, 1/8 inch tolerance at top, and ½ inch at bottom, except where undercuts are scheduled.

6. Machine doors for hardware as required by Hardware Schedule listed in Section 08700, which will be supplied together with all necessary templates for hardware requiring door preparation. Provide solid blocking as stated in 2.03 B. hereinafter.

7. Steel frame shop drawings will be furnished showing location and size of hardware preparation.


9. Pre-finish doors at factory with clear WDMA System #6 finish.
PART 3- EXECUTION

3.1 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery: Protect doors at all times. Deliver doors to site after plaster and cement are dry and building has reached average prevailing relative humidity of locality.

B. Storage: Stack flat on 2 x 4 lumber, laid 12” from ends and across center. Under bottom door and over top of stack provide plywood or corrugated cardboard to protect door surface. Store doors in area where there will be no great variation in heat, dryness and humidity.

C. Handling: Do not drag doors across one another.

3.2 INSPECTION

A. Verify that door frames are of type required for door and are installed as required for proper installation of doors. Do not install doors in frames which would hinder the operation of the doors.

3.3 INSTALLATION

A. Install wood doors plumb and square, with maximum diagonal distortion of 1/16 of inch. Install hardware in accordance with requirements of Section 08710. Coordinate installation of glass and glazing in wood doors. Protection and Completed Work: Advise Contractor of proper procedures required for protection of installed wood doors from damage or deterioration until acceptance of work.

B. SPECIAL NOTES: THERE CAN BE ‘NO’ GLASS NOR GLASS KITS IN DOORS THAT WILL INTERFERE WITH THE MOUNTING OF ANY FINISH HARDWARE—ENOUGH STILE AND RAIL MUST EXIST SO THAT NO “SHIMS” ARE NEEDED.

PART 4 - ATTACHMENTS

4.1 No content.

End of Section
PART 1 – GENERAL

1.1 SUMMARY

A. The drawings and General Provisions of the Contract, including the Conditions of the Contract (General Supplementary, and other Conditions, if any) and Divisions 1 as appropriate, apply to the Work specified in this Section.

1.2 WORK INCLUDED

A. Aluminum entrance doors, frames and hardware as shown.

B. Aluminum storefront work.

C. Aluminum window inserts in storefront.

D. All required trim and accessories.

E. Caulking and sealant.

1.3 RELATED WORK

A. Section 085113: Aluminum Windows.

B. Section 08700: Hardware

C. Section 08800: Glass and Glazing.

1.4 REFERENCE STANDARDS

A. ASTM B221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.

B. FS TT-C-494 - Coating Compound, Bituminous, Solvent Type, Acid Resistant.

C. FS TT-S-00230 - Sealing Compound: Elastomeric Type, Single Component (for Caulking, Sealing and Glazing in Buildings and Other Structures).

1.5 SUBMITTALS

A. Submit the following in accordance with Section 01300: Shop Drawings. Manufacturer’s Product Data. Finish Samples.
PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers and products:
   Aluminum Framing Systems: Kawneer NuCore 4-1/2" wide and 6" wide sections.
   Aluminum Entrance Doors: Kawneer 500 wide style.
   Insert Windows: Kawneer Sealair.
   Hardware: To conform with Section 08700

B. Equivalent products of other manufacturers may be proposed for approval during bidding.

2.2 MATERIALS

A. Aluminum Members: Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish; comply with ASTM B 221 for extrusions and ASTM B 209 for sheet or plate.

B. Fasteners: Provide fasteners of aluminum, nonmagnetic stainless steel, or other materials warranted by the manufacturer to be noncorrosive and compatible with aluminum components, hardware, anchors and other components.

C. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce the interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard noncorrosive pressed-in splined grommet nuts.

D. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For the application of hardware, use fasteners that match the finish of member or hardware being fastened.

E. Provide Phillips flat-head machine screws for exposed fasteners.

F. Concealed Flashing: Provide 26 gage minimum dead-soft stainless steel, or 0.026" minimum extruded aluminum of alloy and type selected by manufacturer for compatibility with other components.

G. Brackets and Reinforcements: Where feasible, provide high-strength aluminum brackets and reinforcements; otherwise provide nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 386.

H. Concrete/Masonry Inserts: Provide concrete and masonry inserts fabricated from cast-iron, malleable iron, or hot-dip galvanized steel complying with ASTM 386.

I. Compression Weather-striping: Provide the manufacturer's standard replacement compressible weather-striping gaskets of molded neoprene complying with ASTM D 2000 or molded PVC complying with ASTM D 2287.

J. Glass and Glazing Materials: Glass and glazing materials shall comply with requirements of Section 08800.
2.3 COMPONENTS

A. Storefront Framing System (Kawneer NuCore): Provide inside-outside matched resilient flush-glazed storefront framing system with provisions for glass.

B. Thermal-Break Construction: Fabricate storefront framing system with integrally concealed, low conductive thermal barrier, located between exterior materials and exposed interior members to eliminate direct metal-to-metal contact. Use manufacturer’s standard construction that has been in use for similar projects for a period of not less than 3 years.

C. Windows in System: Kawneer SEALAIR Isolock; thermal break windows, projected type 8225T. Provide complete with #156 white bronze cam latch, screens and stop on vent. Windows shall be hopper style.

D. Stile and Rail Type Aluminum Doors (Kawneer 500)
   Frame: Provide tubular frame members, fabricated with mechanical joints using heavy inserts reinforcing plates and concealed tie-rods or j-bolts.
   Design: Provide 1-3/4" thick doors of wide stile (5" as shown) design. Minimum size door is 3'0" x 7'0".
   Glazing: Fabricate doors to facilitate replacement of glass or panels, without disassembly of stiles and rails. Configuration of stops shall be shown on drawings.
   Mullions: Mullions shall be steel removable style supplied by the finish hardware supplier. No glazing is to go to floor without protective bars or Mullions at 36" (both sides).

2.4 FABRICATION

A. Conform to manufacturer’s specifications.

2.5 FINISH

A. Finish all exposed aluminum with manufacturer’s standard multi-coat thermo-cured system composed of specially formulated primer and fluorocarbon top coats complying with AAMA 605.2 (Kynar). Color to be chosen by Architect/Owner.

PART 3- EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's instructions and recommendations.

B. Install all elements plumb, straight, square and level and at proper elevation and in alignment with other work. All joints between interior metal and masonry and between interior glass framing and Mullion members shall be caulked tightly in order to secure a watertight job. All materials shall be screwed in place using backing, masonry plugs or anchor straps as required. Thresholds are to be set in full bed of sealant.

C. Where moldings are joined, they shall be cut and fitted accurately to result in a tightly closed joint.

D. Adjust doors, windows and hardware to function properly and for tight fit.
3.2 PROTECTION

A. After erection, adequately protect from damage by grinding and polishing machines, plaster, lime, acid, cement or other harmful compounds.

3.3 CLEANING

A. Remove protective materials and clean materials with plain water or water with soap or household detergent, being careful to use materials which will not damage frame or glazing material. Consult with manufacturer for instructions.

B. DO’S AND DON’TS: N/A

PART 4 - ATTACHMENTS
4.1 No content.

End of Section
SECTION 08 14 33 _ SUMMARY

PART 1 – GENERAL

1.1 SUMMARY

A. The Drawings and General Provisions of the Contract, including the Conditions of the Contract (General, Supplementary, and other Conditions, if any) and Divisions 1 as appropriate, apply to the Work specified in this Section.

B. Work Included:

Premium type stile and rail wood doors.

1. Pre-fitting and pre-matching.

C. Related Work:

1. Section 06100: Carpenter and millwork.
2. Section 08110: Hollow metal doors and frames.
3. Section 08710: Door hardware.
4. Section 08800: Glass and glazing for doors.
5. Section 09900: Finishing of doors.
6. Section 10201: Metal wall door louvers.

1.2 REFERENCES

A. WDMA-Quality Standards Window and Door Manufacturers Association Stile and rail Doors.
B. WDMA I.S.6A-01.
C. IBC 2003, 714.2.1.
D. NFPA No 80 – Fire Doors and Windows.
E. UL10C

1.3 SUBMITTALS

A. Submit shop drawings and product data: Four (4) copies for initial review(s). Six (6) copies will be needed for files and distribution.

B. Indicate general construction, jointing methods, hardware locations, and locations of cutouts for glass.

C. Submit Samples in accordance with the following:

1. Provide two Samples, 12 inch x 12 inch of each type of door specified, showing construction and finish.
1.4 DELIVERY

A. Package in heavy Kraft paper or polyethylene bags. Deliver and store in areas of temperature and humidity such as will not adversely affect doors.

B. Doors shall be packaged in individual cartons.

1.5 PROTECTION

A. Protect work from damage until final acceptance.

1.6 WARRANTY

A. Provide written warranty from manufacturer in accordance the following:

1. Warranty: Provide for replacing, including cost of re-hanging and refinishing, at no cost to Owner, wood doors exhibiting defects in materials or workmanship including warp and delamination. Interior doors for the life of installation. Exterior doors 2 years.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Woodtech Trading Co. – Custom Stile and Rail Doors

B. Marshfield Door Systems

C. Eggers Hardwoods Products Corporation

2.2 DOOR TYPES

A. Stile and Rail type wood doors.

2.3 DOORS

A. Materials in Construction Exterior:

1. WDMA Premium Quality Grade.

2. Species: Honduran Mahogany no veneers permitted. Other wood species may be approved on a case-by-case basis with written Owner authorization.

B. Materials in Construction Interior.

1. WDMA Premium Quality Grade.

2. Stiles and rails veneered, finger jointed Douglas Fir core with ¾” solid stock matching edge bands. Veneer 1/8” thick before sanding.

3. All moldings and sticking to be of manufacturer’s standard design or as shown on drawings. Miter all corners and install using nails, staples or glue. Hardwood molding is required for all labeled doors.

4. Provide panels of veneered MDF of particle board to maintain consistent appearance with a thickness of 1 5/8” at 3 – ply panels and ¾” minimum on the flat panels.


1. Construction: Category A Labeled fire doors shall be tested in conformance with UL–10-C, N.F.P.A. –252 AND A.S.T.M., E-152. Performance test shall be as conducted by Underwriter’s Laboratory, or by Warnock-Hersey INTL. U.S.A.

2. Faces Veneers: Shall be same as non-related doors.

3. Cores: Shall be the door manufacturers standard non-combustible.

4. Reinforcements: Provide stile edge, top, bottom, and latch case reinforcements per the manufacturer’s standard fire door approvals. Hinge edge shall be reinforced on all able fire doors to accommodate full mortise hinges and to provide additional screw holding power when hinge is installed.

5. The following options must be included:
   o Top, mid rail and both stiles shall be a minimum of 7”. Bottom rail shall be a minimum of 10”.
   o Additional blocking at lock locations for hardware specified.
   o Place UL metal labels on the hinge edge of the door.

2.4 FABRICATION

A. Fabricate premium type doors in accordance with requirements of WDMA Quality Standards unless specifically indicated otherwise.

B. Fabricate fire rated doors in accordance with requirements of Underwriters Laboratories (UL) or Warnock-Hersey.

C. Provide doors with edge strips, of wood species to match face veneers.

D. Make cutouts and provide stops for glass same as face veneer.
E. Pairs of doors shall be products of a manufacturer who can furnish such doors without astragals and meet the UL requirements.

F. Pre-fit doors at factory with 1/8 inch tolerance on each vertical face, 1/8 inch tolerance at top, and ¼ inch at bottom, except where undercuts are scheduled.

G. Machine doors for hardware as required by Hardware Schedule listed in Section 08710, which will be supplied together with all necessary templates for hardware requiring door preparation. Provide solid blocking as stated in 2.03 B. Hereinafter.

H. Steel frame shop drawings will be furnished showing location and size of hardware preparation.

I. Bevel strike edge of single acting doors 1/8 inch in 2 inches. Radius strike edge of double acting swing doors 2-1/8 inches.

J. Finish on job. See Painting Section 09900.

PART 3 - EXECUTION

3.1 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver: Protect doors at all times. Deliver doors to site after plaster and cement are dry and building has reached average prevailing relative humidity of locality.

B. Storage: Stack flat on 2 x 4 lumber, laid 12” from ends and across center. Under bottom door and over top of stack provide plywood or corrugated cardboard to protect door surface. Store doors in area where there will be no great variations in heat, dryness and humidity.

C. Handling: Do not drag doors across one another.

3.2 INSPECTION

A. Verify that door frames are of type required for door and are installed as required for proper installation of doors. Do not install doors in frames which would hinder the operation of the doors.

3.3 INSTALLATION

A. Install wood doors plumb and square, with maximum diagonal distortion of 1/16 inch. Install hardware in accordance with requirements of Section 08700.

B. Coordinate installation of glass and glazing in wood doors.
3.4 ADJUSTING AND CLEANING

A. Operation: Re-hang or replace doors which do not swing or operate freely, as directed by Architect.

B. Finished Doors: Refinish or replace doors damaged during installation, as directed by Architect/Owner.

C. Protection and Completed Work: Advise Contractor of proper procedures required for protection of installed wood doors from damage or deterioration until acceptance of work.

PART 4 - ATTACHMENTS
4.1 No content.

End of Section
SECTION 08 43 00 _ SUMMARY

PART 1 – GENERAL

1.1 SUMMARY
   A. The following is general information about the requirements for storefronts. The following detailed specification must be adhered to. Any deviations must be approved in writing by the manager of structural services.

1.2 REFERENCES
   A. No content.

1.3 DESIGN REQUIREMENTS
   A. Storefronts are to be specified per the attached specification.

PART 2 – PRODUCTS

2.1 Preferred Manufacturers
   A. Kawneer as per specification - any substitutions are to be approved by UD.
   B. Hardware is to comply with CSI Section 08710.

PART 3- EXECUTION

3.1 DO’S & DON’TS
   A. DO use detailed specification per CSI Section 08400
   B. DO NOT use vertical rod panic hardware.
      DO NOT substitute styles, types, finish, or manufacturers without written approval.

PART 4 - ATTACHMENTS

4.1 No content.

End of Section
PART 1 - GENERAL

1.1 SUMMARY

A. The drawings and General Provisions of the contract, including the Conditions of the Contract (General, Supplementary, and other Conditions, if any) and Divisions 1 as appropriate, apply to the Work specified in this section.

1.2 WORK INCLUDED

A. Hardware for Exterior and Interior Doors other than specified in specific door sections.
B. Thresholds and Weather stripping for Exterior Doors.
C. Specialties as listed herein.

1.3 RELATED WORK

A. Section 08100: Hollow Metal Doors and Frames.
B. Section 08210: Wood Doors.
C. Section 08400: Aluminum Entrances.

1.4 SUBSTITUTIONS

A. Approval of alternative and/or substitute products will be considered only under terms and conditions specified in Section 01600. This paragraph applies when specific manufacturer’s names follow a specified manufacturers name in Part 2.02, or when no manufacturer’s names follow a specified manufacturers name in Part 2.02.
B. Alternate and/or substitute products will be considered only when request includes documented proof product complies with IBC std. 714.2.1 (2003) or UL10C.
C. Requests for substitution are to be in writing and received by the Architect at least ten days prior to the bid date. The acceptance of any substitutions will be by addendum. Unauthorized substitutions will not be accepted.
D. The quality of all items of hardware has been clearly indicated by the manufacturer’s name and product number. Certain products are specified without substitution and are to be furnished exactly as specified.

1.5 REFERENCE STANDARDS

A. DHI Recommended locations for Builders Hardware for Standard Steel Doors and Frames
B. DHI Scheduling Sequence and Scheduling Format
1.6 SUBMITTALS

A. Submit in accordance with Section 01300
B. Door hardware Schedule & Format

1. Submit 6 copies of schedule on 8.5 x 11” sheets numbered consecutively and on a 3.5” computer disk in a pdf file. The schedule shall be reviewed prior to submission by a certified Architectural Hardware Consultant, who shall affix his or her seal attesting to the completeness and correctness of the schedule.

2. Furnish cover sheet listing name of project as shown on Contract Documents, Owner, Architect, Contractor, Architectural hardware Consultant (AHC) who prepared the hardware submittal and date of submittal.

3. Furnish a vertical listing of hardware items used followed by manufacturer’s name either on cover sheet or immediately following cover sheet. Horizontal schedule is not acceptable.

4. Schedule hardware items for each door separately in typed vertical form. List each door in numerical order under a separate heading using door number in sequence as shown in door Opening Schedule.

   o The Finishing Hardware Schedule is to clearly indicate the swing, location, number, size, and thickness of each door, as well as type number and finish of each article of hardware required for each opening.

   o The Finishing Hardware Schedule is to follow the guidelines and format as set forth in the DHI publication, “Scheduling Sequence and Scheduling Format”.

   o Include with each submittal:

     a. Documentation from UL or approved testing agency indicating hardware is approved for use on doors complying with IBC 2003, 714.2.1 or UL10C.
b. Wiring diagrams: Elevation, riser, point to point.
c. Written description of operation at all headings with electric hardware.
d. Schedules submitted without the above materials will be considered incomplete and will not be reviewed.
e. Approval of schedule does not relieve Contractor of providing hardware specified for project.
f. Two complete sets of catalog cuts are to accompany the Finishing Hardware Schedule. The list of cuts is to include the item, manufacturer, and item number.
g. Name, address, and phone number of automatic door operator installer.
h. Letter from automatic door operator manufacturer certifying the above listed installer is a factory-authorized installer.

1.7 QUALITY ASSURANCE

A. Rated Openings:

Hardware used in labeled fire or smoke rated openings to be listed for those types of openings and bear the identifying label or mark indicated. U.L. approved for fire. Exit devices in non-labeled openings to be listed for panic.

Project requires door assemblies and components that are compliant with positive pressure and S-label requirements. Specifications must be cross referenced and coordinated to ensure that total opening engineering is compatible with UL 10C-Standard for Positive Pressure Fire Tests of Door Assemblies, and IBC 714.2.1.

1. Certification(s) of compliance shall be made available upon request by the Authority Having Jurisdiction.

B. Qualifications:

1. Contractor is responsible for:

a. Proper application and fit of door and specialty hardware in locations as indicated on drawings or as specified.
b. Items not specifically mentioned, but necessary to complete work are to be furnished matching in quality and finish of specified items in similar locations.
c. Coordinate dimensions between hardware items.
d. Furnish and install only hardware items listed on approved Door hardware submittal.
2. Contractor’s selection of hardware supplier:
   a. Proper application and fit of door and specialty hardware in area of project for period no less than five years.
   b. Recognized supplier to have, full-time, on staff an Architectural Hardware Consultant (AHC) certified by the Door and hardware Institute or person of equal experience who is acceptable to the Architect and GC. This consultant is to be registered in the Door and Hardware Institute Seal Program.
   c. Hardware supplier’s AHC to be available at all reasonable times during course of work to meet personally with Owner, Architect or Contractor for hardware consultation.
   d. Supplier willing to agree in writing to maintain parts inventory of items supplied for future service to Owner.
   e. Supplier to furnish all the hardware listed in this Section 08710 Finishing hardware. All material is to be furnished totally, including the hardware for Aluminum Doors, as listed in the sets. No items may be excluded. Any hardware listed as installed, is to be furnished and installed as part of the Finishing Hardware Bid. The installation is to be by an authorized installer as listed in the sets or by Addendum. The successful bidder is to provide a letter from the factory certifying that the installer is a factory authorized installer.

C. Electric Hardware:

   1. Unless noted otherwise in Division 16, provide electric hardware items rated 24 VDC.
   2. Coordinate electrical hardware requirements with Division 16 work for electrical distribution, fire alarm, and security systems.

D. Submittal Review Conference:

   1. Hardware supplier to arrange a meeting with Contractor, Architect, and owner for the review of hardware, hollow metal, and wood door shop drawings.
   2. The hardware supplier attendee is to be an AHC.
   3. Representatives from the hollow metal and wood door manufacturers are also to attend. Representatives are to be factory employees, or factory sales agents. Wholesale warehouse employees are not acceptable.
   4. Meeting location is to be determined by the Architect.

E. Pre-Installation:

   1. Hardware supplier to meet with installer and discuss installation of hardware, templates and any unique hardware applications.
1.8 OERATION AND MAINTENANCE DATA

A. Furnish manufacturer's parts list and maintenance instructions for each type of hardware provided and furnish the Owner with the necessary wrenches and tools required for proper maintenance of installed hardware.

1.9 GENERAL REQUIREMENTS

A. The hardware specified herein is intended to cover all necessary materials required to complete fully the hardware requirements of the building, except for those items of hardware that are covered specifically under other sections of the specifications. If hardware for any particular location is not specified herein, furnish item of identical design, finish and function required for a similar location, hardware shall be of suitable type and ample size and weight to perform the service required.

1.10 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Delivery of all hardware to the building site shall be its original package and properly wrapped. Package each of hardware with correct screws, installation templates and bolts for fastening, free from flaws and defects.
2. Deliver packages clearly identified with heading number and door number as approved on hardware schedule.

B. Storage and handling:

1. General Contractor and/or Construction Manager to provide storage area for hardware, which is dry, secure, and complete with shelving and tables for unpacking and storing. A locked room is to be provided by the General Contractor and/or Construction Manager of the finishing hardware.
2. All hardware to be delivered to the jobsite by employees of the finishing hardware supplier. No drop shipments are permitted.
3. Upon delivery, the General Contractor and/or Construction Manager and the hardware supplier to check in the hardware against the approved Finishing hardware Schedule, and place the items on the shelves.
4. After delivery the General Contractor and/or Construction Manager is responsible for the hardware against theft, misplacement, defacements, etc.
1.11 REPRESENTATIVE

A. Provide a competent representative to inspect and direct method of setting, applying, and adjustment of all hardware. Representative shall not be required to remain constantly at the site, but shall be readily available to consult with the Owner, Contractor and Architect at the project site. Representative shall periodically visit the site during installation of the hardware, and shall make final inspection, to assure that all items are correctly installed and adjusted.

1.12 TEMPLATES

A. All hardware for pre-machined wood, and hollow metal doors and frames shall be made to template.
B. Furnish templates and approved hardware schedules to all interested manufacturers in sufficient quantities for preparation of their work to receptive hardware. Templates will be required for all hardware applied to hollow metal and steel.
C. Where necessary for proper installation, furnish actual hardware to the manufacturer for his installation. Furnish samples to the manufacturer as required so that all provisions for attachment, clearance and other requirements can be made.

1.13 WIRING DIAGRAMS

A. Furnish wiring for scheduled items requiring power.
B. Provide an elevation drawing for each door showing location of electric hardware. Include point to point wiring and riser diagrams and power requirements.
C. Submit wiring diagrams and door elevations with hardware submittal.

PART 2 - PROCEDURES

2.1 GENERAL

A. Provide items as listed in the schedule at the end of this section, complete to function as intended.

B. Items as same function and performance are acceptable in conformance with Section 01600 and as listed herein.

C. Finish:

1. Materials shall have finishes as listed in the schedule of hardware and as follows:
   o Exterior butt hinges where scheduled - US26D (Dull Chrome Plated). Ball bearing only.
   o Interior butt hinges - US26D (Dull Chrome Plated). Ball bearing only.
o Exterior and Interior locksets - US32D (Satin Stainless Steel).
o Cylinders - US26D (Dull Chrome Plated).
o Panic Exit Devices - US32D (Satin Stainless Steel).
o Overhead Stops, Flush Bolts, and Floor Stops - US26D (Dull Chrome Plated).
o Mullions - USP (Prime Coat for Painting).
o Door Closers - Sprayed Aluminum to match adjacent hardware.

D. Fastenings: Furnish appropriate screw attachments, through bolts, concealed fasteners and machine screws.
   1. Furnish thresholds with machine screw and expansion shields at both ends and at six inches on centers.

E. Hardware specified in these documents is intended to cover necessary material required to fully complete hardware requirements for specified openings. It is the intention and it shall be understood that hardware herein specified shall be figured in sufficient quantities to fill requirements of the contract drawings even though every item necessary to do so is not specified herein, except for those items of hardware that are specifically covered under other sections of the specifications.

F. If hardware for any particular location is not specified herein, it shall be furnished of similar design and quality equal to other items specified for similar locations. It shall be of suitable type and ample size and weight to perform services required. Where Underwriter's Label is noted on door schedule, hardware for the opening is to meet the labeling requirements.

G. Where finish shape or size of member taking hardware is such to prevent use of, or make unsuitable exact types specified, suitable types shall be furnished having as near as practical same operation as that which is specified.

H. Hardware shall be delivered to building site properly wrapped with correct screws and bolts for fastening, and shall be free from flaws and defects. It shall be properly labeled for location with item number corresponding with hardware schedule. Thresholds and floor type door stops shall have "tamping shields".

I. Mounting requirements: Refer to Section 01046 for requirements.

J. It is the intent that hardware be furnished and installed so that it meets applicable Barrier-Free Facilities Standards of the State of Delaware, IBC, A.N.S.I. A117.1, and ADA where applicable. Note especially the following:
   1. Lever heights.
   2. Knurled levers as required by Handicapped code and where directed.
4. Pulls and Push Plate height.

2.2 ACCEPTABLE MANUFACTURERS

A. Manufacturer and type: Butt hinges scheduled as manufactured by Hager Hinge Company, and shall of Ball Bearing and Plain Bearing, five knuckle types as scheduled.

1. Hinges shall be of sizes as follows:
   - Doors 3 feet and less in width - 4½ inch in height.
   - Doors 3 feet and over in width - 5 inch in height.
   - Doors 5 feet and less in height - Provide 1 Pair.
   - Doors 7 feet and less in height - Provide 1½ Pairs.
   - Doors 7 feet and over in height - Provide ½ Pair of each 2 feet in height.
   - Width of hinges shall be determined by jamb conditions and shall be of sufficient width to clear trim.
   - Hinges shall be of duty scheduled; sizes scheduled may vary depending on conditions. Provide N.R.P. (non-removable pins) on all doors that are listed L.H.R. or R.H.R. that are equipped with butt hinges.

2. Door Closers: Shall be as manufactured by Norton and shall be of surface types 1604 of regular and parallel type arms. Closers shall be of sizes as recommended by the manufacturer, and shall be equipped with a back-check valve, and two separate valves for latch and closing speeds. All closers shall have a five year warranty. In residence halls LCN closers are preferred, model 4040 unless approved. Closers should be thru bolted.

Special Notes:
- Interior Housing – LCN 1261
- Exterior Housing – LCN 4040 XP
- Interior Academics - Norton 1604
- Exterior Academics - LCN 4040 XP

3. Handicap Operators: Shall be as manufactured by Nabco Entrances, Inc. Operators shall be Model GT 710 or Horton 7000 low energy, of arm sizes as scheduled with buttons located 36” above finish floor. Operators on all non-rated doors should be tied to EMERGENCY power.

4. Exit Devices: Shall be as manufactured by Sargent, and shall be Series 8800, of functions as scheduled.

5. Locksets and Latchsets: Shall be as manufactured by Best Access Systems and shall be 45H Lever Series mortise type, with Lever-15/Rose-H trim, or Schlage L series, with lever 06 and A Rose trim. Locksets shall be functions scheduled. Strikes shall be of sufficient length to clear trim.
6. Cylinders shall be as manufactured by Best Access Company, and shall be extruded brass, and shall be of removable core type, equipped with no less than 7 pins.

7. Flush Bolts, Wall Bumpers, and Floor Stop: Shall be as manufactured by Ives and shall be as scheduled.

8. Push Plates, Pull Plates, and Kick Plates: Shall be as manufactured by Ives and shall be of types, and sizes scheduled. Plates shall be .050 ga. and shall have edges beveled on all sides.

9. Overhead Stops: Shall be as manufactured by Glynn-Johnson Corp., and shall be of the 80 or 100 series, of sizes as scheduled.

10. Balance of hardware items shall be scheduled.

B. Acceptable Substitutions:

1. Butt Hinges: McKinney and Bommer. Ball bearing only.


5. No substitutes will be permitted on the following:
   b. Glynn Johnson Holders
   c. Best Lock Cylinders
   d. Nabco Entrances, Inc., Auto Operators

6. Equivalent products of other manufacturers may be proposed for approval during bidding.

C. Templates: All hardware for metal doors and frames shall be made to template. Furnish templates and hardware scheduled in sufficient quantities for preparation of all hardware.

D. Gasketed Doors: Where noted on the schedule, provide gasketing for doors consisting of National Guard Products. Clear anodized aluminum finish.
2.3 KEYING

A. Keying shall be factory engineered, produced and recorded.

B. All locks shall be furnished with cylinders, of type (1E74) or (1E72) with modifications as required, manufactured by Best Access Systems. Cores shall be keyed to the Best Masterkey System of the University, standard in academics and premium in housing, as approved by the University and coordinated by the University Lock and Hardware Services.

C. For the construction period, locks shall be provided with black plastic plugs, for contractor's convenience. These shall be replaced, at time of substantial completion of the building, by the University, with permanent cores keyed by the University. Exterior doors shall be keyed alike by the University to a Project core for the convenience of the contractor and the University at the time of hardware installation to secure the construction site.

2.4 HARDWARE SCHEDULE

A. Each door shall have hardware conforming to the foregoing specifications grouped in sets according to the following schedule. Manufacturers' numbers used in the schedule are not complete and must be supplemented to indicate the hereinbefore specified features.

B. Locks: All locks to be mortise type with heavy gauge nickel plate steel case and heavy gauge steel beveled fronts. Armored scalp plate and strikes to be bronze. Latch bolts to be two-piece mechanical anti-friction bolt. All locks to have an auxiliary dead-locking latch bolt to prevent retraction of regular latch bolt when door is locked. Lock finish to be US32D. All locks to receive wrought boxes with strike.

C. Surface Closers: Surface type shall have a full rack and pinion mechanism providing positive continuous checking action from fully open position. Key controlled adjusting valves to control closing speed, latching speed and back check. Surface type to be surface mounted with case finished in aluminum. All closers to be furnished with sex nuts and bolts. Surface type to have 15% spring power adjustment. All closers shall be mounted in parallel arm configuration.

D. Door Operators: Door operators and controls are to be hardwired. On all non-rated openings.

E. Exit Device - Rim Flat Bar: Exit devices to consist of rim devices with flat cross-bar and straight through operation. Latch bolts to have 3/4" throw. Outside trim to be cast with thru bolts. US32D finish.

F. Door Holders and Stops: Overhead holders and stops as specified to be architectural bronze. Surface holders to be supplied with thru bolts for door. Wall bumpers to be cast bronze or brass.
(finished US26D) and furnished with proper attachments for fastening the wall bumpers.

G. Pulls and Plates: Pulls are to be of style and finish as indicated with thru-bolts. Push plates are to be stainless steel .050" thickness with sizes as indicated.

H. Kick Plates and Mop Plates: Kick plates and mop plates to be .050 ga. with beveled edges (B4E). Width of kick plates to be 2" less than door width on single door and 1" less on pair of doors.

I. Silencers: Interior frames without gasketing will receive rubber silencers #20 or #21, two (2) for each double and three (3) for each single frame.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General Contractor and/or Construction Manager to verify doors and frames are ready to receive work, and dimensions are as indicated on shop drawings or as instructed by manufacturers.

B. General Contractor and/or Construction Manager to verify power supply is available to electrically operated devices.

3.2 INSTALLATION

A. Install finish hardware in accordance with reviewed hardware schedule and manufacturer’s printed instructions. Pre-fit hardware before finish is applied, remove and reinstall after finish is completed. Install hardware so that parts operate smoothly, close tightly and do not rattle.

B. Installation of hardware shall comply with JFPA 80, UL10C, and NFPA 101 requirements.

C. Set units level, plumb and true to line and location. Adjust and reinforce attachment to substrate as necessary for proper installation and operation.

D. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant, forming tight seal between threshold and surface to which set. Securely and permanently anchor thresholds, using countersunk non-ferrous screws to match color of thresholds (stainless steel screws at aluminum thresholds).

F. Lead Protection: Lead wrap hardware penetrating lead-lined doors. Levers and roses to be lead lined. Apply kick and armor plates with 3M adhesive #1357, as recommended by 3M Co., on lead-lined doors.
3.3 FIELD QUALITY CONTROL

A. After installation has been completed, provide services of qualified hardware consultant to check Project to determine proper application of finish hardware according to schedule. Also check operation and adjustment of hardware items.

B. Adjust door control devices to compensate for final operation of hearting and ventilating equipment.

3.4 ADJUSTING AND CLEANING

A. At final completion, hardware shall be left clean and free from disfigurement. Make final adjustment to door closers and other items of hardware. Where hardware is found defective repair or replace or otherwise correct as directed.

B. Adjust door closers to meet opening force requirements of Uniform Federal Accessibility Standards.

C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of space or area, return to work during week prior to acceptance or occupancy, and make final check and adjustment of hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors.

D. Instruct Owner’s personnel in proper adjustment and maintenance of door hardware and hardware finishes.

E. Clean adjacent surfaces soiled by hardware installation

3.5 PROTECTION

A. Provide for proper protection of items of hardware until Owner accepts Project as complete.

3.6 EXISTING OPENINGS

A. Existing Openings:

1. The finishing hardware supplier is responsible for surveying all existing doors and frames in order to verify the existing hardware preps and assure compatibility with specified hardware.

2. The survey is to be accomplished prior to submitting schedules and shop drawings.

3. Hardware supplier is to furnish a letter, certifying that the survey was completed prior to preparing the shop drawings and schedules. A copy of the survey list with door numbers and survey information is to be included with this letter.
4. Hardware schedules not complying with above will not be reviewed and will be returned for proper compliance.

3.7 HARDWARE SETS

A. The following schedule of hardware sets shall be considered a guide only, and the supplier is cautioned to refer to general conditions, and the preamble to this section. It shall be the hardware supplier’s responsibility to furnish all required hardware.

B. Provide hardware as specified in the previous articles and the following sets:

**Set #1**
Doors: 1 pr. main entrance doors with surface overhead stop - LHR/RHR Act.

Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Supplier</th>
<th>Model/Style</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Hinges</td>
<td>Hager</td>
<td>BB1199 4 ½ X 4 ½ NRP</td>
<td>US32D</td>
</tr>
<tr>
<td>2 Exit Devices</td>
<td>Sargent</td>
<td>43-8804 STS</td>
<td>US32D</td>
</tr>
<tr>
<td>1 Mullion</td>
<td>Sargent</td>
<td>L-980S</td>
<td>USP</td>
</tr>
<tr>
<td>1 Rim Cylinder</td>
<td>Best</td>
<td>1ESPL-7-A05994</td>
<td>US26D</td>
</tr>
<tr>
<td>1 Mortise Cylinder</td>
<td>Best</td>
<td>1ESPL-7-A35124 X R709</td>
<td>US26D</td>
</tr>
<tr>
<td>2 Closers</td>
<td>LCN</td>
<td>PA4040 XP</td>
<td>AL</td>
</tr>
<tr>
<td>2 Kickplate</td>
<td>Ives</td>
<td>8”x35”x.050 ga.B4E</td>
<td>US32D</td>
</tr>
<tr>
<td>2 O.H. Stops</td>
<td>Glynn-Johnson</td>
<td>81S</td>
<td>US26D</td>
</tr>
<tr>
<td>1 Thresholds</td>
<td>National Guard</td>
<td>425 x 72”</td>
<td>AL</td>
</tr>
<tr>
<td>2 Silencers</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
</tr>
</tbody>
</table>

**Set #2**
Door: 1 single main entrance door with surface OH stop - LHR/RHR

Each to have:

<table>
<thead>
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<th>Item</th>
<th>Supplier</th>
<th>Model/Style</th>
<th>Finish</th>
</tr>
</thead>
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<tr>
<td>3 Hinges</td>
<td>Hager</td>
<td>BB1199 4 ½ X 4 ½ NRP</td>
<td>US32D</td>
</tr>
<tr>
<td>1 Exit Device</td>
<td>Sargent</td>
<td>43-8804 STS</td>
<td>US32D</td>
</tr>
<tr>
<td>1 Rim Cylinder</td>
<td>Best</td>
<td>1ESPL-7-A05994</td>
<td>US26D</td>
</tr>
<tr>
<td>1 Closer</td>
<td>LCN</td>
<td>PA 4040 XP</td>
<td>AL</td>
</tr>
<tr>
<td>1 Kickplate</td>
<td>Ives</td>
<td>8”x34”x.050 ga.B4E</td>
<td>US32D</td>
</tr>
<tr>
<td>1 O.H. Stop</td>
<td>Glynn-Johnson</td>
<td>81S</td>
<td>US26D</td>
</tr>
<tr>
<td>1 Threshold</td>
<td>National Guard</td>
<td>425 x 36”</td>
<td>AL</td>
</tr>
<tr>
<td>3 Silencers</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
</tr>
</tbody>
</table>
### Set #3
Doors: 1 pr. vestibule doors non-locking - LHR/RHR

<table>
<thead>
<tr>
<th>Each to have:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Hinges</td>
<td>Hager</td>
</tr>
<tr>
<td>2 Pull Plates</td>
<td>Ives 8303-0S32D 3½ x 15&quot; US32D</td>
</tr>
<tr>
<td>2 Push Plates</td>
<td>Ives 8200S32D 3½ x 15&quot; US32D</td>
</tr>
<tr>
<td>2 Closers</td>
<td>LCN PA 4040 XP AL</td>
</tr>
<tr>
<td>2 Kickplate</td>
<td>Ives 8&quot;x35&quot;x.050 ga.B4E US32D</td>
</tr>
<tr>
<td>2 O.H. Stop</td>
<td>Glynn-Johnson 81S US26D</td>
</tr>
<tr>
<td>4 Silencers</td>
<td>Ives 20(HM) or 21(WD) GR</td>
</tr>
</tbody>
</table>

### Set #4
Doors: Office door with wall stop may be a labeled opening - LHR/RHR

<table>
<thead>
<tr>
<th>Each to have:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Hinges</td>
<td>Hager BB1279 4½ x 4½ NRP US26D</td>
</tr>
<tr>
<td>1 Lock Set</td>
<td>Best 45-H7-E-15-H US32D</td>
</tr>
<tr>
<td>1 Closer</td>
<td>Norton PA 1604 BC SNB AL</td>
</tr>
<tr>
<td>1 Kickplate</td>
<td>Ives 8&quot;x34&quot;x.050 ga.B4E US32D</td>
</tr>
<tr>
<td>1 Wall Stop</td>
<td>Ives 407½ US26D</td>
</tr>
<tr>
<td>3 Silencers</td>
<td>Ives 20(HM) or 21(WD) GR</td>
</tr>
</tbody>
</table>

### Set #5
Doors: Classroom door with mortise overhead stop may be used on a labeled opening – LHR/RHR

<table>
<thead>
<tr>
<th>Each to Have:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Hinges</td>
<td>Hager BB1168 4½ x 4½ NRP US26D</td>
</tr>
<tr>
<td>1 Lock Set</td>
<td>Best 45H7-R-15-H US32D</td>
</tr>
<tr>
<td>1 Closer</td>
<td>Norton PA 1604 BC SNB AL</td>
</tr>
<tr>
<td>1 Kickplate</td>
<td>Ives 8&quot;x 34&quot;x.050 ga.B4E US32D</td>
</tr>
<tr>
<td>1 O.H. Stop</td>
<td>Glynn-Johnson 100S-ADJ US26D</td>
</tr>
<tr>
<td>3 Silencers</td>
<td>Ives 20(HM) or 21(WD) GR</td>
</tr>
</tbody>
</table>

### Set #6
Doors: Classroom door with wall stop - LH/RH

<table>
<thead>
<tr>
<th>Each to have:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Hinges</td>
<td>Hager BB1168 4½ x 4½ US26D</td>
</tr>
<tr>
<td>1 Lock Set</td>
<td>Best 45H7-R-15-H US32D</td>
</tr>
<tr>
<td>1 Stop</td>
<td>Ives 407½ US26D</td>
</tr>
</tbody>
</table>
Set #7
Doors: Classroom door with mortise overhead stop - LH/RH

Each to have:
3 Hinges Hager BB1168 4½ x 4½ US26D
1 Lock Set Best 45H7-R-15-H US32D
1 O.H. Stop Glynn-Johnson 100S-ADJ US26D
3 Silencers Ives 20(HM) or 21(WD) GR

Set #8
Doors: Classroom door with wall stop - LHR/RHR

Each to have:
3 Hinges Hager BB1168 4½ x 4½ NRP US26D
1 Lock Set Best 45H7-R-15-H US32D
1 Closer Norton PA 1604 BC SNB AL
1 Kickplate Ives 8"x34"x.050 ga.B4E US32D
1 Stop Ives 407½ US26D
3 Silencers Ives 20(HM) or 21(WD) GR

Set #9
Doors: Storeroom door with surface stop may be used on labeled opening LHR/RHR

Each to have:
3 Hinges Hager BB1279 4½ x 4½ NRP US26D
1 Lock Set Best 45H7-D-15-H US32D
1 Closer Norton PA 1604 BC SNB AL
1 Kickplate Ives 8"x34"x.050 ga.B4E US32D
1 O.H. Stop Glynn-Johnson 450S US26D
3 Silencers Ives 20(HM) or 21(WD) GR

Set #10
Door: Storeroom door with mortise overhead stop may be used on labeled opening - LHR/RHR

Each to have:
3 Hinges Hager BB1279 4½ x 4½ NRP US26D
1 Lock Set Best 45H7-D-15-H US32D
1 Closer Norton PA 1604 BC SNB AL
1 Kickplate Ives 8"x34"x.050 ga.B4E US32D
1 O.H. Stop Glynn-Johnson 410S US26D
3 Silencers Ives 20(HM) or 21(WD) GR
### Set #11
Doors: Storeroom door with wall stop may be used on a labeled opening - LHR/RHR

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Supplier</th>
<th>Model/Details</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Hinges</td>
<td></td>
<td>Hager</td>
<td>BB1279 4½ x 4½ NRP US26D</td>
<td></td>
</tr>
<tr>
<td>1 Lock Set</td>
<td></td>
<td>Best</td>
<td>45H7-D-15-H US32D</td>
<td></td>
</tr>
<tr>
<td>1 Closer</td>
<td></td>
<td>Norton</td>
<td>PA 1604 BC SNB AL</td>
<td></td>
</tr>
<tr>
<td>1 Kickplate</td>
<td></td>
<td>Ives</td>
<td>8&quot;x34&quot;x.050 ga.B4E US32D</td>
<td></td>
</tr>
<tr>
<td>1 Stop</td>
<td></td>
<td>Ives</td>
<td>407½</td>
<td></td>
</tr>
<tr>
<td>3 Silencers</td>
<td></td>
<td>Ives</td>
<td>20(HM) or 21(WD) GR</td>
<td></td>
</tr>
</tbody>
</table>

### Set #12
Doors: Storeroom door with wall stop - LH/RH

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Supplier</th>
<th>Model/Details</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Hinges</td>
<td></td>
<td>Hager</td>
<td>BB1279 4½ x 4½ US26D</td>
<td></td>
</tr>
<tr>
<td>1 Lock Set</td>
<td></td>
<td>Best</td>
<td>45H7-D-15-H US32D</td>
<td></td>
</tr>
<tr>
<td>1 Stop</td>
<td></td>
<td>Ives</td>
<td>407½</td>
<td></td>
</tr>
<tr>
<td>3 Silencers</td>
<td></td>
<td>Ives</td>
<td>20(HM) or 21(WD) GR</td>
<td></td>
</tr>
</tbody>
</table>

### Set #13
Doors: 1 pr. doors to storeroom with surface overhead stop may be used on a labeled opening – LHR/RHR

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Supplier</th>
<th>Model/Details</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Hinges</td>
<td></td>
<td>Hager</td>
<td>BB1279 4½ x 4½ NRP US26D</td>
<td></td>
</tr>
<tr>
<td>2 Flush Bolts</td>
<td></td>
<td>Ives</td>
<td>458</td>
<td></td>
</tr>
<tr>
<td>1 Lock Set</td>
<td></td>
<td>Best</td>
<td>45H7-D-15-H US32D</td>
<td></td>
</tr>
<tr>
<td>1 Mort.Cylinder</td>
<td></td>
<td>Best</td>
<td>1E74</td>
<td></td>
</tr>
<tr>
<td>1 Closer</td>
<td></td>
<td>Norton</td>
<td>PA 1604 BC SNB AL</td>
<td></td>
</tr>
<tr>
<td>2 Kickplates</td>
<td></td>
<td>Ives</td>
<td>8&quot;x35&quot;x.050 ga.B4E US32D</td>
<td></td>
</tr>
<tr>
<td>1 O.H. Stop</td>
<td></td>
<td>Glynn-Johnson</td>
<td>450S</td>
<td></td>
</tr>
<tr>
<td>2 Silencers</td>
<td></td>
<td>Ives</td>
<td>20(HM) or 21(WD) GR</td>
<td></td>
</tr>
</tbody>
</table>
### Set #14
Doors: 1 pr. doors to storeroom with wall stop may be used on a labeled opening - LHR/RHR

Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
<th>Mfr.</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinges</td>
<td>6</td>
<td>Hager</td>
<td>BB1279 4½ x 4½ NRP</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Flush bolts</td>
<td>2</td>
<td>Ives</td>
<td>458</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Lock Sets</td>
<td>1</td>
<td>Best</td>
<td>45H7-D-15-H</td>
<td>US32D</td>
<td></td>
</tr>
<tr>
<td>Closer</td>
<td>1</td>
<td>Norton</td>
<td>PA 1604 BC SNB</td>
<td>AL</td>
<td></td>
</tr>
<tr>
<td>Kickplates</td>
<td>2</td>
<td>Ives</td>
<td>8&quot;x35&quot;x.050 ga.B4E</td>
<td>US32D</td>
<td></td>
</tr>
<tr>
<td>Stops</td>
<td>2</td>
<td>Ives</td>
<td>407½</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Silencers</td>
<td>2</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
<td></td>
</tr>
</tbody>
</table>

### Set #15
Doors: Storeroom door with wall stop may be used on labeled opening - LHR/RHR

Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
<th>Mfr.</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinges</td>
<td>3</td>
<td>Hager</td>
<td>BB1279 4½ x 4½ NRP</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Lock Set</td>
<td>1</td>
<td>Best</td>
<td>45H7-D-15-H</td>
<td>US32D</td>
<td></td>
</tr>
<tr>
<td>Closer</td>
<td>1</td>
<td>Norton</td>
<td>PA 1604 BC SNB</td>
<td>AL</td>
<td></td>
</tr>
<tr>
<td>Kickplate</td>
<td>1</td>
<td>Ives</td>
<td>8&quot;x34&quot;x.050 ga.B4E</td>
<td>US32D</td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td>1</td>
<td>Ives</td>
<td>407½</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Silencers</td>
<td>1</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
<td></td>
</tr>
</tbody>
</table>

### Set #16
Doors: Interior door to mechanical room with wall stop, special lever for handicap may be used on a labeled opening - LHR/RHR

Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
<th>Mfr.</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinges</td>
<td>3</td>
<td>Hager</td>
<td>BB1279 4½ x 4½ NRP</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Lock Set</td>
<td>1</td>
<td>Best</td>
<td>45H7-D-15-H-TL</td>
<td>US32D</td>
<td></td>
</tr>
<tr>
<td>Closer</td>
<td>1</td>
<td>Norton</td>
<td>PA 1604 BC SNB</td>
<td>AL</td>
<td></td>
</tr>
<tr>
<td>Kickplate</td>
<td>1</td>
<td>Ives</td>
<td>8&quot;x34&quot;x.050 ga.B4E</td>
<td>US32D</td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td>1</td>
<td>Ives</td>
<td>407½</td>
<td>US26D</td>
<td></td>
</tr>
<tr>
<td>Silencers</td>
<td>3</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
<td></td>
</tr>
</tbody>
</table>
### Set #17
**Door:** Mechanical room door with surface stop, special lever for handicap may be used on a labeled opening - LHR/RHR

Each to have:

<table>
<thead>
<tr>
<th>Count</th>
<th>Item</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Hinges</td>
<td>Hager</td>
<td>BB1279 4½ x 4½ NRP</td>
<td>US26D</td>
</tr>
<tr>
<td>1</td>
<td>Lock Set</td>
<td>Best</td>
<td>45-H7-D-15-H-TL</td>
<td>US32D</td>
</tr>
<tr>
<td>1</td>
<td>Closer</td>
<td>Norton</td>
<td>PA 1604 BC SNB</td>
<td>AL</td>
</tr>
<tr>
<td>1</td>
<td>Kickplate</td>
<td>Ives</td>
<td>8&quot;x34&quot;x.050 ga.B4E</td>
<td>US32D</td>
</tr>
<tr>
<td>1</td>
<td>O.H. Stop</td>
<td>Glynn-Johnson</td>
<td>450S</td>
<td>US26D</td>
</tr>
<tr>
<td>3</td>
<td>Silencers</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
</tr>
</tbody>
</table>

### Set #18
**Door:** Closet or passage door with mortise overhead stop (No Lock) - LH/RH

Each to have:

<table>
<thead>
<tr>
<th>Count</th>
<th>Item</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Hinges</td>
<td>Hager</td>
<td>BB1279 4½ x 4½</td>
<td>US26D</td>
</tr>
<tr>
<td>1</td>
<td>Latch Set</td>
<td>Best</td>
<td>45H0-N-15-H</td>
<td>US32D</td>
</tr>
<tr>
<td>1</td>
<td>O.H. Stop</td>
<td>Glynn-Johnson</td>
<td>410S</td>
<td>US26D</td>
</tr>
<tr>
<td>3</td>
<td>Silencers</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
</tr>
</tbody>
</table>

### Set #19
**Door:** Passage set (No Lock) may be used on a labeled opening - LHR/RHR

Each to have:

<table>
<thead>
<tr>
<th>Count</th>
<th>Item</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Hinges</td>
<td>Hager</td>
<td>BB1279 4½ x 4½</td>
<td>US26D</td>
</tr>
<tr>
<td>1</td>
<td>Latch Set</td>
<td>Best</td>
<td>45H0-N-15-H</td>
<td>US32D</td>
</tr>
<tr>
<td>1</td>
<td>Closer</td>
<td>Norton</td>
<td>PA 1604 BC SNB</td>
<td>AL</td>
</tr>
<tr>
<td>1</td>
<td>Kickplate</td>
<td>Ives</td>
<td>8&quot;x34&quot;x.050 ga.B4E</td>
<td>US32D</td>
</tr>
<tr>
<td>1</td>
<td>Stop</td>
<td>Ives</td>
<td>407½</td>
<td>US26D</td>
</tr>
<tr>
<td>3</td>
<td>Silencers</td>
<td>Ives</td>
<td>20(HM) or 21(WD)</td>
<td>GR</td>
</tr>
</tbody>
</table>

### Set #20
**Door:** Bedroom or bathroom door with wall stop - LH/RH

Each to have:

<table>
<thead>
<tr>
<th>Count</th>
<th>Item</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Hinges</td>
<td>Hager</td>
<td>BB1279 4½ x 4½</td>
<td>US26D</td>
</tr>
<tr>
<td>1</td>
<td>Privacy Set</td>
<td>Best</td>
<td>45H0-L-15-H</td>
<td>US32D</td>
</tr>
<tr>
<td>1</td>
<td>Stop</td>
<td>Ives</td>
<td>407½</td>
<td>US26D</td>
</tr>
</tbody>
</table>
### Set #21
Doors: Public bathroom door with wall stop - LHR/RHR

Each to have:

<table>
<thead>
<tr>
<th></th>
<th>Hinges</th>
<th></th>
<th>Hager</th>
<th></th>
<th>BB1168 4½ x 4½ NRP</th>
<th></th>
<th>US26D</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Deadlock Best</td>
<td></td>
<td>38H7-R US26D</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Pull Plate Ives</td>
<td></td>
<td>8303-0S32D 3½ x 15&quot; US32D</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Push Plate Ives</td>
<td></td>
<td>8200S32D 3½ x 15&quot; US32D</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Closer Norton</td>
<td></td>
<td>PA 1604 BC SNB AL</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Kickplate Ives</td>
<td></td>
<td>8&quot;x34&quot;x.050 ga.B4E.US32D</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Stop Ives</td>
<td></td>
<td>407½ US26D</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Silencers Ives</td>
<td></td>
<td>20(HM) or 21(WD) GR</td>
</tr>
</tbody>
</table>

### Set #22
Doors: Interior corridor with wall stop, door controls to be hardwired on all non-rated doors - LHR/RHR, LH/RH.

Each to have:

<table>
<thead>
<tr>
<th></th>
<th>Hinges</th>
<th></th>
<th>Hager</th>
<th></th>
<th>BB1168 4½ x 4½ NRP</th>
<th></th>
<th>US26D</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
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### Set #23
Doors: Interior stair tower fire door with wall stop will be used on a labeled opening - LHR/RHR

Each to have:

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<tr>
<th></th>
<th>Hinges</th>
<th></th>
<th>Hager</th>
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<th>BB1168 4½ x 4½ NPR</th>
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<td>Stop Ives</td>
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<td>407½ US26D</td>
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<td>Doors: Corridor/Bedroom with wall stop - LH/RH</td>
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<td>Ives</td>
<td>407½</td>
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<td>20(HM) or 21(WD) GR</td>
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<table>
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<tr>
<th>Set #25</th>
<th>Doors: Fire Command Center door with wall stop, lock to be 24VAC and connected to fire alarm system - may be used on labeled opening.</th>
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<td>Silencers</td>
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<td>Hager</td>
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<tr>
<td>Best</td>
<td>PA 1604 BC SNB AL</td>
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<tr>
<td>Ives</td>
<td>8&quot;x34&quot;x.050 ga.B4E US32D</td>
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<tr>
<td>Ives</td>
<td>407½</td>
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<th>Set #26</th>
<th>Doors: Sliding door (No lock)</th>
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<td>B1 Passing hdw.</td>
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<table>
<thead>
<tr>
<th>Set #27</th>
<th>Doors: A garage door with no outside operation</th>
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<tr>
<td></td>
<td>Each to have: Hardware by door manufacturer</td>
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Set #28
ALL ELECTRICAL PANELS WITH LOCK IN PUBLIC AREAS

Each to have:
1  Lock  Best  5L7RL Series  US26D
    (Handing as required)

Set #29
ALL CABINET DOORS REQUIRING LOCK
ALL CABINET DRAWERS REQUIRING LOCK

Each to have:
1  Lock  Best  3L7RD Series  US26D
    (Handing as required)

Set #30
ALL ELEVATOR CONTROLS REQUIRING LOCK

Each to have:
1  Cylinder  Best  Appropriate Cylinder  US26D

Set #31
Doors to be held open by electromagnets labeled or non-labeled opening LHR/RHR, LH/RH.

Each to have:
1  Electromagnet  Rixon  997 x 24 VDC  US26D

--END OF SECTION--
PART 1 – GENERAL

1.1 SUMMARY
   A. No Content

1.2 REFERENCES
   A. No Content

1.3 DESIGN REQUIREMENTS
   A. The requirements for providing automatic door operators will be defined and approved by University of Delaware as required by code.

PART 2 – PRODUCTS

2.1 Preferred Manufacturers

   Refer to CSI Section 08710, finish hardware, set #22

2.2 DO’S AND DON’TS:
   N/A

PART 3- EXECUTION

3.1 No Content

PART 4 - ATTACHMENTS

4.1 No Content

End of Section