

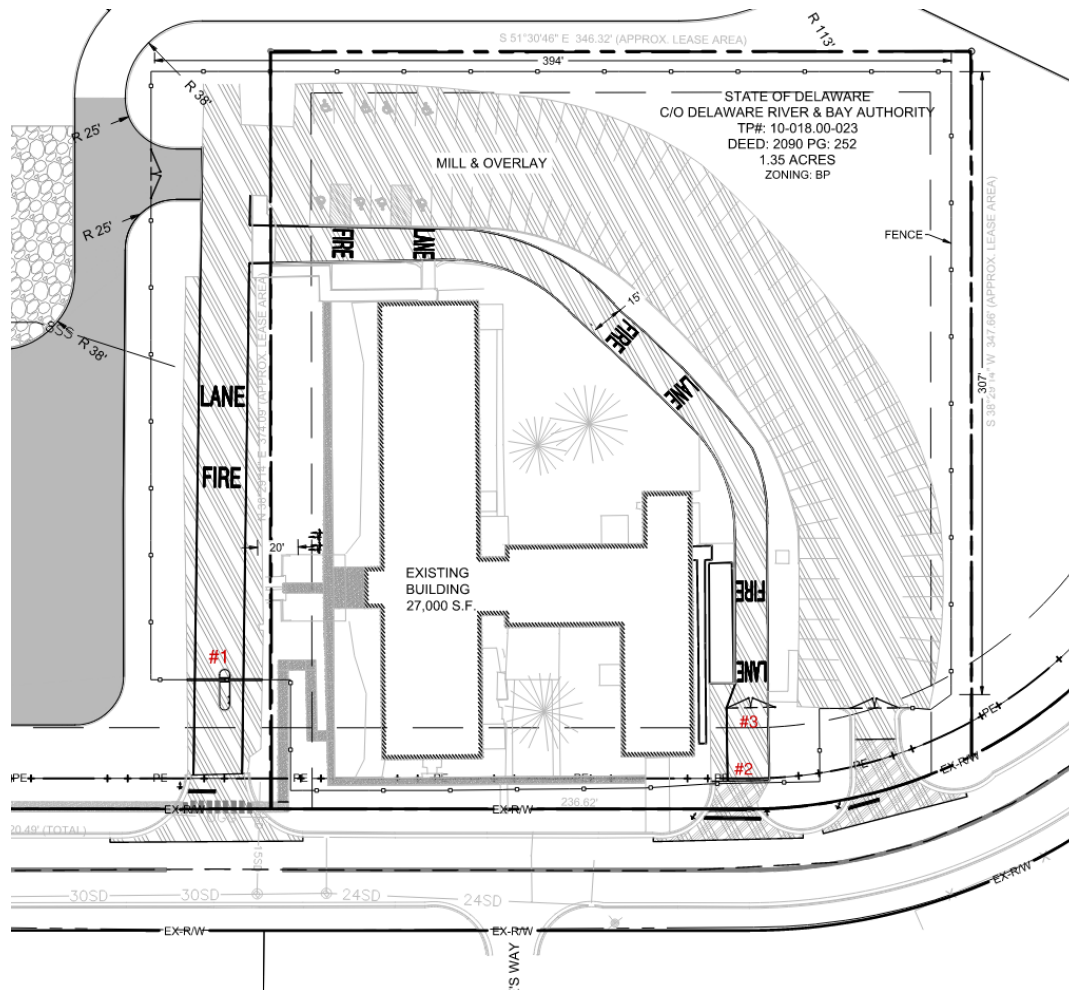
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**PENNS WAY RENOVATIONS
NEW CASTLE, DELAWARE
DBF #0999J034.A01 ❖ DEARNG # 2022-04
NOVEMBER 13, 2024**

ADDENDUM NO. 2

The following items shall become a part of the contract documents. Contractor must acknowledge receipt of this addendum on the Bid Form. Failure to do so may subject the Bidder to disqualification.

1. *Sheet R01.05 on the Civil plans show HD/LD asphalt limits different then what is described & shown on the alternate plans. Please clarify exact limits for the Heavy Duty & Light Duty asphalt.*
Response: The limits of heavy duty and light duty are shown on R01.05. The base bid will be stoned (GABC). Alternate 1 shows the limits of the paving with the limits of HD/LD as shown on R01.05. Alternate 4 shows additional limits of paving with the limits of HD/LD as shown on R01.05.
2. *Is the cantilever gate (Labeled #1), shown on the excerpt below from dwg. CP-02, a single or a double slide gate? A single or a double slide gate does not have enough rollback to open fully.*
Response: In lieu of sliding gates, each direction of traffic flow will have a double swing gate.
3. *What is Label #2 referring shown below referring to? Is that another cantilever gate?*
Response: A gate is not proposed where Label #2 is referring to below.
4. *Does the owner still want the double swing gate #3 if there is a slide gate at gate #2?*
Response: Yes, the owner wants the double swing gate #3. There is no gate at #2.



5. *The only detail for pipe bedding on plan sheet D11.01 shows no pipe aggregate bedding underneath or around the pipe. Please confirm there will be no Pipe bedding aggregates required for all sanitary/RCP storm pipe per this detail.*

Response: The trench backfill and pipe bedding detail as shown on D11.01 only applies to RCP storm pipe installation. The water line installation shall be installed per Artesian Water Standards and Specifications and the sewer line installation shall be installed per New Castle County Public Works Standards and Specifications.

6. Please confirm the gravel thickness of the proposed gravel pad area behind the curb. Is it right to assume the thickness will remain the same for proposed EMT, Admin support, & staging tent areas?

Response: The gravel thickness of the pad area behind the curb is the same thickness for the proposed EMT, Admin Support and Staging Tent areas.

7. *Please provide site geotechnical report for this project.*

Response: Attached is the geo-technical report.

8. *Please confirm that bottom of Dry Detention pond will get topsoil respread.*

Response: The bottom of the dry-detention pond may have topsoil respread.

9. *Sheet C03.03 calls out locations for “Riprap stilling basins” with the Dry Detention pond. Please confirm the sectional thickness for the riprap in these areas.*

Response: The information for riprap stilling basins can be found on Sheet C03.10.

10. *Please confirm that all site curb is to be installed in base bid MV Lot will be left @ subgrade elevation per grading plan. (No stone/asphalt included).*

Response: All curb will be set to final elevations. Stone should be included as shown on the CP-00 (base bid) and asphalt included in alternate 1 (CP-01).

11. *Please define inspection and testing requirements of the contractor for the project. 01 45 23 is not included in the specifications. Specification section 01 40 00 Quality Requirements is referenced in multiple specification sections but was not included in the specification package.*

Response: The contractor is required to perform the appropriate proofrolls and / or compaction testing for the paved areas per the various Division 31 or 32 specifications.

12. *What are the specifications for the LVT, CPT, and stair treads?*

Response: DEARNG has specific model/colors for finishes, please see below:

- a. **LVT: MANUF-AVA / STYLE-SNSE 2.5MM / COLOR-SAND FS009 / SIZE 12X24**
- b. **CPT TILE: J&J FLOORING / STYLE-IMPULSE III 2422 / COLOR 1432 GIVE IT A WHIRL**
- c. **Stair Treads: JOHNSONITE / STYLE TRIUMPH SPORTS FLOORING / COLOR LOG CABIN LE4**
- d. **Ceramic floor tile: DAL TILE / STYLE-REMNISCENT / COLOR-AGED BEIGE / SIZE 24X24**
- e. **Ceramic Wall tile (CT-3): DAL TILE / STYLE-COLOR WHEEL CLASSIC / COLOR-URBAN PUTTY 0761, MATTE / SIZE-6X6**
- f. **Ceramic Wall tile (CT-4): DAL TILE / STYLE COLOR WHEEL CLASSIC/ COLOR-ARTISAN BROWN 0744, MATTE / SIZE 6X6**
- g. **Ceramic Bullnose Tile: DAL TILE / STYLE COLOR WHEEL CLASSIC / COLOR-URBAN PUTTY 0761, MATTE / SIZE 6X6**
- h. **Acoustic Ceiling Tile: ARMSTRONG / CALLA SQUARE TEGULAR / WHITE/ 24X24**
- i. **Rubber Wall Base: JOHNSONITE / STANDARD TOE/ 280 SHORELINE/ 4 INCH**
- j. **Epoxy Floor: DUR-A-FLEX / DUR-A-GUARD / BEIGE / INTEGRAL 6” BASE**
- k. **Toilet Partitions: SCRANTON / ELIPSE / ORANGE PEEL FINISH, COLOR LINEN**
- l. **Wood Door Veneer: VENEER-ART / 921-TG-SPANISH MAHOGONY / TRU-GRAIN FINISH**

13. *Is there an existing controls/BAS vendor?*

Response: The existing system does not have controls or BAS and is a stand-alone system.

14. *What type of shower pans are to be installed?*

Response: The shower pans shall be solid surface.

15. *There are various questions regarding door hardware sets.*

Response: The hardware sets have been updated. Attached is an updated door hardware specification section, revised door schedules with updated hardware set numbers.

16. *Will the project require any installation of conduit pathways, sleeving, or EZ-Path Fire Stop Sleeves for the Low Voltage Cabling systems to get cabling from throughout the building to the MDF in Telecom Room 205 as the multiple levels and parts of the building mostly have to pass through or around the center stair and lobby areas (for the most part all solid) to get to the MDF?*

Response: For horizontal pathways, running low-voltage cabling in cable tray or J-hooks is acceptable. Per UFC 3-580-01, where vertical penetrations are required to get to the MDF in Telecom Room 205, conduit sleeves should be provided with fire stopping.

17. **Clarification: The contractor shall submit to the county for the building permit and will be responsible for the building permit fee. The impact fee cost will be the responsibility of DEARNG and will be handled via a project allowance.**

18. *At the location of the epoxy floor on the lower level, what is the existing surface and what is the extents of the epoxy floor?*

Response: The existing surface is concrete and the extents is the entire open area noted as Cage Area 014. The two offices have carpet, the electric room is concrete and the corridor by the shower/latrines is LVT and the Vault is concrete.

19. *Are the ADA shower units a one-piece plastic or is it going to be Tile?*

Response: The ADA shower units are tiled walls with a solid surface pan.

20. **Clarification: Ceramic wall tile shall be installed on 5/8" cement backer board.**

21. *Ref Dwgs A 102, A 103, and A 104, is it the intention that any location where wallcovering is removed the walls are to be skim coated before painting?*

Response: That is correct.

22. **Clarification: All asbestos containing materials will be removed prior to start of demolition.**

23. *Please clarify window treatment scope of work. Are we required to remove and reinstall existing window treatment?*

Response: The contractor shall remove and store the existing window treatments and reinstall after painting.

24. *Please confirm if Opening 106 calls for aluminum door and frame. The Door Schedule states a wood door and hollow metal frame.*

Response: Door 106 is an aluminum door and frame with aluminum sidelights. A revised hardware specification and door schedule is attached.

25. *Please provide a specification for the fencing required on the project*

Response: Specification is attached to this addendum.

26. *On the lower level, in the area of the proposed Men's Shower and Locker Room, the existing slab is two inches higher than the rest of the floor area. Please advise if we are to remove the raised slab area? Please define scope limitations of the slab demo.*

Response: Refer to sheet AD-101, note 7: Remove the slab throughout the entire area of the men's shower/latrine/locker area.

27. *Secured Lobby walls have water damage that will require patching and repair. This scope item is not mentioned on the plans. Will this be addressed via the owner's allowance?*

Response: The contractor shall account for 100 square feet of patching and repair in the secured lobby area.

28. *Please provide specification for Hollow Metal Doors.*

Response: Specification is attached to this addendum.

29. *Sheet A501 shows all framing to be metal studs. Sheet 601 shows wood framing. Confirming that all framing is to be metal.*

Response: Confirm – all framing shall be metal.

30. *The rough carpentry spec 06 10 00 3.02 C requests wood blocking around framed opening for hollow metal frames. Please confirm this is required.*

Response: This is not required.

END OF ADDENDUM

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Steel door and window frames.
 - 2. Fire-rated door and frame assemblies.
- B. Related Sections include the following:
 - 1. Division 09 Section 09 91 23 "Interior Painting" for field painting factory-primed doors and frames.

1.3 DEFINITIONS

- A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

- A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.
- B. Shop Drawings: Show the following:
 - 1. Elevations of each door design.
 - 2. Details of doors including vertical and horizontal edge details.
 - 2. Frame details for each frame type including dimensioned profiles.
 - 3. Details and locations of reinforcement and preparations for hardware.
 - 4. Details of each different wall opening condition.
 - 5. Details of anchorages, accessories, joints, and connections.
 - 6. Coordination of glazing frames and stops with glass and glazing requirements.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for factory-finished doors and frames.

- D. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.5 QUALITY ASSURANCE

- A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
 - 1. Test Pressure: Test at atmospheric pressure.
 - 2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch- (100-mm-) high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Steel Doors and Frames:
 - a. Amweld Building Products, Inc.
 - b. Benchmark Commercial Doors; a division of General Products Co., Inc.
 - c. Ceco Door Products; a United Dominion Company.
 - d. Curries Company.
 - e. Steelcraft; a division of Ingersoll-Rand.

f. S.W. Fleming, LTD.

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
- C. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 (ZF120) zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.
- D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher-leveled standard of flatness where used for face sheets.

2.3 DOORS

- A. General: Provide doors of sizes, thicknesses, and designs indicated.
- B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level:
 - 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
- C. Exterior Doors: Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
 - 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
- D. Vision Lite Systems: Manufacturer's standard kits consisting of glass lite moldings to accommodate glass thickness and size of vision lite indicated.

2.4 FRAMES

- A. General: Provide steel frames for doors and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Frames of 0.053-inch- (1.3-mm-) thick steel sheet.
- C. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.
- D. Supports and Anchors: Fabricated from not less than 0.042-inch- (1.0-mm-) thick, electrolytic zinc-coated or metallic-coated steel sheet.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.5 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
- B. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, panels, and frames from metallic-coated steel sheet. Close top and bottom edges of doors flush as an integral part of door construction.
- C. Interior Door Faces: Fabricate exposed faces of doors and panels from cold-rolled steel sheet.
- D. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.
- E. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch (3.2 mm) at jambs and heads, except not more than 1/4 inch (6.4 mm) between pairs of doors. Not more than 3/4 inch (19 mm) at bottom.
- F. Clearances for Fire-Rated Doors: As required by NFPA 80.
- G. Single-Acting, Door-Edge Profile: Square edge.
- H. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- I. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- J. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- K. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.
 - 1. Unless otherwise indicated, provide thermal-rated assemblies with U-value of 0.41 Btu/sq. ft. x h x deg F (2.33 W/sq. m x K) or better.
- L. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
 - 1. For concealed overhead door closers, provide space, cutouts, reinforcement, and provisions for fastening in top rail of doors or head of frames, as applicable.
- M. Frame Construction: Fabricate frames to shape shown.

1. For exterior applications, fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
 2. For interior applications, fabricate knock-down frames with mitered or coped corners, for field assembly.
 3. Provide welded frames with temporary spreader bars.
- N. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- O. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.
- P. Glazing Stops: Manufacturer's standard, formed from 0.032-inch- (0.8-mm-) thick steel sheet.
1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
 2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.
- Q. Astragals: As required by NFPA 80 to provide fire ratings indicated.
- 2.6 FINISHES
- A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
 2. In existing concrete construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
 3. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
 4. For in-place gypsum board partitions, install knock-down, drywall slip-on frames.
 5. Install fire-rated frames according to NFPA 80.

- C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

- 1. Fire-Rated Doors: Install within clearances specified in NFPA 80.
 - 2. Smoke-Control Doors: Install to comply with NFPA 105.

3.2 ADJUSTING AND CLEANING

- A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.
- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following:
 - 1. Hinges.
 - 2. Pivots.
 - 4. Lock cylinders and keys.
 - 5. Lock and latch sets.
 - 6. Bolts.
 - 7. Exit devices.
 - 8. Push/pull units.
 - 9. Closers.
 - 10. Overhead holders.
 - 11. Miscellaneous door control devices.
 - 12. Door trim units.
 - 13. Protection plates.
 - 15. Weatherstripping for exterior doors.
 - 16. Sound stripping for interior doors.
 - 17. Astragals or meeting seals on pairs of doors.
 - 18. Thresholds.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 8 Section "Hollow Metal Doors and Frames" for silencers integral with hollow metal frames.
 - 2. Division 8 Section "Flush Wood Doors" for factory prefitting and factory premachining of doors for door hardware.
 - 3. Division 8 Section "Aluminum Entrances and Storefronts".

1.3 HARDWARE ALLOWANCE

- A. Selection and Ordering: Furnish door hardware as selected by Architect and other

general provisions of the Contract. Owner will provide and install electronic security entrance system devices at guest entry doors and exterior doors accessible to the public.

B. Door hardware supplier's responsibilities shall be as follows:

1. Submittals: Submit through Contractor required product data, final hardware schedule, separate keying schedule, and samples as specified in this Section, unless otherwise indicated.
2. Construction Schedule: Inform Contractor promptly of estimated times and dates that will be required to process submittals, to furnish templates, to deliver hardware, and to perform other work associated with furnishing door hardware for purposes of including this data in construction schedule. Comply with this schedule.
3. Coordination and Templates: Assist Contractor as required to coordinate hardware with other work in respect to both fabrication and installation. Furnish Contractor with templates and deliver hardware to proper locations.
4. Product Handling: Package, identify, deliver, and inventory door hardware specified in this Section.
5. Discrepancies: Based on requirements indicated in Contract Documents in effect at time of door hardware selection, furnish types, finishes, and quantities of door hardware, including fasteners, and Owner's maintenance tools required to comply with specified requirements and as needed to install and maintain hardware. Furnish or replace any items of door hardware resulting from shortages and incorrect items at no cost to the Owner or Contractor. Obtain signed receipts from Contractor for all delivered materials.

C. Contractor's responsibilities shall be as follows:

1. Submittals: Coordinate and process submittals for door hardware in same manner as submittals for other work.
2. Construction Schedule: Cooperate with door hardware supplier in establishing scheduled dates for submittals and delivery of templates and door hardware. Incorporate in construction schedule the times and dates related to furnishing hardware by door hardware supplier.
3. Coordination: Coordinate door hardware with other Work. Furnish hardware supplier or manufacturer, including Owner retained electronic security device supplier, with shop drawings of other work where required or requested. Verify completeness and suitability of hardware with supplier.
4. Product Handling: Provide secure lock-up for hardware delivered to the site. Inventory hardware jointly with representative of hardware supplier and issue signed receipts for all delivered materials.
5. Installation Information: The general types and approximate quantities of hardware required for this Project are indicated at the end of this Section in order to establish Contractor's costs for installation and other work not included in allowance.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

- B. Product data including manufacturers' 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.
- C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - h. Keying information.
 - 2. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
 - 4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

1.5 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
 - 1. Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.
- C. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

1.6 PRODUCT HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.7 MAINTENANCE

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following
 - 1. Butts and Hinges:
 - a. Hager Hinge Co.
 - b. McKinney Products Co., (ASSA Abloy).
 - c. Best, (dormakaba).
 - d. Ives, (Allegion).
 - 2. Pivots:
 - a. Glynn-Johnson Corp., (Allegion).
 - b. Hager Hinge Co.
 - c. LCN, (Allegion).
 - d. Rixson-Firemark, (ASSA Abloy)
 - e. Dorma, (dormakaba).

3. Key Control System:
 - a. Key Control Systems, Inc.
 - b. Telkee Inc.
4. Cylinders and Locks:
 - a. Best Lock Corp., (dormakaba).
 - b. Corbin & Russwin Architectural Hardware (ASSA Abloy).
 - c. Sargent Manufacturing Company, (ASSA Abloy).
 - d. Schlage Lock, (Allegion).
5. Bolts:
 - a. Burns Manufacturing
 - b. Glynn-Johnson Corp., (Allegion).
 - c. Hager Hinge Co.
 - d. Ives, (Allegion).
 - e. Rockwood Manufacturing, (ASSA Abloy).
 - f. Trimco Hardware.
6. Exit/Panic Devices:
 - a. Precision Hardware, Inc., (dormakaba).
 - b. Sargent Manufacturing Company, (ASSA Abloy).
 - c. Von Duprin, (Allegion).
 - d. Detex Manufacturing.
7. Push/Pull Units:
 - a. Burns Manufacturing.
 - b. Rockwood Manufacturing, (ASSA Abloy).
 - c. Ives, (Allegion).
 - d. Trimco Hardware.
8. Overhead Closers:
 - a. Best, (dormakaba).
 - b. Dorma Door Controls, (dormakaba).
 - c. LCN, (Allegion).
 - d. Norton Door Controls, (ASSA Abloy).
 - e. Sargent Manufacturing Company, (ASSA Abloy).
11. Door Control Devices:
 - a. Burns Manufacturing
 - b. Trimco Hardware
 - c. Glynn-Johnson Corp., (Allegion).
 - d. Hager Hinge Co.
 - e. Ives, (Allegion).
 - f. Rockwood Manufacturing.

- 12. Kick, Mop, and Armor Plates:
 - a. Trimco Hardware.
 - b. Burns Manufacturing.
 - c. Hager Hinge Co.
 - d. Hiawatha, Inc.
 - e. Ives.
- 14. Door Stripping and Seals:
 - a. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.
 - c. Reese Enterprises, Inc.
 - d. Sealeze Corp.
 - e. Zero International, Inc.
- 15. Thresholds:
 - a. b. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.
 - c. Reese Enterprises, Inc.
 - d. Sealeze Corp.
 - e. Zero International, Inc.
- 16. Sound Stripping:
 - a. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.
 - c. Reese Enterprises, Inc.
 - d. Zero International, Inc.
- 17. Astragals:
 - a. National Guard Products, Inc.
 - b. Pemko Manufacturing Co., Inc.
 - c. Reese Enterprises, Inc.
 - d. Zero International, Inc.

2.2 MATERIALS AND FABRICATION

- A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware

units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

- C. Base Metals: Produce hardware units of basic metal and forming method indicated using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units for finish designations indicated.
- D. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- E. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
- F. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.3 HINGES, BUTTS, AND PIVOTS

- A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- B. Screws: Provide Phillips flat-head screws complying with the following requirements:
 - 1. For metal doors and frames install machine screws into drilled and tapped holes.
 - 2. For wood doors and frames install wood screws.
 - 3. For fire-rated wood doors install #12 x 1-1/4-inch (32-mm), threaded-to-the-head steel wood screws.
 - 4. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - 1. Out-Swing Exterior Doors: Nonremovable pins.
 - 2. Out-Swing Corridor Doors with Locks: Nonremovable pins.
 - 3. Interior Doors: Non rising pins.
 - 4. Tips: Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.
- D. Number of Hinges: Provide not less than 3 hinges per door leaf for doors 90 inches (2250 mm) or less in height and one additional hinge for each 30 inches (750 mm) of additional height.

1. Fire-Rated Doors: Not less than 3 hinges per door leaf for doors 86 inches (2150 mm) or less in height with same rule for additional hinges.

2.4 LOCK CYLINDERS AND KEYING

- A. Existing System: Grandmasterkey the locks to the Owner's existing system, with a new masterkey for the Project. The Owner's existing system is "Best" "Cormax". Locks, Best Model 9K3. Final cores to be furnished by owner.
- B. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), either integrated with Owner's existing system.
- C. Prepare all locksets and cylinders to receive 7-pin interchangeable Cormax tumbler cylinder with construction masterkey feature that permits voiding of construction keys without cylinder removal, or equip locks with cylinders for interchangeable-core pin tumbler inserts. Furnish only temporary inserts for the construction period, and remove these when directed.
 1. Final cores and keys to be furnished by and installation by Owner.
- D. Metals: Construct lock cylinder parts from stainless steel.
- E. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
 1. Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE."
- F. Key Material: Provide keys of nickel silver only.
- G. Key Quantity: Furnish 3 change keys for each lock, 5 master keys for each master system, and 5 grandmaster keys for each grandmaster system.
 1. Furnish one extra blank for each lock.
 2. Deliver keys to Owner.

2.5 LOCKS, LATCHES, AND BOLTS

- A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.
 1. Provide flat lip strikes for locks with 3-piece, antifriction latch bolts as recommended by manufacturer.
 2. Provide extra long strike lips for locks used on frames with applied wood casing trim.
 3. Provide recess type top strikes for bolts locking into head frames, unless otherwise indicated.
 4. Provide dust-proof strikes for foot bolts, except where special threshold

- construction provides non recessed strike for bolt.
5. Provide roller type strikes where recommended by manufacturer of the latch and lock units.

- B. Lock Throw: Provide 5/8-inch (16-mm) minimum throw of latch on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

1. Provide 1/2-inch (13-mm) minimum throw of latch for other bored, 3/4-inch (19-mm) minimum throw of latch for mortise locks. Provide 1-inch (25-mm) minimum throw for all dead bolts.

- C. Flush Bolt Heads: Minimum of 1/2-inch- (13-mm-) diameter rods of brass, bronze, or stainless steel with minimum 12-inch- (300-mm-) long rod for doors up to 84 inches (2100 mm) in height. Provide longer rods as necessary for doors exceeding 84 inches (2100 mm) in height.

- D. Exit Device Dogging: Except on fire-rated doors where closers are provided on doors equipped with exit devices, equip the units with keyed dogging device to keep the latch bolt retracted, when engaged.

2.6 PUSH/PULL UNITS

- A. Exposed Fasteners: Provide manufacturer's standard exposed fasteners for installation, thru-bolted for matched pairs but not for single units.
- B. Concealed Fasteners: Provide manufacturer's special concealed fastener system for installation, thru-bolted for matched pairs but not for single units.

2.7 CLOSERS AND DOOR CONTROL DEVICES

- A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use.
1. Provide parallel arms for all overhead closers, except as otherwise indicated.
- B. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

2.8 DOOR TRIM UNITS

- A. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
- B. Fabricate protection plates not more than 1-1/2 inches (38 mm) less than door width on hinge side and not more than 1/2 inch (13 mm) less than door width on pull side by height indicated.
1. Metal Plates: Stainless steel, 0.050 inch (U.S. 18 gage) (1.3 mm).

2.9 HARDWARE FOR INTERIOR SLIDING DOORS

- A. General: Provide manufacturer's standard hardware for interior sliding doors when not furnished as part of complete door package.
- B. Operating Hardware for Pocket Doors: Provide manufacturer's complete set consisting of extruded aluminum or galvanized steel overhead track, adjustable hangers (carriages), galvanized steel split-jambs and split-studs, wood nailers for head track, jambs and studs, galvanized steel brackets for assembly and attachment to floor and wall framing, bumpers, and nylon floor guides designed to accommodate the number (single and biparting), size, thickness, and weight of door leaves indicated. Provide flush pull and edge pull for each door leaf.

2.10 WEATHERSTRIPPING AND SEALS

- A. General: Provide continuous weatherstripping on exterior doors and smoke, light, or sound seals on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
- B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
- C. Weatherstripping at Jambs and Heads: Provide bumper-type resilient insert and metal retainer strips, surface applied unless shown as mortised or semimortised, and of following metal, finish, and resilient bumper material:
 - 1. Extruded aluminum with natural anodized finish, 0.062-inch (1.6-mm) minimum thickness of main walls and flanges.
 - 2. Solid neoprene conforming to MIL R 6855, Class II, Grade 40.
 - a. Flexible, hollow bulb or loop insert.
- D. Weatherstripping at Door Bottoms: Provide threshold consisting of contact-type resilient insert and metal housing of design and size shown and of following metal, finish, and resilient seal strip:
 - 1. Extruded aluminum with natural anodized finish, 0.062-inch (1.6-mm) minimum thickness of main walls and flanges.
 - 2. Flexible vinyl wiper or sweep seal strip.

2.11 THRESHOLDS

- A. General: Except as otherwise indicated, provide standard metal threshold unit of type, size, and profile as shown or scheduled.
- B. Exterior Hinged or Pivoted Doors: Provide units not less than 4 inches (100 mm) wide, formed to accommodate change in floor elevation where indicated, fabricated to accommodate door hardware and to fit door frames, and as follows:
 - 1. For in-swinging doors provide units with interlocking lip and interior drain channel; include hook on bottom edge of door and drain pan.

2. For out-swinging doors provide units with interlocking lip and with hook on bottom edge of door to act as weather bar.
3. For out-swinging doors provide rabbeted type units with replaceable weatherstrip insert in stop.

2.12 HARDWARE FINISHES

- A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).
- B. Provide finishes that match those established by BHMA or, if none established, match the Architect's sample.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
 2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
 3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that 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 complying with requirements specified in Division 7 Section "Joint Sealers."

- F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

3.3 HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should 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 and functionality.
- B. Manufacturer's Abbreviations:

1. BEs - Best Locking Systems
2. DOR – Dorma
3. NGP – National Guard Products
4. PRE – Precision Hardware
5. RCI – Rutherford Controls

HARDWARE SET: 01		VAULT DOOR		
DOOR #: 001, 001B				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
ALL HARDWARE BY VAULT DOOR & FRAME MANUFACTURER				

HARDWARE SET: 02				
DOORS #: 002, 003, 114, 115, 118, 119, 121, 122, 123, 128, 129, 130, 132, 134, 136, 138				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBF179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	WALL BUMPER	1270CXSV	626	TRE
1	COAT HOOK	3071	626	TRE
1	GASKETING	2525 (HEAD & JAMBS)	CHA	NGP

HARDWARE SET: 03 CAGES				
DOOR #: 010				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
1	CYLINDER & CORE	TYPE AS RQUIRED	626	BES

HARDWARE SET: 04				
DOOR #: 004				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBF179 4.5 x 4.5	US26D	BES
1	STOREROOM LOCKSET	9K37D 14D	630	BES
1	DOOR CLOSER	8916FC AF89	626	TRE
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRE
1	WALL BUMPER	1270CXSV	626	TRE
1	GASKETING	2525 (HEAD & JAMBS)	CHA	NGP

HARDWARE SET: 05				
DOOR #: 005				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
6	HINGES	FBF168 4.5 x 4.5 NRP	US26D	BES
1	VERTICAL ROD PANIC DEVICE	2208 x 4908D LBR	630	PRE
1	CYLINDER & CORE	RIM TYPE	626	BES
1	VERTICAL ROD PANIC DEVICE	2201 x 4902D LBR	630	PRE
2	DOOR CLOSERS	8916 FC DS BSHD	689	DOR
2	KICK PLATES	K0050 10" x 2" LDW .050 B4E CSK	630	TRE
1	GASKETING	2525 (HEAD & JAMBS)	CHA	NGP
1	INTRUSION SYSTEM	BY OWNER		

HARDWARE SET: 06				
DOORS #: 006, 007, 008, 009, 010				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
6	HINGES	FBF168 4.5 x 4.5	US26D	BES
1	PUSH/PULL COMBO	1895 - 4	630	TRE
1	DOOR CLOSER W/ STOP	8916FC DS BPHD	689	DOR
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRE
2	MOP PLATE	KM050 10" x 1" LDW .050 B4E CSK	630	TRE
1	GASKETING	2525 (HEAD & JAMBS)	CHA	NGP

HARDWARE SET: 07				
DOORS #: 011, 109, 110, 127, 133, 204, 304, 306, 307				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	WALL BUMPER	1270CXSV	626	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 08 45 min.				
DOORS #: 012, 108, 111, 206, 310				
6	HINGES	FBB168 4.5 x 4.5 NRP	US26D	BES
1	VERTICAL ROD PANIC DEVICE	FL2208 x 4908D LBR	630	PRE
1	CYLINDER & CORE	RIM TYPE	626	BES
1	VERTICAL ROD PANIC DEVICE	2201 x 4902D LBR	630	PRE
2	DOOR CLOSERS	8916 FC DS BSHD	689	DOR
2	KICK PLATES	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	GASKETING (SMOKE SEAL)	2525 (HEAD & JAMBS)	CHA	NGP

*For all single doors: Reduce hardware as needed.

HARDWARE SET: 09				
DOORS #: 110, 112, 117, 201, 302, 303, 308, 309				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	DOOR CLOSER	8916FC AF89	626	TRM
1	DOOR CLOSER W/ STOP	8916FC IS (DOOR# 117 ONLY)	689	BES
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	WALL BUMPER	1270CXSV	626	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 10 C/R HMD x HMF				
DOOR #: 014				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
8	HINGES	FBB199 5 x 4.5 NRP	US32D	BES
1	ELECTRIFIED RIM PANIC DEVICE	C TS MLR2803	626W	PRE
2	POWER TRANSFERS	EPT-12C	630	PRE
1	TRIM CYLINDER& CORE	RIM TYPE	626	BES
1	ELECTRIFIED RIM PANIC DEVICE	C TS MLR2801	626W	PRE
1	POWER SUPPLY	RPSMLR2BB	PTD	PRE
2	WIRING HARNESS	WH-6E		PRE
2	WIRING HARNESS	WH-192P		PRE
2	WIRING HARNESS	WH-XXP (LENGTH AS REQ'D)		PRE
1	VANDAL DOOR PULL	1097PHI-2100-P-C	630	PRE
1	VANDAL DOOR PULL	1097PHI-2100-P-N	630	PRE
2	DOOR CLOSERS W/ SPR STOPS	8916FC SDS BSHD	689	DOR
2	KICK PLATES	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	THRESHOLD	425 SIA ssms/ea	AL	NGP
1	MULLION SEAL	5100	BLK	NGP
1	WEATHER SEAL	702N (HEAD & JAMBS)	AL	NGP
2	DOOR SWEEPS	101V	AL	NGP
1	DRIP CAP	16A +4"ODW	AL	NGP

2	DOOR POSITION SWITCHES	9540	PLC	RCI
1	CARD READER	BY SECURITY CONTRACTOR		
OPERATIONAL DESCRIPTION: DOORS ARE NORMALLY CLOSED AND SECURE. ACCESS VIA AUTHORIZED CREDENTIAL AT CARD READER OR MECHANICAL KEY AT ONE LEAF. LATCHBOLT MAY BE HELD RETRACTED ON MLR DEVICE BY SECURITY SOFTWARE. TS SWITCH IN EXIT DEVICE SERVES AS RX SWITCH. DOOR POSITION SWITCH MONITORS DOOR OPEN/CLOSED STATUS. ALL WIRING AND CONDUIT BY ELECTRICAL CONTRACTOR. COORDINATE WIRING AND INSTALLATION WITH EC / GC / SECURITY CONTRACTOR.				

HARDWARE SET: 11 ALD x ALF				
DOOR #: 101, 106				
2	OFFSET PIVOT SETS	OP440	US26D	DOR
2	INTERMEDIATE PIVOTS	75220	US26D	DOR
1	VERTICAL ROD PANIC DEVICE	2203CD	630	PRE
1	CYLINDER & CORE	RIM TYPE	626	BES
1	VERTICAL ROD PANIC DEVICE	2201	630	PRE
2	DOGGING CYLINDERS & CORES	MORTISE TYPE	626	BES
2	DOOR PULLS	1191-4	630	TRE
2	DOOR CLOSERS W/ SPR STOPS	8916 FC SDS BSHD	689	DOR
1	THRESHOLD	425 SIA ssms/ea	AL	NGP
2	DOOR SWEEPS	101V	AL	NGP
1	DRIP CAP	16A +4"ODW	AL	NGP
2	DOOR POSITION SWITCHES	9540	PLC	RCI
NOTE: WEATHER SEALS BY ALUMINUM DOOR & FRAME MANUFACTURER.				

HARDWARE SET: 12 EXTERIOR HMD x HMF				
DOOR #: 401				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
1	CONTINUOUS HINGE	661HD	AL	BES
1	RIM PANIC DEVICE	2103	626W	PRE
1	TRIM CYLINDER/CORE	RIM TYPE	626	BES
1	VANDAL RESISTANT DOOR PULL	1097PHI-21-S-C	630	TRE
1	DOOR CLOSER W/ SPR. STOP/HO	8916FC SDSHO BSHD	689	DOR
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	THRESHOLD	896ADJ SIA ssms/ea	AL	NGP
2	DOOR SWEEPS	101V	AL	NGP
1	DRIP CAP	16A +4"ODW	AL	NGP

HARDWARE SET: 13 NOT USED				
DOOR #:				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	DOOR CLOSER W/ STOP	8916FC ISS	626	TRM
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 14				
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DOORS #: 103, 104, 105, 202, 301, 135				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	PRIVACY SET	45H0L14D VIB	626	BRS
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	MOP PLATE	KM050 4" x 1" LDW .050 B4E CSK	630	TRM
1	WALL BUMPER	1270CXSV	626	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 15 EXTERIOR ALD x ALF				
DOORS #:126				
1	CONTINUOUS HINGE	661HD	689	BES
1	RIM PANIC DEVICE	2103	630	PRE
1	CYLINDER & CORE	RIM TYPE	626	BES
1	DOOR PULL	1191-4	630	TRM
1	DOOR CLOSER W/ STOP	8916 FC SDS BSHD	689	BES
1	THRESHOLD	425 SIA ssms/ea	AL	NGP
1	DOOR SWEEP	101V	AL	NGP
1	DRIP CAP	16A	AL	NGP
NOTE: PERIMETER WEATHER SEALS BY ALUMINUM DOOR & FRAME MANUFACTURER.				

HARDWARE SET: 16				
DOOR #: 116				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	DOOR CLOSER W/ STOP	8916FC IS BSHD	626	TRM
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 17				
DOOR #:118				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	OVERHEAD STOP	700 SERIES	626	DOR
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 18				
DOOR #: 125				
6	HINGES	FBB168 4.5 x 4.5 NRP	US26D	BES
2	DOOR PULLS	1013-3B		
2	PUSH PLATES	1001-3		
2	DOOR CLOSERS	8916 FC DS BSHD	689	DOR
2	KICK PLATES	K0050 10" x 2" LDW .050 B4E CSK	630	TRE
1	GASKETING	2525 (HEAD & JAMBS)	CHA	NGP

HARDWARE SET: 19 NOT USED				
DOORS #: 013				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5 NRP	US26D	BES
1	STOREROOM LOCKSET	9K37D 14D	630	BES
1	ELECTRIC STRIKE	F2164 F2LM FAIL SECURE	630	BES
1	POWER SUPPLY	DKPS-2A 9310RB x BB	PTD	RCI
1	DOOR CLOSER	8916FC AF89	626	TRM
1	WALL BUMPER	1270CXSV	626	TRM
3	DOOR SILENCERS	1229A	GRY	TRM
1	DOOR POSITION SWITCH	9540	PLC	RCI

HARDWARE SET: 20				
DOOR #: 128				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	PASSAGE SET	9K30N 14D	630	BES
1	DOOR CLOSER W/ STOP	8916FC DS	689	BES
1	WALL BUMPER	1270CXSV (DOOR# 128)	626	TRM
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 21				
DOOR #: 013, 205				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5 NRP	US26D	BES
1	STOREROOM LOCKSET	9K37D 14D	630	BES
1	ELECTRIC STRIKE	F2164 F2LM FAIL SECURE	630	BES
1	POWER SUPPLY	DKPS-2A 9310RB x BB	PTD	RCI
1	DOOR CLOSER W/ STOP	8916FC DS BSHD	626	TRM
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
3	DOOR SILENCERS	1229A	GRY	TRM
1	DOOR POSITION SWITCH	9540	PLC	RCI

HARDWARE SET: 22 EXTERIOR				
DOOR #: 305				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB199 4.5 x 4.5 NRP	US32D	BES
1	RIM PANIC DEVICE	2101	626W	PRE
1	DOOR CLOSER W/ SPR. STOP	8916FC SDS BSHD	689	DOR
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	THRESHOLD	896ADJ SIA ssms/ea	AL	NGP
2	DOOR SWEEPS	101V	AL	NGP
1	DRIP CAP	16A +4"ODW	AL	NGP

HARDWARE SET: 23 45 MIN.				
DOOR #: 015, 016				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.

0999J034.A01

Addendum #2 (11/13/24)

Door Hardware / 08 71 00

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3	HINGES	FBF168 4.5 x 4.5 NRP	US26D	BES
1	RIM PANIC DEVICE	FL2114 x 4914D	630	PRE
1	DOOR CLOSER W/ SPR. STOP	8916FC SDS BSHD	689	DOR
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	GASKETING	2525 (HEAD & Jambs)	CHA	NGP

HARDWARE SET: 24 C/R ALD x ALF				
DOOR #: 102				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
2	OFFSET PIVOTS SETS	OP440	626	DOR
2	ELECTRIC INTERMEDIATE PIVOTS	75200	626	DOR
1	ELECTRIFIED VERTICAL ROD PANIC DEVICES	C TS MLR2203 LBR	630	PRE
2	POWER TRANSFERS	EPT-12C	630	PRE
1	TRIM CYLINDER& CORE	RIM TYPE	626	BES
1	ELECTRIFIED VERTICAL ROD PANIC DEVICE	C TS MLR2201 LBR	630	PRE
1	POWER SUPPLY	RPSMLR2BB	PTD	PRE
2	WIRING HARNESS	WH-6E		
2	WIRING HARNESS	WH-192P		
2	WIRING HARNESS	WH-XXP (LENGTH AS REQ'D)		
2	DOOR PULLS	1191-4	630	TRE
2	DOOR CLOSERS W/ SPR STOPS	8916FC SDS BSHD	689	DOR
2	DOOR POSTION SWITCHES	9540	PLC	RCI
1	CARD READER	BY SECURITY CONTRACTOR		
OPERATIONAL DESCRIPTION: DOORS ARE NORMALLY CLOSED AND SECURE. ACCESS VIA AUTHORIZED CREDENTIAL AT CARD READER OR MECHANICAL KEY AT ONE LEAF. LATCHBOLT MAY BE HELD RETRACTED ON MLR DEVICE BY SECURITY SOFTWARE. TS SWITCH IN EXIT DEVICE SERVES AS RX SWITCH. DOOR POSITION SWITCH MONITORS DOOR OPEN/CLOSED STATUS. ALL WIRING AND CONDUIT BY ELECTRICAL CONTRACTOR. COORDINATE WIRING AND INSTALLATION WITH EC / GC / SECURITY CONTRACTOR. NOTE: GASKETING BY ALUMINUM DOOR MANUFACTURER.				

HARDWARE SET: 25				
DOOR #: 107				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBF179 4.5 x 4.5	US26D	BES
1	PASSAGE SET	9K30N 14D	630	BES
1	DOOR CLOSER	8916FC AF89	689	BES
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 26				
DOORS #: 135				
6	HINGES	FBF168 4.5 x 4.5 NRP	US26D	BES
1	VERTICAL ROD PANIC DEVICE	2208 x 4908D LBR	630	PRE
1	CYLINDER & CORE	RIM TYPE	626	BES
1	VERTICAL ROD PANIC DEVICE	2201 x 4902D LBR	630	PRE
2	DOOR CLOSERS	8916 FC DS BSHD	689	DOR
2	KICK PLATES	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	GASKETING	2525 (HEAD & JAMBS)	CHA	NGP

HARDWARE SET: 27		ALD x ALF		
DOORS #: 137				
1	CONTINUOUS HINGE	661HD	689	BES
1	RIM PANIC DEVICE	2103CD	630	PRE
1	CYLINDER & CORE	RIM TYPE	626	BES
1	CYLINDER & CORE	MORTISE TYPE	626	BES
1	DOOR PULL	1191-4	630	TRM
1	DOOR CLOSER W/ STOP	8916 FC SDS BSHD	689	BES
NOTE: PERIMETER WEATHER SEALS BY ALUMINUM DOOR & FRAME MANUFACTURER.				

HARDWARE SET: 28				
DOOR #: 139, 140				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	PASSAGE SET	9K30N 14D	630	BES
1	OVERHEAD STOP	700S	626	DOR
3	DOOR SILENCERS	1229A	GRY	TRM

HARDWARE SET: 29				
DOOR #: 203				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB168 4.5 x 4.5 NRP	US26D	BES
1	RIM PANIC DEVICE	FL2114 x 4914D	630	PRE
1	DOOR CLOSER W/ SPR. STOP	8916FC SDS BSHD	689	DOR
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
1	GASKETING	2525 (HEAD & Jambs)	CHA	NGP

HARDWARE SET: 30		45 MIN.		
DOOR #: 311				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	PASSAGE SET	9K30N 14D	630	BES
1	DOOR CLOSER	8916FC AF89	689	BES
1	KICK PLATE	K0050 10" x 2" LDW .050 B4E CSK	630	TRM
3	GASKETING	2525 (HEAD x JAMBS)	CHA	TRM

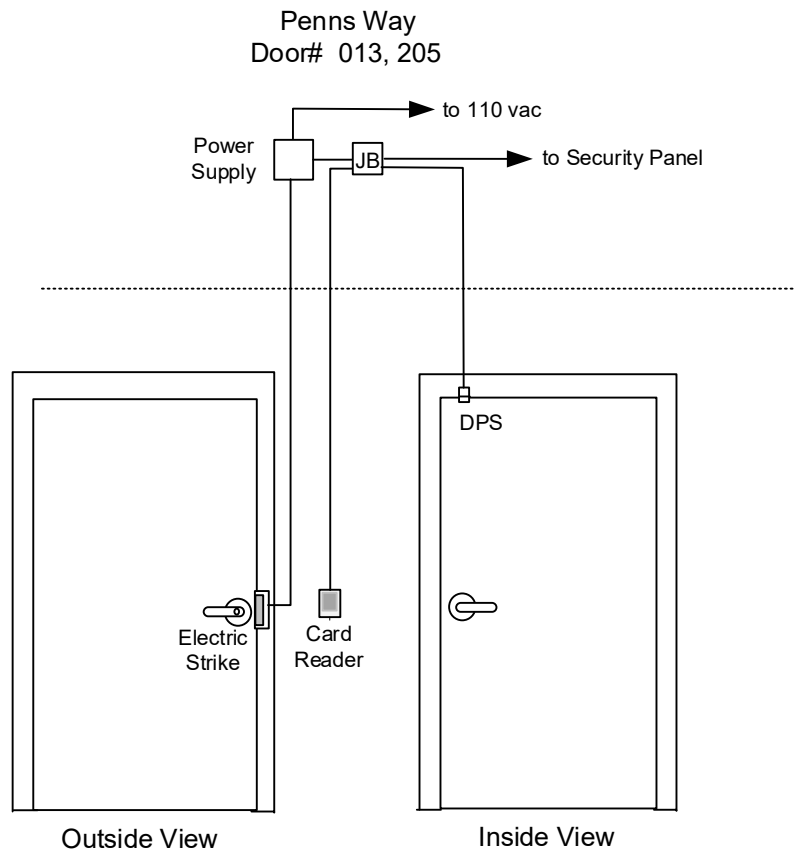
THE FOLLOWING HARDWARE SETS ARE FOR THE ALTERNATE

HARDWARE SET: ALT-01				
DOORS #: 101, 102, 103, 115, 116, 119, 120 121, 301, 302, 303, 304				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	CLASSROOM LOCKSET	9K37R 14D	630	BES
1	WALL BUMPER	1270CXSV	626	TRM
3	DOOR SILENCERS	1229A	GRY	TRM

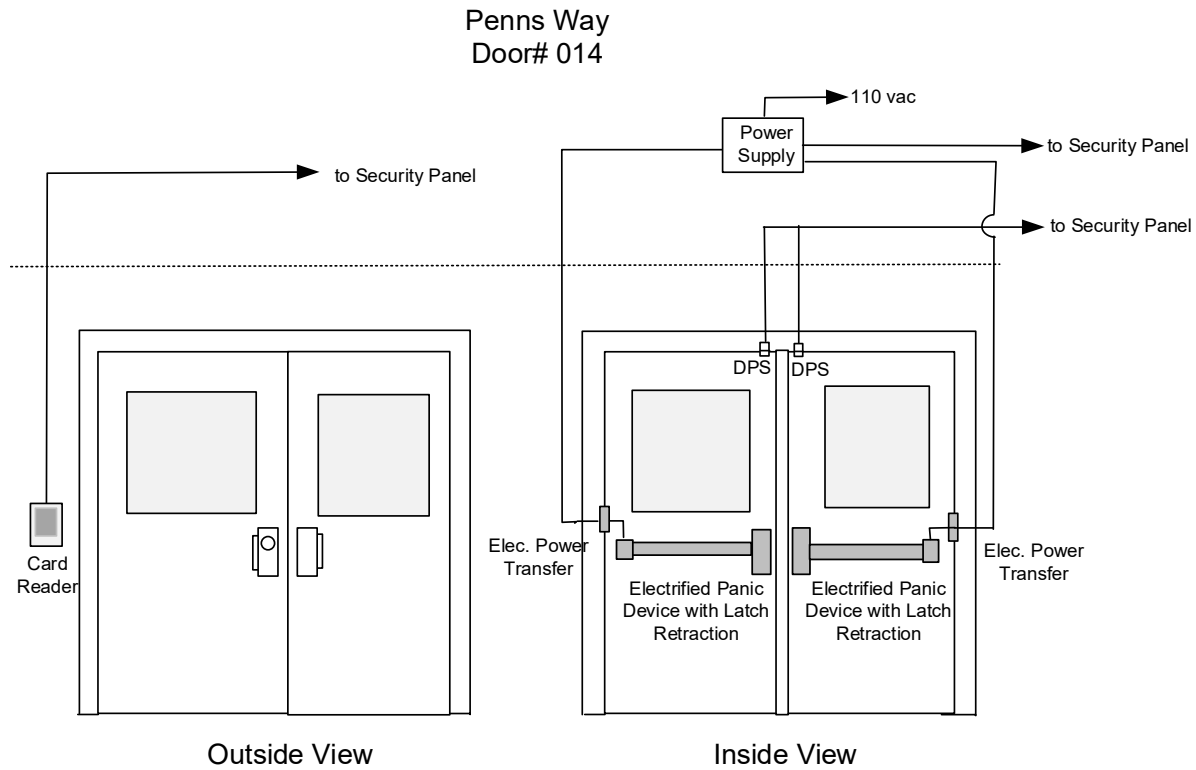
HARDWARE SET: ALT-02		ALD x ALF		
DOOR #:108				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
2	OFFSET PIVOT SETS	OP440	US26D	DOR
2	INTERMEDIATE PIVOTS	75220	US26D	DOR

2	PUSH / PULL BAR SET	1746-1	630	TRM
2	PUSH BARS	1745	630	TRM
2	DOOR CLOSERS	8916 FC DSHO BSHD	689	DOR
NOTE: GASKETING BY ALUMINUM DOOR & FFRAME MANUFACTURER.				

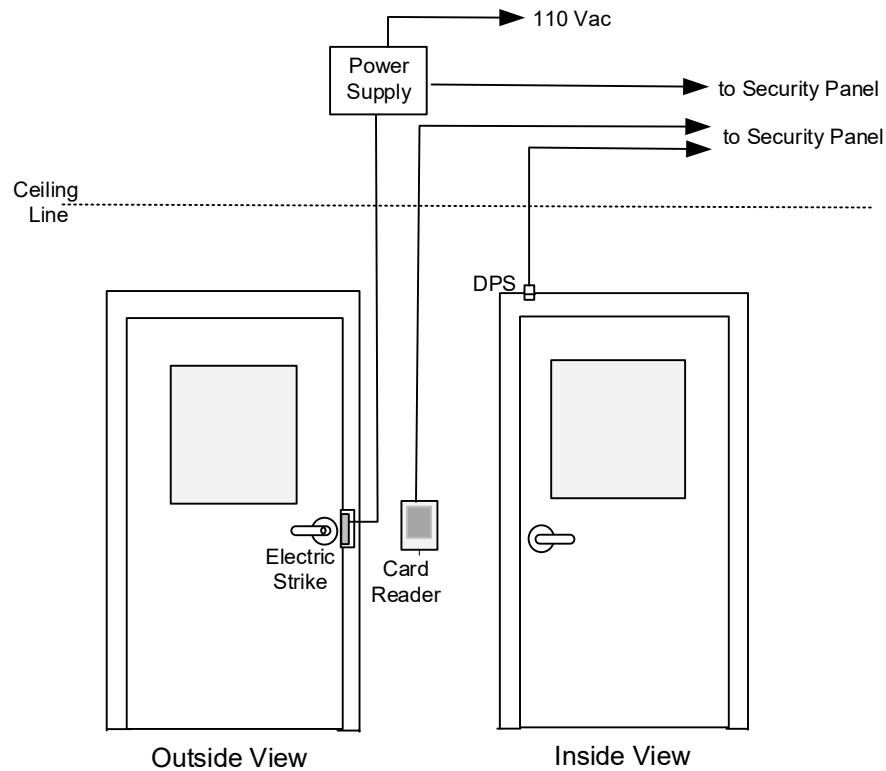
HARDWARE SET: ALT-03				
DOORS #: 117, 118				
QTY	DESCRIPTION	PRODUCT	FIN.	MAN.
3	HINGES	FBB179 4.5 x 4.5	US26D	BES
1	PASSAGE SET	9K30N 14D	630	BES
1	OVERHEAD STOP	700S SERIES	626	DOR
3	DOOR SILENCERS	1229A	GRY	TRM



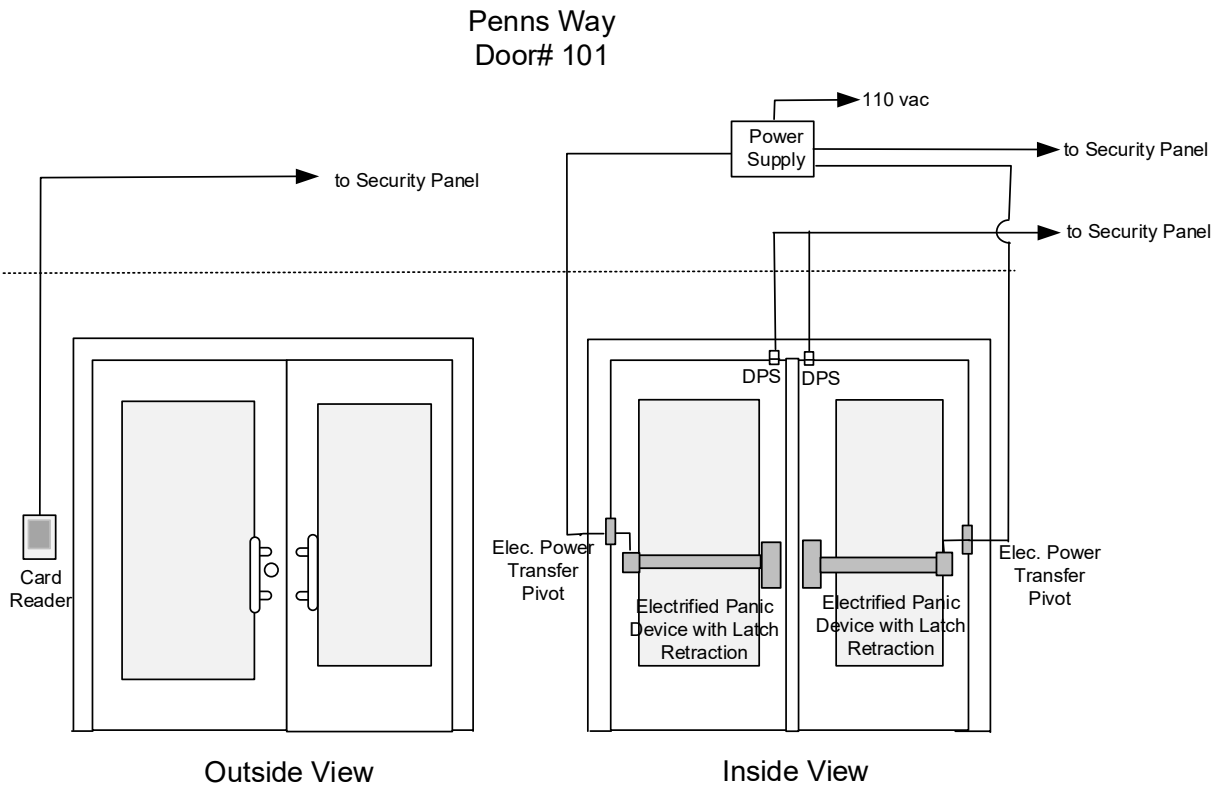
Operational Description: Entrance via presenting authorized credential to card reader or via mechanical key. Egress always via inside lever of lockset. Sensor works as Request to Exit. Furnish necessary conduit for specified hardware components. Coordinate wiring and installation with GC/EC/Security Contractor. See electrical drawings for details.



DESCRIPTION OF OPERATION: ENTRANCE VIA MECHANICAL KEY OR
AUHORIZED CREDENTIAL AT READER WHICH WILL RETRACT LATCH
BOLT OF EXIT DEVICES. FREE EGRESS ALWAYS. RX SWITCH IN
TOUCHBAR OF PANIC DEVICE FOR REQUEST TO EXIT. HEAD & JAMB
TO BE EQUIPPED WITH NECESSARY CONDUIT FOR SPECIFIED
HARDWARE COMPONENTS. COORDINATE WIRING AND
INSTALLATION WITH GC / EC / SECURITY CONTRACTOR. SEE
ELECTRICAL DRAWINGS FOR DETAILS



DESCRIPTION OF OPERATION: ENTRANCE VIA MECHANICAL KEY OR AUTHORIZED CREDENTIAL AT READER WHICH WILL RETRACT LATCH BOLT OF EXIT DEVICE. LATCH BOLT MONITOR SWITCH IN ELECTRIC STRIKE WORKS AS REQUEST TO EXIT (RX). FREE EGRESS ALWAYS. HEAD & JAMB TO BE EQUIPPED WITH NECESSARY CONDUIT FOR SPECIFIED HARDWARE COMPONENTS. COORDINATE WIRING AND INSTALLATION WITH GC / EC / SECURITY CONTRACTOR. SEE ELECTRICAL DRAWINGS FOR DETAILS



DESCRIPTION OF OPERATION: ENTRANCE VIA MECHANICAL KEY OR AUTHORIZED CREDENTIAL AT READER WHICH WILL RETRACT LATCH BOLT OF EXIT DEVICES. FREE EGRESS ALWAYS. RX SWITCH IN TOUCHBAR OF PANIC DEVICE FOR REQUEST TO EXIT. HEAD & JAMB TO BE EQUIPPED WITH NECESSARY CONDUIT FOR SPECIFIED HARDWARE COMPONENTS. COORDINATE WIRING AND INSTALLATION WITH GC / EC / SECURITY CONTRACTOR. SEE ELECTRICAL DRAWINGS FOR DETAILS

END OF SECTION

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SECTION 32 31 13
CHAIN-LINK FENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Chain-Link Fences: Industrial.
 - 2. Gates: Swing.
- B. Related Section s include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for concrete post concrete fill.
 - 2. Division 31 Section "Earthwork" for site excavation, fill and backfill where chain-link fences are located.

1.3 SUBMITTALS

- A. Product Data: Include material descriptions, dimensions of individual components, and finishes for chain-link fences.
 - 1. Fence and gate posts, rails, and fittings.
 - 2. Chain-link fabric, reinforcements, and attachments.
 - 3. Gates and hardware.
 - 4. Accessories: Tension Wire and Tension Bars.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed chain-link fences similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.
- B. Interruption of Existing Utility Service: Do not interrupt utility services to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer no fewer than two days in advance of proposed interruption of utility services.
 - 2. Do not proceed with interruption of utility services without Engineer's written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Hoover Fence Co.
 - b. Pioneer Fence Co.
 - c. Other Manufacturer's that can provide specified material.

2.2 CHAIN-LINK FENCE FABRIC

- A. General: Height indicated on Drawings. Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:
 - 1. Steel Wire Fabric: Galvanized-coated wire with a diameter of 9 Gauge.
 - a. Mesh Size: 2 inches (50 mm).
 - 2. Salvage: Twisted top and knuckled bottom.

2.3 INDUSTRIAL FENCE FRAMING

- A. Posts and Rails: Comply with ASTM F 1043 for framing, ASTM F 1083 for Group IC round pipe, and the following:
 - 1. Group: IA, round steel pipe, Schedule 40.
 - 2. Fence Height: 10 feet (1.83 m).
 - 3. Strength Requirement: Light industrial according to ASTM F 1043.
 - 4. Post Diameter and Thickness: 2" O.D., Schedule 40

5. Post Size and Thickness:
 - a. Top Rail: 1.625 inches (41 mm).
 - b. Line Post: 2 inches (50 mm).
 - c. End, Corner and Pull Post: 2.5 inches (63 mm).
 - d. Swing Gate Post: 2.5-inch (63-mm) diameter.
6. Coating for Steel Framing: Galvanized

2.4 TENSION WIRE

- A. General: Provide horizontal tension wire at the following locations:
 1. Location: Extended along bottom of fence fabric.
- B. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817, ASTM A 824, and the following:
 1. Metallic Coating: Type II, zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:
 - a. Matching chain-link fabric coating weight.

2.5 INDUSTRIAL SWING GATES

- A. General: Comply with ASTM F 900 for double swing gate types.
 1. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1043 and ASTM F 1083 for materials and protective coatings.
 2. Metal Pipe and Tubing: Aluminum. Comply with ASTM B 429 and ASTM F 1043 for materials and protective coatings.
- B. Frames and Bracing: Fabricate members from galvanized steel tubing with outside dimension and weight according to ASTM F 900 and the following:
 1. Gate Fabric Height: 2 inches (50 mm) less than adjacent fence height.
 2. Leaf Width: 36 inches (914 mm).
 3. Frame Members:
 - a. Tubular Steel: 2 inches (50 mm) round.
- C. Frame Corner Construction:
 1. Welded or assembled with corner fittings and 5/16-inch- (7.9-mm-) diameter, adjustable truss rods for panels 5 feet (1.52 m) wide or wider.
- D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame 12 inches (300 mm) as required to attach barbed wire assemblies.

- E. Hardware: Latches permitting operation from both sides of gate, hinges, center gate stops and keepers for each gate leaf more than 5 feet (1.52 m) wide.

2.6 FITTINGS

- A. General: Comply with ASTM F 626.
- B. Post and Line Caps: Provide for each post.
 - 1. Line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: Attach rails securely to each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Aluminum Alloy 6063 not less than 6 inches (152 mm) long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.
- E. Tension and Brace Bands: Aluminum Alloy 6063.
- F. Tension Bars: Steel, length not less than 2 inches (50 mm) shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- H. Barbed Wire Arms: Galvanized, with clips, slots, or other means for attaching strands of barbed wire integral with post cap; for each post, unless otherwise indicated, and as follows:
 - 1. Line posts with arms that accommodate top rail or tension wire.
 - 2. Corner arms at fence corner posts, unless extended posts are indicated.
 - 3. Type I, single slanted arm.
- I. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:
 - a. Hot-Dip Galvanized Steel: 9 Gauge diameter wire galvanized coating thickness matching coating thickness of chain-link fence fabric.
 - b. Aluminum: ASTM B 211 (ASTM B 211M); Alloy 1350-H19; 9 Gauge diameter, mill-finished wire.
- J. Finish:
 - 1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.
 - 2. Aluminum: Mill finish.

2.7 BARBED WIRE

- A. Zinc-Coated Steel Barbed Wire: Comply with ASTM A 121, Chain-Link Fence grade for the following two-strand barbed wire:
 - 1. Standard Size and Construction 12.5 Gauge diameter line wire with 0.080-inch- (2.03-mm-) diameter, 2-point round barbs spaced not more than 5 inches (127 mm) o.c. <Insert line wire diameter, barbed wire diameter, and other characteristics.>
- B. Aluminum-Coated Steel Barbed Wire: 2-strand, 110-inch- (2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, 4-point barbs spaced not more than 5 inches (127 mm) o.c.
- C. Aluminum Barbed Wire: Mill finished, ASTM B 211 (ASTM B 211M). 2-strand, 0.110-inch- (2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, 4-point barbs spaced not more than 5 inches (127 mm) o.c., for the following alloys:
 - 1. Line Wire: Alloy 5052-H38.
 - 2. Barb Wire: Alloy 5000-H38 or Alloy 6061-T94.

2.8 CAST-IN-PLACE CONCRETE

- A. Materials: Portland cement complying with ASTM C 150, Type I aggregates complying with ASTM C 33, and potable water for ready-mixed concrete complying with ASTM C 94/C 94M. Measure, batch, and mix Project-site-mixed concrete according to ASTM C 94/C 94M.
 - 1. Concrete Mixes: Normal-weight concrete air entrained with not less than 3000-psi (20.7-MPa) compressive strength (28 days), 3-inch (75-mm) slump, and 1-inch (25-mm) maximum size aggregate.
- B. Materials: Dry-packaged concrete mix complying with ASTM C 387 for normal-weight concrete mixed with potable water according to manufacturer's written instructions.

2.9 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance.
 - 1. Do not begin installation before final grading is completed, unless otherwise permitted by Architect.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines and terminal posts. Do not exceed intervals of 500 feet (152.5 m) or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

- A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing as indicated on the plans.

3.4 CHAIN-LINK FENCE INSTALLATION

- A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Top 6 inches (150 mm) below grade to allow covering with surface material.
- C. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.
- D. Line Posts: Space line posts uniformly at 10 feet (3 m) o.c.
- E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at mid-height of fabric 6 feet (1.83 m) or higher, on fences with top rail and at 2/3 fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- F. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- (3.05-mm-) diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches (610 mm) o.c. Install tension wire in locations indicated before stretching fabric.
 1. Top Tension Wire: Install tension wire through post cap loops.
 2. Bottom Tension Wire: Install tension wire within 6 inches (150 mm) of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- H. Bottom Rails: Install, spanning between posts.
- I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch (25.4mm) between finish grade or surface and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches (380 mm) o.c.
- K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at 1 end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 1. Maximum Spacing: Tie fabric to line posts at 12 inches (300 mm) o.c. and to braces at 24 inches (610 mm) o.c.
- L. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- M. Barbed Wire: Install barbed wire uniformly spaced, angled away from security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

3.5 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.6 ADJUSTING

- A. Gate: Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain gates. Refer to Division 1 Section "Closeout Procedures."

END OF SECTION