

**July 24, 2013**

**Amendment No. ~~X~~ 2**

**Relocate Kitchen and SPD  
3200 Vine Street  
Cincinnati, OH. 45220**

This Amendment supplements and amends the original Drawings and Specifications for the above referenced project. This Amendment shall be forwarded to all Prime Bidders and all appropriate building code authorities. This Amendment shall be taken into account in the preparation of bids and shall become a part of the Contract Documents.

Receipt of this Amendment must be acknowledged on the Form of Proposal.

Questions or comments should be directed to the VAMC.

### **Specifications**

1. Section 01 00 00 General Requirements:
  - a. Paragraph 1.2.A-B and C: revise the construction duration to 540 days in lieu of 365 days.
2. Section 01 45 29 Testing Laboratory Services:
  - a. Add this specification section.
3. Section 01 81 11 Sustainable Design Requirements
  - a. Delete references to Commissioning, it is not required on this job.
4. Section 02 82 13.19 Asbestos Flooring and Mastic Abatement:
  - a. Paragraph 1.12.B states that there is abatement work in rooms 340, 344 and 344A. These rooms are outside the scope of work, no abatement is required at this time.
  - b. Paragraph 1.12.B: Add removal of approx. 1,300 sf. of 12" x 12" floor tile and associated asbestos containing black mastic located in room A001. See item related to sheet AD100 revision below.
5. Section 02 82 13.13 Pipe insulation-Glovebag Asbestos Abatement:
  - a. Paragraph 1.1.2.B: Revise quantity to 950 lf. of abatement in lieu of 875 lf.
6. Section 03 30 53 Cast In Place Concrete:
  - a. Paragraph 3.3.A: Delete requirement for 4" granular fill over vapor barrier.
  - b. Note that the slab is to sit on fill material. No void space will be allowed between the structural slab and the sub grade below.
7. Section 07 51 13: Cold Process Built-Up Asphalt Roofing:
  - a. Paragraph 2.1.A.1.a: Tremco representative is David Quilligan: (513) 231-9683.
8. Section 08 71 00 Door Hardware:
  - a. Replace specification section with new version.

9. Section 09 29 00 Gypsum Board:
  - a. Revise Paragraph 3.4.A: Finish joints, edges, corners, and fastener heads in accordance with ASTM C840. Use Level 4 finish for all finished areas open to public view. Exception: Use Level 3 finish on all areas to receive resinous wall coating, remainder of the wall finishing in those areas to be by finishes installer.
10. Section 09 30 13 Ceramic/Porcelain Tiling:
  - a. Replace specification section with new version.
11. Section 10 51 13 Metal Lockers:
  - a. Add this specification section.
12. Section 23 22 13 Steam and Condensate Heating Piping:
  - a. Delete paragraphs 2.9-A and 2.9-B. There are no requirements for Steam to Hot Water Heat Exchangers on this project.
  - b. Delete paragraph 3.4. There are no requirements for Steam-to-Steam Humidifiers on this project.
13. Section 27 15 00 Communications Horizontal Cabling:
  - a. Delete references to fiber optic cabling. The scope of work includes only copper and coaxial station cabling.

## Drawings

1. Sheet AD100:
  - a. Note 4 refers to flooring demolition. This floor is asbestos containing material to be abated per spec section 02 82 13.19. Specification has been revised to include these quantities.
2. Sheet AD103:
  - a. Room 304: delete note 7. Room does have existing floor tile to be abated per spec section 02 82 13.19. There is no quarry tile removal anticipated in this room, but the substrate must be prepared properly to install new finishes at the correct elevation.
3. Sheet A100D:
  - a. Replace sheet with new sheet. Walls have been added in the north-west corner of room A0006 Dry Goods. Change wall types in numerous locations.
4. Sheet A511:
  - a. Replace sheet with new sheet. Revise masonry wall types.
5. Sheet A601:
  - a. Replace sheet with new sheet. Revise comments column and frame description in door schedule, Change door A001 to hardware set 4. Revised frame detail H7 and J7.
6. Sheet AF101F:
  - a. Replace sheet with new sheet. Control joints in quarry tile are now shown.
7. Sheet AF103F:
  - a. Floor Details "D": The intent is to make the new finished floor material flush/level with existing adjacent areas. Based on available information there will be a 1" recessed slab, once demolition has been completed. The 1" depth is shown on these details. Note that the carpet depth will be approximately 1/4" thick and the VCT will be approximately 1/8" thick. Contractor is responsible to coordinate exact thickness.
8. Sheet QF100:
  - a. Items 41 and 42 Exhaust Hoods shall be CC, contractor furnished contractor installed, in lieu of VV.
  - b. Item 79 Cart Wash Automatic: Revise manf. to be Alvey Washing Equipment, Model KS-70. See spec. section for 11 71 01 Washing and Sterilizing Equipment for more information.
9. Sheet H3:
  - a. Condensing unit CU1 is scheduled at 72,000 BTU/Hr Cooling. A 48,000 BTU/Hr unit may be provided if it can accomplish the specified simultaneous heating and

cooling operations.

10. Sheet 1-H9
  - a. Refer to reissued drawing. Equipment layout revised to accommodate future project(s).
  - b. Refer to reissued drawing for walk-in cooler/freezer condensing unit locations and refrigerant piping route up thru building.
11. Sheet 1-H10
  - a. Refer to reissued drawing for addition of pressure relief piping.
  - b. Fan Coil FC-A343 shall be included in Deduct Alternate 2.
12. Sheet E1
  - a. Refer to reissued drawing for legend symbol correction.
13. Sheet 1-E4
  - a. Refer to reissued drawing for addition of access control, fire alarm, etc. associated with door A001 and plan note clarification for auto operator connections.
14. Sheet 1-E5
  - a. Refer to reissued drawing for relocation of condensing units and AHU.

**End of Amendment No. X 2**

## SECTION 01 45 29 TESTING LABORATORY SERVICES

### PART 1 - GENERAL

#### 1.1 DESCRIPTION:

This section specifies materials testing activities and inspection services required during project construction to be provided by a Testing Laboratory retained and paid for by Contractor.

#### 1.2 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. American Association of State Highway and Transportation Officials (AASHTO):
  - T27-06.....Sieve Analysis of Fine and Coarse Aggregates
  - T96-02 (R2006).....Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
  - T99-01 (R2004).....The Moisture-Density Relations of Soils Using a 2.5 Kg (5.5 lb.) Rammer and a 305 mm (12 in.) Drop
  - T104-99 (R2003).....Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
  - T180-01 (R2004).....Moisture-Density Relations of Soils using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop
  - T191-02(R2006).....Density of Soil In-Place by the Sand-Cone Method
- C. American Concrete Institute (ACI):
  - 506.4R-94 (R2004).....Guide for the Evaluation of Shotcrete
- D. American Society for Testing and Materials (ASTM):
  - A325-06.....Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
  - A370-07.....Definitions for Mechanical Testing of Steel Products
  - A416/A416M-06.....Steel Strand, Uncoated Seven-Wire for Prestressed Concrete
  - A490-06.....Heat Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength
  - C31/C31M-06.....Making and Curing Concrete Test Specimens in the Field
  - C33-03.....Concrete Aggregates
  - C39/C39M-05.....Compressive Strength of Cylindrical Concrete Specimens
  - C109/C109M-05.....Compressive Strength of Hydraulic Cement Mortars
  - C138-07.....Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
  - C140-07.....Sampling and Testing Concrete Masonry Units and Related Units
  - C143/C143M-05.....Slump of Hydraulic Cement Concrete
  - C172-07.....Sampling Freshly Mixed Concrete

C173-07.....	Air Content of freshly Mixed Concrete by the Volumetric Method
C330-05.....	Lightweight Aggregates for Structural Concrete
C567-05.....	Density Structural Lightweight Concrete
C780-07.....	Pre-construction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
C1019-08.....	Sampling and Testing Grout
C1064/C1064M-05 .....	Freshly Mixed Portland Cement Concrete
C1077-06.....	Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
C1314-07.....	Compressive Strength of Masonry Prisms
D698-07.....	Laboratory Compaction Characteristics of Soil Using Standard Effort
D1143-07.....	Piles Under Static Axial Compressive Load
D1188-07.....	Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens
D1556-07.....	Density and Unit Weight of Soil in Place by the Sand-Cone Method
D1557-07.....	Laboratory Compaction Characteristics of Soil Using Modified Effort
D2166-06.....	Unconfined Compressive Strength of Cohesive Soil
D2167-94(R2001).....	Density and Unit Weight of Soil in Place by the Rubber Balloon Method
D2216-05.....	Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
D2922-05.....	Density of soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
D2974-07.....	Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
D3666-(2002) .....	Minimum Requirements for Agencies Testing and Inspection Bituminous Paving Materials
D3740-07.....	Minimum Requirements for Agencies Engaged in the Testing and Inspecting Road and Paving Material
E94-04.....	Radiographic Testing
E164-03.....	Ultrasonic Contact Examination of Weldments
E329-07 .....	Agencies Engaged in Construction Inspection and/or Testing
E543-06.....	Agencies Performing Non-Destructive Testing

E605-93(R2006)..... Thickness and Density of Sprayed Fire-Resistive Material  
(SFRM) Applied to Structural Members

E709-(2001) ..... Guide for Magnetic Particle Examination

E1155-96(R2008)..... Determining FF Floor Flatness and FL Floor Levelness Numbers

E. American Welding Society (AWS):

D1.1-07..... Structural Welding Code-Steel

### 1.3 REQUIREMENTS:

- A. Accreditation Requirements: Testing Laboratory retained and paid for by Contractor, must be accredited by one or more of the National Voluntary Laboratory Accreditation Program (NVLAP) programs acceptable in the geographic region for the project. Furnish to the Project Engineer a copy of the Certificate of Accreditation and Scope of Accreditation. For testing laboratories that have not yet obtained accreditation by a NVLAP program, submit an acknowledgement letter from one of the laboratory accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the Project Engineer for approval, certified statements, signed by an official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.
1. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E329.
  2. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C1077.
  3. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D3666.
  4. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D3740.
  5. Laboratories engaged in inspection and testing of steel, stainless steel, and related alloys will be evaluated according to ASTM A880.
  6. Laboratories engaged in non-destructive testing (NDT) shall meet the requirements of ASTM E543.
  7. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.
- B. Inspection and Testing: Testing laboratory shall inspect materials and workmanship and perform tests described herein and additional tests requested by Project Engineer. When it appears materials furnished, or work performed by Contractor fail to meet construction contract requirements, Testing Laboratory shall direct attention of Project Engineer to such failure.
- C. Written Reports: Testing laboratory shall submit test reports to Project Engineer, Contractor, and Local Building Authority within 24 hours after each test is completed unless other arrangements

are agreed to in writing by the Project Engineer. Submit reports of tests that fail to meet construction contract requirements on colored paper.

- D. Verbal Reports: Give verbal notification to Project Engineer immediately of any irregularity.
- E. Test Standards: The Contractor shall include a lump sum allowance of \$5000 for furnishing published standards (ASTM, AASHTO, ACI, ANSI, AWS, ASHRAE, UL, etc.) referred to or specifically referenced which are pertinent to any Sections of these specifications. Furnish one set of standards in single copies or bound volumes to the Project Engineer within 60 days. Photocopies are not acceptable. Billings for the standards furnished shall be at the net cost to Testing Laboratory. A preliminary list of test standards, with the estimated costs, shall be submitted to the Project Engineer for review before any publications of reference standards are ordered.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 CONCRETE:**

- A. Batch Plant Inspection and Materials Testing:
  - 1. Perform continuous batch plant inspection until concrete quality is established to satisfaction of Project Engineer with concurrence of Contracting Officer and perform periodic inspections thereafter as determined by Project Engineer.
  - 2. Periodically inspect and test batch proportioning equipment for accuracy and report deficiencies to Project Engineer.
  - 3. Sample and test mix ingredients as necessary to insure compliance with specifications.
  - 4. Sample and test aggregates daily and as necessary for moisture content. Test the dry rodded weight of the coarse aggregate whenever a sieve analysis is made, and when it appears there has been a change in the aggregate.
  - 5. Certify, in duplicate, ingredients and proportions and amounts of ingredients in concrete conform to approved trial mixes. When concrete is batched or mixed off immediate building site, certify (by signing, initialing or stamping thereon) on delivery slips (duplicate) that ingredients in truck-load mixes conform to proportions of aggregate weight, cement factor, and water-cement ratio of approved trial mixes.
- B. Field Inspection and Materials Testing:
  - 1. Provide a technician at site of placement at all times to perform concrete sampling and testing.
  - 2. Review the delivery tickets of the ready-mix concrete trucks arriving on-site. Notify the Contractor if the concrete cannot be placed within the specified time limits or if the type of concrete delivered is incorrect. Reject any loads that do not comply with the Specification

- requirements. Rejected loads are to be removed from the site at the Contractor's expense. Any rejected concrete that is placed will be subject to removal.
3. Take concrete samples at point of placement in accordance with ASTM C172. Mold and cure compression test cylinders in accordance with ASTM C31. Make at least four cylinders for each 80 m<sup>3</sup> (100 cubic yards) or less of each concrete type, and at least three cylinders for any one day's pour for each concrete type. Label each cylinder with an identification number. Project Engineer may require additional cylinders to be molded and cured under job conditions.
  4. Perform slump tests in accordance with ASTM C143. Determine the slump for each batch of concrete that super-plasticizer is added to in the field. Test and report slump both before and after super-plasticizer is added.
  5. Determine the air content of concrete per ASTM C173.
  6. If slump or air content fall outside specified limits, make another test immediately from another portion of same batch.
  7. Notify laboratory technician at batch plant of mix irregularities and request materials and proportioning check.
  8. Verify that specified mixing has been accomplished.
  9. Environmental Conditions: Determine the temperature per ASTM C1064 for each truckload of concrete during hot weather and cold weather concreting operations:
    - a. When ambient air temperature falls below 4.4 degrees C (40 degrees F), record maximum and minimum air temperatures in each 24 hour period; record air temperature inside protective enclosure; record minimum temperature of surface of hardened concrete.
    - b. When ambient air temperature rises above 29.4 degrees C (85 degrees F), record maximum and minimum air temperature in each 24 hour period; record minimum relative humidity; record maximum wind velocity; record maximum temperature of surface of hardened concrete.
  10. Inspect the reinforcing steel placement, including bar size, bar spacing, top and bottom concrete cover, proper tie into the chairs, and grade of steel prior to concrete placement. Submit detailed report of observations.
  11. Observe conveying, placement, and consolidation of concrete for conformance to specifications.
  12. Observe condition of formed surfaces upon removal of formwork prior to repair of surface defects and observe repair of surface defects.
  13. Observe curing procedures for conformance with specifications, record dates of concrete placement, start of preliminary curing, start of final curing, end of curing period.
  14. Observe preparations for placement of concrete:



- a. Inspect handling, conveying, and placing equipment, inspect vibrating and compaction equipment.
  - b. Inspect preparation of construction, expansion, and isolation joints.
15. Observe preparations for protection from hot weather, cold weather, sun, and rain, and preparations for curing.
16. Observe concrete mixing:
  - a. Monitor and record amount of water added at project site.
  - b. Observe minimum and maximum mixing times.
17. Measure concrete flatwork for levelness and flatness as follows:
  - a. Perform Floor Tolerance Measurements  $F_F$  and  $F_L$  in accordance with ASTM E1155. Calculate the actual overall F- numbers using the inferior/superior area method.
  - b. Perform all floor tolerance measurements within 48 hours after slab installation and prior to removal of shoring and formwork.
  - c. Provide the Contractor and the Project Engineer with the results of all profile tests, including a running tabulation of the overall  $F_F$  and  $F_L$  values for all slabs installed to date, within 72 hours after each slab installation.
18. Other inspections:
  - a. Grouting under base plates.
  - b. Grouting anchor bolts and reinforcing steel in hardened concrete.
- C. Laboratory Tests of Field Samples:
  1. Test compression test cylinders for strength in accordance with ASTM C39. For each test series, test one cylinder at 7 days and two cylinders at 28 days. Use remaining cylinder as a spare tested as directed by Project Engineer.
  2. Furnish certified compression test reports (duplicate) to Project Engineer. In test report, indicate the following information:
    - a. Cylinder identification number and date cast.
    - b. Specific location at which test samples were taken.
    - c. Type of concrete, slump, and percent air.
    - d. Compressive strength of concrete in MPa (psi).
    - e. Weather conditions during placing.
    - f. Temperature of concrete in each test cylinder when test cylinder was molded.
    - g. Maximum and minimum ambient temperature during placing.
    - h. Ambient temperature when concrete sample in test cylinder was taken.
    - i. Date delivered to laboratory and date tested.

### **3.2 REINFORCEMENT:**

- A. Review mill test reports furnished by Contractor.

- B. Perform sampling at fabricating plant. Take two samples from each 23 t (25 tons) or fraction thereof of each size of reinforcing steel No. 10 thru No. 57 (No. 3 thru No. 18).
- C. Make one tensile and one bend test in accordance with ASTM A370 from each pair of samples obtained.
- D. Written report shall include, in addition to test results, heat number, manufacturer, type and grade of steel, and bar size.
- E. Perform tension tests of mechanical and welded splices in accordance with ASTM A370.

**3.3 MASONRY:**

- A. Mortar Tests:
  - 1. Laboratory compressive strength test:
    - a. Comply with ASTM C780.
    - b. Obtain samples during or immediately after discharge from batch mixer.
    - c. Furnish molds with 50 mm (2 inch), 3 compartment gang cube.
    - d. Test one sample at 7 days and 2 samples at 28 days.
  - 2. Two tests during first week of operation; one test per week after initial test until masonry completion.
- B. Prism Tests: For each type of wall construction indicated, test masonry prisms per ASTM C1314 for each 460 m<sup>2</sup> (5000 square feet) of wall area. Prepare one set of prisms for testing at 7 days and one set for testing at 28 days.

--- E N D ---

**SECTION 08 71 00  
DOOR HARDWARE****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. Door hardware and related items necessary for complete installation and operation of doors.

**1.2 RELATED WORK**

- A. Caulking: Section 07 92 00 JOINT SEALANTS.
- B. Application of Hardware: Section 08 14 00, WOOD DOORS Section 08 11 13, HOLLOW METAL DOORS AND FRAMES Section 08 71 13, AUTOMATIC DOOR OPERATORS
- C. Painting: Section 09 91 00, PAINTING.
- D. Card Readers: Section 28 13 00, PHYSICAL ACCESS CONTROL SYSTEMS.
- E. Electrical: Division 26, ELECTRICAL.
- F. Fire Detection: Section 28 31 00, FIRE DETECTION AND ALARM.

**1.3 GENERAL**

- A. All hardware shall comply with UFAS, (Uniform Federal Accessible Standards) unless specified otherwise.
- B. Provide rated door hardware assemblies where required by most current version of the International Building Code (IBC).
- C. Hardware for Labeled Fire Doors and Exit Doors: Conform to requirements of NFPA 80 for labeled fire doors and to NFPA 101 for exit doors, as well as to other requirements specified. Provide hardware listed by UL, except where heavier materials, large size, or better grades are specified herein under paragraph HARDWARE SETS. In lieu of UL labeling and listing, test reports from a nationally recognized testing agency may be submitted showing that hardware has been tested in accordance with UL test methods and that it conforms to NFPA requirements.
- D. Hardware for application on metal and wood doors and frames shall be made to standard templates. Furnish templates to the fabricator of these items in sufficient time so as not to delay the construction.
- E. The following items shall be of the same manufacturer, except as otherwise specified:
  - 1. Mortise locksets.
  - 2. Hinges for hollow metal and wood doors.
  - 3. Surface applied overhead door closers.
  - 4. Exit devices.
  - 5. Floor closers.

**1.4 WARRANTY**

- A. Automatic door operators shall be subject to the terms of FAR Clause 52.246-21, except that the Warranty period shall be two years in lieu of one year for all items except as noted below:
  - 1. Locks, latchsets, and panic hardware: 5 years.

2. Door closers and continuous hinges: 10 years.

### 1.5 MAINTENANCE MANUALS

- A. In accordance with Section 01 00 00, GENERAL REQUIREMENTS Article titled "INSTRUCTIONS", furnish maintenance manuals and instructions on all door hardware. Provide installation instructions with the submittal documentation.

### 1.6 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. Submit 6 copies of the schedule per Section 01 33 23. Submit 2 final copies of the final approved schedules to VAMC Locksmith as record copies (VISN Locksmith if the VAMC does not have a locksmith).
- B. Hardware Schedule: Prepare and submit hardware schedule in the following form:

Hardware Item	Quantity	Size	Reference Publication Type No.	Finish	Mfr. Name and Catalog No.	Key Control Symbols	UL Mark (if fire rated and listed)	ANSI/BHMA Finish Designation

- C. Samples and Manufacturers' Literature:
1. Samples: All hardware items (proposed for the project) that have not been previously approved by Builders Hardware Manufacturers Association shall be submitted for approval. Tag and mark all items with manufacturer's name, catalog number and project number.
  2. Samples are not required for hardware listed in the specifications by manufacturer's catalog number, if the contractor proposes to use the manufacturer's product specified.
- D. Certificate of Compliance and Test Reports: Submit certificates that hardware conforms to the requirements specified herein. Certificates shall be accompanied by copies of reports as referenced. The testing shall have been conducted either in the manufacturer's plant and certified by an independent testing laboratory or conducted in an independent laboratory, within four years of submittal of reports for approval.

### 1.7 DELIVERY AND MARKING

- A. Deliver items of hardware to job site in their original containers, complete with necessary appurtenances including screws, keys, and instructions. Tag one of each different item of hardware and deliver to Project Engineer for reference purposes. Tag shall identify items by Project Specification number and manufacturer's catalog number. These items shall remain on file in Project Engineer's office until all other similar items have been installed in project, at which

time the Project Engineer will deliver items on file to Contractor for installation in predetermined locations on the project.

### **1.8 PREINSTALLATION MEETING**

- A. Convene a preinstallation meeting not less than 30 days before start of installation of door hardware. Require attendance of parties directly affecting work of this section, including Contractor and Installer, Project Engineer and VA Locksmith, Hardware Consultant, and Hardware Manufacturer's Representative. Review the following:
  - 1. Inspection of door hardware.
  - 2. Job and surface readiness.
  - 3. Coordination with other work.
  - 4. Protection of hardware surfaces.
  - 5. Substrate surface protection.
  - 6. Installation.
  - 7. Adjusting.
  - 8. Repair.
  - 9. Field quality control.
  - 10. Cleaning.

### **1.9 INSTRUCTIONS**

- A. Hardware Set Symbols on Drawings: Except for protective plates, door stops, mutes, thresholds and the like specified herein, hardware requirements for each door are indicated on drawings by symbols. Symbols for hardware sets consist of letters (e.g., "HW") followed by a number. Each number designates a set of hardware items applicable to a door type.
- B. Keying: All cylinders shall be keyed into existing Great Grand Master Key System. Provide removable core cylinders that are removable only with a special key or tool without disassembly of knob or lockset. Cylinders shall be Corbin Russwin 7 pin type 1000 x 118 x A01 x 7 x 59A1 x 0 Bitted x US26D and two key blanks 7PIN-51 and keyway 59A1, 59A2, 59B1, or 59B2.. Keying information shall be furnished at a later date by the Project Engineer.

### **1.10 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. In text, hardware items are referred to by series, types, etc., listed in such specifications and standards, except as otherwise specified.
- B. American Society for Testing and Materials (ASTM):
  - F883-04 ..... Padlocks
  - E2180-07.....Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) In Polymeric or Hydrophobic Materials

C. American National Standards Institute/Builders Hardware Manufacturers Association  
(ANSI/BHMA):

A156.1-06.....	Butts and Hinges
A156.2-03.....	Bored and Pre-assembled Locks and Latches
A156.3-08.....	Exit Devices, Coordinators, and Auto Flush Bolts
A156.4-08.....	Door Controls (Closers)
A156.5-01.....	Auxiliary Locks and Associated Products
A156.6-05.....	Architectural Door Trim
A156.8-05.....	Door Controls-Overhead Stops and Holders
A156.12-05 .....	Interconnected Locks and Latches
A156.13-05.....	Mortise Locks and Latches Series 1000
A156.14-07 .....	Sliding and Folding Door Hardware
A156.15-06.....	Release Devices-Closer Holder, Electromagnetic and Electromechanical
A156.16-08.....	Auxiliary Hardware
A156.17-04 .....	Self-Closing Hinges and Pivots
A156.18-06.....	Materials and Finishes
A156.20-06 .....	Strap and Tee Hinges, and Hasps
A156.21-09.....	Thresholds
A156.22-05.....	Door Gasketing and Edge Seal Systems
A156.23-04.....	Electromagnetic Locks
A156.24-03.....	Delayed Egress Locking Systems
A156.25-07 .....	Electrified Locking Devices
A156.26-06.....	Continuous Hinges
A156.28-07 .....	Master Keying Systems
A156.29-07 .....	Exit Locks and Alarms
A156.30-03 .....	High Security Cylinders
A156.31-07 .....	Electric Strikes and Frame Mounted Actuators
A250.8-03.....	Standard Steel Doors and Frames

D. National Fire Protection Association (NFPA):

80-10 .....	Fire Doors and Fire Windows
101-09 .....	Life Safety Code

E. Underwriters Laboratories, Inc. (UL):

Building Materials Directory (2008)

**PART 2 - PRODUCTS****2.1 BUTT HINGES**

- A. ANSI A156.1. Provide only three-knuckle hinges, except five-knuckle where the required hinge type is not available in a three-knuckle version (e.g., some types of swing-clear hinges). The following types of butt hinges shall be used for the types of doors listed, except where otherwise specified:
1. Exterior Doors: Type A2112/A5112 for doors 900 mm (3 feet) wide or less and Type A2111/A5111 for doors over 900 mm (3 feet) wide. Hinges for exterior outswing doors shall have non-removable pins. Hinges for exterior fire-rated doors shall be of stainless steel material.
  2. Interior Doors: Type A8112/A5112 for doors 900 mm (3 feet) wide or less and Type A8111/A5111 for doors over 900 mm (3 feet) wide. Hinges for doors exposed to high humidity areas (shower rooms, toilet rooms, kitchens, janitor rooms, etc. shall be of stainless steel material.
- B. Provide quantity and size of hinges per door leaf as follows:
1. Doors up to 1210 mm (4 feet) high: 2 hinges.
  2. Doors 1210 mm (4 feet) to 2260 mm (7 feet 5 inches) high: 3 hinges minimum.
  3. Doors greater than 2260 mm (7 feet 5 inches) high: 4 hinges.
  4. Doors up to 900 mm (3 feet) wide, standard weight: 114 mm x 114 mm (4-1/2 inches x 4-1/2 inches) hinges.
  5. Doors over 900 mm (3 feet) to 1065 mm (3 feet 6 inches) wide, standard weight: 127 mm x 114 mm (5 inches x 4-1/2 inches).
  6. Doors over 1065 mm (3 feet 6 inches) to 1210 mm (4 feet), heavy weight: 127 mm x 114 mm (5 inches x 4-1/2 inches).
  7. Provide heavy-weight hinges where specified.
  8. At doors weighing 330 kg (150 lbs.) or more, furnish 127 mm (5 inch) high hinges.
- C. See Articles "MISCELLANEOUS HARDWARE" and "HARDWARE SETS" for pivots and hinges other than butts specified above and continuous hinges specified below.

**2.2 DOOR CLOSING DEVICES**

- A. Closing devices shall be products of one manufacturer for each type specified.

**2.3 OVERHEAD CLOSERS**

- A. Conform to ANSI A156.4, Grade 1.
- B. Closers shall conform to the following:
1. The closer shall have minimum 50 percent adjustable closing force over minimum value for that closer and have adjustable hydraulic back check effective between 60 degrees and 85 degrees of door opening.
  2. Where specified, closer shall have hold-open feature.

3. Size Requirements: Provide multi-size closers, sizes 1 through 6, except where multi-size closer is not available for the required application.
4. Material of closer body shall be forged or cast.
5. Arm and brackets for closers shall be steel, malleable iron or high strength ductile cast iron.
6. Where closers are exposed to the exterior or are mounted in rooms that experience high humidity, provide closer body and arm assembly of stainless steel material.
7. Closers shall have full size metal cover; plastic covers will not be accepted.
8. Closers shall have adjustable hydraulic back-check, separate valves for closing and latching speed, adjustable back-check positioning valve, and adjustable delayed action valve.
9. Provide closers with any accessories required for the mounting application, including (but not limited to) drop plates, special soffit plates, spacers for heavy-duty parallel arm fifth screws, bull-nose or other regular arm brackets, longer or shorter arm assemblies, and special factory templating. Provide special arms, drop plates, and templating as needed to allow mounting at doors with overhead stops and/or holders.
10. Closer arms or backcheck valve shall not be used to stop the door from overswing, except in applications where a separate wall, floor, or overhead stop cannot be used.
11. Provide parallel arm closers with heavy duty rigid arm.
12. Where closers are to be installed on the push side of the door, provide parallel arm type except where conditions require use of top jamb arm.
13. Provide all surface closers with the same body attachment screw pattern for ease of replacement and maintenance.
14. All closers shall have a 1 1/2" (38mm) minimum piston diameter.

## **2.4 FLOOR CLOSERS AND FLOOR PIVOT SETS**

- A. Comply with ANSI A156.4. Provide stainless steel floor plates for floor closers and floor pivots, except where metal thresholds occur. Provide cement case for all floor closers. Floor closers specified for fire doors shall comply with Underwriters Laboratories, Inc., requirements for concealed type floor closers for classes of fire doors indicated on drawings. Hold-open mechanism, where required, shall engage when door is opened 105 degrees, except when door swing is limited by building construction or equipment, the hold-open feature shall engage when door is opened approximately 90 degrees. The hold-open mechanism shall be selectable on/off by turning a screw through the floor plate. Floor closers shall have adjustable hydraulic back-check, adjustable close speed, and adjustable latch speed. Provide closers with delayed action where a hold-open mechanism is not required. Floor closers shall be multi-sized. Single acting floor closers shall also have built in dead stop. Where required, provide closers with special cement cases appropriate for shallow deck installation or where concrete joint lines run through the floor blockout. At offset-hung doors installed in deep reveals, provide special closer arm and spindle to allow for installation. Where stone or terrazzo is applied over the floor closer



case, provide closer without floor plate and with extended spindle (length as required) and special cover pan (depth as required) to allow closer to be accessed without damaging the material applied over the closer. Pivots for non-labeled doors shall be cast, forged or extruded brass or bronze.

- B. Where floor closer appears in hardware set provide the following as applicable.
  - 1. Double Acting Floor Closers: Type C06012.
  - 2. Single Acting Floor Closer: Type C06021 (center pivoted). (Intermediate pivot is not required).
  - 3. Single Acting Floor Closers: Type C06041 (offset pivoted).
  - 4. Single Acting Floor Closer for Labeled Fire Doors: Type C06051 (offset pivoted).

## **2.5 DOOR STOPS**

- A. Conform to ANSI A156.16.
- B. Provide door stops wherever an opened door or any item of hardware thereon would strike a wall, column, equipment or other parts of building construction. For concrete, masonry or quarry tile construction, use lead expansion shields for mounting door stops.
- C. Where cylindrical locks with turn pieces or pushbuttons occur, equip wall bumpers Type L02251 (rubber pads having concave face) to receive turn piece or button.
- D. Provide floor stops (Type L02141 or L02161 in office areas; Type L02121 x 3 screws into floor elsewhere. Wall bumpers, where used, must be installed to impact the trim or the door within the leading half of its width. Floor stops, where used, must be installed within 4-inches of the wall face and impact the door within the leading half of its width.
- E. Where drywall partitions occur, use floor stops, Type L02141 or L02161 in office areas, Type L02121 elsewhere.
- F. Provide stop Type L02011, as applicable for exterior doors. At outswing doors where stop can be installed in concrete, provide stop mated to concrete anchor set in 76mm (3-inch) core-drilled hole and filled with quick-setting cement.
- G. Omit stops where floor mounted door holders are required and where automatic operated doors occur.
- H. Provide appropriate roller bumper for each set of doors (except where closet doors occur) where two doors would interfere with each other in swinging.
- I. Provide appropriate door mounted stop on doors in individual toilets where floor or wall mounted stops cannot be used.
- J. Provide overhead surface applied stop Type C02541, ANSI A156.8 on patient toilet doors in bedrooms where toilet door could come in contact with the bedroom door.
- K. Provide door stops on doors where combination closer magnetic holders are specified, except where wall stops cannot be used or where floor stops cannot be installed within 4-inches of the wall.

- L. Where the specified wall or floor stop cannot be used, provide concealed overhead stops (surface-mounted where concealed cannot be used).

## **2.6 OVERHEAD DOOR STOPS AND HOLDERS**

- A. Conform to ANSI Standard A156.8. Overhead holders shall be of sizes recommended by holder manufacturer for each width of door. Set overhead holders for 110 degree opening, unless limited by building construction or equipment. Provide Grade 1 overhead concealed slide type: stop-only at rated doors and security doors, hold-open type with exposed hold-open on/off control at all other doors requiring overhead door stops.

## **2.7 FLOOR DOOR HOLDERS**

- A. Conform to ANSI Standard A156.16. Provide extension strikes for Types L01301 and L01311 holders where necessary.

## **2.8 LOCKS AND LATCHES**

- A. Conform to ANSI A156.2. Locks and latches for doors 45 mm (1-3/4 inch) thick or over shall have beveled fronts. Lock cylinders shall have not less than seven pins. Cylinders shall be furnished with construction removable cores and construction master keys. Construct all cores so that they will be interchangeable into the core housings of all mortise locks, rim locks, cylindrical locks, and any other type lock included in the Great Grand Master Key System. Disassembly of lever or lockset shall not be required to remove core from lockset. All locksets or latches on double doors with fire label shall have latch bolt with 19 mm (3/4 inch) throw, unless shorter throw allowed by the door manufacturer's fire label. Provide temporary keying device or construction core of allow opening and closing during construction and prior to the installation of final cores.
- B. In addition to above requirements, locks and latches shall comply with following requirements:
  - 1. Mortise Lock and Latch Sets: Conform to ANSI/BHMA A156.13. Mortise locksets shall be series 1000, minimum Grade 2. All locksets and latchsets, except on designated doors in Psychiatric (Mental Health) areas, shall have lever handles fabricated from cast stainless steel. Provide sectional (lever x rose) lever design matching Corbin Ruswin. No substitute lever material shall be accepted. All locks and latchsets shall be furnished with 122.55 mm (4-7/8-inch) curved lip strike and wrought box. At outswing pairs with overlapping astragals, provide flat lip strip with 21mm (7/8-inch) lip-to-center dimension. Lock function F02 shall be furnished with emergency tools/keys for emergency entrance. All lock cases installed on lead lined doors shall be lead lined before applying final hardware finish. Furnish armored fronts for all mortise locks. Where mortise locks are installed in high-humidity locations or where exposed to the exterior on both sides of the opening, provide non-ferrous mortise lock case.
  - 3. Auxiliary locks shall be as specified under hardware sets and conform to ANSI A156.5.

## **2.9 ELECTRIC STRIKES**

- A. ANSI/ BHMA A156.31 Grade 1.
- B. General: Use fail-secure electric strikes at fire-rated doors.

**2.10 KEYS**

- A. Stamp all keys with change number and key set symbol. Furnish keys in quantities as follows:

<b>Locks/Keys</b>	<b>Quantity</b>
Cylinder locks	2 keys each
Cylinder lock change key blanks	100 each different key way
Master-keyed sets	6 keys each
Grand Master sets	6 keys each
Great Grand Master set	5 keys
Control key	2 keys

- B. Psychiatric keys shall be cut so that first two bittings closest to the key shoulder are shallow to provide greater strength at point of greatest torque.

**2.11 ARMOR PLATES, KICK PLATES, MOP PLATES AND DOOR EDGING**

- A. Conform to ANSI Standard A156.6.
- B. Provide protective plates and door edging as specified below:
1. Kick plates, mop plates and armor plates of metal, Type J100 series.
  2. Provide kick plates and mop plates where specified. Kick plates shall be 254 mm (10 inches) or 305 mm (12 inches) high. Mop plates shall be 152 mm (6 inches) high. Both kick and mop plates shall be minimum 1.27 mm (0.050 inches) thick. Provide kick and mop plates beveled on all 4 edges (B4E). On push side of doors where jamb stop extends to floor, make kick plates 38 mm (1-1/2 inches) less than width of door, except pairs of metal doors which shall have plates 25 mm (1 inch) less than width of each door. Extend all other kick and mop plates to within 6 mm (1/4 inch) of each edge of doors. Kick and mop plates shall butt astragals. For jamb stop requirements, see specification sections pertaining to door frames.
  3. Kick plates and/or mop plates are not required on following door sides:
    - a. Armor plate side of doors;
    - b. Exterior side of exterior doors;
    - c. Closet side of closet doors;
    - d. Both sides of aluminum entrance doors.
  4. Armor plates for doors are listed under Article "Hardware Sets". Armor plates shall be thickness as noted in the hardware set, 875 mm (35 inches) high and 38 mm (1-1/2 inches) less than width of doors, except on pairs of metal doors. Provide armor plates beveled on all 4 edges (B4E). Plates on pairs of metal doors shall be 25 mm (1 inch) less than width of each door. Where top of intermediate rail of door is less than 875 mm (35 inches) from door bottom, extend armor plates to within 13 mm (1/2 inch) of top of intermediate rail. On doors equipped with panic devices, extend armor plates to within 13 mm (1/2 inch) of panic bolt push bar.

5. Where louver or grille occurs in lower portion of doors, substitute stretcher plate and kick plate in place of armor plate. Size of stretcher plate and kick plate shall be 254 mm (10 inches) high.
6. Provide stainless steel edge guards where so specified at wood doors. Provide mortised type instead of surface type except where door construction and/or ratings will not allow. Provide edge guards of bevel and thickness to match wood door. Provide edge guards with factory cut-outs for door hardware that must be installed through or extend through the edge guard. Provide full-height edge guards except where door rating does not allow; in such cases, provide edge guards to height of bottom of typical lockset armor front. Forward edge guards to wood door manufacturer for factory installation on doors.

## **2.12 EXIT DEVICES**

- A. Conform to ANSI Standard A156.3. Exit devices shall be Grade 1; type and function are specified in hardware sets. Provide flush with finished floor strikes for vertical rod exit devices in interior of building. Trim shall have cast satin stainless steel lever handles of design similar to locksets, unless otherwise specified. Provide key cylinders for keyed operating trim and, where specified, cylinder dogging.
- B. Surface vertical rod panics shall only be provided less bottom rod; provide fire pins as required by exit device and door fire labels. Do not provide surface vertical rod panics at exterior doors.
- C. Concealed vertical rod panics shall be provided less bottom rod at interior doors, unless lockable or otherwise specified; provide fire pins as required by exit device and door fire labels. Where concealed vertical rod panics are specified at exterior doors, provide with both top and bottom rods.
- D. Where removable mullions are specified at pairs with rim panic devices, provide mullion with key-removable feature.
- E. At non-rated openings with panic hardware, provide panic hardware with key cylinder dogging feature.
- F. Exit devices for fire doors shall comply with Underwriters Laboratories, Inc., requirements for Fire Exit Hardware. Submit proof of compliance.

## **2.13 FLUSH BOLTS (LEVER EXTENSION)**

- A. Conform to ANSI A156.16. Flush bolts shall be Type L24081 unless otherwise specified. Furnish proper dustproof strikes conforming to ANSI A156.16, for flush bolts required on lower part of doors.
- B. Lever extension manual flush bolts shall only be used at non-fire-rated pairs for rooms only accessed by maintenance personnel.
- C. Face plates for cylindrical strikes shall be rectangular and not less than 25 mm by 63 mm (1 inch by 2-1/2 inches).

- D. Friction-fit cylindrical dustproof strikes with circular face plate may be used only where metal thresholds occur.
- E. Provide extension rods for top bolt where door height exceeds 2184 mm (7 feet 2 inches).

#### **2.14 DOOR PULLS WITH PLATES**

- A. Conform to ANSI A156.6. Pull Type J401, 152 mm (6 inches) high by 19 mm (3/4 inches) diameter with plate Type J302, 90 mm by 350 mm (3-1/2 inches by 14 inches), unless otherwise specified. Provide pull with projection of 70 mm (2 3/4 inches) and a clearance of 51 mm (2 inches). Cut plates of door pull plate for cylinders, or turn pieces where required.

#### **2.15 PUSH PLATES**

- A. Conform to ANSI A156.6. Metal, Type J302, 200 mm (8 inches) wide by 350 mm (14 inches) high. Provide metal Type J302 plates 100 mm (4 inches wide by 350 mm (14 inches) high) where push plates are specified for doors with stiles less than 200 mm (8 inches) wide. Cut plates for cylinders, and turn pieces where required.

#### **2.16 COMBINATION PUSH AND PULL PLATES**

- A. Conform to ANSI 156.6. Type J303, stainless steel 3 mm (1/8 inch) thick, 80 mm (3-1/3 inches) wide by 800 mm (16 inches) high), top and bottom edges shall be rounded. Secure plates to wood doors with 38 mm (1-1/2 inch) long No. 12 wood screws. Cut plates for turn pieces, and cylinders where required. Pull shall be mounted down.

#### **2.17 COORDINATORS**

- A. Conform to ANSI A156.16. Coordinators, when specified for fire doors, shall comply with Underwriters Laboratories, Inc., requirements for fire door hardware. Coordinator may be omitted on exterior pairs of doors where either door will close independently regardless of the position of the other door. Coordinator may be omitted on interior pairs of non-labeled open where open back strike is used. Open back strike shall not be used on labeled doors. Paint coordinators to match door frames, unless coordinators are plated. Provide bar type coordinators, except where gravity coordinators are required at acoustic pairs. For bar type coordinators, provide filler bars for full width and, as required, brackets for push-side surface mounted closers, overhead stops, and vertical rod panic strikes.

#### **2.18 THRESHOLDS**

- A. Conform to ANSI A156.21, mill finish extruded aluminum, except as otherwise specified. In existing construction, thresholds shall be installed in a bed of sealant with 1/4-20 stainless steel machine screws and expansion shields. In new construction, embed aluminum anchors coated with epoxy in concrete to secure thresholds. Furnish thresholds for the full width of the openings.
- B. For thresholds at elevators entrances see other sections of specifications.
- C. At exterior doors and any interior doors exposed to moisture, provide threshold with non-slip abrasive finish.
- D. Provide with miter returns where threshold extends more than 12 mm (0.5 inch) from frame face.

**2.19 MISCELLANEOUS HARDWARE**

- A. Access Doors (including Sheet Metal, Screen and Woven Wire Mesh Types): Except for fire-rated doors and doors to Temperature Control Cabinets, equip each single or double metal access door with Lock Type E76213, conforming to ANSI A156.5. Key locks as directed. Ship lock prepaid to the door manufacturer. Hinges shall be provided by door manufacturer.
- B. Cylinders for Various Partitions and Doors: Key cylinders same as entrance doors of area in which partitions and door occur, except as otherwise specified. Provide cylinders to operate locking devices where specified for following partitions and doors:
  - 1. Folding doors and partitions.
  - 2. Wicket door (in roll-up door assemblies).
  - 3. Slide-up doors.
  - 4. Swing-up doors.
  - 5. Fire-rated access doors-Engineer's key set.
  - 6. Doors from corridor to electromagnetic shielded room.
  - 7. Day gate on vault door.
- C. Mutes: Conform to ANSI A156.16. Provide door mutes or door silencers Type L03011 or L03021, depending on frame material, of white or light gray color, on each steel or wood door frame, except at fire-rated frames, lead-lined frames and frames for sound-resistant, lightproof and electromagnetically shielded doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

**2.20 FINISHES**

- A. Exposed surfaces of hardware shall have ANSI A156.18, finishes as specified below. Finishes on all hinges, pivots, closers, thresholds, etc., shall be as specified below under "Miscellaneous Finishes." For field painting (final coat) of ferrous hardware, see Section 09 91 00, PAINTING.
- B. 626 or 630: All surfaces on exterior and interior of buildings, except where other finishes are specified.
- C. Miscellaneous Finishes:
  - 1. Hinges --exterior doors: 626 or 630.
  - 2. Hinges --interior doors: 652 or 630.
  - 3. Pivots: Match door trim.
  - 4. Door Closers: Factory applied paint finish. Dull or Satin Aluminum color.
  - 5. Thresholds: Mill finish aluminum.
  - 6. Cover plates for floor hinges and pivots: 630.
  - 7. Other primed steel hardware: 600.
- D. Hardware Finishes for Existing Buildings: U.S. Standard finishes shall match finishes of hardware in (similar) existing spaces.

- E. Special Finish: Exposed surfaces of hardware for dark bronze anodized aluminum doors shall have oxidized oil rubbed bronze finish (dark bronze) finish on door closers shall closely match doors.
- F. Anti-microbial Coating: All hand-operated hardware (levers, pulls, push bars, push plates, paddles, and panic bars) shall be provided with an anti-microbial/anti-fungal coating that has passed ASTM E2180 tests. Coating to consist of ionic silver (Ag<sup>+</sup>). Silver ions surround bacterial cells, inhibiting growth of bacteria, mold, and mildew by blockading food and respiration supplies.

## 2.21 BASE METALS

- A. Apply specified U.S. Standard finishes on different base metals as following:

Finish	Base Metal
652	Steel
626	Brass or bronze
630	Stainless steel

## PART 3 - EXECUTION

### 3.1 HARDWARE HEIGHTS

- A. For existing buildings locate hardware on doors at heights to match existing hardware. The Contractor shall visit the site, verify location of existing hardware and submit locations to VA Project Engineer for approval.
- B. Hardware Heights from Finished Floor:
- Exit devices centerline of strike (where applicable) 1024 mm (40-5/16 inches).
  - Locksets and latch sets centerline of strike 1024 mm (40-5/16 inches).
  - Deadlocks centerline of strike 1219 mm (48 inches).
  - Hospital arm pull 1168 mm (46 inches) to centerline of bottom supporting bracket.
  - Centerline of door pulls to be 1016 mm (40 inches).
  - Push plates and push-pull shall be 1270 mm (50 inches) to top of plate.
  - Push-pull latch to be 1024 mm (40-5/16 inches) to centerline of strike.
  - Locate other hardware at standard commercial heights. Locate push and pull plates to prevent conflict with other hardware.

### 3.2 INSTALLATION

- A. Closer devices, including those with hold-open features, shall be equipped and mounted to provide maximum door opening permitted by building construction or equipment. Closers shall be mounted on side of door inside rooms, inside stairs, and away from. At exterior doors, closers shall be mounted on interior side. Where closers are mounted on doors they shall be mounted with sex nuts and bolts; foot shall be fastened to frame with machine screws.
- B. Hinge Size Requirements:

Door Thickness	Door Width	Hinge Height
45 mm (1-3/4 inch)	900 mm (3 feet) and less	113 mm (4-1/2 inches)

45 mm (1-3/4 inch)	Over 900 mm (3 feet) but not more than 1200 mm (4 feet)	125 mm (5 inches)
35 mm (1-3/8 inch) (hollow core wood doors)	Not over 1200 mm (4 feet)	113 mm (4-1/2 inches)

- C. Hinge leaves shall be sufficiently wide to allow doors to swing clear of door frame trim and surrounding conditions.
- D. Where new hinges are specified for new doors in existing frames or existing doors in new frames, sizes of new hinges shall match sizes of existing hinges; or, contractor may reuse existing hinges provided hinges are restored to satisfactory operating condition as approved by Project Engineer. Existing hinges shall not be reused on door openings having new doors and new frames. Coordinate preparation for hinge cut-outs and screw-hole locations on doors and frames.
- E. Hinges Required Per Door:

Doors 1500 mm (5 ft) or less in height	2 butts
Doors over 1500 mm (5 ft) high and not over 2280 mm (7 ft 6 in) high	3 butts
Doors over 2280 mm (7 feet 6 inches) high	4 butts
Dutch type doors	4 butts
Doors with spring hinges 1370 mm (4 feet 6 inches) high or less	2 butts
Doors with spring hinges over 1370 mm (4 feet 6 inches)	3 butts

- F. Fastenings: Suitable size and type and shall harmonize with hardware as to material and finish. Provide machine screws and lead expansion shields to secure hardware to concrete, ceramic or quarry floor tile, or solid masonry. Fiber or rawl plugs and adhesives are not permitted. All fastenings exposed to weather shall be of nonferrous metal.
- G. After locks have been installed; show in presence of Project Engineer that keys operate their respective locks in accordance with keying requirements. (All keys, Master Key level and above shall be sent Registered Mail to the Medical Center Director along with the bitting list. Also a copy of the invoice shall be sent to the Project Engineer for his records.) Installation of locks which do not meet specified keying requirements shall be considered sufficient justification for rejection and replacement of all locks installed on project.

### 3.3 FINAL INSPECTION

- A. Installer to provide letter to VA Project Engineer that upon completion, installer has visited the Project and has accomplished the following:
1. Re-adjust hardware.
  2. Evaluate maintenance procedures and recommend changes or additions, and instruct VA personnel.
  3. Identify items that have deteriorated or failed.



4. Submit written report identifying problems.

### **3.4 DEMONSTRATION**

- A. Demonstrate efficacy of mechanical hardware and electrical, and electronic hardware systems, including adjustment and maintenance procedures, to satisfaction of Project Engineer and VA Locksmith.

### **3.5 HARDWARE SETS**

- A. Following sets of hardware correspond to hardware symbols shown on drawings. Only those hardware sets that are shown on drawings will be required. Disregard hardware sets listed in specifications but not shown on drawings.
- B. Hardware Consultant working on a project will be responsible for providing additional information regarding these hardware sets. The numbers shown in the following sets come from BHMA standards.

### **3.6 DOOR HARDWARE SCHEDULE**

- 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. Abbreviations used in the Hardware Schedule:
  1. CSK – Counter Sunk Screw Holes and under cut screw heads
  2. CVR – Concealed Vertical Rod exit device
  3. KC – Classroom function lever
  4. KS – Storeroom function lever
  5. LAR – Length as required
  6. MK - McKinney
  7. MR - Markar
  8. NO - Norton
  9. OP – Passage function lever
  10. PA – Parallel Arm
  11. PE - Pemko
  12. Reg – Regular arm closer mount
  13. RF - Rixson
  14. RO - Rockwood
  15. RU - Corbin Russwin
  16. Std Wt – Standard weight
  17. SVR – Surface Vertical Rod exit device

### **Hardware Schedule**

#### **Set: 1**

Doors: B303

Description: De-Con entry

2	Continuous Hinge	HG326 CTP	630	MR
2	Fire Exit Dev. (SVR, lever OP)	Type 2 Function 14, E04 - ED5470B N910 M55 M94	630	RU
2	Magnetic Lock	E08501-500 - M32D		SU
1	Auto operator (pair of doors)	By automatic operator supplier		
1	Concealed Overhead Stop	C01541 - 1 series stop	630	RF
1	Wall stop	L02101 - 401	US26D	RO
1	Gasketing	S44D		PE
2	Astragal (meeting stile)	29324CSB 3/8" brush		PE
2	Electric Power Transfer	EL-EPTL-SC		SU
2	Quick connect cable	QC-C***P LAR (door side)		MK
2	Quick connect cable	QC-C1500P (frame side)		MK
1	Card reader	By electrical		
1	Controller	781N-120		RU
1	Power supply	BPS-24-1		SU

Notes: Is inside wall actuator (prox/hands free) required? BPS-24 power supply for magnetic lock, 781N for exit devices. Operation: Electric latch held retracted by fire alarm. Doors secured with magnetic locks. Valid card will signal automatic operator, which will release magnetic locks and open the door. Not an exit door (no motion detector or exit button).

**Set: 2**

Doors: A0005

Description: Kitchen Entry

2	Continuous Hinge	HG326 CTP	630	MR
2	Fire Exit Dev. (CVR, lever KC)	Type 8 Function 08, E04 - ED5860B N955 M55 M94 CT7	630	RU
1	Mortise cylinder (keyswitch)	E09251 - 1080-112- CT7	626	RU
3	Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1	Auto operator (pair of doors)	By automatic operator supplier		
2	Hands free wall actuator	By automatic operator supplier		
2	Kick plate	J106 - K4125 12" high CSK	Clear	RO
2	Wall stop	L02101 - 401	US26D	RO
1	Gasketing	S44D		PE
2	Astragal (meeting stile)	29324CSB 3/8" brush		PE
2	Electric Power Transfer	EL-EPTL-SC		SU
2	Quick connect cable	QC-C***P LAR (door side)		MK
2	Quick connect cable	QC-C1500P (frame side)		MK
1	Keyswitch	MKA2		SU

1 Controller 781N-120 RU

Notes: Operation: Keyswitch will enable the automatic operator and electrically retract the exit device latches (making the door push pull). Operator to provide electric strike interface, for momentary unlocking from inside wall actuator. Fire alarm to disable the automatic operator and electric latch retraction on the exit devices. Lock edge guard full height

### **Set: 3**

Doors: B307

Description: Vestibule to Corridor

2 Continuous Hinge	HG326 CTP	630	MR
2 Fire Exit Dev. (SVR, lever KS)	Type 2 Function 09, E01, E04 - ED5470B N957 M55 M92 M94 CT7	630	RU
2 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
2 Magnetic Lock	E08501-500 - M32D		SU
1 Auto operator (pair of doors)	By automatic operator supplier		
1 Hands free wall actuator	By automatic operator supplier		
2 Wall stop	L02101 - 401	US26D	RO
1 Gasketing	S44D		PE
2 Astragal (meeting stile)	29324CSB 3/8" brush		PE
2 Electric Power Transfer	EL-EPTL-SC		SU
2 Quick connect cable	QC-C***P LAR (door side)		MK
2 Quick connect cable	QC-C1500P (frame side)		MK
1 Card reader	By electrical		
1 Push button (emergency)	EEB2		SU
1 Controller	781N-120		RU
1 Power supply	BPS-24-1		SU

Notes: BPS-24 power supply for magnetic lock, 781N for exit devices. Operation: Electric latch held retracted by fire alarm. Doors secured with magnetic locks. Valid card will signal automatic operator, which will release magnetic locks and open the door. Exit accomplished with hands free wall actuator which signals automatic operator. Manual exit, request to exit switch in exit device releases magnetic lock allowing exit. Backup wall mounted push button to release magnetic locks allowing exit.

### **Set: 4**

Doors: A001

Description: Warehouse entry

5 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Electric hinge (std wt)	A8112 electric w/connector - TA2714 QC12	US26D	MK
1 Top flush bolt	2805 self latch type	US26D	RO
1 Bottom Flush Bolt	555	US26D	RO

1	Dust proofstrike	570	US26D	RO
1	Electrified Mortise Lock	Function F07, U2, E01, E06 - ML20905 NSM 24AD M92 C7	626	RU
1	Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1	Coordinator	2600 series with filler bar and wear plates	Black	RO
2	Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2	Kick plate	J106 - K4125 12" high CSK	Clear	RO
2	Electromagnetic holder	C00011 - 998	689	RF
1	Gasketing	S44D		PE
1	Astragal Gasketing	S88D		PE
2	Hinge Edge Guard	305 UL 32"	US32D	RO
1	Overlap astragal	By hollow metal door supplier		
1	Quick connect cable	QC-C***P LAR (door side)		MK
1	Quick connect cable	QC-C1500P (frame side)		MK
1	Card reader	By electrical		
1	Power supply	BPS-24-1		SU

Notes: Fire alarm to power electromagnetic holders. Lock edge guard full height. Card reader to momentarily unlock the door. Request to exit switch in lockset to shunt door position switch when exiting. Door position switch for monitoring provided by card reader supplier.

#### **Set: 4A**

Doors: A0006

Description: Dry goods storage

6	Hinge (std wt)	A8112 - TA2714	US26D	MK
1	Top flush bolt	2805 self latch type	US26D	RO
1	Bottom Flush Bolt	555	US26D	RO
1	Dust proofstrike	570	US26D	RO
1	Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1	Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1	Coordinator	2600 series with filler bar and wear plates	Black	RO
2	Closer mounting bracket	2601A/B C	Black	RO
2	Closer (PA)	C02021 (PT-4C, 4D, 4H) w/hvy duty arms - PR7500	689	NO
2	Kick plate	J106 - K4125 12" high CSK	Clear	RO
2	Electromagnetic holder	C00011 - 998	689	RF
1	Gasketing	S44D		PE
1	Astragal Gasketing	S88D		PE

2 Hinge Edge Guard	305 UL 32"	US32D	RO
1 Overlap astragal	By hollow metal door supplier		

Notes: Fire alarm to power electromagnetic holders. Lock edge guard full height

**Set: 4B**

Doors: A012

Description: Storage room

6 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Top flush bolt	2805 self latch type	US26D	RO
1 Bottom Flush Bolt	555	US26D	RO
1 Dust proofstrike	570	US26D	RO
1 Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Coordinator	2600 series with filler bar and wear plates	Black	RO
2 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2 Kick plate	J106 - K4125 12" high CSK	Clear	RO
2 Wall stop	L02101 - 401	US26D	RO
1 Gasketing	S44D		PE
1 Astragal Gasketing	S88D		PE
2 Hinge Edge Guard	305 32"	US32D	RO
1 Overlap astragal	By hollow metal door supplier		

Notes: Lock edge guard full height

**Set: 5**

Doors: A0011, A0013, B305

Description: Office and office suite entrance

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (office)	Function F04 - ML2051 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
1 Kick plate	J106 - K4125 12" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Gasketing	S44D		PE
1 Lock Edge Guard	306B UL 32"	US32D	RO
1 Hinge Edge Guard	305 UL 32"	US32D	RO

**Set: 6**

Doors: B304

Description: Vendor drop off

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
1 Kick plate	J106 - K4125 12" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Gasketing	S44D		PE
1 Lock Edge Guard	306B UL 32"	US32D	RO
1 Hinge Edge Guard	305 UL 32"	US32D	RO

**Set: 7**

Not Used

**Set: 8**

Doors: A339

Description: Locker room

3 Hinge (std wt)	A2112 - TA2314	US26D	MK
1 Push Plate	J301 - 70E	US32D	RO
1 Pull plate	J405 - 126x70C	US32D	RO
1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Lock Edge Guard	302B 32"	US32D	RO
1 Hinge Edge Guard	300/301 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 8A**

Doors: A340

Description: Locker room

3 Hinge (std wt)	A2112 - TA2314	US26D	MK
1 Push Plate	J301 - 70E	US32D	RO
1 Pull plate	J405 - 126x70C	US32D	RO
1 Closer (PA)	C02021 (PT-4C, 4D, 4H) w/hvy duty arms - PR7500	689	NO

2	Armor plate	J106 - K4125 36" high CSK	Clear	RO
1	Wall stop	L02101 - 401	US26D	RO
1	Lock Edge Guard	302B 32"	US32D	RO
1	Hinge Edge Guard	300/301 32"	US32D	RO
3	Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 9**

Doors: A0022

Description: Office

3	Hinge (std wt)	A8112 - TA2714	US26D	MK
1	Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU
2	Armor plate	J106 - K4125 36" high CSK	Clear	RO
1	Wall stop	L02101 - 401	US26D	RO
1	Lock Edge Guard	306B 32"	US32D	RO
1	Hinge Edge Guard	305 32"	US32D	RO
3	Silencer	L03011 - 608		RO

Notes: Are edge guards required on hollow metal doors? Armor plate both sides of the door.

**Set: 9A**

Doors: A342B, B303A, B307C

Description: De-gown room, janitor closet

3	Hinge (std wt)	A8112 - TA2714	US26D	MK
1	Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU
1	Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2	Armor plate	J106 - K4125 36" high CSK	Clear	RO
1	Wall stop	L02101 - 401	US26D	RO
1	Lock Edge Guard	306B 32"	US32D	RO
1	Hinge Edge Guard	305 32"	US32D	RO
3	Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 9B**

Doors: A341A, A342A

Description: Gowning and De-gown room

3	Hinge (std wt)	A8112 - TA2714	US26D	MK
1	Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU

1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Threshold	151A ES10L or 246/236 if carpet to carpet		PE
1 Gasketing	S773D		PE
1 Automatic door bottom	420APKL		PE
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO

**Set: 9C**

Doors: B303B, B307B

Description: Wash

3 Hinge (std wt)	A2112 - TA2314	US26D	MK
1 Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU
1 Closer (Reg arm for ovhd stop)	C02011 (PT-4C, 4D, 4H w/adaptor plate) - 7500 7786OH	600 x 689	NO
1 Concealed Overhead Stop	C04542 - 2 series stop	630	RF
3 Silencer	L03011 - 608		RO

**Set: 9D**

Doors: A341B, A341C

Description: Gowning room

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU
1 Closer (PA)	C02021 (PT-4C, 4D, 4H) w/hvy duty arms - PR7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 9E**

Doors: A0023

Description: Laundry

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
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1 Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU
1 Closer (PA w/stop)	C02061 (PT-4C, 4D, 4H, 4G) - CLP7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 10**

Doors: A0008, A0009

Description: Toilet

3 Hinge (std wt)	A2112 - TA2314	US26D	MK
1 Mortise Lock (privacy)	Function F19 w/occupancy indicator - ML2030 NSA C M19V	626	RU
1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 11**

Doors: A0004, A0012, A0019

Description: ICU supply, offices

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (classroom)	Function F05 - ML2055 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 11A**

Doors: A0015

Description: Chemicals room

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (classroom)	Function F05 - ML2055 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Closer (PA w/stop)	C02061 (PT-4C, 4D, 4H, 4G) - CLP7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 12**

Doors: B305A, B305B, B305C, B305D

Description: Offices

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (office)	Function F04 - ML2051 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 13**

Doors: A343B

Description: RO DI Water room

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO
3 Silencer	L03011 - 608		RO

Notes: Armor plate both sides of the door.

**Set: 13A**

Doors: A343A

Description: RO DI Water room

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Threshold	151A ES10L or 246/236 if carpet to carpet		PE
1 Gasketing	S773D		PE
1 Automatic door bottom	420APKL		PE
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO

Notes: Armor plate both sides of the door.

**Set: 13B**

Doors: A0014

Description: Janitor closet

3 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1 Closer (PA)	C02021 (PT-4C, 4D, 4H) w/hvy duty arms - PR7500	689	NO
2 Armor plate	J106 - K4125 36" high CSK	Clear	RO
1 Wall stop	L02101 - 401	US26D	RO
1 Gasketing	S44D		PE
1 Lock Edge Guard	306B 32"	US32D	RO
1 Hinge Edge Guard	305 32"	US32D	RO

Notes: Armor plate both sides of the door.

**Set: 14**

Doors: C32A

Description: Entry door

2 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Electric hinge (std wt)	A8112 electric w/connector - TA2714 QC12	US26D	MK

1	Electrified Mortise Lock	Function F07, U2, E01, E06 - ML20905 NSM 24AD M92 C7	626	RU
1	Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
1	Closer (Reg arm)	C02011 (PT-4C, 4D, 4H) - 7500	689	NO
2	Armor plate	J106 - K4125 36" high CSK	Clear	RO
1	Wall stop	L02101 - 401	US26D	RO
1	Lock Edge Guard	306B 32"	US32D	RO
1	Hinge Edge Guard	305 32"	US32D	RO
3	Silencer	L03011 - 608		RO
1	Quick connect cable	QC-C***P LAR (door side)		MK
1	Quick connect cable	QC-C1500P (frame side)		MK
1	Card reader	By electrical		
1	Power supply	BPS-24-1		SU

Notes: Armor plate both sides of the door. Door position switch for monitoring provided by card reader supplier.

**Set: 15**

Doors: A338

Description: Lobby entrance

2	Continuous Hinge	FM300	630	MR
1	Top flush bolt	2805 self latch type	US26D	RO
1	Bottom Flush Bolt	555	US26D	RO
1	Dust proofstrike	570	US26D	RO
1	Mortise lock (passage)	Function F01 - ML2010 NSA	626	RU
1	Coordinator	2600 series with filler bar and wear plates	Black	RO
2	Closer mounting bracket	2601A/B C	Black	RO
2	Closer (PA)	C02021 (PT-4C, 4D, 4H) w/hvy duty arms - PR7500	689	NO
2	Kick plate	J106 - K4125 12" high CSK	Clear	RO
2	Electromagnetic holder	C00011 - 998	689	RF
1	Gasketing	S44D		PE
1	Astragal Gasketing	S88D		PE
1	Overlap astragal	By hollow metal door supplier		

Notes: Fire alarm to power electromagnetic holders. Lock edge guard full height

**Set: 16**

Doors: A001A

## Description: Pump room

6 Hinge (std wt)	A8112 - TA2714	US26D	MK
1 Top flush bolt	2805 self latch type	US26D	RO
1 Bottom Flush Bolt	555	US26D	RO
1 Dust proofstrike	570	US26D	RO
1 Mortise Lock (storeroom)	Function F07 - ML2057 NSA C7	626	RU
1 Interchangeable Core	E09241 - 8000-7 zero bitted	626	RU
2 Kick plate	J106 - K4125 12" high CSK	Clear	RO
2 Surface Overhead Stop	C05542 - 10 series stop	630	RF
2 Silencer	L03011 - 608		RO
2 Hinge Edge Guard	305 32"	US32D	RO
1 Overlap astragal	By hollow metal door supplier		

Notes: Lock edge guard full height

END OF SECTION 087100

--- E N D ---

**SECTION 09 30 13  
CERAMIC/PORCELAIN TILING****PART 1 - GENERAL****1.1 DESCRIPTION**

This section specifies ceramic, porcelain and quarry tile, waterproofing membranes for thin-set applications, crack isolation membranes, and tile backer board.

**1.2 RELATED WORK**

- A. Sealing of joints where specified: Section 07 92 00, JOINT SEALANTS.
- B. Color, texture and pattern of field tile and trim shapes, size of field tile, trim shapes, and color of grout specified: See drawings.
- C. Metal and resilient edge strips at joints with new resilient flooring: Section 09 65 19, RESILIENT TILE FLOORING.

**1.3 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
  - 1. Base tile, each type, each color, each size.
  - 2. Mosaic floor tile panels, 225 mm by 225 mm (9 inches by 9 inches), each type, color, size and pattern.
  - 3. Quarry tile, each type, color, and size.
  - 4. Wall (or wainscot) tile, each color, size and pattern.
  - 5. Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, color, and size.
- C. Product Data:
  - 1. Ceramic and porcelain tile, marked to show each type, size, and shape required.
  - 2. Chemical resistant grout (Epoxy).
  - 3. Cementitious backer unit.
  - 4. Crack isolation membrane.
  - 5. Divider strip.
  - 6. Elastomeric waterproofing membrane and bond coat.
  - 7. Reinforcing tape.
  - 8. Leveling compound.
  - 9. Latex-Portland cement mortar.
  - 10. Portland cement mortar.
  - 11. Fasteners.
- D. Certification:
  - 1. Master grade, ANSI A137.1.

2. Manufacturer's certificates indicating that the following materials comply with specification requirements:
  - a. Chemical resistant grout (epoxy).
  - b. Modified epoxy emulsion.
  - c. Cementitious backer unit.
  - d. Elastomeric membrane and bond coat.
  - e. Reinforcing tape.
  - f. Latex-Portland cement mortar.
  - g. Leveling compound.
  - h. Factory mounted tile suitability for application in wet area specified under 2.1, A, 3 with list of successful in-service performance locations.

#### **1.4 DELIVERY AND STORAGE**

- A. Deliver materials in containers with labels legible and intact and grade-seals unbroken.
- B. Store material to prevent damage or contamination.

#### **1.5 APPLICABLE PUBLICATIONS**

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in text by basic designation only.
- B. American National Standards Institute (ANSI):
  - A108-13..... Installation Standards
  - A118-13..... Material Specifications
  - A137.1-13..... Ceramic Tile
- C. American Society For Testing And Materials (ASTM):
  - A185-07 ..... Steel Welded Wire Fabric, Plain, for Concrete Reinforcing
  - C109/C109M-11 ..... Standard Test Method for Compressive Strength of Hydraulic  
Cement Mortars (Using 2 inch. or [50-mm] Cube Specimens)
  - C241-09..... Abrasion Resistance of Stone Subjected to Foot Traffic
  - C348-08..... Standard Test Method for Flexural Strength of Hydraulic-Cement  
Mortars
  - C627-10..... Evaluating Ceramic Floor Tile Installation Systems Using the  
Robinson-Type Floor Tester
  - C954-11 ..... Steel Drill Screws for the Application of Gypsum Board on Metal  
Plaster Base to Steel Studs from 0.033 in (0.84 mm) to 0.112 in  
(2.84 mm) in thickness
  - C979-10..... Pigments for Integrally Colored Concrete
  - C1002-07..... Steel Self-Piercing Tapping Screws for the Application of Panel  
Products

- C1027-09.....Determining "Visible Abrasion Resistance on Glazed Ceramic Tile"
- C1028-07.....Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull Meter Method
- C1127-09.....Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with an Integral Wearing Surface
- C1325-08.....Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units
- D4397-10.....Standard Specification for Polyethylene Sheeting for Construction, Industrial and Agricultural Applications
- D5109-99(R2004).....Standard Test Methods for Copper-Clad Thermosetting Laminates for Printed Wiring Boards

D. Tile Council of America, Inc. (TCNA):

- 20013 .....Handbook for Ceramic Tile Installation

## **PART 2 - PRODUCTS**

### **2.1 TILE**

- A. Comply with ANSI A137.1, Standard Grade, except as modified:
1. Inspection procedures listed under the Appendix of ANSI A137.1.
  2. Abrasion Resistance Classification:
    - a. Tested in accordance with values listed in Table 1, ASTM C 1027.
    - b. Class V, 12000 revolutions for floors in Corridors, Kitchens, Storage including Refrigerated Rooms
    - c. Class IV, 6000 revolutions for remaining areas.
  3. Slip Resistant Tile for Floors:
    - a. Coefficient of friction, when tested in accordance with ASTM C1028, required for level of performance:
      - 1) Not less than 0.7 (wet condition) for bathing areas.
      - 2) Not less than 0.8 on ramps for wet and dry conditions.
      - 3) Not less than 0.6, except 0.8 on ramps as stated above, for wet and dry conditions for other areas.
    - b. Tile Having Abrasive Grains:
      - 1) Unglazed Porcelain Mosaic Tile: Abrasive grains throughout body of the tile.
      - 2) Quarry Tile: Abrasive grains uniformly embedded in face at rate of approximately 7.5 percent of surface area.
  4. Mosaic tile may be mounted or joined together by a resinous bonding material along tile edges.



5. Do not use back mounted tiles in showers unless certified by manufacturer as noted in paragraph 1.3.
6. Factory Blending: For tile with color variations, within the ranges selected during sample submittals blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.
7. Factory-Applied Temporary Protective Coating:
  - a. Protect exposed face surfaces (top surface) of tile against adherence of mortar and grout by pre-coating with a continuous film of petroleum paraffin wax, applied hot.
  - b. Do not coat unexposed tile surfaces.
  - c. Pre-wax tiles set or grouted with epoxy or latex modified mortars.
- B. Unglazed Porcelain Mosaic Tile: Nominal 6 mm (1/4 inch) thick with cushion edges.
- C. Unglazed Quarry Tile: Nominal 13 mm (1/2 inch) thick, square edges.
- D. Glazed Wall Tile: Cushion edges, glazing, as specified in drawings.
- E. Trim Shapes:
  1. Conform to applicable requirements of adjoining floor and wall tile.
  2. Use slip resistant trim shapes for horizontal surfaces of showers.
  3. Use trim shapes sizes conforming to size of adjoining field wall tile.
  4. Internal and External Corners:
    - a. Square internal and external corner joints are not acceptable.
    - b. External corners including edges: Use bullnose shapes.
    - c. Internal corners: Use cove shapes.
    - d. Base to floor internal corners: Use special shapes providing integral cove vertical and horizontal joint.
    - e. Base to floor external corners: Use special shapes providing bullnose vertical edge with integral cove horizontal joint. Use stop at bottom of openings having bullnose return to wall.
    - f. Wall top edge internal corners: Use special shapes providing integral cove vertical joint with bullnose top edge.
    - g. Wall top edge external corners: Use special shapes providing bullnose vertical and horizontal joint edge.
    - h. For unglazed ceramic mosaic and glazed wall tile installed in dry-set Portland cement mortar, latex-Portland cement mortar, and organic adhesive (thin set methods), use cove and surface bullnose shapes as applicable.
    - i. For quarry tile work, use cove and bullnose shapes as applicable.

## **2.2 CEMENTITIOUS BACKER UNITS**

- A. Use in all locations where tile is installed over wall type S1.
- B. ANSI A118.9.
- C. ASTM C1325.

- D. Use Cementitious backer units in maximum available lengths.

### **2.3 JOINT MATERIALS FOR CEMENTITIOUS BACKER UNITS**

- A. Reinforcing Tape: Vinyl coated woven glass fiber mesh tape, open weave, 50 mm (2 inches) wide. Tape with pressure sensitive adhesive backing will not be permitted.
- B. Tape Embedding Material: Latex-Portland cement mortar complying with ANSI A108.1.
- C. Joint material, including reinforcing tape, and tape embedding material, shall be as specifically recommended by the backer unit manufacturer.

### **2.4 FASTENERS**

- A. Screws for Cementitious Backer Units.
1. Standard screws for gypsum board are not acceptable.
  2. Minimum 11 mm (7/16 inch) diameter head, corrosion resistant coated, with washers.
  3. ASTM C954 for steel 1 mm (0.033 inch) thick.
  4. ASTM C1002 for steel framing less than 0.0329 inch thick.
- B. Washers: Galvanized steel, 13 mm (1/2 inch) minimum diameter.

### **2.5 SETTING MATERIALS OR BOND COATS**

- A. Conform to TCNA Handbook for Ceramic Tile Installation.
- B. Cured Portland Cement Mortar Bed: ANSI A118.1
- C. Latex-Portland Cement Mortar: ANSI A118.4.
1. For wall applications, provide non-sagging, latex-Portland cement mortar complying with ANSI A108.1.
  2. Prepackaged Dry-Mortar Mix: Factory-prepared mixture of Portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to which only water needs to be added at Project site.
- D. Elastomeric Waterproofing Membrane and Bond Coat:
1. ANSI A118.10.
  2. One component polyurethane, liquid applied material having the following additional physical properties:
    - a. Hardness: Shore "A" between 40-60.
    - b. Elongation: Between 300-600 percent.
    - c. Tensile strength: Between 40-60 psig.
    - d. No volatile compounds.
  3. Coal tar modified urethanes are not acceptable.
- E. Crack Isolation Membrane:
1. ANSI A118.12.
  2. Designed to isolate the tile from substrate cracking.
  3. Conform to the following additional physical properties:

Property	Units	Results	Test Method
Hardness Shore A	Points	70-80	ASTM D2240 (10 Second Reading)
Shrinkage	Percent	5 maximum	ASTM D1204
Brittleness		No crack remains flexible at temperature-37 degrees C (-25 degrees F)	ASTM D2497 13 mm (1/2- inch) Mandrel Bend
Retention of Properties after Heat Aging	Percent of original	80 Tensile 80 Breaking 80 Elongation	ASTM D3045, 90 degrees C (194 degrees F) for 168 hours

## 2.6 GROUTING MATERIALS

### A. Coloring Pigments:

1. Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
2. Add coloring pigments to grout by the manufacturer.
3. Job colored grout is not acceptable.

### B. Chemical-Resistant Grout:

1. Epoxy grout, ANSI A118.8.

## 2.7 PATCHING AND LEVELING COMPOUND

- A. Portland cement base, polymer-modified, self-leveling compound, manufactured specifically for resurfacing and leveling concrete floors. Products containing gypsum are not acceptable.
- B. Shall have minimum following physical properties:
  1. Compressive strength - 25 MPa (3500 psig) per ASTM C109/C109M.
  2. Flexural strength - 7 MPa (1000 psig) per ASTM C348 (28 day value).
  3. Tensile strength - 600 psi per ANSI 118.7.
  4. Density – 1.9.
- C. Capable of being applied in layers up to 38 mm (1-1/2 inches) thick without fillers and up to 100 mm (four inches) thick with fillers, being brought to a feather edge, and being trowelled to a smooth finish.
- D. Primers, fillers, and reinforcement as required by manufacturer for application and substrate condition.
- E. Ready for use in 48 hours after application.

## 2.8 METAL DIVIDER STRIPS

- A. Terrazzo type divider strips.
- B. Heavy top type strip with 5 mm (3/16 inch) wide top and 38 mm (1-1/2 inch) long leg.
- C. Embedded leg perforated and deformed for keying to mortar.
- D. Aluminum .

**2.9 WATER**

Clean, potable and free from salts and other injurious elements to mortar and grout materials.

**2.10 CLEANING COMPOUNDS**

- A. Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.
- B. Materials containing acid or caustic material not acceptable.

**2.11 POLYETHYLENE SHEET**

- A. Polyethylene sheet conforming to ASTM D4397.
- B. Nominal thickness: 0.15 mm (six mils).
- C. Use sheet width to minimize joints.

**PART 3 - EXECUTION****3.1 ENVIRONMENTAL REQUIREMENTS**

- A. Maintain ambient temperature of work areas at not less than 16 degree C (60 degrees F), without interruption, for not less than 24 hours before installation and not less than three days after installation.
- B. Maintain higher temperatures for a longer period of time where required by manufacturer's recommendation and ANSI Specifications for installation.
- C. Do not install tile when the temperature is above 38 degrees C (100 degrees F).
- D. Do not install materials when the temperature of the substrate is below 16 degrees C (60 degrees F).
- E. Do not allow temperature to fall below 10 degrees C (50 degrees F) after fourth day of completion of tile work.

**3.2 ALLOWABLE TOLERANCE**

- A. Variation in plane of sub-floor, including concrete fills leveling compounds and mortar beds:
  - 1. Not more than 1 in 500 (1/4 inch in 10 feet) from required elevation where Portland cement mortar setting bed is used.
  - 2. Not more than 1 in 1000 (1/8 inch in 10 feet) where dry-set Portland cement, and latex-Portland cement mortar setting beds and chemical-resistant bond coats are used.
- B. Variation in Plane of Wall Surfaces:
  - 1. Not more than 1 in 800 (1/8 inch in eight feet) where dry-set or latex-Portland cement mortar setting materials is used.

**3.3 SURFACE PREPARATION**

- A. Cleaning New Concrete or Masonry:
  - 1. Chip out loose material, clean off all oil, grease dirt, adhesives, curing compounds, and other deterrents to bonding by mechanical method, or by using products specifically designed for cleaning concrete and masonry.

2. Use self-contained power blast cleaning systems to remove curing compounds and steel trowel finish from concrete slabs where ceramic tile will be installed directly on concrete surface with thin-set materials.
  3. Steam cleaning or the use of acids and solvents for cleaning will not be permitted.
- B. Patching and Leveling:
1. Mix and apply patching and leveling compound in accordance with manufacturer's instructions.
  2. Fill holes and cracks and align concrete floors that are out of required plane with patching and leveling compound.
    - a. Thickness of compound as required to bring finish tile system to elevation shown.
    - b. Float finish except finish smooth for elastomeric waterproofing.
    - c. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
  3. Apply patching and leveling compound to concrete and masonry wall surfaces that are out of required plane.
  4. Apply leveling coats of material compatible with wall surface and tile setting material to wall surfaces, other than concrete and masonry that are out of required plane.
- C. Mortar Bed for Slopes to Drains:
1. Slope compound to drain where drains are shown.
- D. Walls:
1. In showers or other wet areas cover studs with polyethylene sheet.
  2. Apply patching and leveling compound to concrete and masonry surfaces that are out of required plane.
  3. Apply leveling coats of material compatible with wall surface and tile setting material to wall surfaces, other than concrete and masonry that are out of required plane.
- G. Existing Floors and Walls:
1. Remove existing composition floor finishes and adhesive. Prepare surface by grinding, chipping, self-contained power blast cleaning or other suitable mechanical methods to completely expose uncontaminated concrete or masonry surfaces. Follow safety requirements of ANSI A10.20.
  2. Remove existing concrete fill or topping to structural slab. Clean and level the substrate for new setting bed and waterproof membrane or cleavage membrane.
  3. Where new tile bases are required to finish flush with plaster above or where they are extensions of similar bases in conjunction with existing floor tiles cut channel in floor slab and expose rough wall construction sufficiently to accommodate new tile base and setting material.

**3.4 CEMENTITIOUS BACKER UNITS**

- A. Remove polyethylene wrapping from cementitious backer units and separate to allow for air circulation. Allow moisture content of backer units to dry down to a maximum of 35 percent before applying joint treatment and tile.
- B. Install in accordance with ANSI A108.11 except as specified otherwise.
- C. Install units horizontally or vertically to minimize joints with end joints over framing members. Units with rounded edges; face rounded edge away from studs to form a V joint for joint treatment.
- D. Secure cementitious backer units to each framing member with screws spaced not more than 200 mm (eight inches) on center and not closer than 13 mm (1/2 inch) from the edge of the backer unit or as recommended by backer unit manufacturer. Install screws so that the screw heads are flush with the surface of the backer unit.
- E. Where backer unit joins shower pans or waterproofing, lap backer unit over turned up waterproof system. Install fasteners only through top one-inch of turned up waterproof systems.
- F. Do not install joint treatment for seven days after installation of cementitious backer unit.
- G. Joint Treatment:
  - 1. Fill horizontal and vertical joints and corners with latex-Portland cement mortar. Apply fiberglass tape over joints and corners and embed with same mortar.
  - 2. Leave 6 mm (1/4 inch) space for sealant at lips of tubs, sinks, or other plumbing receptors.

**3.5 METAL DIVIDER STRIPS**

- A. Install metal divider strips in floor joints between ceramic and quarry tile floors and between tile floors and adjacent flooring of other materials where the finish floors are flush unless shown otherwise.
- B. Set divider strip in mortar bed to line and level centered under doors or in openings.

**3.6 CERAMIC TILE - GENERAL**

- A. Comply with ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" applicable to methods of installation.
- B. Comply with TCNA Installation Guidelines:
- C. Workmanship:
  - 1. Lay out tile work so that no tile less than one-half full size is used. Make all cuts on the outer edge of the field.
  - 2. Set tile firmly in place with finish surfaces in true planes. Align tile flush with adjacent tile unless shown otherwise.
  - 3. Form intersections and returns accurately.
  - 4. Cut and drill tile neatly without marring surface.
  - 5. Cut edges of tile abutting penetrations, finish, or built-in items:
    - a. Fit tile closely around electrical outlets, piping, fixtures and fittings, so that plates, escutcheons, collars and flanges will overlap cut edge of tile.

- b. Seal tile joints water tight as specified in Section 07 92 00, JOINT SEALANTS, around electrical outlets, piping fixtures and fittings before cover plates and escutcheons are set in place.
- 6. Completed work shall be free from hollow sounding areas and loose, cracked or defective tile.
- 7. Remove and reset tiles that are out of plane or misaligned.
- 8. Floors:
  - a. Extend floor tile beneath casework and equipment, except those units mounted in wall recesses.
  - b. Align finish surface of new tile work flush with other and existing adjoining floor finish where shown.
  - c. In areas where floor drains occur, slope to drains where shown.
  - d. Shove and vibrate tiles over 200 mm (8 inches) square to achieve full support of bond coat.
- 9. Walls:
  - a. Cover walls and partitions, including pilasters, furred areas, and freestanding columns from floor to ceiling, or from floor to nominal wainscot heights shown with tile.
  - b. Finish reveals of openings with tile, except where other finish materials are shown or specified.
  - c. At window openings, provide tile stools and reveals, except where other finish materials are shown or specified.
  - d. Finish wall surfaces behind and at sides of casework and equipment, except those units mounted in wall recesses, with same tile as scheduled for room proper.
- 10. Joints:
  - a. Keep all joints in line, straight, level, perpendicular and of even width unless shown otherwise.
  - b. Make joints 2 mm (1/16 inch) wide for glazed wall tile and mosaic tile work.
  - c. Make joints in quarry tile work not less than 6 mm (1/4 inch) nor more than 9 mm (3/8 inch) wide. Finish joints flush with surface of tile.
- 11. Back Buttering: For installations indicated below, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A108 series of tile installation standards:
  - a. Tile wall installations in wet areas, including showers.

### **3.7 QUARRY TILE INSTALLED ON CURED PORTLAND CEMENT MORTAR BED WITH LATEX-PORTLAND CEMENT MORTAR**

- A. Mortar Mixes for Floor, And Base Tile : ANSI A108.1B.except specified otherwise.
- B. Installing Floor Tile: ANSI A108.1B, except as specified otherwise.
- C. Installing Crack Isolation Membrane:
  - 1. ANSI A108.17

## 2. TCNA System F125-Full-13

## D. Installing Mortar Beds for Floors:

1. Install mortar bed to not damage crack isolation membrane; 50 mm (2 inch) thickness.
2. Install floor mortar bed reinforcing centered in mortar fill.
3. Screed finish to level plane, float finish.

## E. Setting Beds or Bond Coats:

1. Where recessed or depressed floor slabs are filled with Portland cement mortar bed, set quarry floor tile in latex-Portland cement mortar over cured mortar bed except as specified otherwise, TCNA System F121-13.

**3.8 THIN SET CERAMIC WALL TILE INSTALLED WITH LATEX-PORTLAND CEMENT MORTAR**

## A. ANSI A108.5, except as specified otherwise.

## B. Installation of Wall Tile:

1. Set wall tile installed over concrete or masonry in latex-Portland cement mortar, TCNA System W2021-13.
5. Set wall tile installed over cementitious backer board in latex-Portland cement mortar, TCNA System W244C-13.

**3.9 THIN SET PORCELAIN TILE INSTALLED WITH WATERPROOF MEMBRANE**

## B. Installation of Waterproof Membrane: ANSI A108.13 and TCNA F122A-13.

1. Prime surfaces, where required, in accordance with manufacturer's instructions.
2. Install first coat of membrane material in accordance with manufacturer's instructions, in thickness of 0.75 to 1.3 mm (30 to 50 mils).
3. Extend material over flashing rings of drains and turn up vertical surfaces not less than 100 mm (four inches) above finish floor surface.
4. When material has set, recoat areas with a second coat of elastomeric membrane material for a total thickness of 1.3 to 1.9 mm (50 to 75 mils).
5. After curing test for leaks with 25 mm (one inch) of water for 24 hours.

## C. Installation of Tile in Bond Coat: ANSI 108.5 and TCNA F122A-13.

1. Spread no more material than can be covered with tile before material starts to set.
2. Apply tile in elastomeric bond coat in accordance with the coating manufacturer's instructions.
3. Slope tile to drains where shown.

**3.10 GROUTING**

## A. Grout Type and Location:

1. Grout for glazed wall and base tile: Epoxy grout.
2. Grout for quarry tile floor and base: Epoxy grout.
3. Grout for porcelain floor tile: Epoxy grout.

## B. Workmanship:

1. Install and cure grout in accordance with the applicable standard.



2. Epoxy Grout: ANSI A108.6.

### **3.11 MOVEMENT JOINTS**

- A. Prepare tile expansion, isolation, construction and contraction joints for installation of sealant. Refer to Section 07 92 00, JOINT SEALANTS.
- B. TCNA details EJ 171-13.
- C. At joints, rake out joint full depth of tile and setting bed and mortar bed. Do not cut waterproof or isolation membrane.

### **3.12 CLEANING**

- A. Thoroughly sponge and wash tile. Polish glazed surfaces with clean dry cloths.
- B. Methods and materials used shall not damage or impair appearance of tile surfaces.
- C. The use of acid or acid cleaners on glazed tile surfaces is prohibited.
- D. Clean tile grouted with epoxy grout and tile set in elastomeric bond coat as recommended by the manufacturer of the grout and bond coat.

### **3.13 PROTECTION**

- A. Keep traffic off tile floor, until grout and setting material is firmly set and cured.
- B. Where traffic occurs over tile floor, cover tile floor with not less than 9 mm (3/8 inch) thick plywood, wood particle board, or hardboard securely taped in place. Do not remove protective cover until time for final inspection. Clean tile of any tape, adhesive and stains.

### **3.14 TESTING FINISH FLOOR**

- A. Test floors in accordance with ASTM C627 to show compliance with codes 1 through 10.
- B. Test kitchen and storage rooms.

--- E N D ---

**SECTION 10 51 13  
METAL LOCKERS****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. This section specifies metal lockers and related accessories, including finished end panels and sloping tops.

**1.2 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.
- B. Manufacturer's Literature:
  - 1. Maintenance data.
- C. Shop Drawings:
  - 1. Include plans, elevations, sections, details, and attachments to other work.
  - 2. Show sloping tops, built-in combination locks, and locker identification system.
- C. Samples:
  - 1. For each exposed finish.

**1.3 APPLICABLE PUBLICATIONS**

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
  - A36/A36M-05 ..... Carbon Structural Steel
  - A366/A366M-97(E 1998)..... Commercial Steel (CS), Carbon, Cold-Rolled-Replaced by ASTM A1008/A1008M
  - A568/A568M-07 ..... Steel, Sheet, Carbon and High-Strength, Low-Alloy Hot-Rolled and Cold-Rolled, General Requirements
  - B456-03..... Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium
- C. American Welding Society (AWS):
  - D1.1-06..... Structural Welding Code Steel
  - D1.3-98..... Structural Welding Code Sheet Steel
- D. National Association of Architectural Metal Manufacturers (NAAMM):
  - AMP 500-505-88 Series ..... Metal Finishes Manual

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Sheet Steel:
  - 1. ASTM A366, cold rolled, Class 1 finish, stretcher leveled.

2. Other types of cold rolled steel meeting requirements of ASTM A568 may be used for concealed parts.
- B. Fasteners:
  1. Exposed to view, zinc-or nickel-plated steel, slot less-type exposed bolt heads, and self-locking nuts or lock washers for nuts on moving parts.
- C. Anchors:
  1. Select material, type, size, and finish required for secure anchorage to each substrate.

## 2.2 STANDARD METAL LOCKERS

- A. Locker Arrangement: Single tier (72" height) and double tier (36" height per opening), as indicated in the drawings.
- B. Body: Assembled by riveting or bolting body components together. Fabricate from unperforated, cold-rolled steel sheet with thicknesses as follows:
  1. Tops, Bottoms, and Sides: 0.0528 inch (1.35 mm) thick.
  2. Backs: 0.0428 inch (1.1 mm) thick.
- C. Frames: Channel formed; fabricated from 0.0528-inch- (1.35 mm) thick, cold-rolled steel sheet; lapped and factory welded at corners: with top and bottom main frames factory welded into vertical main frames. Form continuous, integral door strike full height on vertical main frames.
- D. Doors: One-piece, fabricated from 0.0677-inch- (1.7 mm-) thick, cold-rolled steel sheet; formed into channel shape with double bend at vertical edges, and with right-angle single bend at horizontal edges.
  1. Reinforcement: Manufacturer's standard reinforcing angles, channels, or stiffeners for doors more than 15 inches (381 mm) wide; welded to inner face of doors.
  2. Door Style: Vented panel as follows:
    - a. Concealed Vents: Slotted perforations in top and bottom horizontal return flanges of doors.
- E. Hinges: Self-closing; welded to door and attached to door frame with not less than 2 factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees.
  1. Hinges: Manufacturer's standard. Steel continuous or knuckle type.
- F. Recessed Door Handle and Latch: Stainless steel cup with integral door pull, recess so locking device does not protrude beyond face of door: pry and vandal resistant.
  1. Multipoint Latching: Finger-lift latch control designed for use with padlocks.
    - a. Latch Hooks: Equip doors 48 inches and higher with three latch hooks and doors less than 48 inches high with two latch hooks; fabricated from 0.105-inch nominal-thickness steel sheet; welded or riveted to full-height door strikes; with resilient silencer on each latch hook.
- G. Locker Base: Structural channels, formed from 0.0528-inch thick, cold-rolled steel sheet, welded to front and rear of side-panel frames.

## H. Accessories:

1. Continuous Sloping Tops: Fabricated from manufacturer's standard thickness, but not less than 0.036-inch (0.91-mm) nominal-thickness steel sheet.
  - a. Closures: Vertical end type.
2. Finished End Panels: Fabricated from 0.024-inch (0.61-mm) nominal-thickness steel sheet.
3. Recess Trim: Fabricated from 0.0428-inch thick, cold-rolled sheet.
4. Filler Panels: Fabricated from cold-rolled steel sheet, manufacturer's standard thickness, but not less than 0.0329 inch thick.

## I. Finish: Baked enamel or powder coat.

1. Color (s): As selected by Architect from manufacturer's full range.

J. Built-in Electronic Locks: Provide keyless pushbutton lock system for shared and assigned use lockers (shared and assigned as defined by owner). Locks shall allow user access by use of a four-digit self-selected code. Provide 2 manager bypass keys. Locks shall be battery-operated with low battery indicator and tamper guard. Shared use locks shall remain unlocked until locked by another user. Locks shall recess into the face of locker. Items provided by Zephyr Lock, 866-937-4971, [www.zephyrlock.com](http://www.zephyrlock.com).**2.3 FABRICATION**

- A. General: Fabricate metal lockers square, rigid, and without warp; with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch.
  1. Form body panels, doors, shelves, and accessories from one-piece steel sheet, unless otherwise indicated.
  2. Provide fasteners, filler plates, supports, clips, and closures as required for a complete installation.
- B. Unit Principle: Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.
- C. Knocked-Down Construction: Fabricate metal lockers using nuts, bolts, screws, or rivets for pre-assembly at plant prior to shipping.
- D. Identification Plates: Manufacturer's standard etched, embossed, or stamped aluminum plates; with numbers and letters at least 3/8 inch (9 mm) high.
- E. Finished End Panels: Designed for concealing unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of non-recessed metal lockers; finished to match lockers.
- F. Recess Trim: Fabricate with minimum 2 1/2-inch face width and in lengths as long as practicable; finished to match lockers.
- G. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip joint filler angle formed to receive filler panel.

## **2.4 STEEL SHEET FINISHES**

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products: for recommendations for applying and designating finishes.
- B. Factory finish steel surfaces and accessories except stainless steel and chrome-plates surfaces.
- C. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond. Use manufacturer's standard methods.
- D. Baked-Enamel Finish: Immediately after cleaning, pre-treating, and phosphatizing, apply manufacturer's standard thermosetting baked-enamel finish. Comply with paint manufacturer's written instructions for application, baking, and minimum dry film thickness.

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Examine walls and floors, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. General: Install level, plumb, and true; shim as required, using concealed shims.
  - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches (910 mm) o.c. Install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion, using concealed fasteners.
  - 2. Anchor single rows of metal lockers to walls near top and bottom of lockers.
- B. Knocked-down Metal lockers: Assemble with standard fasteners, with no exposed fasteners on door faces or face frames.
- C. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
  - 1. Identification Plates:
    - a. Attach plates to each locker door, near top, centered with at least two aluminum rivets.
    - b. Attach plates to upper shelf of each open-front metal locker, centered, with at least two aluminum rivets.
  - 2. Attach sloping-top units to metal lockers with closures at exposed ends.
  - 3. Attach finished end panels with fasteners at perimeter to conceal exposed ends of lockers.

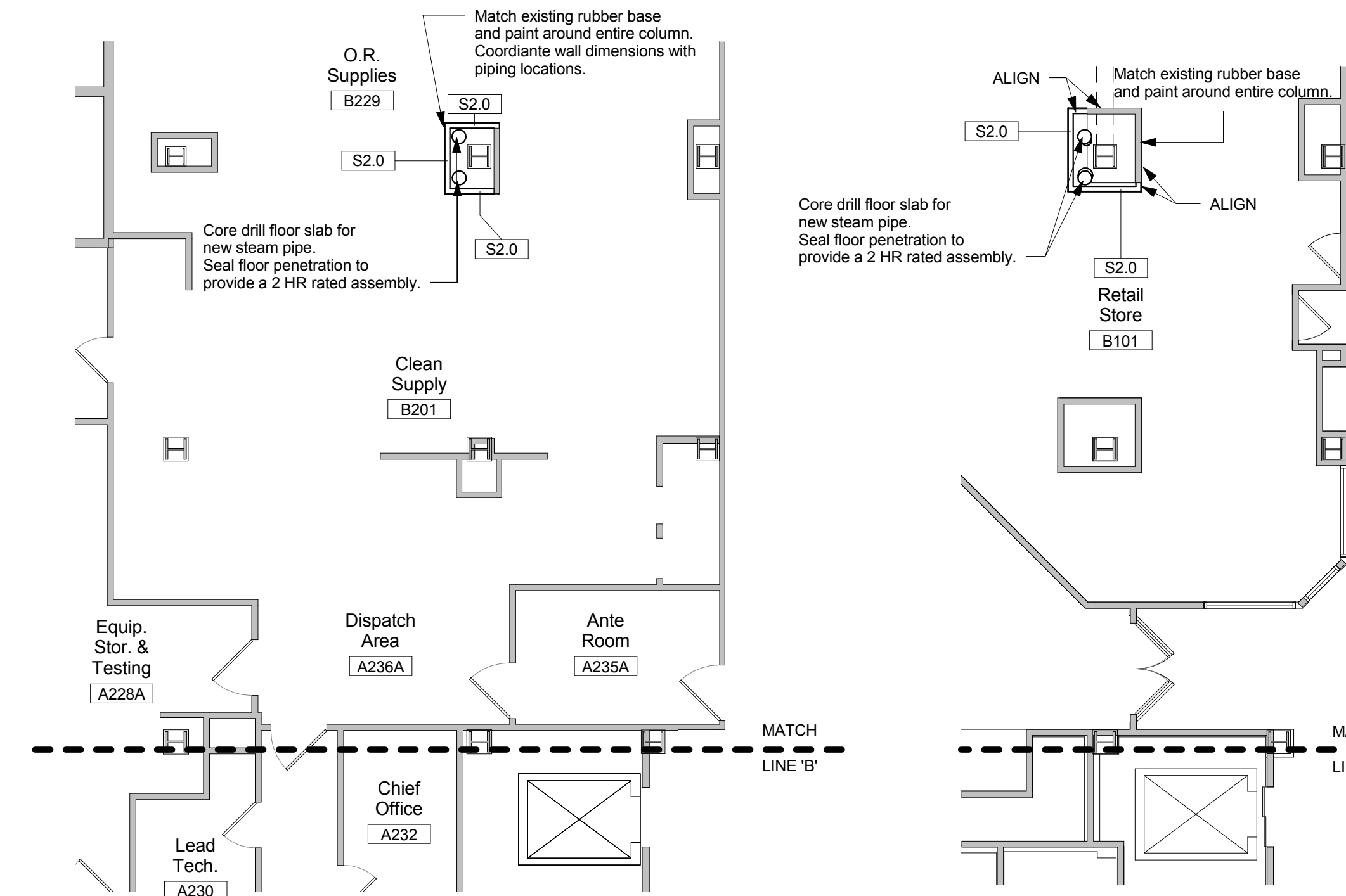
### **3.3 ADJUSTING, CLEANING AND PROTECTION**

- A. Clean, lubricate and adjust hardware. Adjust doors and latches to operate easily without binding.
- B. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit metal locker use during construction.

- C. Touch up marred finishes, or replace metal lockers that cannot be restored to factory finished appearance. Use only materials and procedures recommended or furnished by metal locker manufacturer.

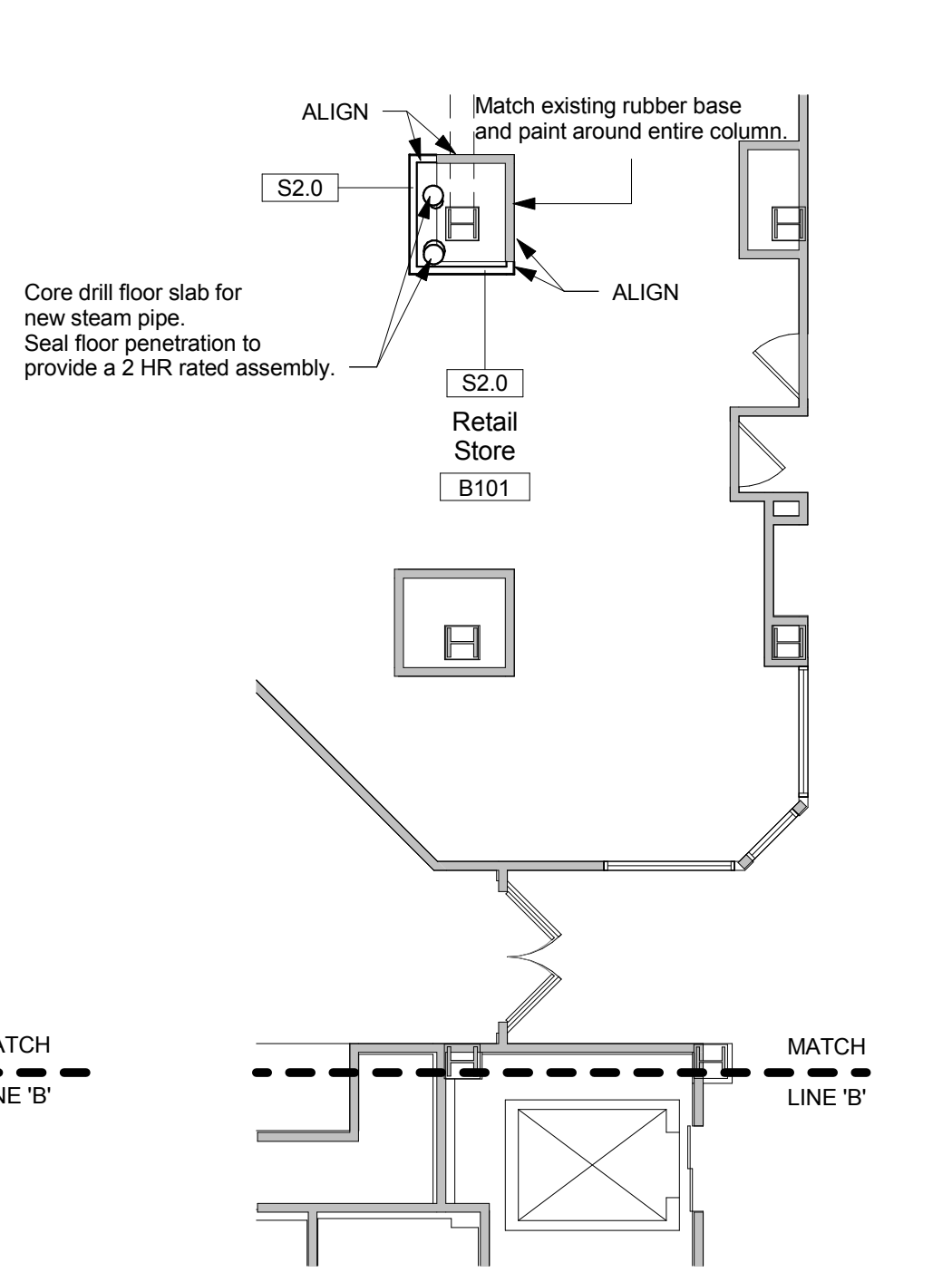
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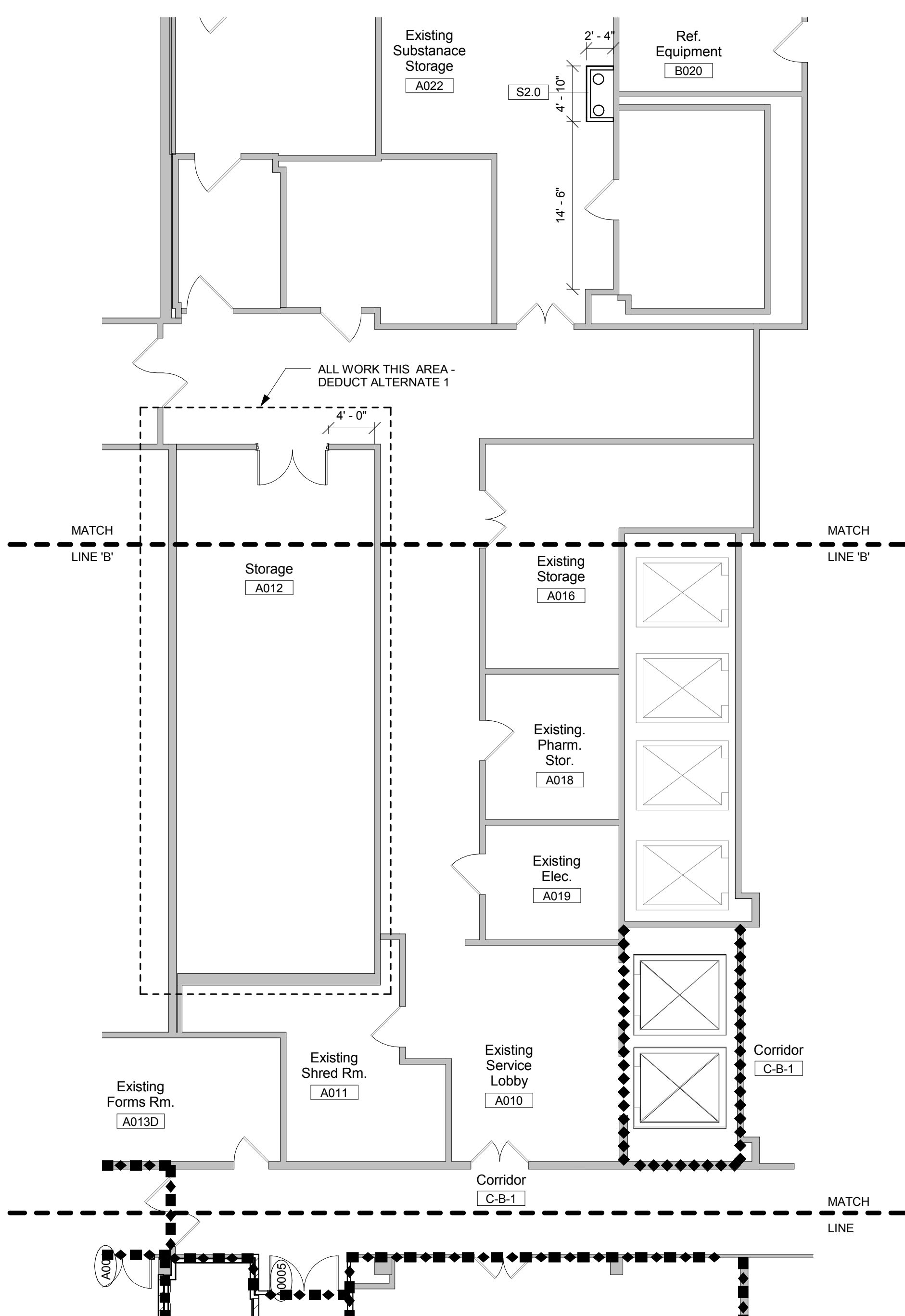
4 Partial Second Floor Plan

Scale: 1/8" = 1'-0"



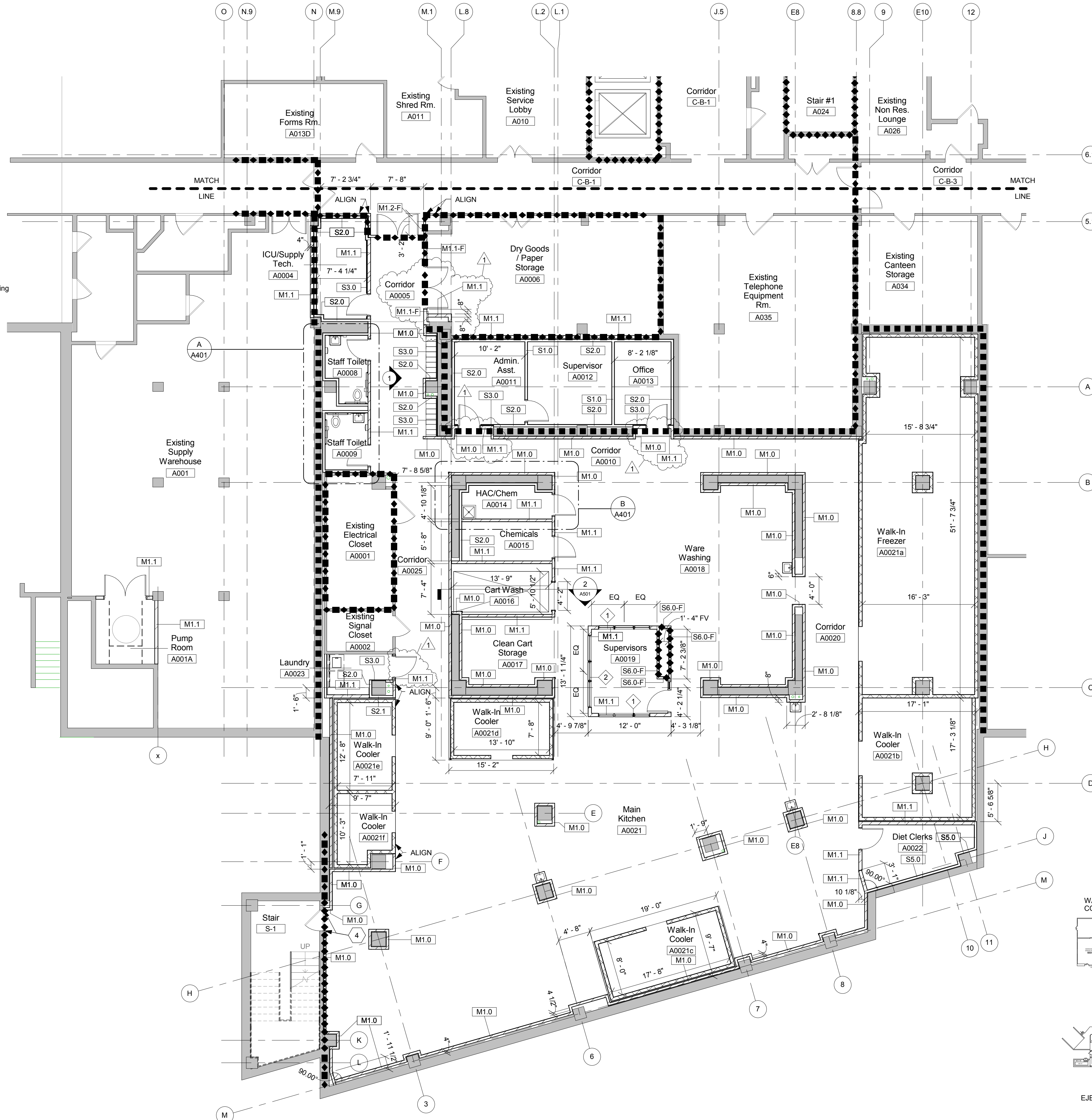
3 Partial First Floor Plan

Scale: 1/8" = 1'-0"  
All work in this area to be performed during nights and weekend hours. Coordinate timing of work with Project Engineer.



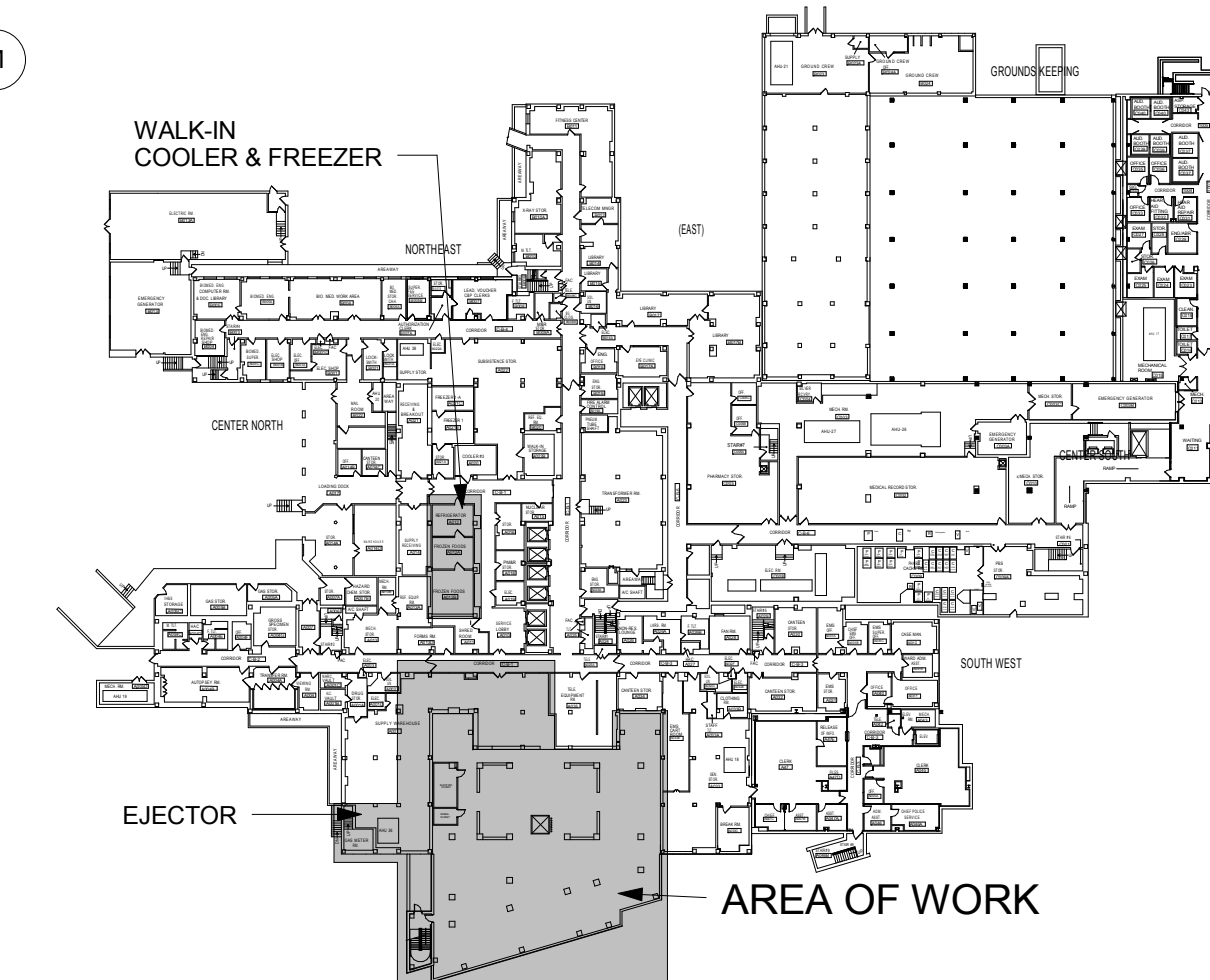
2 Partial Basement Floor Plan - New Work-Dimensions

Scale: 1/8" = 1'-0"



1 Basement - New Work Plan-Dimension

Scale: 1/8" = 1'-0"



Basement Key Plan

Scale: N.T.S.

FULLY SPRINKLERED

Revisions	Amendment 1	Date
1	Amendment 1	07/24/2013

CONSULTANTS:	
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ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS

116 EAST THIRD STREET  
DAYTON, OHIO 45402-2130

937.461.3290 PHONE  
937.461.0260 FAX  
jpa@johnpoe.com

Drawing Title

BASEMENT PLAN-Dimensions (Kitchen)

Approved: Project Director

Project Title

Relocate Kitchen and SPD

Location

Cincinnati, Ohio

Date

05/16/2013

Checked

KR

Drawn

BC

Project No.

VA Project No. 539-13-104  
JPA Project No. 12006.00

Building Number

1

Drawing Number

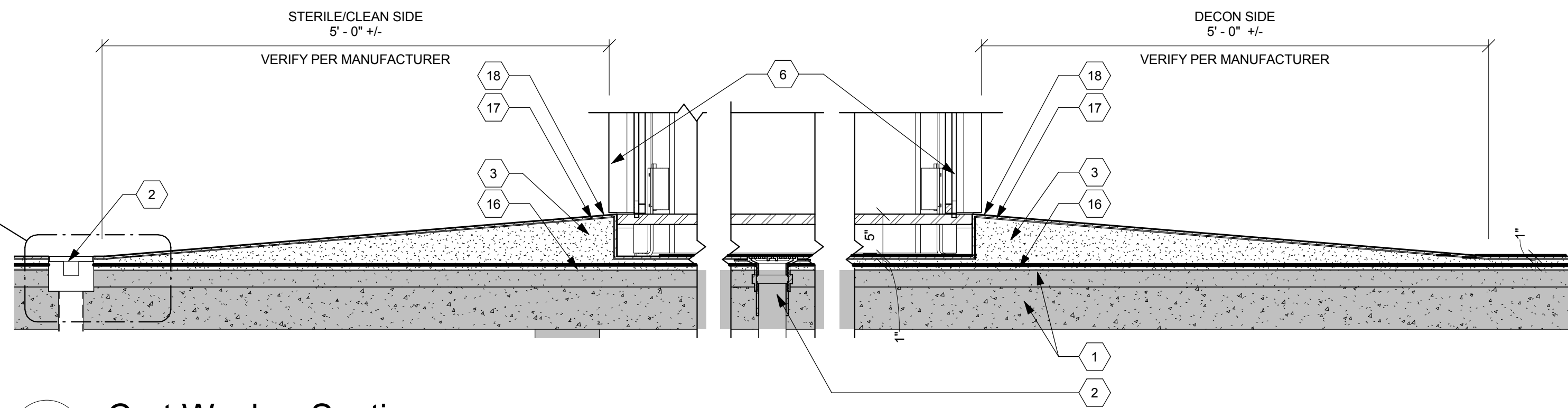
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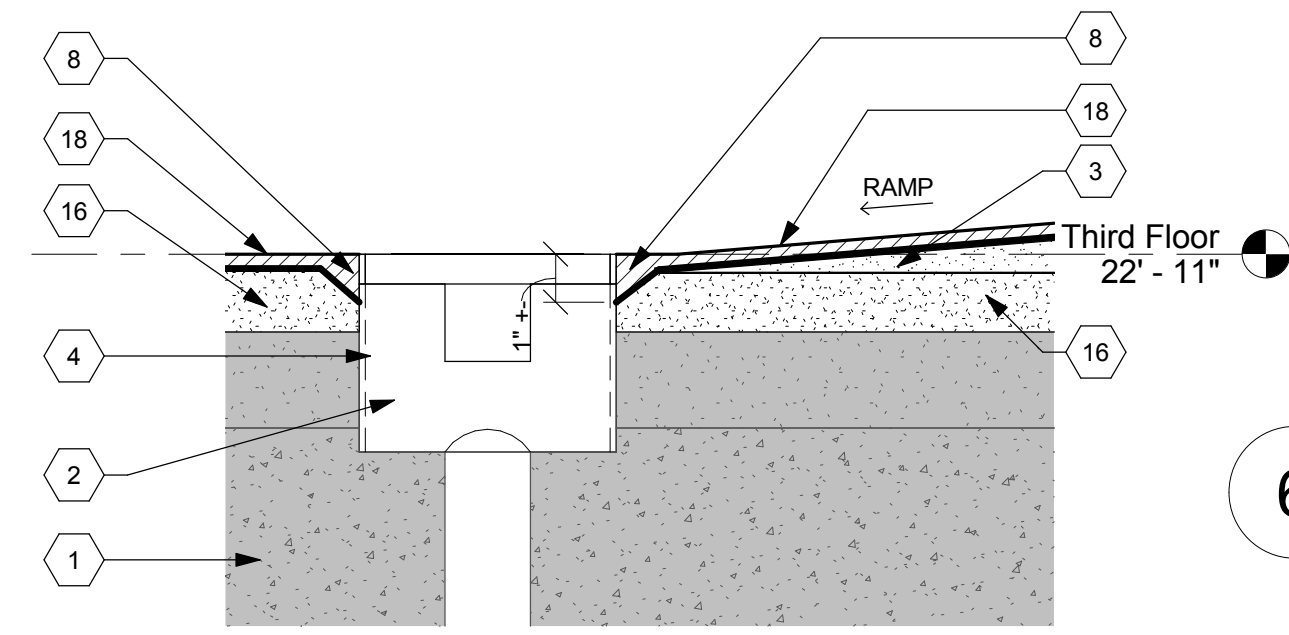
Office of Construction and Facilities Management

Department of Veterans Affairs



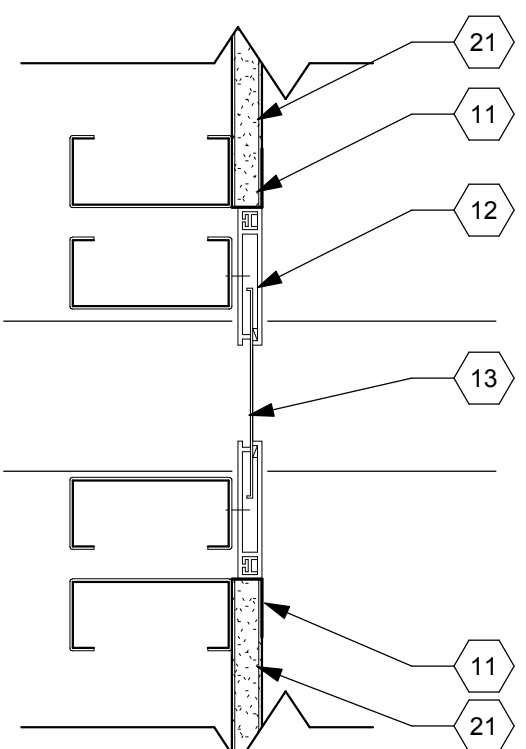


12 Cart Washer Section  
Scale: 1" = 1'-0"

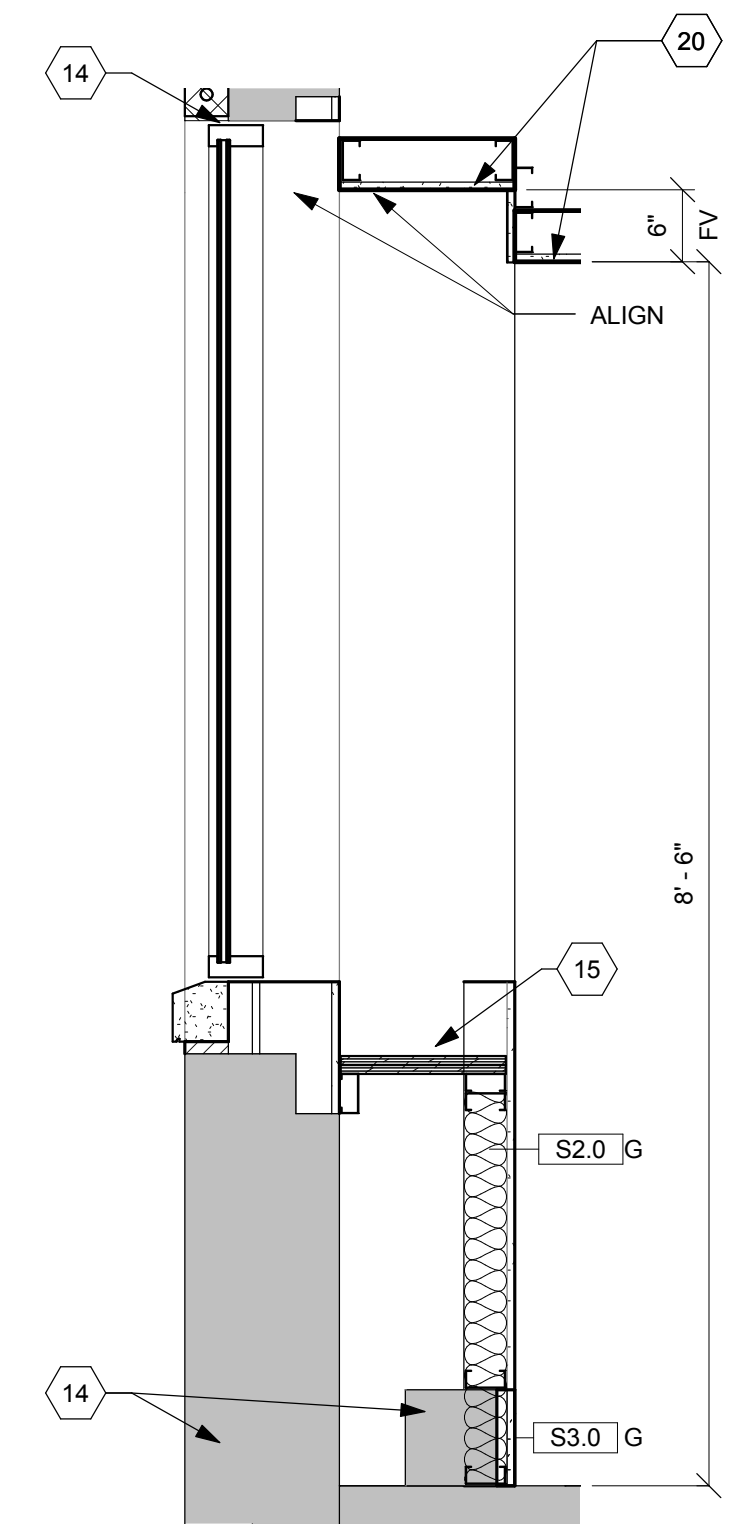


6 ACT Expansion Joint Cover  
Scale: 3" = 1'-0"

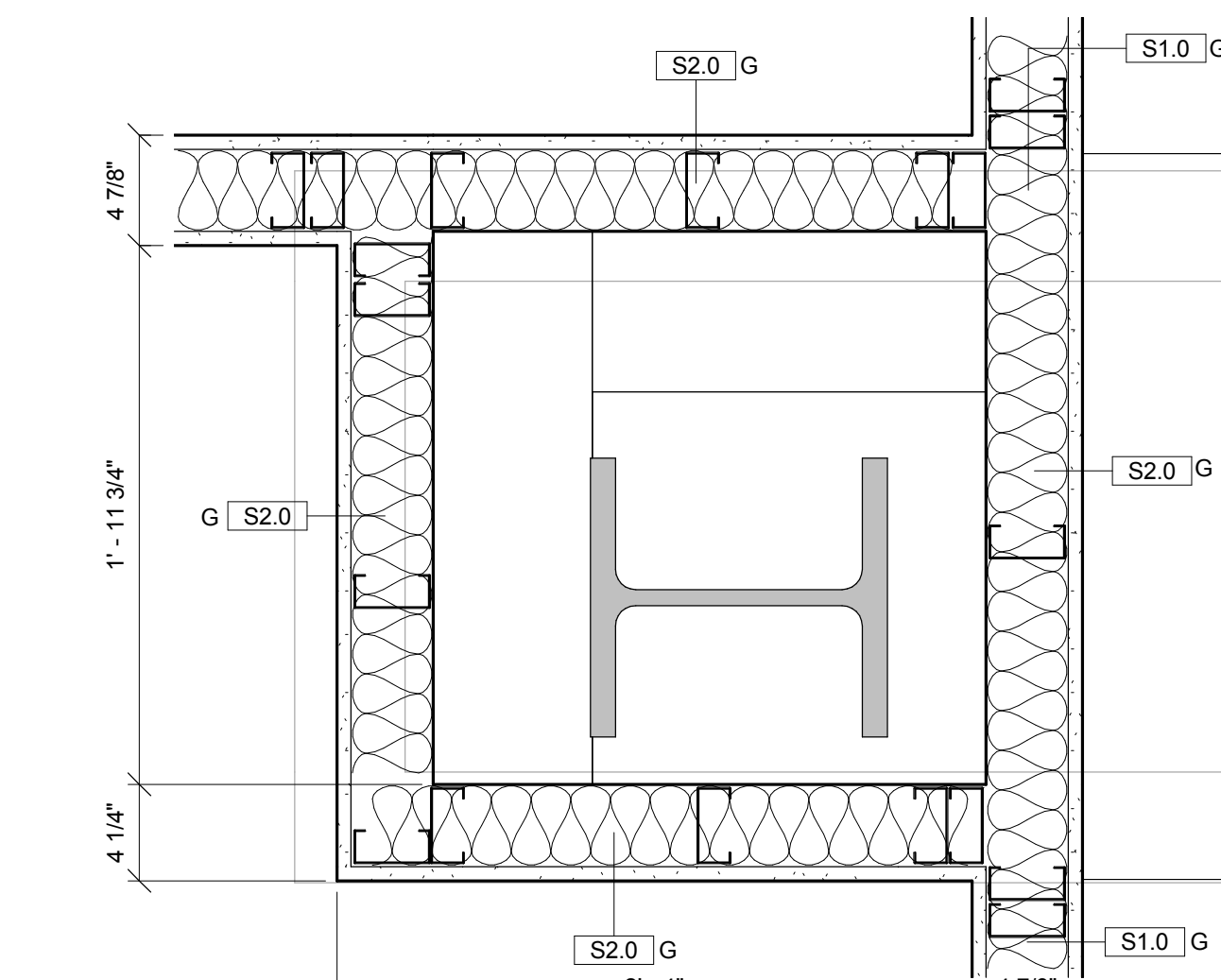
9 Trench Drain Detail  
Scale: 3" = 1'-0"



8 Wall/Ceiling Expansion Joint Cover  
Scale: 3" = 1'-0"

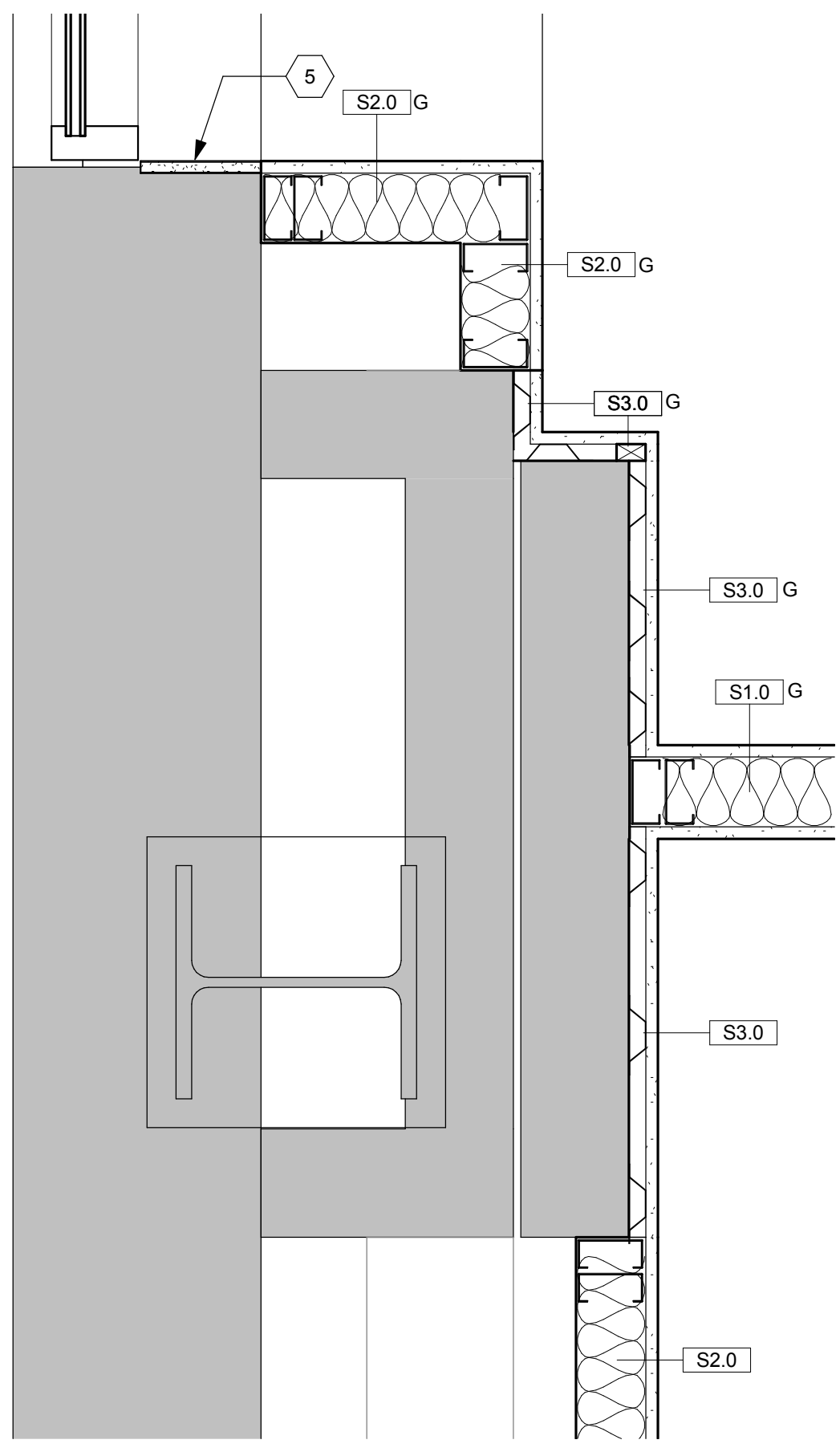


5 Typical Exterior Window Section  
Scale: 3/4" = 1'-0"

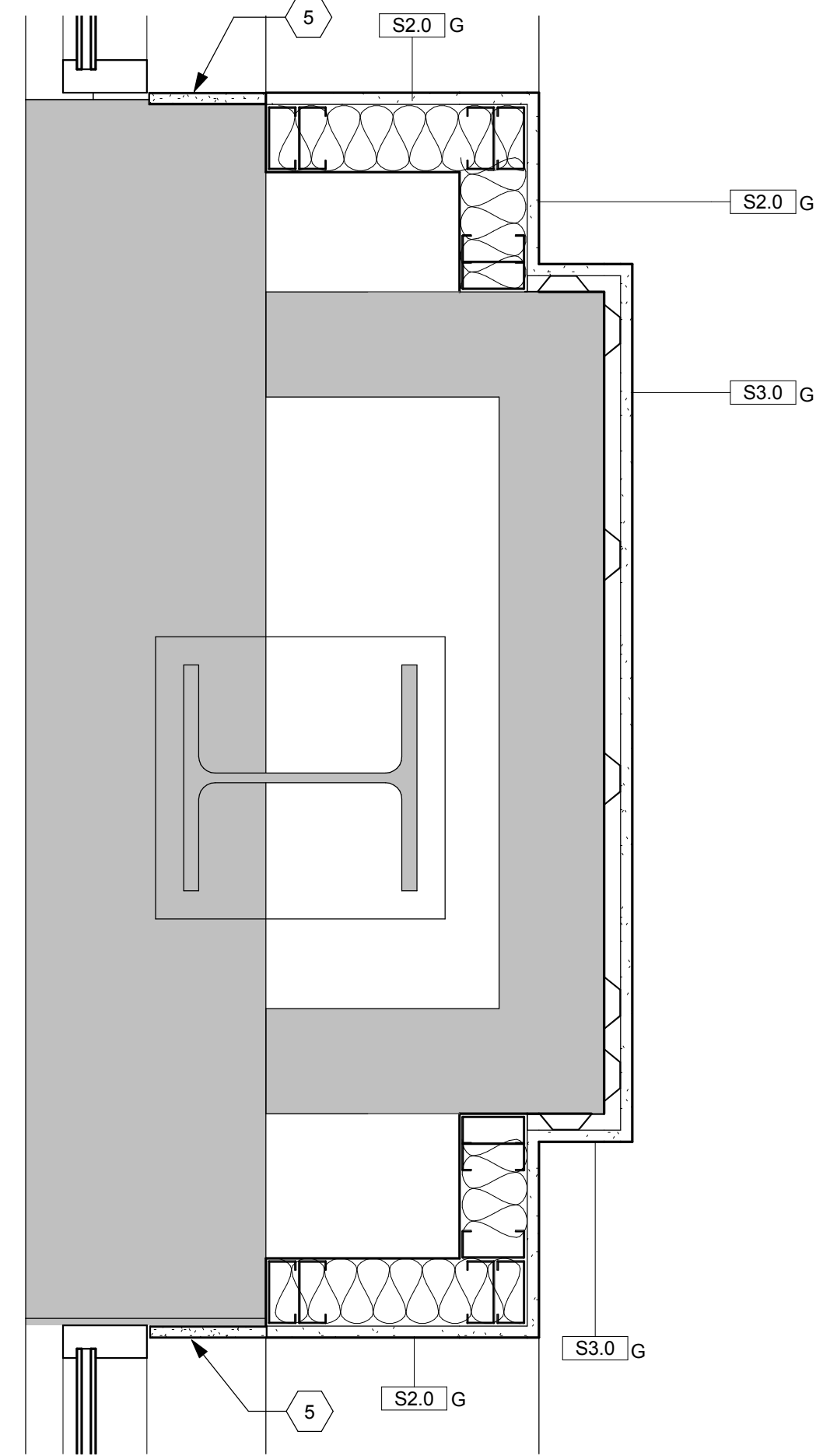


4 Clean/De-Con Divider Wall  
Scale: 1 1/2" = 1'-0"

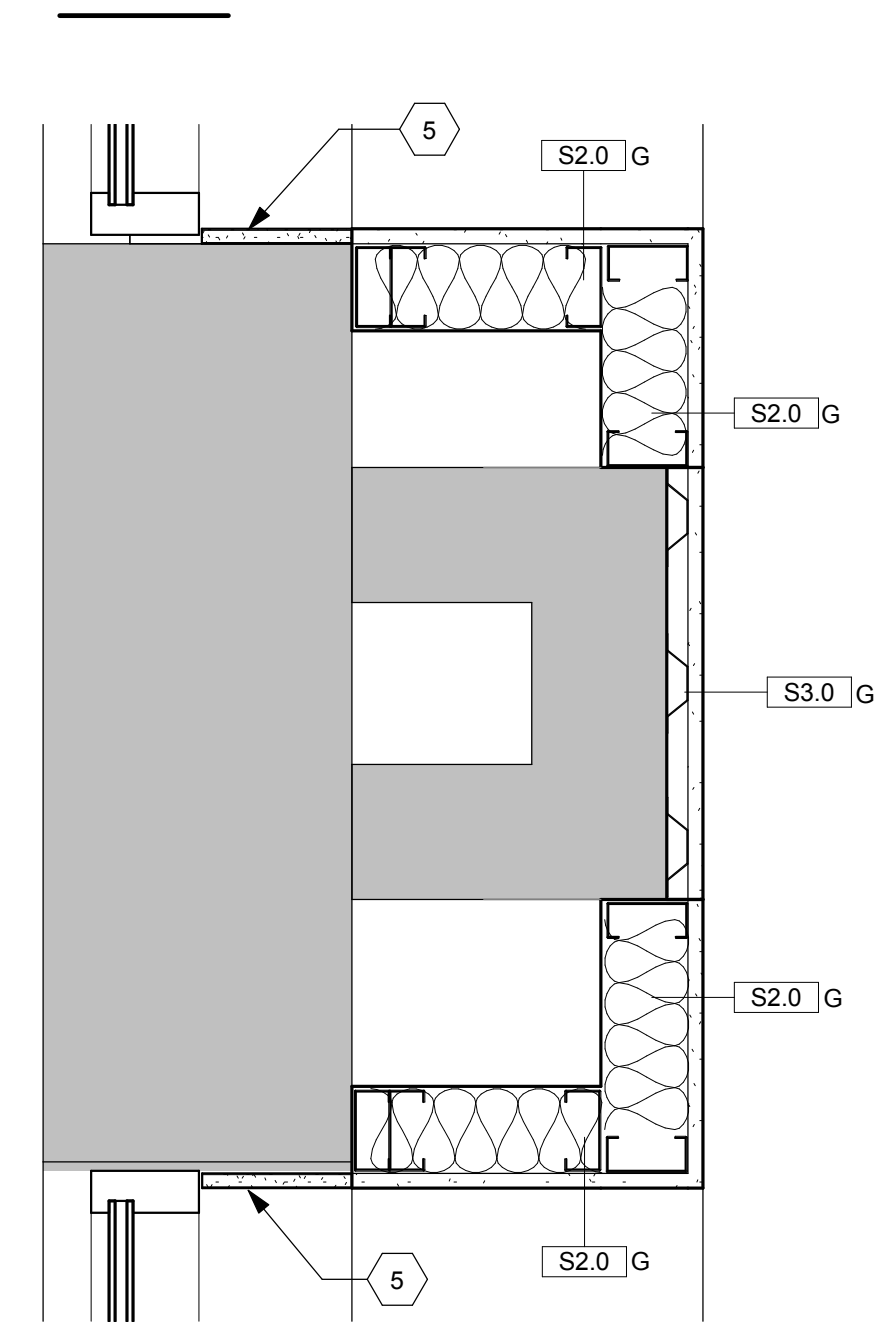
3 Column at Clean HAC  
Scale: 1 1/2" = 1'-0"



2 Plan Detail - Column Wrap  
Scale: 1 1/2" = 1'-0"

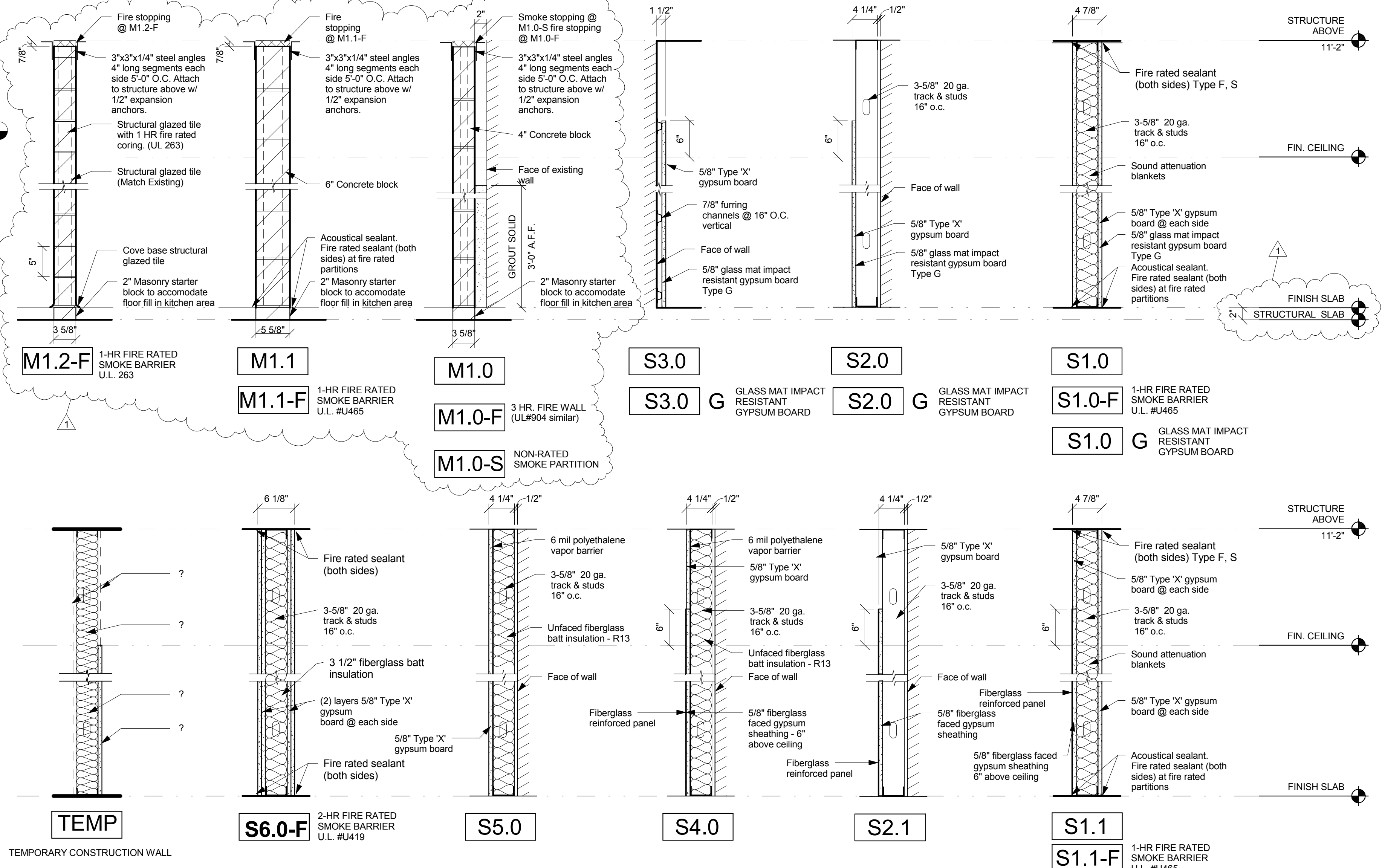


1 Plan Detail - Column Wrap  
Scale: 1 1/2" = 1'-0"



- DETAIL NOTES
- Existing floor structure.
  - Floor drain. See Plumbing Drawings.
  - Pitching grout. See Sheet AF601, Finish Materials Legend for details.
  - Coordinate flooring removal with trench drain width and depth. See Plumbing drawings and specifications.
  - Laminate gypsum board over existing concrete block.
  - Cart washer.
  - Continuous 2" aluminum floor expansion joint and frame assembly.
  - Thicken resinous flooring system at perimeter of all floor penetrations.
  - Existing concrete slab.
  - Sheet type vapor barrier.
  - Type "LC" drywall bead.
  - Aluminum wall to wall expansion joint cover. Continuous recessed frame.
  - Continuous aluminum glide plate.
  - Existing wall construction.
  - Solid surface sill over (2) layers of 3/4" plywood.
  - Fill material (See Specification 09 67 23) adjust thickness to provide a flush condition with all adjacent flooring. Finishes field verify.
  - Water proofing membrane. See Sheet AF601, Finish Materials Legend for details.
  - Resinous flooring system. See Sheet AF601, Finish Materials Legend for details.
  - Glass mat gypsum board.
  - Glass mat impact resistive gypsum board.
  - Continuous 2" aluminum expansion assembly.
  - Acoustical ceiling panel and support system.
  - Pop rivet expansion assembly to acoustical ceiling panel tee system.

WALL TYPES  
Scale: N.T.S.



FULLY SPRINKLERED

CONSULTANTS:		ARCHITECT/ENGINEERS:		Drawing Title		Project Title		Project No.		Office of Construction and Facilities Management	
		JOHN POE ARCHITECTS		DETAILS		Relocate Kitchen and SPD		VA Project No. 539-13-104 JPA Project No. 12006.00		Department of Veterans Affairs	
		116 EAST THIRD STREET DAYTON, OHIO 45402-2130				Cincinnati, Ohio		Building Number 1			
		937.461.3280 PHONE 937.461.0260 FAX jpa@johnpoe.com		Approved: Project Director		Date 05/16/2013		Checked: KR		Drawn: BC	
1 Amendment 1 07/24/2013								Drawing Number A511		Dwg. of	

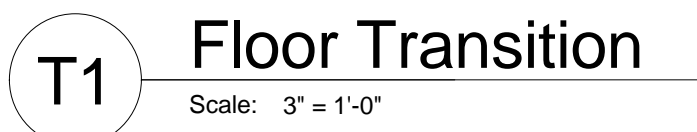






- 2 Quarry tile to be installed on floor inside freezers.
- 3 Patch and repair flooring to match adjacent existing finishes.
- 4 See Sheet A511 for Cart Wash flooring details.
- 5 Quarry tile movement joint. See Detail 3/AF101F.

- 1 Quarry tile.
- 2 Urethane grout.
- 3 Existing concrete slab.
- 4 Bond coat.
- 5 Mildew-resistant silicone sealant.
- 6 Mortar bed.
- 7 Crack isolation membrane.
- 8 New concrete slab.
- 9 Backer rod.
- 10 Compressible back-up fill material.
- 11 Sloped aluminum edge trim.
- 12 Vinyl composition tile.




CONSULTANTS:



Project Title		
Relocate Kitchen and SPD		
Location		
Cincinnati, Ohio		
Date	Checked	Drawn

Office of  
Construction  
and Facilities  
Management

 Department of  
Veterans Affairs

FULLY SPRINKLERED



three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

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A B C D E F

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A B C D E F G H J K L

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H J K L

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H J K L

1 2 3 4 5 6 7 8 9 10 11 12

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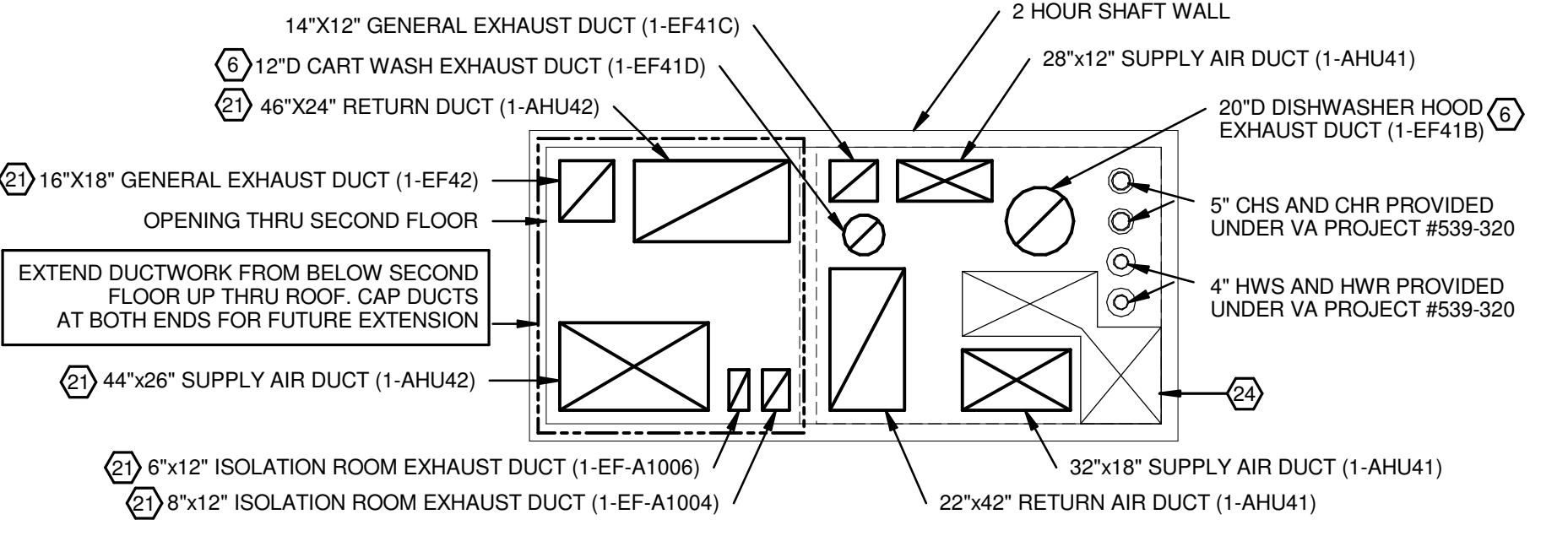
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# GENERAL NOTES

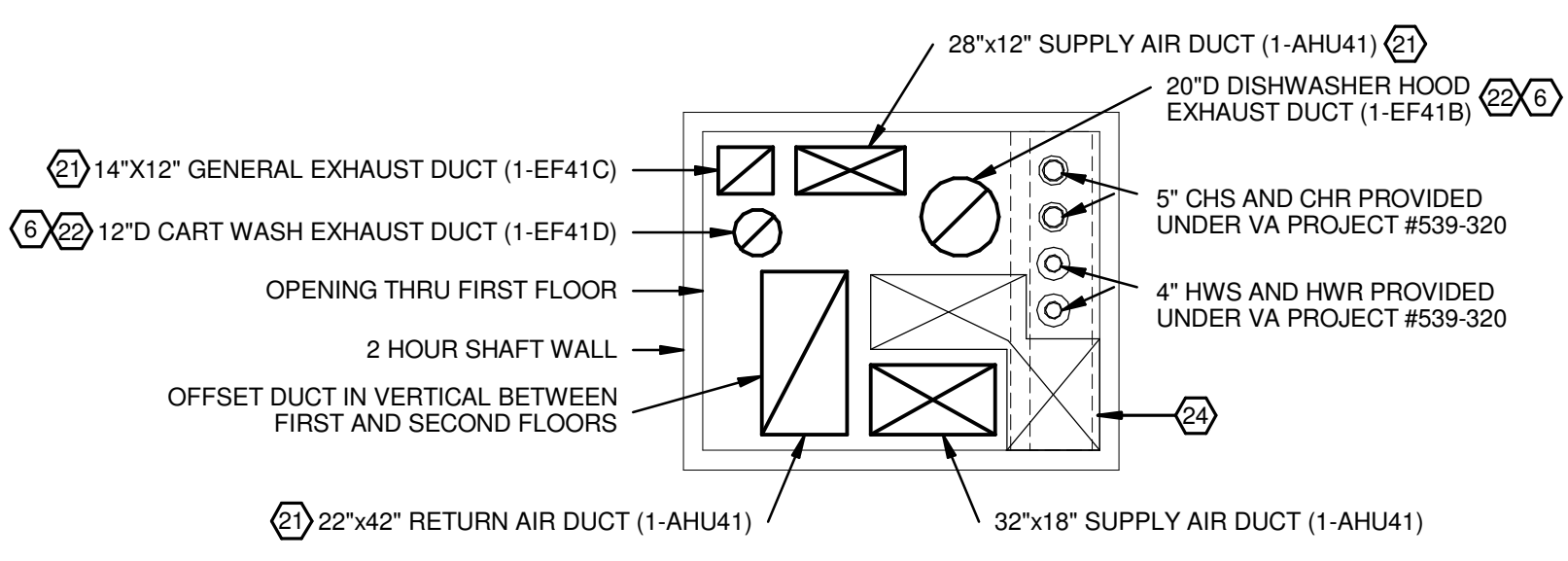
A REFER TO SHEET H1 FOR LEGEND, ABBREVIATIONS, AND ADDITIONAL GENERAL NOTES.

## NOTES

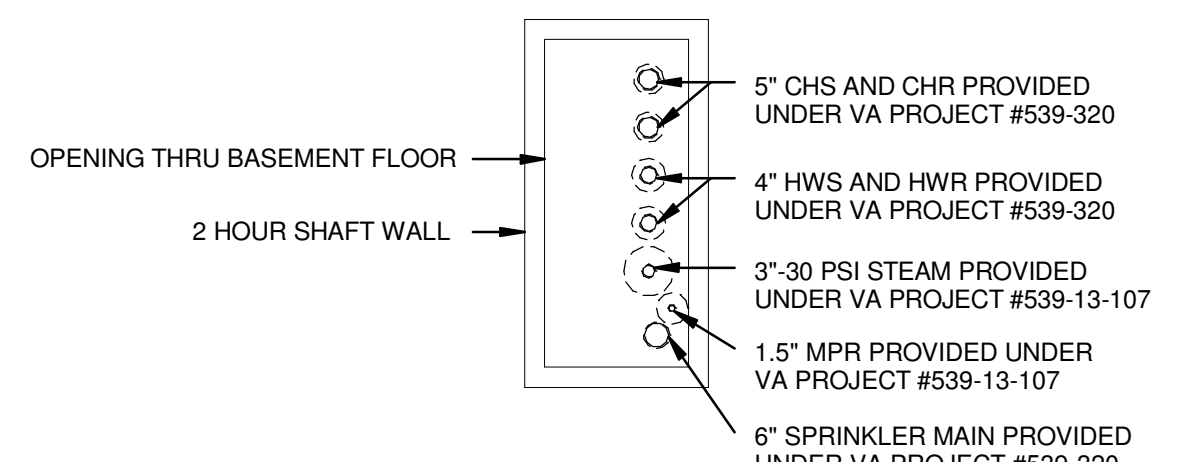
- EXISTING AIR HANDLING UNIT TO BE PROVIDED UNDER VA PROJECT #539-320.
- EXISTING EXHAUST FAN TO BE PROVIDED UNDER VA PROJECT #539-320.
- EXISTING CONDENSING UNIT TO BE PROVIDED UNDER VA PROJECT #539-320.
- PROVIDE HEAT TRACE ON EXTERIOR PIPING.
- EXISTING PIPING TO REMAIN.
- PROVIDE WELDED STAINLESS STEEL DUCTWORK.
- DUCTWORK TO BE PROVIDED UNDER FUTURE PROJECT.
- EXTEND DUCT DOWN TO BASEMENT. PROVIDE DUCT PENETRATION ROOF CURB. REFER TO SHAFT OPENING DETAIL ON THIS SHEET.
- PROVIDE 12"Wx12"H GREASE DUCT ACCESS DOOR TO PERMIT THOROUGH CLEANING OF GREASE DUCT.
- PROVIDE STAINLESS STEEL JACKET OVER DUCT WRAP.
- KITCHEN HOOD EXHAUST (GREASE) DUCTWORK.
- PROVIDE PIPE SUPPORT ROOF CURB.
- MOUNT FAN ON SPRING ISOLATORS ON EQUIPMENT ROOF CURB WITH ISOLATION BASE.
- AIR HANDLING UNIT TO BE PROVIDED IN FUTURE PROJECT.
- EXHAUST FAN TO BE PROVIDED UNDER FUTURE FIRST FLOORPROJECT.
- DUCT FULL SIZE OF FAN INLET.
- PROVIDE DUCT PENETRATION ROOF CURB.
- PROVIDE DUCT SUPPORT ROOF CURB. SEE DETAIL ON SHEET H4.
- LOCATION FOR WALK-IN COOLER/FREEZER CONDENSING UNIT. MOUNT ON EQUIPMENT SUPPORT CURBS. PROVIDE REFRIGERANT PIPING AND SPECIALTIES BETWEEN THE WALK-IN COOLER/FREEZER EVAPORATOR COILS AND OUTSIDE CONDENSING UNITS. PROVIDE PIPE SIZING, DOUBLE SUCTION RISERS AND OTHER REFRIGERANT SPECIALTIES, ETC. PER MANUFACTURER'S SHOP DRAWINGS AND INSTALLATION INSTRUCTIONS. PROVIDE PIPE SUPPORT ROOF CURBS FOR PIPING LOCATED ON ROOF.
- LOCATION OF STRUCTURAL ELEMENT FOR FUTURE BUILDING EXTENSION.
- PROVIDE STATIC TYPE "B" FIRE DAMPER IN DUCT THRU FLOOR ACCESS FROM FIRST FLOOR.
- PROVIDE STATIC TYPE "C" FIRE DAMPER IN DUCT THRU FLOOR ACCESS FROM FIRST FLOOR.
- EXTEND DUCTWORK FROM ABOVE ROOF DOWN THRU SECOND FLOOR. CAP BOTH ENDS FOR FUTURE EXTENSION. PROVIDE DUCT PENETRATION ROOF CURB. SEAL DUCT ABOVE ROOF WATERTIGHT. REFER TO SHAFT OPENING DETAILS ON THIS SHEET.
- LOCATION FOR WALK-IN COOLER/FREEZER REFRIGERANT PIPING.
- REMOVABLE INSULATED PIPING ENCLOSURE PROVIDED WITH AHU.
- PROVIDE ALUMINUM JACKET OVER DUCT WRAP.
- PROVIDE DIFFERENTIAL PRESSURE SENSOR FOR CONTROL OF CHILLED WATER PUMPS P5a AND P5b. REFER TO CONTROL SEQUENCES ON SHEET H9.
- NOTE OMITTED.
- REFER TO SHEET H5 FOR AIR HANDLING UNIT COMPONENTS.
- PROVIDE NEW ROOF PAVER.



SECOND FLOOR SHAFT OPENING



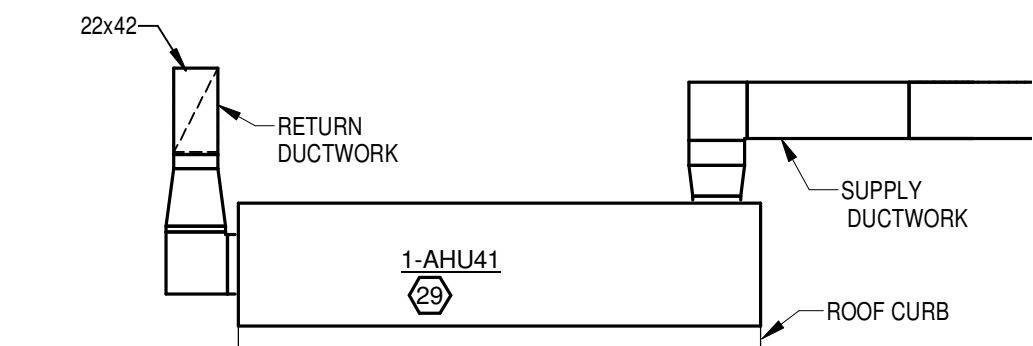
FIRST FLOOR SHAFT OPENING



BASEMENT FLOOR SHAFT OPENING

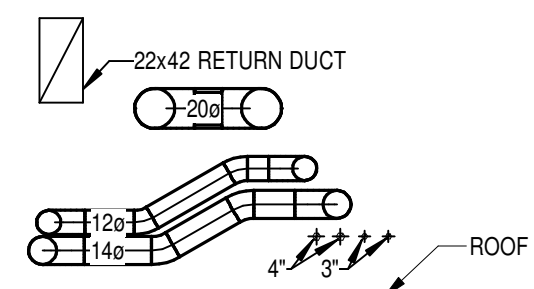
## SHAFT OPENING DETAILS

SCALE: 1/4" = 1'-0"



3 AHU SECTION

Scale: 1/8" = 1'-0"

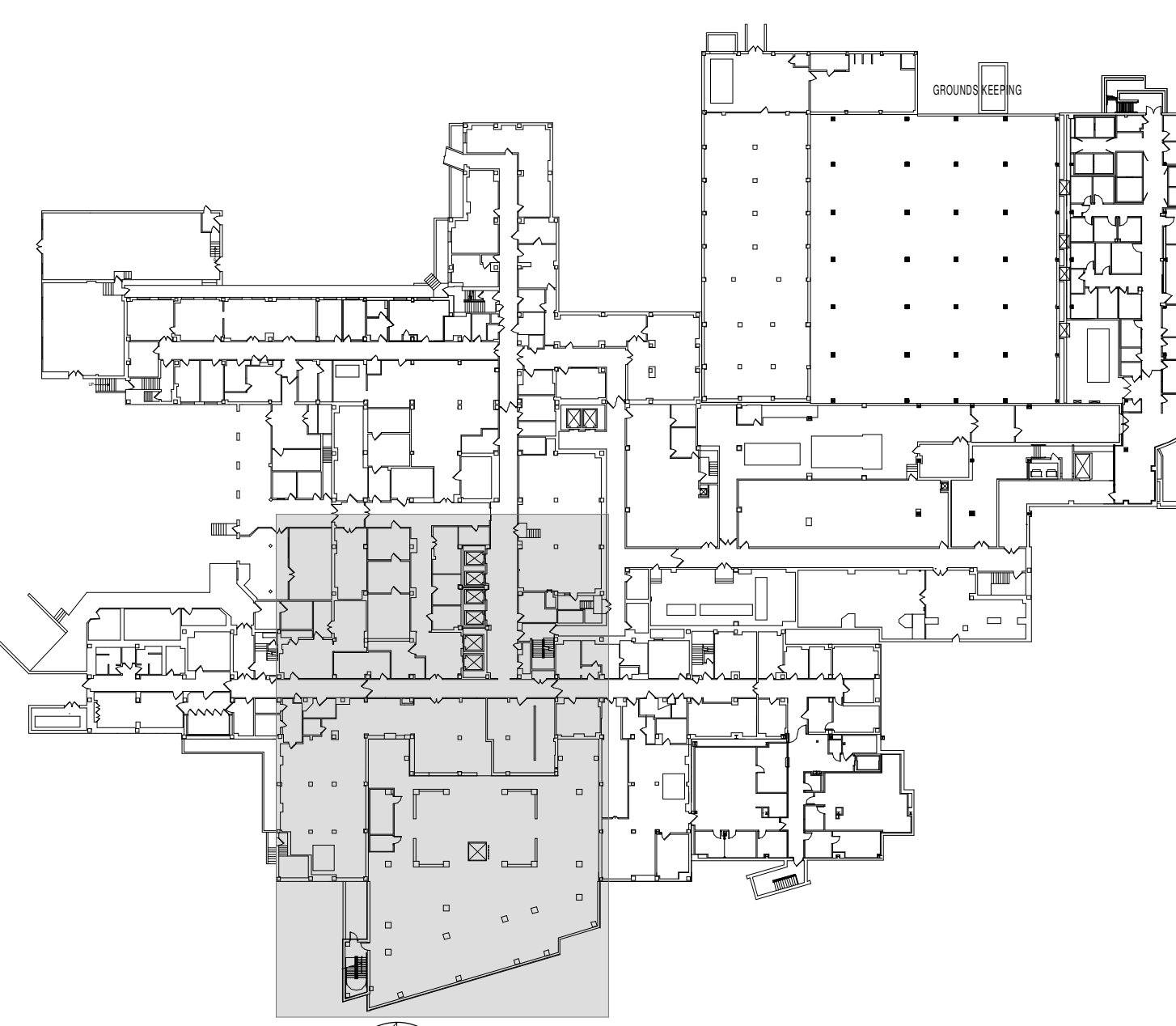


4 EXHAUST DUCTS

Scale: 1/8" = 1'-0"

## PARTIAL ROOF/THIRD FLOOR PLAN

Scale: 1/8" = 1'-0"



KEY PLAN

## FULLY SPRINKLERED

			CONSULTANTS:		<div><div><div><div><div></div><div>Heapy Engineering</div><div>Mechanical Electrical Commissioning Technology</div><div>Nationally Recognized Leader in Sustainability / LEED</div></div><div>1400 W Dorothy Lane, Dayton OH 45409-1310</div><div>Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com</div><div>HEAPY PROJECT No.: 2012-04007 FIRM LICENSE No.: 01528</div></div></div><div><div>STATE OF OHIO</div><div>JOHN A. BLACK 49341</div><div>REGISTERED PROFESSIONAL ENGINEER</div></div></div>		ARCHITECT/ENGINEERS:		<div><div><div><div></div><div>JOHN POE ARCHITECTS</div><div></div></div><div>116 EAST THIRD STREET DAYTON, OHIO 45402-2120</div><div>937-461-3280 PHONE 937-461-0260 FAX jpo@johnpoe.com</div></div></div>		Drawing Title		PARTIAL THIRD FLOOR PLAN (IMAGING CENTER ROOF) - NEW WORK (KITCHEN)		Approved: Project Director	
							Project Title		Relocate Kitchen and SPD		Project No. VA Project No. 539-13-104 JPA Project No. 12006.00		Office of Construction and Facilities Management			
							Location		Cincinnati, Ohio		Building Number 1					
							Date		05/16/2013		Drawing Number 1-H9		Department of Veterans Affairs			
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							Drawn		WJS							

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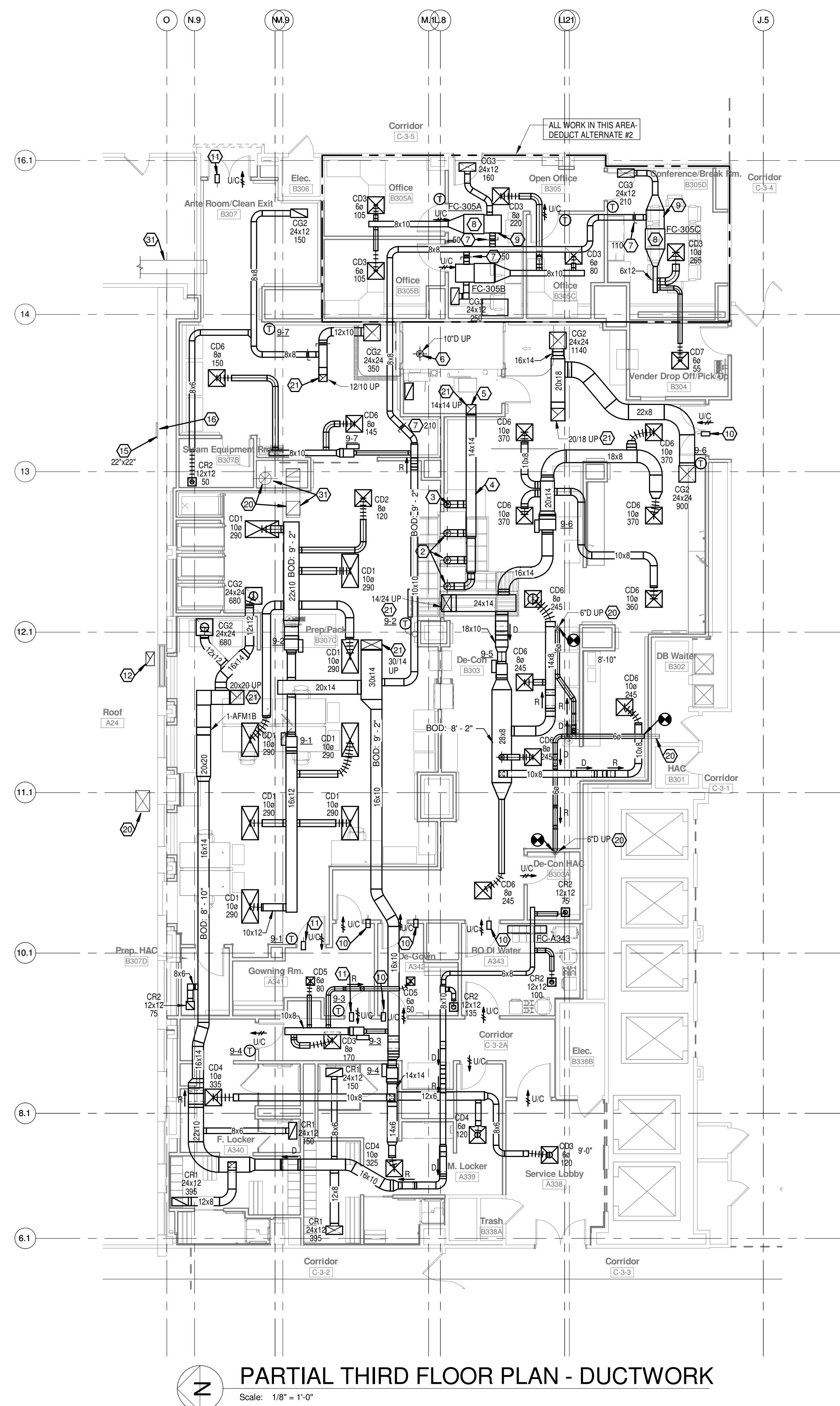
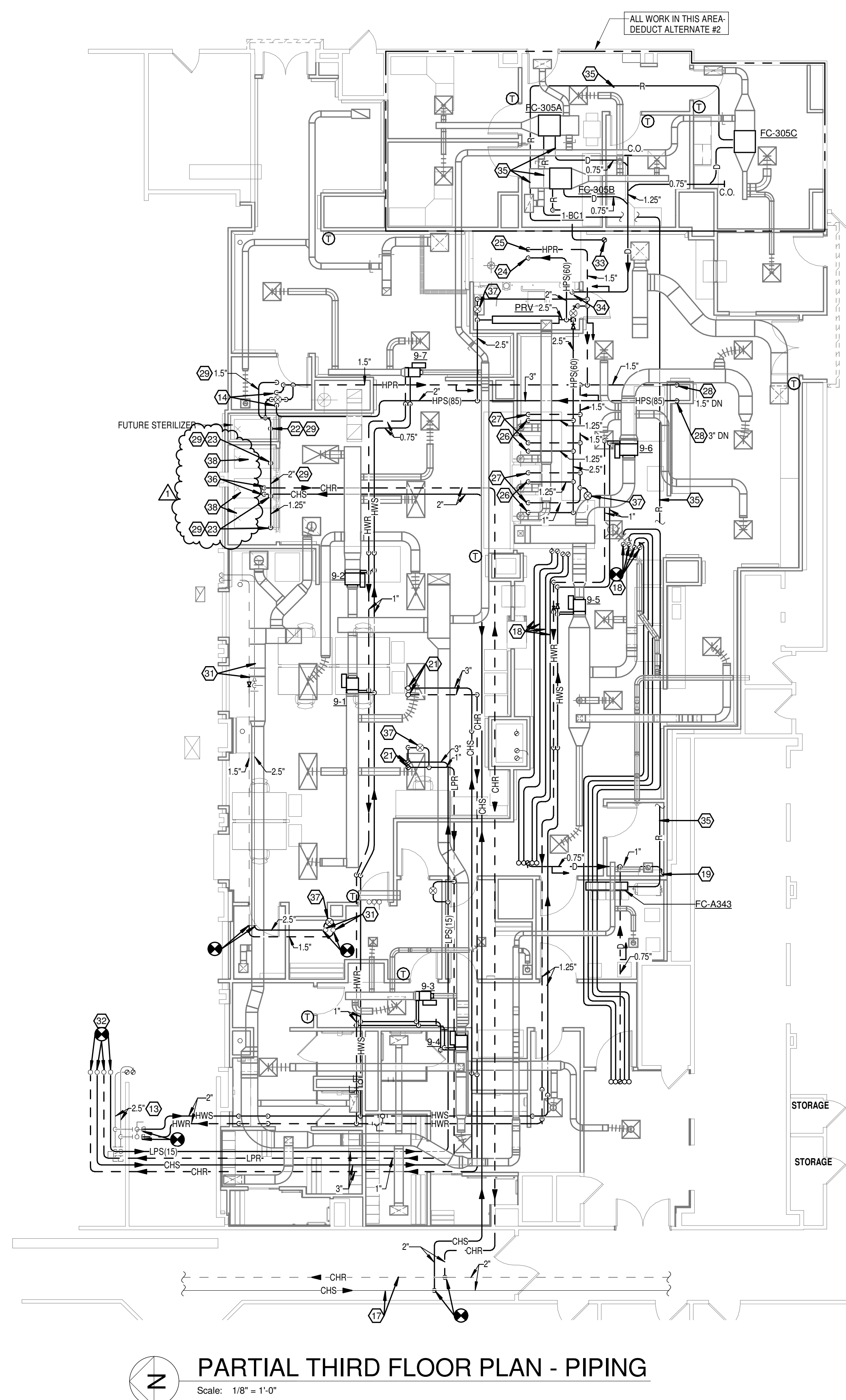
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1. EXTEND CONDENSATE DRAIN PIPE TO FLOOR DRAIN.

2. EXTEND 1"Ø WELDED STAINLESS STEEL DUCT DOWN TO WASHERS/DISINFECTOR AT APPROXIMATELY 7'-10". CONNECTION IS APPROXIMATELY 5'Ø. PROVIDE TRANSITION AND MANUAL DAMPER AND BALANCE TO 250 CFM.

3. EXTEND 1"Ø WELDED STAINLESS STEEL DUCT DOWN TO AIR DEVICE FOR FUTURE EXTENSION TO WASHES/DISINFECTOR. BALANCE AIR FLOW TO 250 CFM.

4. PROVIDE WELDED STAINLESS STEEL DUCTWORK: PITCH DUCTWORK SLIGHTLY TO ALLOW DRAINING.

5. PROVIDE 0.75" DRAIN CONNECTION AT ELBOW.

6. EXTEND 1"Ø WELDED STAINLESS STEEL DUCTWORK FROM CART WASH/EXHAUST FAN UP THRU ROOF PER MANUFACTURERS RECOMMENDATIONS. CONNECTION SIZE IS APPROXIMATELY 1"Ø. PROVIDE TRANSITION AND MANUAL DAMPER. BALANCE TO 530 CFM.

7. BALANCE DAMPER TO INDICATED CFM.

8. SUSPEND UNIT FROM STRUCTURE WITH VIBRATION ISOLATORS. PROVIDE 4" RIGID DUCT CONNECTION AT INLET AND OUTLET OF UNIT. MAINTAIN ALL MANUFACTURERS REQUIRED SURFACE CLEARANCES.

9. PROVIDE 10" HIGH INSULATED PLENUM DUCT FULL WIDTH OF UNIT OPENING.

10. PROVIDE CONTINUOUS AIR INDICATOR EQUAL TO LAMIFLOW TECHNOLOGIES LIG MODEL LN102 TO INDICATE NEGATIVE PRESSURE.

11. PROVIDE CONTINUOUS AIR INDICATOR EQUAL TO LAMIFLOW TECHNOLOGIES LIG MODEL LP102 TO INDICATE POSITIVE PRESSURE.

12. 12"x20" DUCT FROM SECOND FLOOR UP TO ROOF. REFER TO SHEETS H-8B AND H-11. FASTEN DUCT TO WALL.

13. PIPING BEING PROVIDED UNDER VA PROJECT #39-13-107.

14. EXTEND PIPING DOWN AND CONNECT TO STERILIZER HEAT EXCHANGER PER MANUFACTURERS RECOMMENDATIONS. PROVIDE END, SHUT OFF VALVE, STRAINER, ETC.

15. EXISTING LOUVER TO REMAIN.

16. PROVIDE DOUBLE WALL INSULATED SHEETMETAL BLANK OFF PANEL. APPROXIMATE SIZE OF LOUVER LISTED. FIELD VERIFY.

17. EXISTING PIPING TO REMAIN.

18. PROVIDE NEW REFRIGERANT PIPING PER COMPUTER ROOM A/C UNIT MANUFACTURERS RECOMMENDATIONS. COORDINATE WITH PROJECT ENGINEER.

19. EXTEND DRAIN PIPE DOWN WALL AND TERMINATE AT SINK MOP.

20. EXISTING DUCT TO REMAIN.

21. REFER TO SHEET 1-H11 FOR CONTINUATION.

22. PROVIDE 1.25" VALVED TEE FOR FUTURE SERIALIZER.

23. EXTEND 1.25" STEAM PIPE DOWN TO SERIALIZER PER MANUFACTURERS RECOMMENDATIONS. PROVIDE SHUT OFF VALVE, STRAINER, ETC.

24. EXTEND PIPE DOWN TO 10" 45° AFF. PROVIDE STRAINER, VALVE AND CAP FOR EXTENSION BY CART WASH/ SUPPLIER.

25. EXTEND PIPE DOWN TO 10" 45° AFF. VALVE AND CAP FOR EXTENSION BY CART WASH/ SUPPLIER.

26. EXTEND PIPE DOWN TO 7" 0° AFF. PROVIDE STRAINER, VALVE AND CAP FOR EXTENSION BY WASHES/DISINFECTOR SUPPLIER.

27. EXTEND PIPE DOWN TO 7" 0° AFF. VALVE AND CAP FOR EXTENSION BY WASHES/DISINFECTOR SUPPLIER.

28. REFER TO SHEET 1-H8 FOR CONTINUATION.

29. PROVIDE STAINLESS STEEL PIPING.

30. EXTEND STAINLESS STEEL PIPING FROM HEAT EXCHANGER TO SERIALIZERS PER MANUFACTURERS RECOMMENDATIONS.

31. EXISTING PIPING TO REMAIN.

32. CONNECT NEW TO EXISTING IN VERTICAL.

33. EXTEND REFRIGERANT PIPING UP TO CONDENSING UNIT ON ROOF.

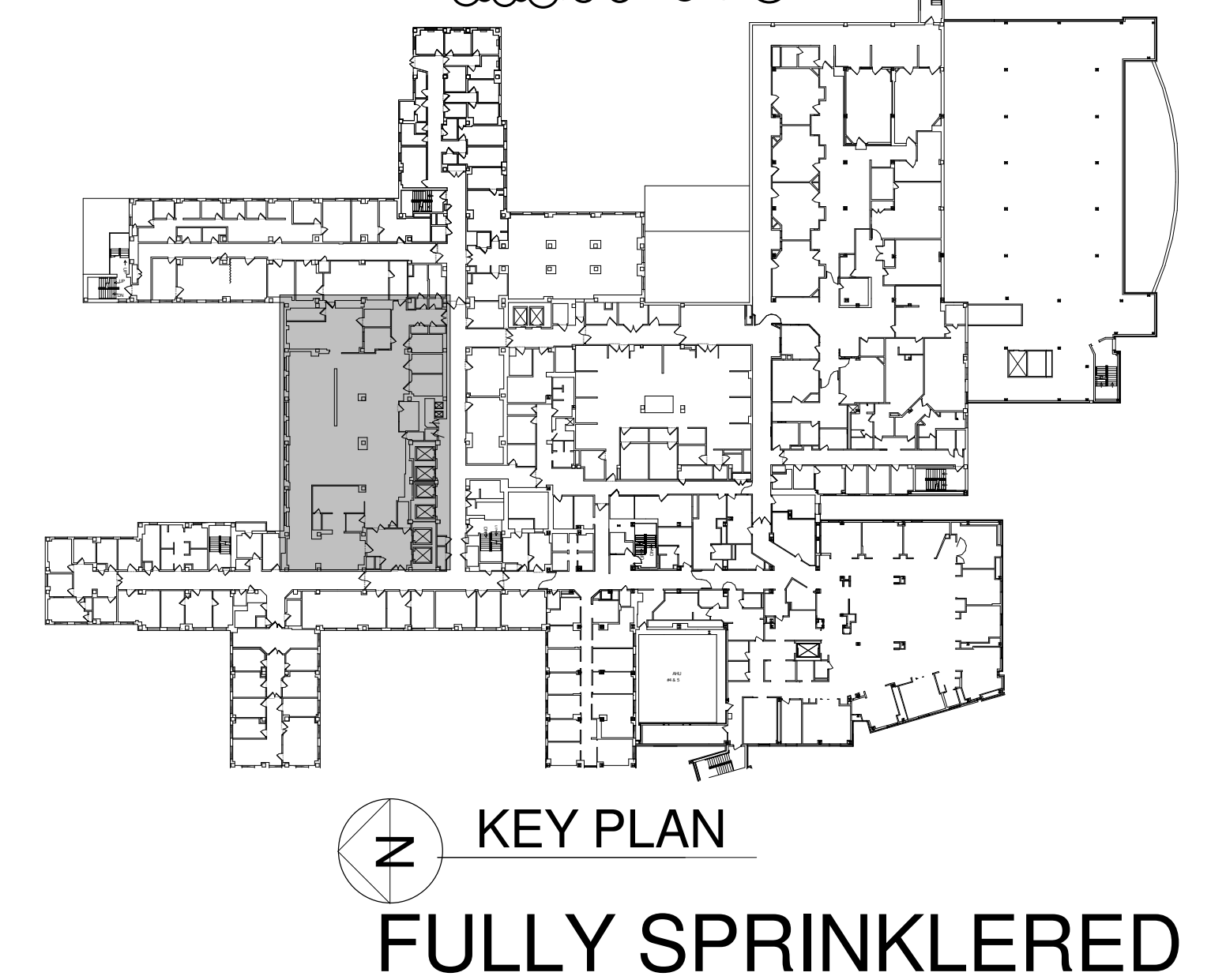
34. EXTEND DRAIN PIPING DOWN WALL, OVER AND TERMINATE INTO TO FLOOR DRAIN.

35. PROVIDE REFRIGERANT PIPING AND ACCESSORIES PER MANUFACTURERS RECOMMENDATIONS. APPROXIMATE ROOF SHOWN.

36. EXTEND CHILLED WATER PIPING TO, AND PROVIDE MANUAL BALL VALVE FOR EACH SERIALIZER DRAIN HEAT EXCHANGER.

37. PROVIDE 0.75" UNIVERSAL TRAP ASSEMBLY WITH THERMODYNAMIC TRAP ON STEAM DRIP.

38. PROVIDE 1.5" PRESSURE RELIEF VENT PIPES UP THRU ROOF PER MANUFACTURERS RECOMMENDATIONS. COORDINATE ROOF PENETRATION WITH ROOFING SUB-CONTRACTOR AND SEAL WATER TIGHT.



1	Amendment 1	7-24-19
Revisions:		Date

CONSULTANTS:

**Heapy Engineering**  
Mechanical Electrical Commissioning Technology  
*Nationally Recognized Leader in Sustainability / LEED*  
1400 W Dorothy Lane, Dayton OH 45409-1310  
Ph: 937-224-0861 Fax: 937-224-5777 [www.heapy.com](http://www.heapy.com)  
HEAPY PROJECT No.: 2012-04007 FIRM LICENSE No.: 01528



ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS

116 EAST THIRD STREET  
DAYTON, OHIO 45402-2130

937 461 3290 PHONE  
937 461 0260 FAX  
ina@icbnpoe.com

Drawing Title
---------------

### PARTIAL THIRD FLOOR PLANS - NEW WORK

Approved: Project Director

Project Title

### Relocate Kitchen and SPD

Location	

Cincinnati, Ohio

Date

☐ Checked

Drawn	WJC
-------	-----

Project No.

VA Project No.	539-13-104
JPA Project No.	12006.00

Drawing Number

1-H10

Office of  
Construction  
and Facilities  
Management







## SIGNALS PLAN

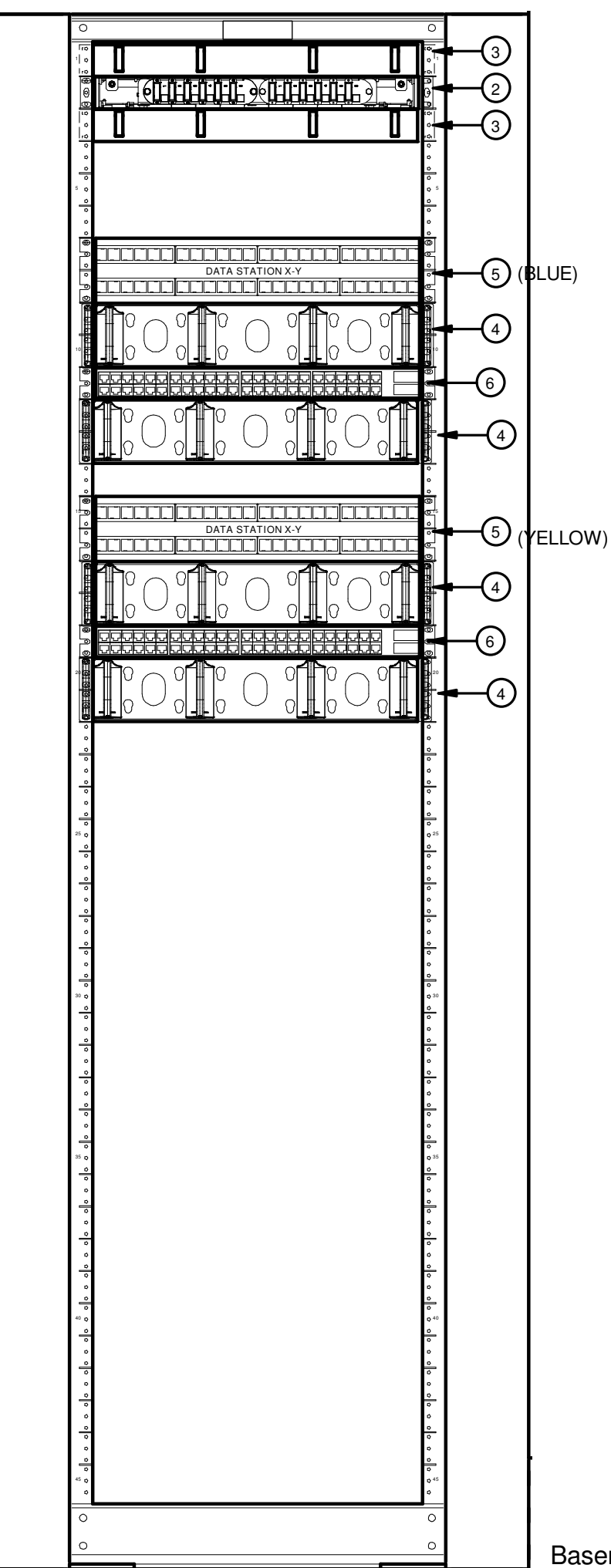
Scale: 1/2" = 1'-0"

### DETAIL NOTES

1. RELAY PROVIDED UNDER PREVIOUS CONTRACT
2. FIBER TERMINATION PANEL PROVIDED UNDER PREVIOUS PROJECT
3. 1RU HORIZONTAL WIRE MANAGER
4. 2RU HORIZONTAL WIRE MANAGER
5. 48 PORT DATA STATION PATCH PANEL
6. 48 PORT 10/100 LAYER 2 EDGE SWITCH
7. WALL 110 FIELD FOR VOICE BACKBONE, PROVIDED UNDER PREVIOUS CONTRACT
8. WALL 110 FIELD FOR NEW VOICE STATION CABLEING
9. WALL TERMINATION EQUIPMENT FOR PAGING SYSTEM EXPANSION
10. WALL TERMINATION EQUIPMENT FOR CATV SYSTEM EXPANSION
11. WALL TERMINATION EQUIPMENT FOR ACCESS CONTROL PANELS/EQUIPMENT
12. TECHNOLOGY GROUND BAR (TGB) PROVIDED UNDER PREVIOUS CONTRACT
13. 12"x4" WIRE BASKET CABLE TRAY, WALL MOUNTED
14. 2-4" CONDUIT SLEEVE THROUGH WALL

## WEST WALL ELEVATION

Scale: 1/2" = 1'-0"



## RACK ELEVATION

Scale: 1 1/2" = 1'-0"

Revisions	AMENDMENT #1	Date
1		7/24/2013

CONSULTANTS:

**Heapy Engineering**  
Mechanical Electrical Commissioning Technology  
Nationally Recognized Leader in Sustainability / LEED  
1400 W Dorothy Lane, Dayton OH 45409-1310  
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com  
HEAPY PROJECT No.: 2012-04007 FIRM LICENSE No.: 91528



ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS

937 461 3280 PHONE  
937 461 0260 FAX  
jpae@johnpoe.com

Drawing Title

PARTIAL BASEMENT PLAN - SIGNALS

Approved: Project Director

Project Title

Relocate Kitchen and SPD

Location

Cincinnati, Ohio

Date

05/16/2013

Checked

MSG

Drawn

MSG

Project No.

VA Project No. 539-13-104

JPA Project No. 12006.00

Building Number

1

Drawing Number

1-E4

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Office of  
Construction  
and Facilities  
Management

Department of  
Veterans Affairs

## GENERAL NOTES

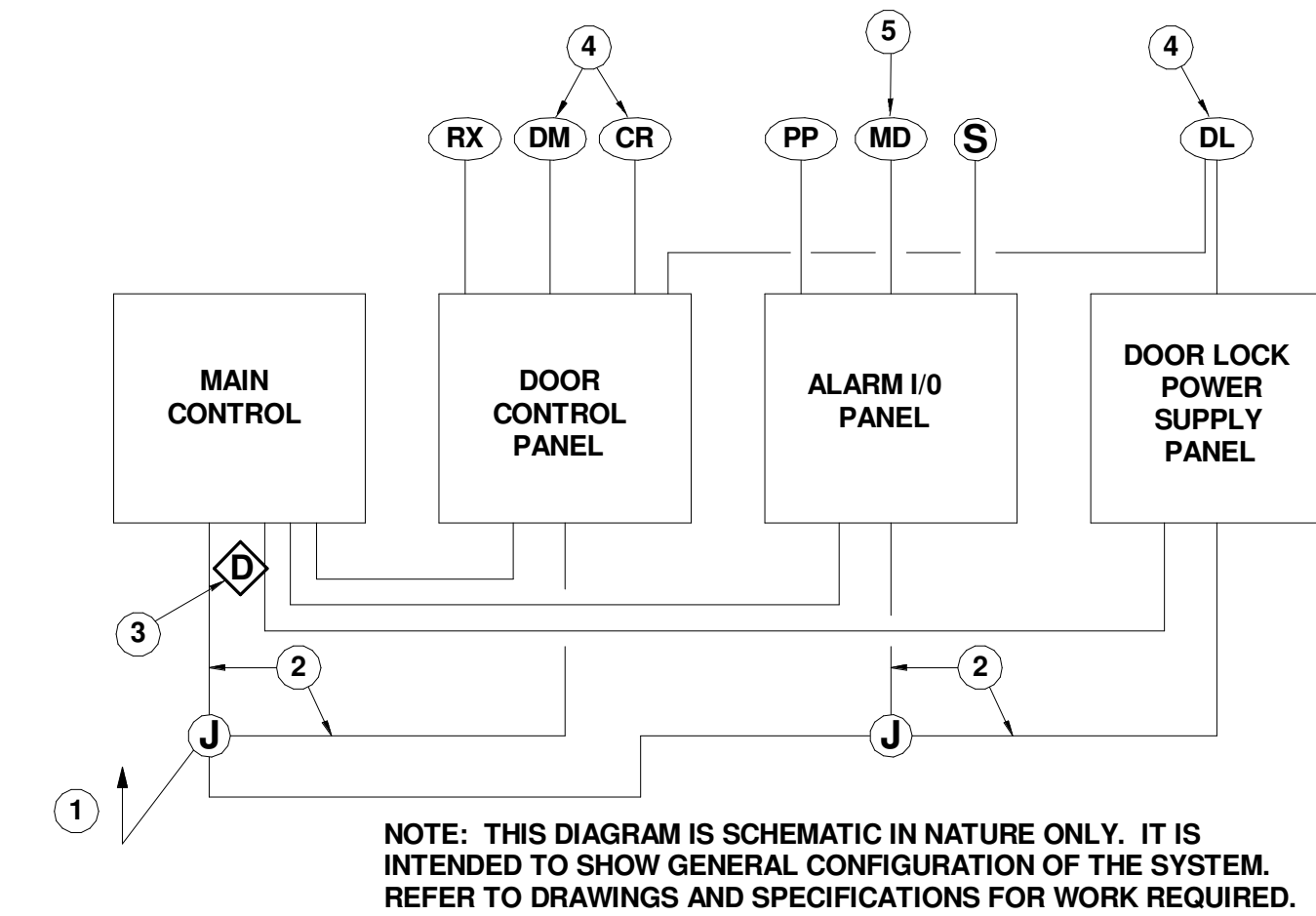
- ALL NEW VOICE/DATA OUTLETS THIS PLAN TO BE CABLED TO LOCAL SIGNALS CLOSET.
- REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.
- REFER TO ARCHITECTURAL DRAWINGS FOR RATED WALL LOCATIONS.
- INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL REQUIREMENTS SECTION 01 00 00.
- COORDINATE ALL NEW FIRE ALARM/FIRE SUPPRESSION ZONES WITH COFR.

## NOTES

- REFER TO 1/2" SCALE DETAIL, THIS SHEET FOR SIGNALS CLOSET INFORMATION.
- FIRE ALARM MONITORING MODULE FOR HOOD SUPPRESSION SYSTEM.
- EXISTING FIRE ALARM POWER EXTENDER PANEL.
- INTERFACE CARD READER WITH AUTOMATIC DOOR OPERATOR.

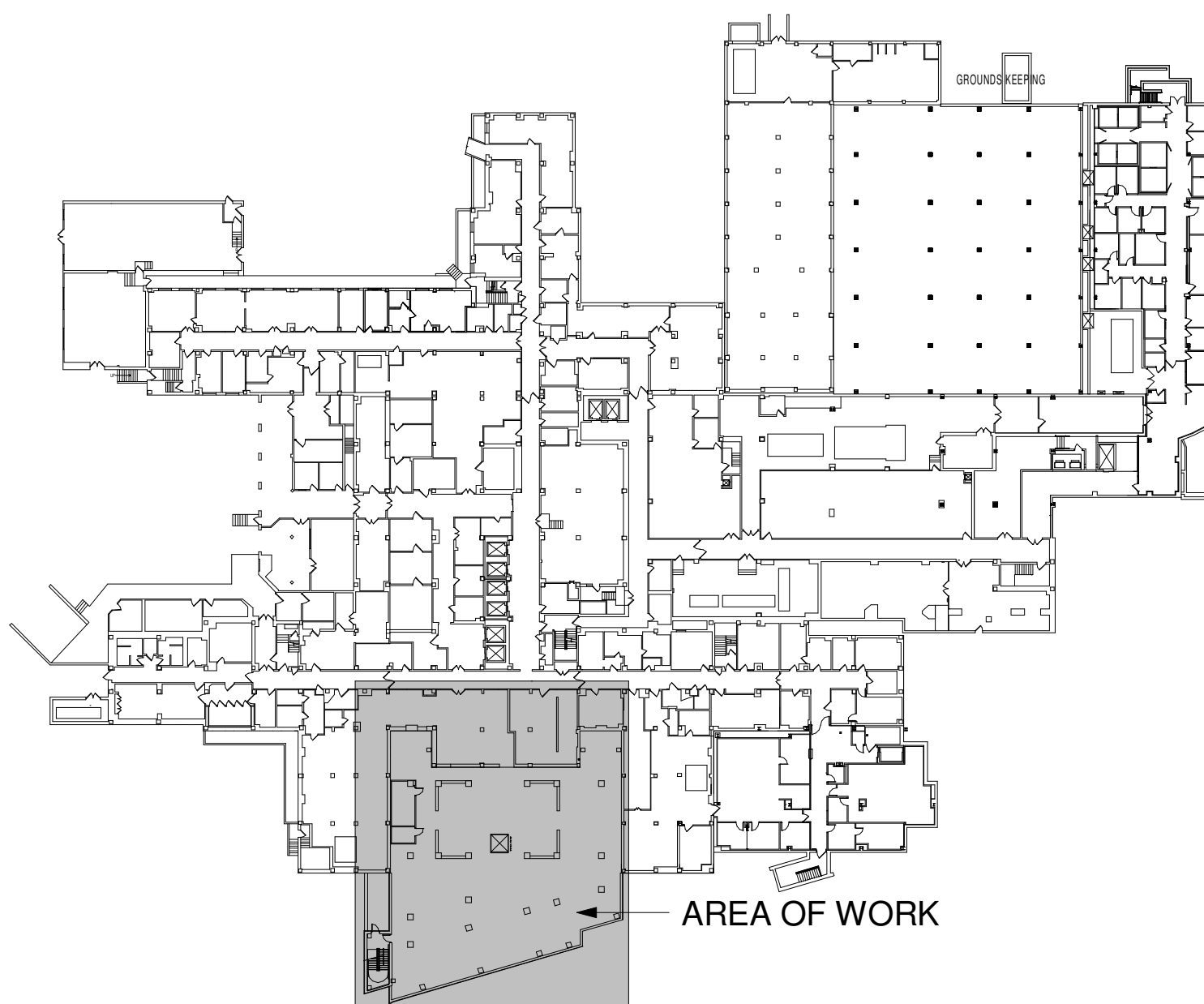
### DETAIL NOTES

- 120V-20A DEDICATED EMERGENCY CIRCUIT IN WALL MOUNTED JUNCTION BOX.
- PROVIDE 120V DIRECT CONNECTION TO PANELS.
- EXTEND DATA DROP INTO NEW CONTROL PANEL.
- TYPICAL CONTROLLED DOOR DEVICES.
- TYPICAL ALARM DEVICES.



NOTE: THIS DIAGRAM IS SCHEMATIC IN NATURE ONLY. IT IS INTENDED TO SHOW GENERAL CONFIGURATION OF THE SYSTEM. REFER TO DRAWINGS AND SPECIFICATIONS FOR WORK REQUIRED.

## PACS SYSTEM DETAIL



## Basement - Key Plan

Scale: 1/64" = 1'-0"

FULLY SPRINKLERED



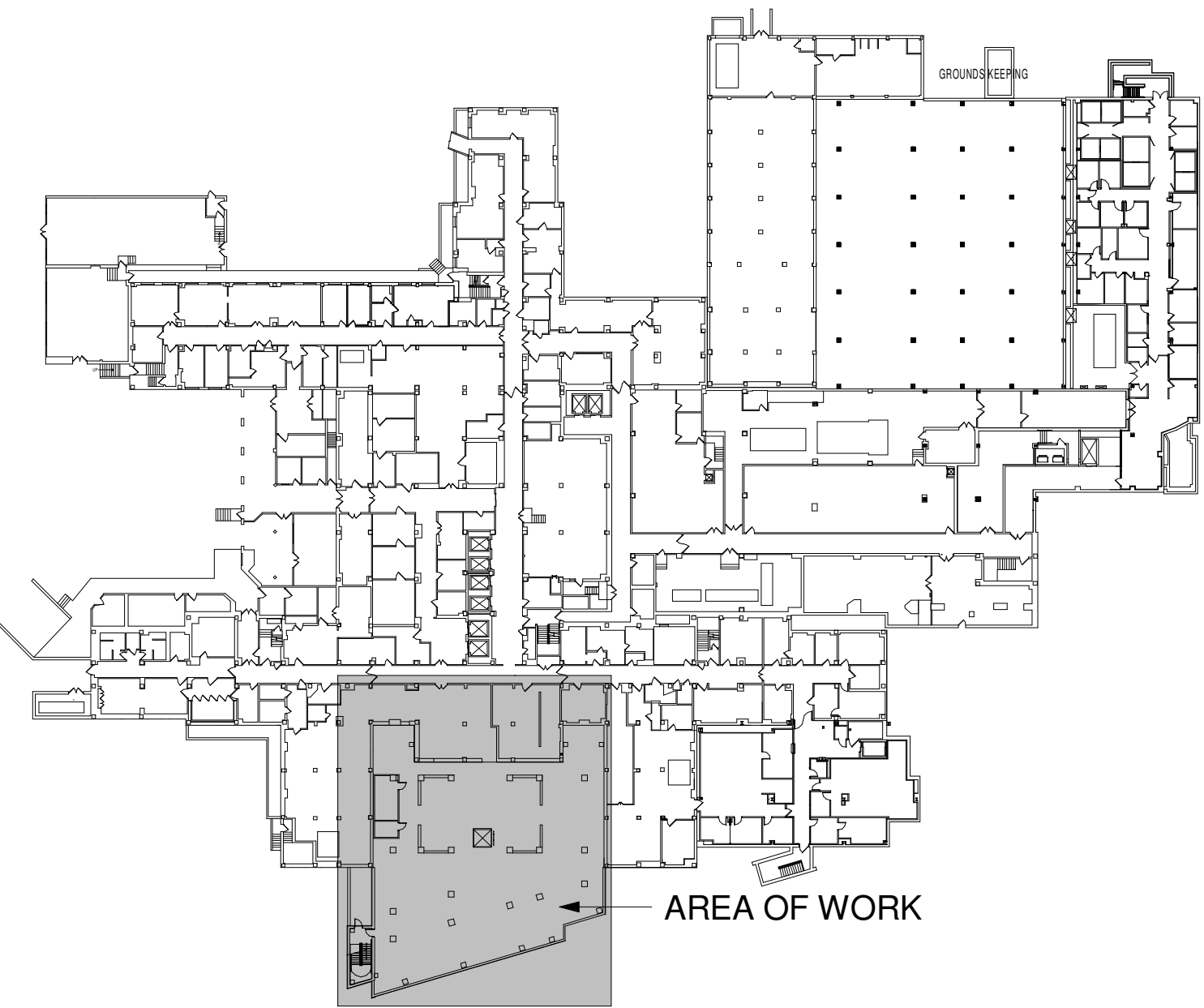
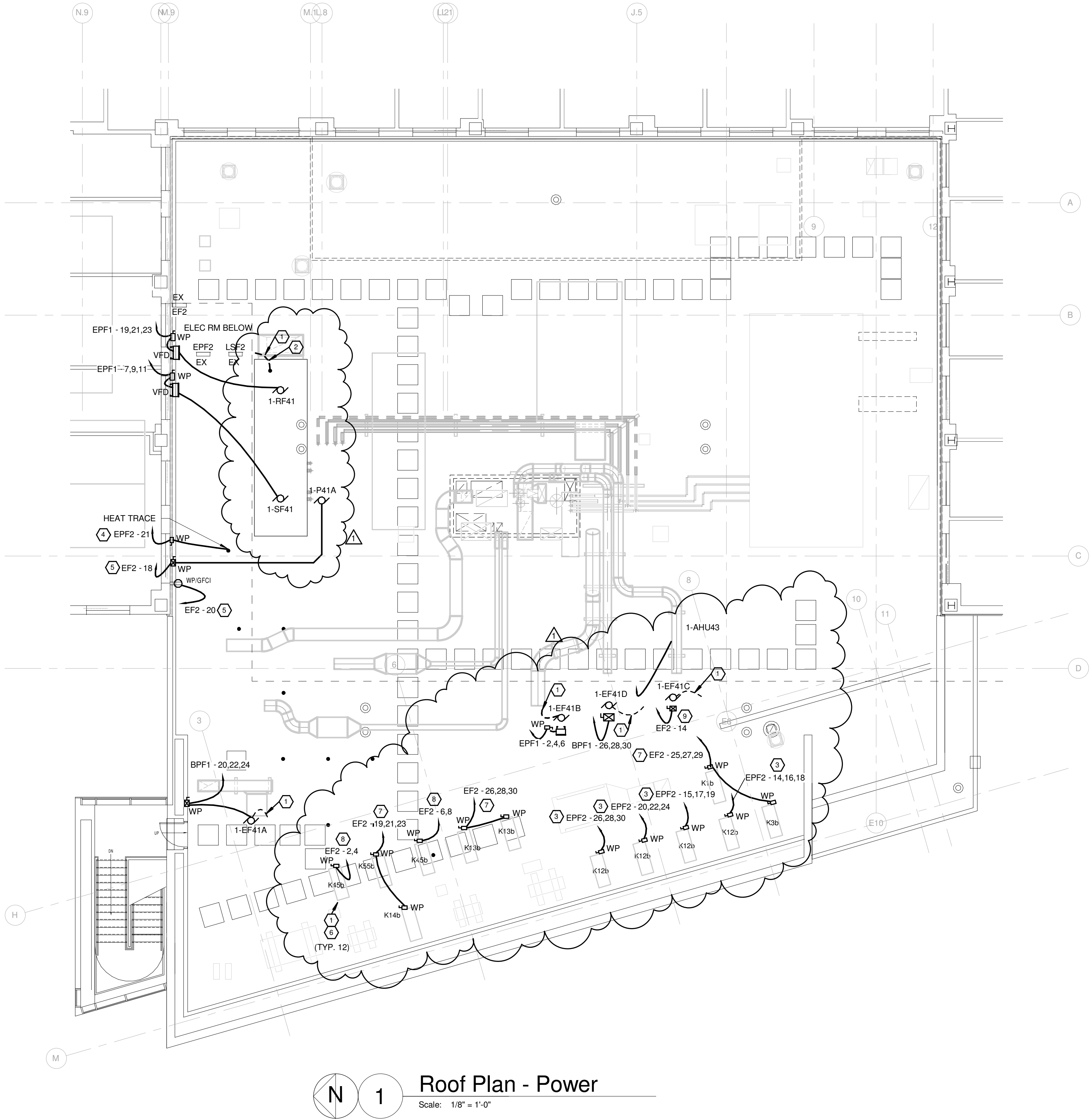
three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

GENERAL NOTES

- A INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL REQUIREMENTS SECTION 01 00 00.
- B REFER TO ARCHITECTURAL DRAWINGS FOR RATED WALL LOCATIONS.
- C REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF DEVICES MOUNTED ABOVE OR BELOW CASEWORK, FURNITURE, LAVATORIES, ETC.
- D LIGHTNING PROTECTION SHOWN FOR REFERENCE ONLY. SYSTEM SHALL BE DESIGNED AND INSTALLED PER NFPA 780 AND SPECIFICATIONS.

NOTES

- 1 BOND TO EXISTING LIGHTNING PROTECTION SYSTEM.
- 2 LIGHTNING PROTECTION AIR TERMINAL.
- 3 PROVIDE NEW 480V-20A/3P CIRCUIT BREAKER IN EXISTING PANEL.
- 4 PROVIDE NEW 277V-20A/1P CIRCUIT BREAKER IN EXISTING PANEL.
- 5 PROVIDE NEW 120V-20A/1P CIRCUIT BREAKER IN EXISTING PANEL.
- 6 PROVIDE CONTROL WIRING IN 0.75°C. TO WALK-IN EVAPORATOR / BLAST CHILLER IN KITCHEN PER MANUFACTURER'S REQUIREMENTS.
- 7 PROVIDE NEW 208V-20A/3P CIRCUIT BREAKER IN EXISTING PANEL.
- 8 REMOVE TWO 208V-15A/2P CIRCUIT BREAKERS AND PROVIDE NEW 208V-30A/2P. RUN 2-#10, #10 GRD. IN 0.75°C.
- 9 UTILIZE SPARE 120V-20A/1P CIRCUIT BREAKER.



FULLY SPRINKLERED

<table><tr><td>1</td><td>AMENDMENT #1</td><td>7/24/2013</td></tr><tr><td>Revisions</td><td></td><td>Date</td></tr></table>	1	AMENDMENT #1	7/24/2013	Revisions		Date	CONSULTANTS: <div><b>Heapy Engineering</b> Mechanical Electrical Commissioning Technology <i>Nationally Recognized Leader in Sustainability / LEED</i> 1400 W Dorothy Lane, Dayton OH 45409-1310 Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com HEAPY PROJECT No.: 2012-04007 FIRM LICENSE No.: 01528</div>	<div></div>	ARCHITECT/ENGINEERS: <div><b>JOHN POE ARCHITECTS</b>  116 EAST THIRD STREET DAYTON, OHIO 45402-2120 937 461 3280 PHONE 937 461 0260 FAX jpae@johnpoe.com</div>	Drawing Title <b>ROOF PLAN - POWER</b> Approved: Project Director	Project Title <b>Relocate Kitchen and SPD</b> Location <b>Cincinnati, Ohio</b> Date 05/16/2013 Checked <b>MSG</b> Drawn <b>MSG</b>	Project No. VA Project No. 539-13-104 JPA Project No. 12006.00 Building Number <b>1</b> Drawing Number <b>1-E5</b> Dwg. of	Office of Construction and Facilities Management 
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