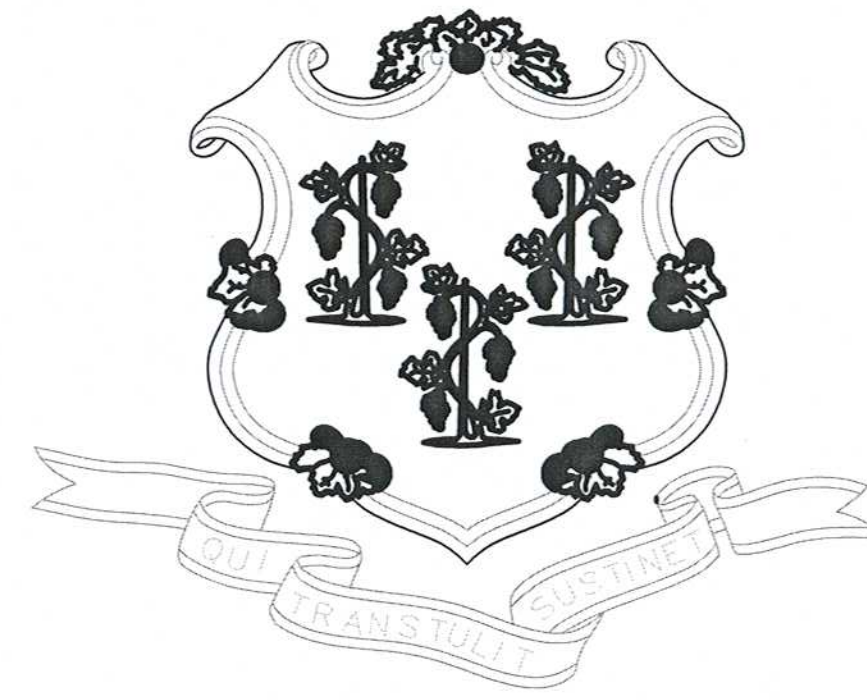


# STATE OF CONNECTICUT



DEPARTMENT OF CONSTRUCTION SERVICES  
**MELODY A. CURREY**  
 COMMISSIONER

WESTERN CONNECTICUT STATE UNIVERSITY  
**JOHN B. CLARK**  
 PRESIDENT

DANNEL P. MALLOY GOVERNOR

# WESTERN CONNECTICUT STATE UNIVERSITY

## ART LAB RELOCATION at Basement White Hall

### ABBREVIATIONS

- |  |                              |
|--|------------------------------|
| A/C Air Conditioner                          | MFR. Manufacturer            |
| AFF Above Finish Floor                       | M.H. Manhole                 |
| ALUM. Aluminum                               | MIN. Minimum                 |
| APFRD Approved                               | MLDS Moulding                |
| ARCH Architectural                           | M.O. Masonry Opening         |
| B/O Bottom Of                                | MTD Mounted                  |
| BL Block                                     | MTL Metal                    |
| BLDG Building                                | N.I.C. Not In Contract       |
| BLKG Blocking                                | NO. Number                   |
| BSMT Basement                                | NOM Nominal                  |
| C.H. Ceiling Height                          | N.S. Near Side               |
| CL Closet                                    | NTS Not To Scale             |
| CLG Ceiling                                  | O.A. Over All                |
| CLR Clear                                    | O.C. On Center               |
| C.O. Cleanout                                | O.D. Outside Diameter        |
| COL Column                                   | O.H. Overhead                |
| CONC Concrete                                | OPG or OPNS Opening          |
| CONT Continuous                              | OPP Opposite                 |
| C.T. Ceramic Tile                            | P.C. Poured Concrete         |
| C.W. Cold Water                              | PERF Perforated              |
| DBL Double                                   | PLMG Plumbing                |
| DIA Diameter                                 | PLYWD Plywood                |
| D.S. Downspout                               | FR Pair                      |
| DTL Detail                                   | PTD Painted                  |
| DW Dishwasher                                | PVMT Pavement                |
| DWG Drawing                                  | P.T. Pressure Treated        |
| EA Each                                      | R Riser                      |
| E.I.F.S. Exterior Insulation & Finish System | RR Roof Rafter               |
| ELEV. Elevation                              | RAFT Rafter                  |
| ELEC Electrical                              | R.D. Roof Drain              |
| EQUIP Equipment                              | RE. Refer To                 |
| EXIST Existing                               | REF. Refrigerator            |
| EXP Expansion                                | REINF. Reinforced            |
| EXT Exterior                                 | REQD Required                |
| Fb Allowable Bending Stress                  | R.O. Rough Opening           |
| Fc 28 Day Compressive Strength               | R.O.B. Run of Bank           |
| F.C.O. Floor Cleanout                        | S Sewer/Sanitary             |
| F.D. Floor Drain                             | SF Square Feet               |
| Fin. Fl. or F.F. Finished Floor              | SIM Similar                  |
| FLR Floor                                    | SHWR Shower                  |
| FNDN Foundation                              | S.M.H. Sewer Manhole         |
| F.O.C. Face of Concrete                      | SPEC Specifications          |
| F.O.F. Face of Finish                        | S.S. Stainless Steel         |
| F.O.S. Face of Stud                          | STD Standard                 |
| F.R. Fire Retardant                          | STR Structural               |
| F.S. Far Side                                | T Tread                      |
| FT Foot, Feet                                | THK Thick                    |
| FTG Footing                                  | T/O Top Of                   |
| GA Gauge                                     | TEL Telephone                |
| GAL. Gallon                                  | T.O.S. Top of Steel          |
| GALV. Galvanized                             | TRF Typical                  |
| GC General Contractor                        | UD Unit Dimensions           |
| GFI Ground Fault Circuit Interrupter         | UL. Underwriter's Laboratory |
| GYF. BD. Gypsum Board                        | UNO Unless Noted Otherwise   |
| H.C. Hollow Core                             | URN Urinal                   |
| HDR Header                                   | VCT Vinyl Composition Tile   |
| HGT or HT Height                             | VERT Vertical                |
| H.M. Hollow Metal                            | V.I.F. Verify in Field       |
| HORIZ Horizontal                             | W With                       |
| HR Hour                                      | WC Water Closet              |
| H.W. Hot Water                               | W.C.O. Wall Cleanout         |
| I.D. Inside Diameter                         | WD Wood                      |
| INSUL Insulation                             | W.P. Waterproof              |
| JSTS Joists                                  | WO Without                   |
| LAV Lavatory                                 | WR Water Resistant           |
| LG Long                                      | WAF Welded Wire Fabric       |
| MAX Maximum                                  | WWM Welded Wire Mesh         |

- C-0 COVER SHEET
- A-0.0 EGRESS PLAN AND CODE
- A-0.1 PROJECT SPECIFICATIONS 0.1
- A-0.2 PROJECT SPECIFICATIONS 0.2
- A-0.3 PROJECT SPECIFICATIONS 0.3
- A-1 DEMOLITION PLAN
- A-2 PROPOSED PLAN AND RCP PLAN
- A-3 DOOR SCHEDULE, FINISH SCHEDULE AND DETAILS
- A-4 DETAILS AND SPECS
- G-1 GENERAL NOTES AND SYMBOLS
- S-1 DEMOLITION AND PROPOSED STRUCTURAL PLANS
- MEP-1 MEP SCHEDULES
- PPF-0 FIRE PROTECTION SPECIFICATIONS
- PPF-1 DEMOLITION AND PROPOSED PLUMBING AND FIRE PROTECTION PLANS
- H-0 HVAC SPECIFICATIONS
- H-1 DEMOLITION AND PROPOSED HVAC PLANS
- H-4 HVAC DETAILS
- H-5 HVAC CONTROLS
- E-0 ELECTRICAL SPECIFICATIONS
- E-1 DEMOLITION AND PROPOSED ELECTRICAL PLANS



WCSU  
 Planning and Engineering  
 181 White Street  
 Danbury, CT 06810  
 www.wcsu.edu

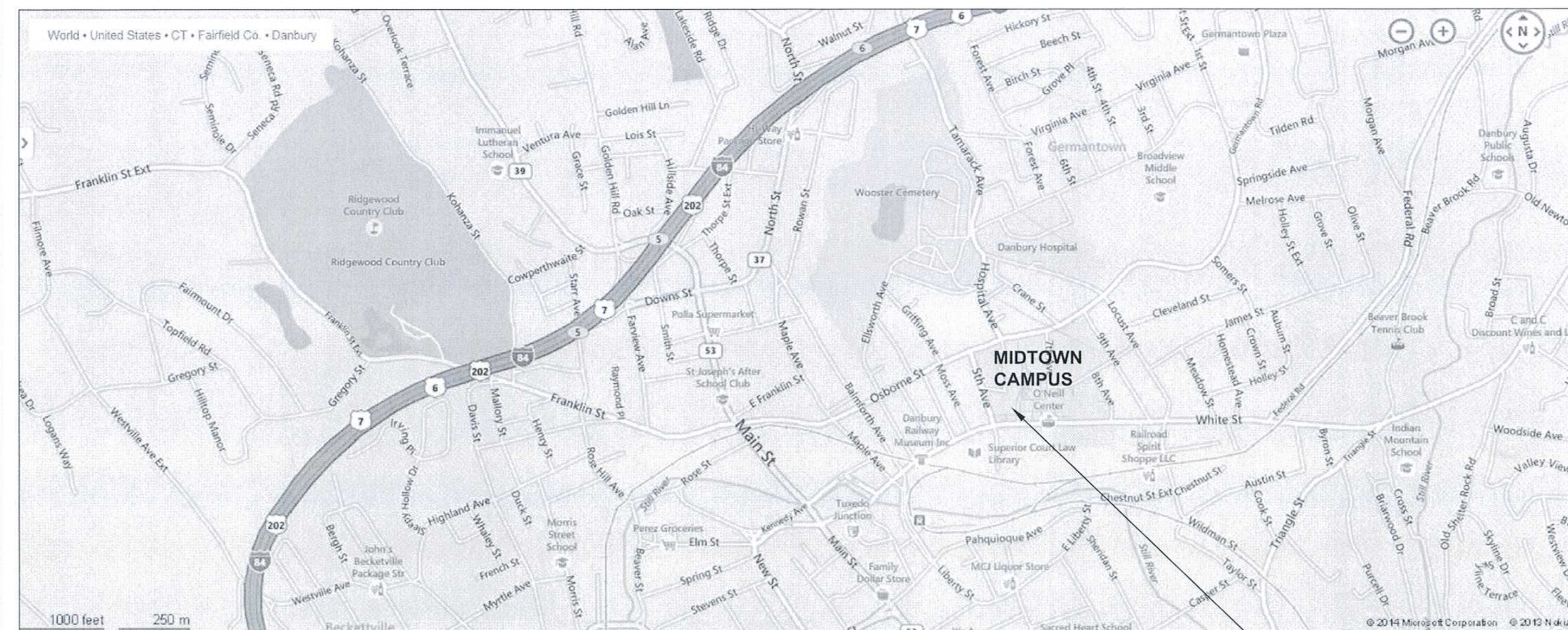
Revisions	
No.	Date



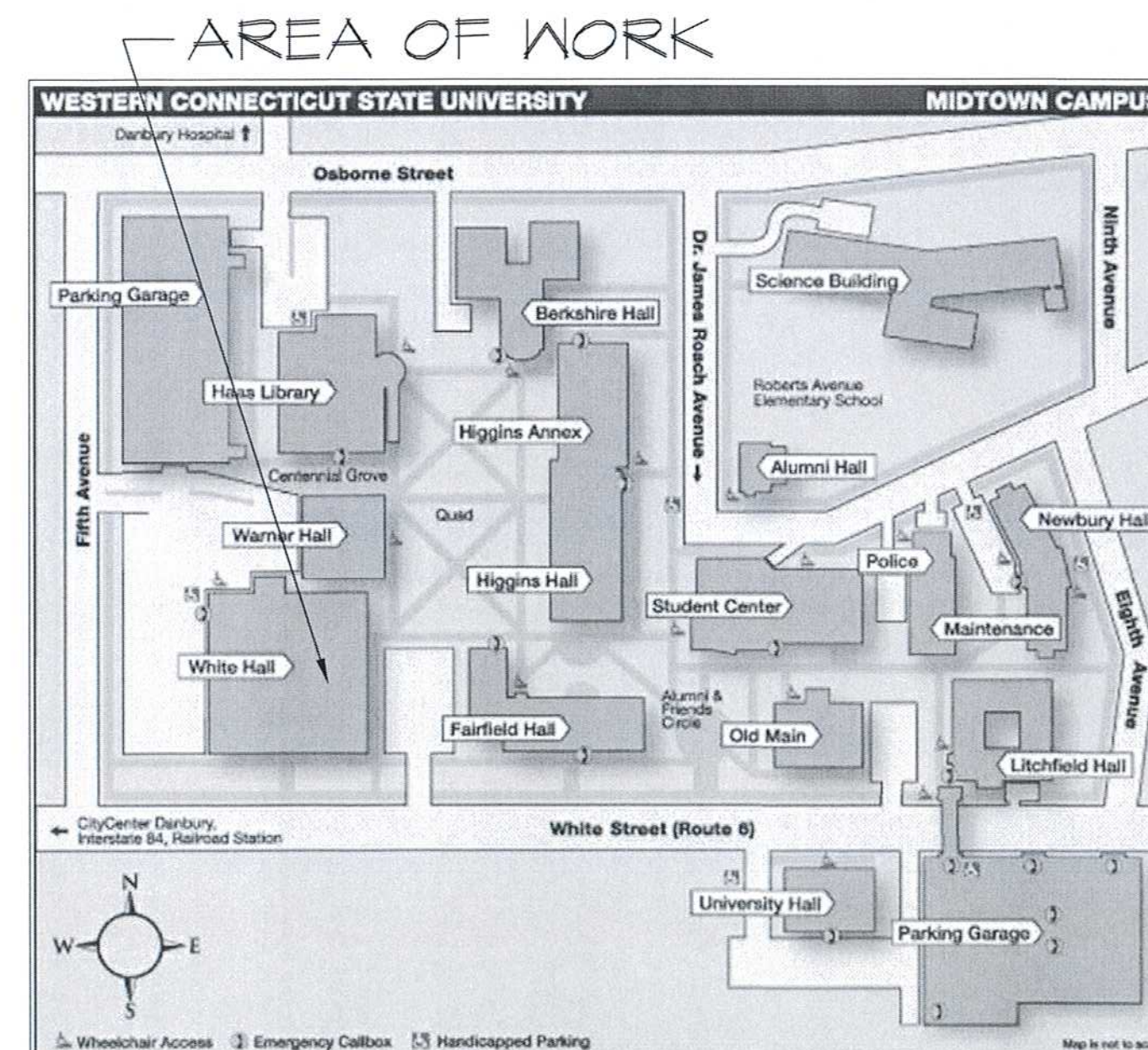
ART LAB RELOCATION  
 BASEMENT WHITE HALL

### SYMBOLS

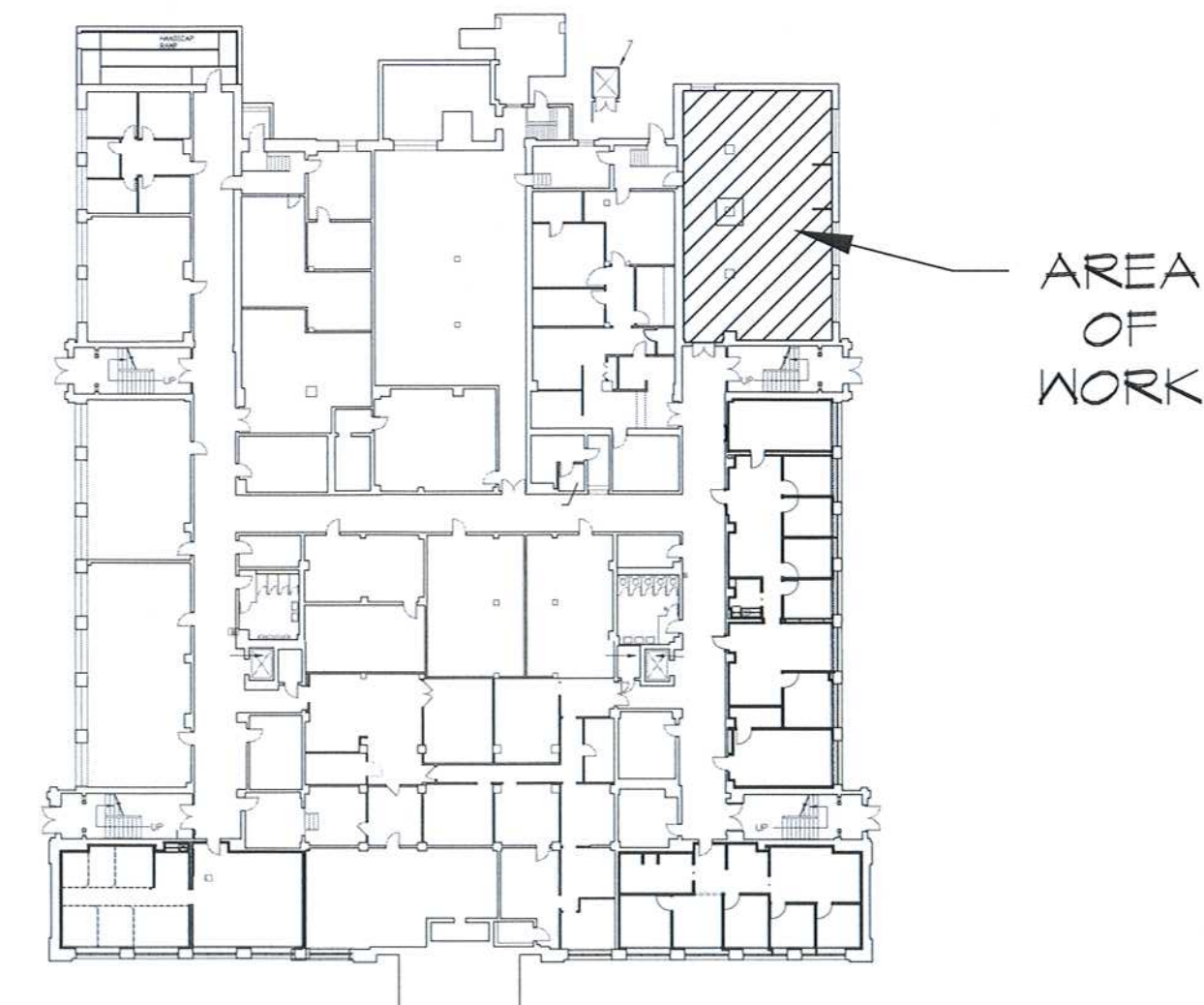
- |    |              |     |                    |
|----|--------------|-----|--------------------|
| ∩  | And          | BO# | Thirty Pound       |
| ⊙  | At           | ⊙   | Column Line        |
| ∅  | Diameter     | ⊕   | Section Thru       |
| ⊕  | Center Line  | ⊖   | Detail Reference   |
| ⊞  | Plate        | Ⓛ   | Door Designation   |
| ∠  | Angle        | Ⓜ   | Window Designation |
| [  | Channel      | Ⓝ   | Roof Pitch         |
| #3 | Number Three |     |                    |



LOCATION MAP  
 N. T. S.



MIDTOWN CAMPUS MAP  
 N. T. S.



KEY PLAN  
 SCALE: NTS

Cover Sheet

Project No. WCSU 2017

By: DMF

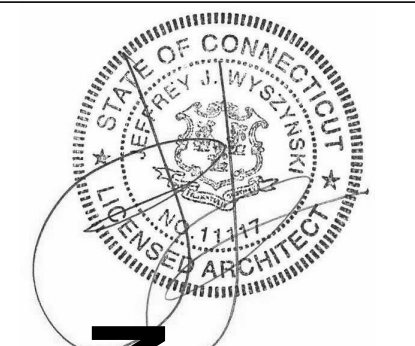
Scale: AS NOTED

Issue Date: 12-06-17

C-0



Revisions	
No.	Date



ART LAB RELOCATION  
BASEMENT WHITE HALL

EGRESS PLAN AND CODE

Project No. BI-RD-294

By: E.FRANCO

Scale: As indicated

Issue Date: 12-06-17

A-0.0

- BUILDING CODES - ALL CONSTRUCTION SHALL CONFORM WITH THE FOLLOWING CODES:**
- 2016 CONNECTICUT STATE BUILDING CODE (CSBS) INCLUDING ERRATA #1**
- 2012 INTERNATIONAL BUILDING CODE
  - 2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES WITH CONNECTICUT AMENDMENTS
  - 2012 INTERNATIONAL EXISTING BUILDING CODE
  - 2012 INTERNATIONAL PLUMBING CODE WITH CONNECTICUT AMENDMENTS
  - 2012 INTERNATIONAL MECHANICAL CODE WITH CONNECTICUT AMENDMENTS
  - 2012 INTERNATIONAL ENERGY CONSERVATION CODE WITH CONNECTICUT AMENDMENTS
  - 2014 NFPA 70, NATIONAL ELECTRICAL CODE, OF THE NATIONAL FIRE PROTECTION ASSOCIATION INC. WITH CONNECTICUT AMENDMENTS
  - ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS - 1996 WITH 1997 & 1988 AMENDMENTS
  - ASME A18.1 SAFETY STANDARDS FOR PLATFORM LIFTS AND STAIRWAY CHAIRLIFTS/ 2008
- 2016 CONNECTICUT STATE FIRE SAFETY CODE (CSFSC)**
- 2012 INTERNATIONAL FIRE CODE (AS AMENDED BY THE STATE OF CONNECTICUT)
  - 2012 NFPA 101 LIFE SAFETY CODE (AS AMENDED BY THE STATE OF CONNECTICUT)

**EGRESS LEGEND**

**BUILDING FIRE SEPARATIONS**  
 - - - - - ONE HOUR RATED ASSEMBLY (NONE)

**ROOM OCCUPANCY LOAD**

ROOM NAME (Circled)  
 150 SF = 1SP → ROOM SQUARE FOOTAGE  
 100 → OCCUPANCY LOAD  
 ACTUAL = #PP → FLOOR AREA IN SQ.FT. / OCCUPANT  
 \*INCREASED OCCUPANCY PER IBC 1004.2

**EXIT CAPACITY**

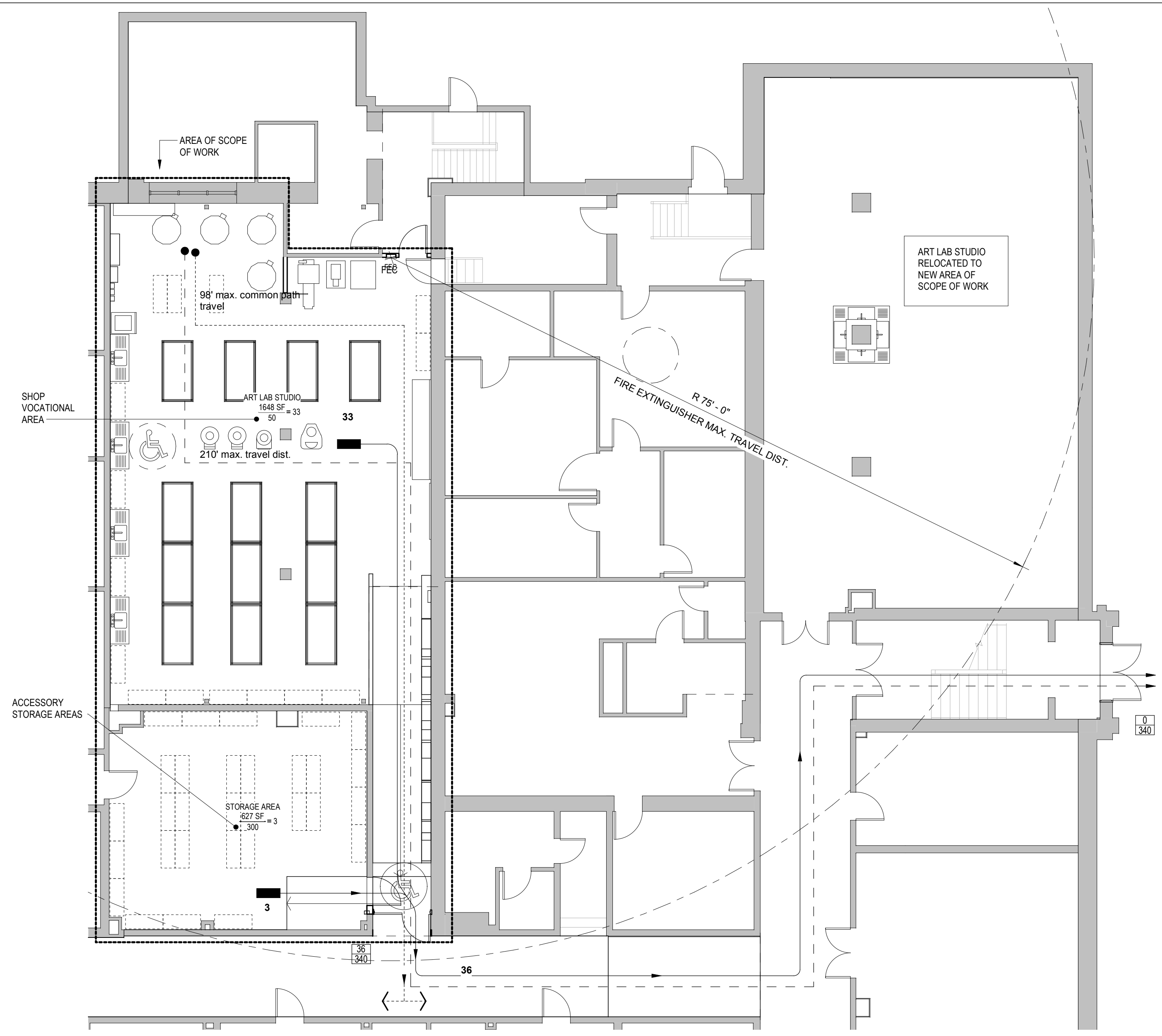
100 → ACTUAL EGRESS LOAD  
 150 → ALLOWABLE EGRESS LOAD

→ CUMULATIVE OCCUPANCY LOAD ON EGRESS ROUTE  
 → COMMON PATH OF TRAVEL (100' MAX)  
 → MAXIMUM TRAVEL DISTANCE TO FURTHEST EXIT (200' MAX - NON-SPRINKLED) (300' MAX - SPRINKLED)

○ FIRE EXTINGUISHER - 75 FT MAX TRAVEL DISTANCE

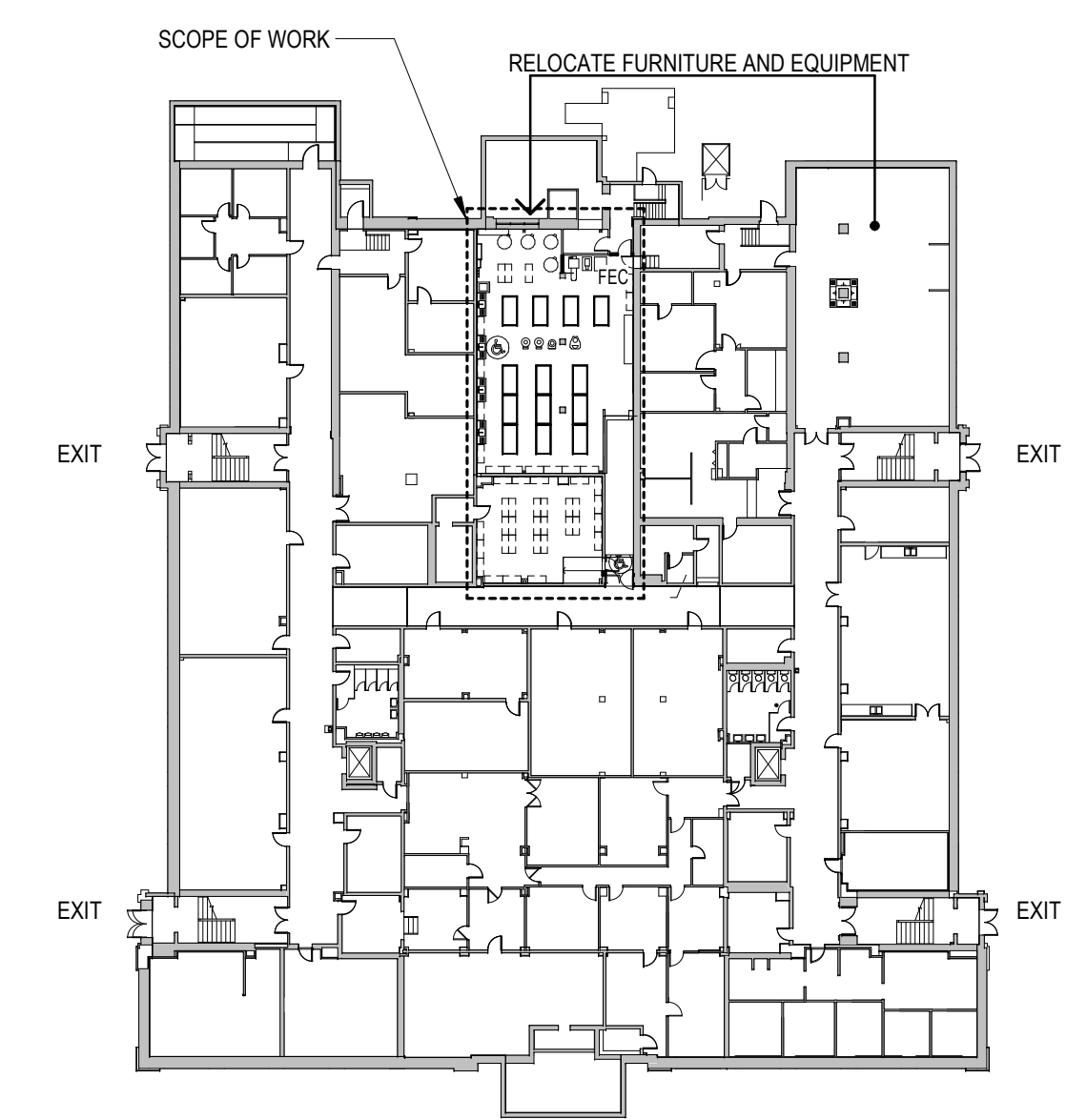
♿ 5'-0" DIAMETER ANSI COMPLIANT TURN AROUND

FEC RECESSED FIRE EXTINGUISHER CABINET



1 LOWER LEVEL -EGRESS PLAN  
1/8" = 1'-0"

BUILDING TYPE IIB - BUSINESS GROUP B (MIXED USE)		CODE INFORMATION	
WESTERN CONNECTICUT STATE UNIVERSITY - 181 White street Danbury, CT 06810		6.0 MEANS OF EGRESS:	
<b>PROJECT NARRATIVE:</b> This project entails the relocation of the existing art lab studio to an existing warehouse space close to where it was before. The building is a 4 story sprinklered building space. The work include demolition of existing ramp and provide a new ramp to meet code, relocation of existing door to corridor, new paint and finishes plus MEP systems and distribution. The building egress capacities and requirements have been met as indicated on this sheet and egress plan.		6.1 Total Occupant Load (table 1004.1.2) 6.1.1 Business - Educational	sf / Occupant (sf (exist) Occupant Load) Refer to Egress plan
<b>2016 CONNECTICUT STATE BUILDING CODE: Based on I.B.C. International Building Code 2012</b>		6.2 Total Capacity of Exits (exit discharge):	New Existing - 1,360
1.0 EXISTING BUILDING (Chapter 34) 1.1 Continuation of existing use: 1.2 Change of use:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N.A. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N.A.	6.3 Exit Access Travel Distance	300 ft with sprinklers COMPLIANT
3.0 USE GROUP CLASSIFICATION (302.1) 3.1 Business Group B (304)	Educational occupancies	6.4 Common Path of Travel	100 ft with sprinklers COMPLIANT
4.0 BUILDING HEIGHT: (tabular with Allowable Adjustments) table 503 4.1 Type of Construction Assumed for Review (602)	EXISTING STRUCTURE - IIB	6.5 Dead Ends	50 ft with sprinklers COMPLIANT
4.2 Building Height: (Existing) 4.2.1 Allowable Building Height (table 503): use B	4 Story 55 Feet 4 Story 55 Feet COMPLIANT	6.6 (4) Story (Lower Level)	100 ft Max. Travel (w/sprinklers)
4.2.3 Actual Building Height:		7.0 FIRE PROTECTION SYSTEMS (Chapter 9):	
5.0 AREA COMPUTATION - (tabular with Allowable Adjustments) Table 503		7.1 Fire suppression System (904.0):	Required
5.1 Type of Construction Assumed for Review (602):	IIB	7.2 Alarms (908.0):	Required
5.7 Floor Area (within project limit):	2,559 sf	8.0 INTERNATIONAL PLUMBING CODE (IPC 403.1):	NOT APPLICABLE
5.8 Actual Gross Floor Area: Ground Floor	34,518 sf	9.0 INTERNATIONAL ENERGY CONSERVATION CODE (IECC):	Com-Check Report to be provided by engineer



KEY PLAN

**02 4100 - SELECTIVE DEMOLITION**

1 Scope of Work
1.01 Demolition shall include, but not be limited to, walls, doors, partitions, ceilings, fixtures, mechanical equipment and services as indicated on the drawings. work shall also include any partial removal of existing construction required to access or modify existing elements or for the installation of new work.
2 Reference Standards
2.01 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
2.02 NFPA 241 - standard for safeguarding construction, alteration, and demolition operations; 2004
3 Submittals
3.01 Project record documents: accurately record actual locations of capped and active utilities and subsurface construction.
4 General Procedures and Project Conditions
4.01 Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
a. Obtain required permits.
b. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed, do not allow worker or public access within range of potential collapse of unstable structures.
c. Provide, erect, and maintain temporary barriers and security devices.
d. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
e. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
f. Staging/ lay-down areas, exterior, and interior, required for the execution of the Contract Documents, shall be furnished, erected, relocated if necessary, and removed by the Contractor. Staging/ lay-down shall be maintained in a safe condition without charge to the Owner and for the use of all trades as needed and areas are to be restored to pre-construction condition prior to the completion of the contract.
4.02 Protect existing structures and other elements that are not to be removed.
a. Provide floor and wall protection on first floor from the service elevator all along the pathway to the loading dock for the duration of demolition and construction operations.
b. Floors where demolition/ construction work is occurring, provide protection around service elevator, including the interior of the service elevator.
c. Maintain areas under the contractor's control free of waste materials, debris, and rubbish. Maintain corridor/ lobby areas immediately adjacent to the demolition/ construction work areas in a clean and orderly condition.
4.03 Minimize production of dust due to demolition operations from migrating to other areas.
4.04 If hazardous materials are discovered during removal operations, stop work in that area only and immediately notify the owner;
a. Hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
b. Hazardous materials: comply with 29 CFR 1926 and state and local regulations.
4.05 Perform demolition in a manner that maximizes salvage and recycling of materials.
5 Existing Utilities
5.01 Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
5.02 Protect existing utilities to remain from damage.
5.03 Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to owner.
5.04 Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to owner.
5.05 Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
5.06 Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
5.07 Prepare demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.
6 Selective Demolition for Alterations
6.01 Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
a. Verify that construction and utility arrangements are as shown.
b. Report discrepancies to architect before disturbing existing installation.
Addenda will be issued as required and will become part of the Contract Documents. For those discrepancies not brought to the attention of the architect, it will be assumed that the Contractor has bid the more expensive method of construction. Work undertaken prior to notification will be at the Contractor's sole expense and responsibility.
c. Beginning of demolition work constitutes acceptance of existing conditions.
6.02 Separate areas in which demolition is being conducted from other areas that are still occupied.
a. Provide, erect, and maintain temporary dustproof partitions of construction drawings in
b. Provide sound retardant partitions of construction drawings in

**CONTINUE WITH: 02 4100 - SELECTIVE DEMOLITION**

6.03 Remove existing work as indicated and as required to accomplish new work.
a. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction as shown.
b. Remove items indicated on drawings.
c. maintain the fire rating of existing enclosures.
6.04 Removed and Salvaged Items:
a. Clean salvaged items.
b. Pack or crate items after cleaning. Identify contents of containers.
c. Store items in a secure area until delivery to the Owner.
d. Transport items to Owner's designated storage area.
e. Protect Items from damage during transport and storage.
6.05 Removed and Reinstalled Items:
a. Clean and repair items to functional condition adequate for intended re-use.
b. Paint equipment to match new equipment.
c. Pack or crate items after cleaning and repairing. Identify contents of containers.
d. Protect items from damage during transport and storage.
e. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
6.06 Services (including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): remove existing systems and equipment as indicated.
a. Maintain existing active systems that are to remain in operation; access to equipment and operational components.
b. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
c. Verify that abandoned services serve only abandoned facilities before removal.
d. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
6.07 Protect existing work to remain.
a. Prevent movement of structure; provide shoring and bracing if necessary.
b. Perform cutting to accomplish removals neatly and as specified for cutting new work.
c. Repair adjacent construction and finishes damaged during removal work.
d. Patch as specified for patching new work.
7 Debris and Waste Removal
7.01 Dumpster to be furnished by GC. The Contractor shall be responsible for all demolition required to complete the work. The contractor shall also be responsible for the removal and proper disposal of all materials not being salvaged or re-used on site, including all costs for carrying and dumping of all materials. Do not burn or bury.
7.02 All material removal is to conform to Building Management Guidelines, & City Regulations.
7.03 Leave site in clean condition, ready for subsequent work.

**End of Section**

**02 4180 - CUTTING AND PATCHING**

1 Definitions
1.01 Cutting: penetration of in-place construction necessary to permit installation or performance of other work, including the removal of debris
1.02 Patching: fitting and repair work required to restore surfaces to original conditions after installation of other work.
2 Materials
2.01 In-place materials: use materials identical to in-place materials. for exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
a. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.
b. Compatibility: before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2.02 Inspection
a. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed. If unsafe or unsatisfactory conditions are encountered, notify the Construction Manager and Architect, before proceeding with corrective action.
b. Openings and chases may not be shown on the Drawings. It is the responsibility of the Contractor to examine the Architectural, Electrical, Heating, Cooling, Ventilating and Plumbing Drawings and to provide chases, channels or openings where needed.
1). After installing Work into openings, channels and/or chases, the Contractor shall close same. If finishes are to be restored, the Work shall match the original and shall be done by the customarily responsible for the particular kind of Work.
c. The Contractor shall verify dimensions for built-in Work and/or Work adjoining that of other trades before ordering any material or doing any Work. Discrepancies shall be submitted to the Construction Manager before proceeding with the Work.

**CONTINUE WITH CUTTING AND PATCHING**

3 Performance
3.01 Structural elements: do not cut and/or patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
3.02 Provide temporary support of work to be cut.
3.03 Protection: protect in-place construction during cutting and patching to prevent damage.
3.04 Provide protection from adverse weather conditions for portions of project that might be exposed during cutting and patching operations.
3.05 Existing utility services and mechanical/electrical systems: where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
3.06 Visual requirements: do not cut and patch construction in a manner that results in visual evidence of cutting and patching. do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in architect's opinion, reduce the building's aesthetic qualities. remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
3.07 Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
3.08 Cutting: cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
3.09 Patching: patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. patch with durable seams that are as invisible as possible. provide materials and comply with manufactures' requirements.
3.10 Exposed finishes: restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3.11 Floors and walls: where walls or partitions that were removed, patch and repair floor and wall surfaces. provide an even surface of uniform finish, color, texture, and appearance. remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
3.12 Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. provide additional coats until patch blends with adjacent surfaces.
3.13 Ceilings: patch, repair, or reinstall in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
4 Cleaning
4.01 Clean areas and spaces where cutting and patching is performed. completely remove paint, mortar, oils, putty, and similar materials.

**End of Section**

**03700 REPAIR OF EXISTING CONCRETE FLOOR SLABS**

1. Scope of Work
1.00 The work may include infill of abandoned core drills and the repair of cracked, spalled or otherwise deteriorated concrete. All abandoned core drills shall be sealed per existing condition as follows.
a. Existing concrete slab between floor, seal with Sealcore Safety Plate (see 2.01 within this section).
b. For existing slab on grade, core drill infill material to be polymer modified cement mortar shall be a two component, polymer modified, Portland cement, fast setting, patch mortar/concrete.
2. General Procedures and Project Conditions
2.01 Concrete floor slab core drill infill - Sealcore Safety Plate:
a. Longhenry Industries - Sealcore Safety Plate with FP 200 Expanding Foam.
b. Installation shall be in accordance with ASTM (UL1479) and classified by Underwriter Laboratories Inc. as a Through Penetration Firestop for 1, 2, 3 and 4 hour Rating. Installation shall be in compliance with manufacturers' instructions and recommendations.
c. Stock sizes(verify in field that these devices meet/exceed 1.01b within this section, notify Architect otherwise):
1). Code 5314 - 3" Sealcore Device
2). Code 6414 - 4" Sealcore Device
3). Code 7514 - 5" Sealcore Device
4). Code 7614 - 6" Sealcore Device
2.02 Crack repair for floor slab cracks = l > 1/4" wide: Epoxy filler for injection shall be two component, moisture insensitive, solvent free low viscosity material. This system shall be used to repair cracks in concrete floor slabs by pressure injection.
2.03 Crack repairs for floor slab cracks < 1/8" wide: Skim coat floor minimum 24" both sides of crack with fine cementitious leveling compound with fiberglass fiber binder.
2.04 Comply with manufacturer's instructions and recommendations for the installation of all concrete and epoxy filler work.

**END OF SECTION**

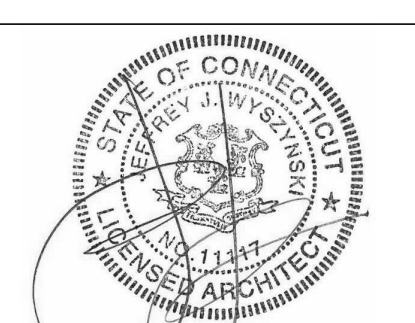
**03 3000 - CONCRETE**

1 CONCRETE MIX DESIGN
1.01 Normal weight concrete: Compressive strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3,000 psi.
1.02 High strength concrete for exterior sidewalks: Compressive strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 4,000 psi.
1.03 Coordinate with drawings and existing conditions for concrete strengths.
2 PREPARATION
2.01 Verify lines, levels, and dimensions before proceeding with work of this section.
2.02 Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
A Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
B Use latex bonding agent only for non-load-bearing applications.
2.03 Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
2.04 In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
2.05 Install vapor retarder under slabs on grade. Lap joints a minimum of 6 inches and seal watertight by taping edges and ends. Cover with sand. Repair damaged vapor retarder before covering.
3 INSTALLING REINFORCEMENT
3.01 Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
3.02 Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
3.03 Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.
3.04 Repair under slab vapor retarder damaged during placement of reinforcement. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.
4 PLACING CONCRETE
4.01 Place concrete for floor slabs in accordance with ACI 302.1R.
4.02 Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
4.03 Separate slabs on grade from vertical surfaces with joint filler.
4.04 Install joint devices in accordance with manufacturer's instructions.
4.05 Apply sealants in joint devices.
4.06 Do not interrupt successive placement; do not permit cold joints to occur.
4.07 Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.
5 CONCRETE FINISHING
5.01 Finish concrete floor surfaces in accordance with ACI 301 and ACI 302.1R. and as follows:
A. Wood float surfaces that will receive quarry tile, ceramic tile, or cementitious terrazzo with full bed setting system.
B. Steel trowel surfaces that will receive thin floor coverings include carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
C. Steel trowel surfaces that are scheduled to be exposed minimizing burnish marks and other appearance defects.
5.02 In areas with floor drains, maintain design floor elevation at walls; slope surfaces uniformly to drains at 1:100 nominal minimally or as indicated on drawings.
6 TOLERANCES
6.01 Measure flatness of slabs in accordance with ACI 302.1R.
6.02 Screed floors level, maintaining surface flatness of maximum 1/4 inch in 10 ft.
6.03 Correct the slab surface if tolerances are less than specified.
6.04 Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.
7 CURING
7.01 Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
7.02 Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
8 FLOOR SURFACE TREATMENT
8.01 Apply hardener to scheduled floor surfaces in accordance with manufacturer's instructions.
8.02 Apply slip resistant finish to scheduled floor surfaces in accordance with manufacturer's instructions.
8.03 Apply sealer to scheduled floor surfaces in accordance with manufacturer's instructions.
8.04 Apply retarder to exposed aggregate floor surfaces, as scheduled, in accordance with manufacturer's instructions.
8.05 Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
9 PROTECTION
9.01 Do not permit traffic over unprotected floor surface.
10 DEFECTIVE CONCRETE
10.01 Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
10.02 Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
10.03 Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.
**END OF SECTION**



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Revisions table with columns for No. and Date



ART LAB RELOCATION BASEMENT WHITE HALL

**PROJECT SPECIFICATIONS 0.1**

Project No. BI-RD-294

By: E.FRANCO

Scale: 12" = 1'-0"

Issue Date: 12-06-17

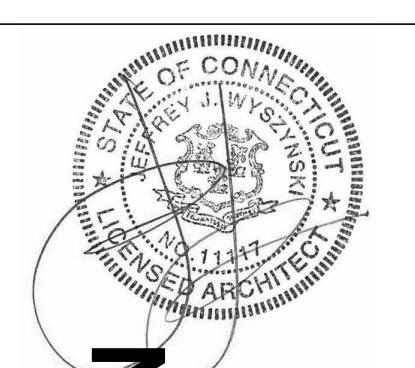
**A-0.1**





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No.	Date



ART LAB RELOCATION  
BASEMENT WHITE HALL

PROJECT  
SPECIFICATIONS  
0.2

Project No. BI-RD-294

By: E.FRANCO

Scale: 12" = 1'-0"

Issue Date: 12-06-17

A-0.2

**08700 HARDWARE**

- 1 General
  - 1.01 Provide hardware at new and reused doors where indicated.
    - a. All hardware shall conform to ADA guidelines and requirements.
    - b. Fire-rated door assemblies, hardware to comply with NFPA 80; NFPA 252 or UL 10C.
2. Materials
  - 2.01 Hinge Types:
    - a. Provide hinges to match existing building standards.
    - b. If no standards, provide full mortise, 5 knuckle, ball bearing hinges equal to McKinney bearing hinges. Standard weight TA2714 4-1/2" x 4-1/2" complying with BHMA A156.1.
    - c. Provide not less than 3 hinges per door leaf for doors 7'-6" or less in height and one additional hinge for each additional 2'-6" in height.
    - d. All perimeter doors with hinges to the public side must have secured (non-removable) hinge pins.
  - 2.02 Mechanical Latchset and Locksets:
    - a. Provide latch sets with levers, bored locks complying with BHMA A156.2; Grade 1; Series 4000.
    - b. Equal to Schlage ND-Series cylindrical locks.
  - 2.03 Door Bolts: (inactive leaf of a pair of doors)
    - a. Provide manual flush bolts designed for mortising into door edge complying with BHMA A156.16, Grade 1.
    - b. Equal to Ives #FB358 for labeled wood door; and #FB458 for labeled hollow metal doors.
  - 2.04 Closers and Door Control devices.
    - a. Provide closers and door control devices, surface mounted complying with BHMA A156.4, Grade 1.
    - b. Equal to LCN 4000 Series with ADA reduced opening force.
  - 2.05 Stops and Bumpers:
    - a. Provide surface mounted door stops complying with BHMA A156.16, Grade 1.
    - b. Equal to Ives #FS436 for domed floor stops; #WS407 for concave rubber wall bumpers.
  - 2.06 Silencers: Provide gray resilient silencers to suit frame. Provide three (3) for single doors and two (2) for pair doors. Rockwood #608.
  - 2.07 Bi-folding Door Hardware:
    - a. Provide sliding door hardware complying with BHMA A156.14; minimum door weight of 125 lbs, complete with rails, hangers, supports, bumpers, floor guides, and accessories indicated.
    - b. Equal to Stanley Hardware.
  - 2.08 Coat Hook: Provide Coat Hook HC200 series.
  - 2.09 Miscellaneous Hardware:
    - a. Refer to Hardware Schedule on sheets for additional items of hardware indicated.
  - 2.10 Hardware Finishes:
    - a. Refer to Hardware Schedule on sheets.
  - 2.11 The installation of all hardware shall be in compliance with manufacturers' instructions and recommendations.

END OF SECTION

**09250 GYPSUM DRYWALL**

1. Scope of Work
  - 1.01 Provide gypsum board and related products, metal framing and support from US.
    - a. Fire-rated assemblies: provide materials and construction identical to those tested in assembly configuration according to ASTM E 119 by an independent testing agency.
2. Materials
  - 2.01 Metal Studs: Provide metal studs with hot galvanized coating. Depth = 3 5/8", 20 gauge unless noted otherwise or recommended by manufacturer for conditions; heights and deflection constraints restricted to L/360.
    - a. At all door jambs provide double 20 gauge studs.
  - 2.02 Runners - Match studs. Provide type as recommended by stud manufacturer.
  - 2.03 Gypsum Board - ASTM C 36.
    - a. Types: Regular, except Type X for fire-rated assemblies.
    - b. Edges: Tapered.
    - c. Thickness: 5/8" U.O.N.
  - 2.04 Metal trims and accessories: ASTM C1047
    - a. Provide cornerbead, LC-bead, L-bead, and/or expansion (control) joint indicated or complying with ASTM C 840 and US Gypsum, Gypsum Construction Handbook.
3. Installation
  - 3.01 Install framing and gypsum board in compliance with manufacturers' instructions, US. Gypsum, Gypsum Construction Handbook, ASTM C754 and ASTM C840.
  - 3.02 General Contractor shall locate slab high point to establish bench marks for all vertical heights and dimensions.

END OF SECTION

**08 1113 - HOLLOW METAL DOORS AND FRAMES**

- 1 PRODUCTS
    - 1.01 Doors and Frames - General
      - A Requirements for All Doors and Frames:
        - 1 Accessibility: Comply with ANSI/ICC A117.1
    - 1.03 Steel Frames
      - A General:
        - 1 Comply with the requirements of grade specified for corresponding door.
          - a Frames for Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 2
          - b Frames for Sound-Rated Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
        - 2 Finish: Paint to match existing building standard frames.
        - 3 Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
      - C Interior Door Frames, Non-Fire-Rated: Fully welded type.
      - D Interior Door Frames, Fire-Rated: Fully welded type.
        - 1 Fire Rating: Same as door, labeled.
  - 1.05 Accessory Materials
    - A Glazing: As specified in Section 08 8000, factory installed.
    - B Louvers: Sight proof louvers for interior doors where indicated, that comply with SDI 111 C, with blades or baffles formed of 0.020-inch thick, cold rolled steel sheet set into 0.032-inch thick steel frame.
    - C Grout for Frames: Portland cement grout of maximum 4-inch slump for hand troweling; thinner pumpable grout is prohibited.
    - D Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
    - E Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.
    - F Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door; 3 on center mullion pairs, and 2 on head of pairs without center mullions
  - 1.06 Finish Materials
    - A Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.
- 2 EXECUTION
  - 2.01 Examination
    - A Verify existing conditions before starting work.
    - B Verify that opening sizes and tolerances are acceptable.
  - 2.02 Installation
    - A Install in accordance with the requirements of the specified door grade standard and NAAAMM HMMA 840.
    - B In addition, install fire rated units in accordance with NFPA 80.
    - C Coordinate frame anchor placement with wall construction.
    - D Coordinate installation of hardware.
    - E Coordinate installation of glazing.
    - F Touch up damaged factory finishes.
  - 2.04 Tolerances
    - A Clearances between door and frame: As specified in ANSI A250.8.
    - B Maximum diagonal distortion: 1/16 in (1.5 mm) measured with straight edge, corner to corner.
  - 1.10 Adjusting
    - A Adjust for smooth and balanced door movement.
    - B Adjust sound control doors so that seals are fully engaged when door is closed.
    - C Test sound control doors for force to close, latch, and unlatch in accordance with ASTM E 1408; adjust as required to comply.
  - 2.05 Schedule
    - A Refer to Door and Frame Schedule appended to this section.

END OF SECTION

**07200 INSULATION**

1. Summary of Work
  - 1.01 The work includes acoustical and batt insulation as indicated in the partition details.
2. Products
  - 2.01 Provide sound control batts or blankets of inorganic, non asbestos fibers and binders complying with ASTM C665 and as manufactured by Certain Teed Corp., Owens-Corning, or Architect approved equal.
    - a. Thickness: 3 1/2" minimum or as detailed.
    - b. Density: 0.5 lb./ft3 or greater.
    - c. Type: Unfaced.
    - d. Size: Coordinate widths with spaces to be insulated for friction fit.
    - e. Flame Spread: Maximum Flame Spread of 25; ASTM E84.
3. General Procedures
  - 3.01 Comply with manufacturers' instructions and recommendations.

END OF SECTION

**07270 FIRE STOPPING**

1. Scope of Work
  - 1.00 Fire stopping is required to prevent the passage of flame and the products of combustion through concealed spaces and openings, between floors and through rated assemblies.
2. Products
  - 2.01 Provide material tested, listed, and labeled by UL in design similar to applications indicated and approved by local fire inspector.
  - 2.02 Fire stopping insulation, sealant and mortar products:
    - a. Blanket fire stopping: Mineral fiber type, thermafiber safing insulation by U.S. Gypsum.
    - b. Ceramic blanket: Ceramic wool with 2300 degree temperature rating.
    - c. Elastomeric silicone based sealant: CP 601S as manufactured by Hilti, Inc.
    - d. Firestop Putty Pad: CP 617 as manufactured by Hilti, Inc.
    - e. Firestop Mortar: CP 637 as manufactured by Hilti, Inc.
    - f. Firestop Collar: CP 643N as manufactured by Hilti, Inc. (for plastic piping)
3. General Procedures
  - 3.01 Provide fire stopping material and thickness as required to provide indicated ratings. Where not otherwise indicated, comply with UL standard design. Install material in accordance with manufacturer's instructions.
  - 3.02 Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of fire stopping material.
  - 3.03 Install backing materials to arrest liquid material leakage.
4. Installation
  - 4.01 Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
  - 4.02 Do not cover installed fire stopping until inspected by authority having jurisdiction.
  - 4.03 Install labeling required by code.
  - 4.04 Provide ventilation in areas where solvent-cured materials are being installed.
  - 4.05 Protect adjacent surfaces from damage by material installation.
5. Cleaning
  - 5.01 Clean adjacent surfaces of fire stopping materials.

END OF SECTION

**07900 - JOINT SEALANTS**

1. Scope of Work
  - 1.01 General: This section includes joint sealants for the following locations:
    - a. General interior caulking
    - b. Fire barrier sealant
    - c. Acoustical applications sealant.
2. Materials
  - 2.01 Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under service and application as demonstrated based on testing and field experience.
    - a. General Interior Caulking: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
    - b. Fire Barrier Sealants: One-part Elastomeric Sealant and Foamed-In-Place - system for sealing openings around cables, conduit, pipes and similar penetrations through walls and floors, listed by Underwriters Laboratories, Inc. and tested per ASTM E 814, and acceptable to authorities having jurisdiction.
    - c. Acoustical Sealant: Manufacturer's standard chemically curing elastomeric sealant of base polymer complying with ASTM C 920 requirements.
    - d. Plastic Foam Joint Backing: Preformed, compressible, resilient, non-staining, non-waxing, non-extruding strips of flexible plastic foam of closed-cell polyethylene, of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
4. Installation:
  - 4.01 Installation of General Caulking: Install caulking in joints between gypsum board and door frames to fill any openings or voids to provide finished uniform appearance.
  - 4.02 Installation of Fire-Barrier Sealants: Install sealant, including forming, packing and other accessory materials to fill openings around mechanical and electrical services which penetrate fire-rated walls and floors.
  - 4.03 Installation of Acoustical Sealants: Install sealant where indicated, in accordance with manufacturer's printed instructions.

END OF SECTION

**06100 ROUGH CARPENTRY**

1. Scope of Work
  - 1.00 The work includes concealed wood blocking. Blocking is to be provided as indicated on the architectural drawings, the AV, Tel/Data drawings and/or the millwork shops for the attachment of millwork trim, cabinets, shelving, paneling, tv screens, etc. or as reasonably inferred to be required for the attachment of any millwork or AV, Tel/ Data items.
2. Products
  - 2.01 Wood Blocking: Provide kiln dried Southern Pine or Hem-Fir construction grade boards, stud grade or no. 2 boards. All structural light framing must comply with PS20 and having 19% maximum moisture content.
  - 2.02 Fire Retardant treatment: Provide UL labeled fire treated wood.
  - 2.03 Particle board or plywood as called out for blocking shall be fire retarded.

3. General Procedures
  - 3.01 Wood blocking shall be provided as necessary for the installation of wall hung or braced items. Blocking shall be cut to fit between framing members and rigidly attached thereto.

END OF SECTION

**06400 FINISH CARPENTRY AND MILLWORK**

1. Summary of Work
    - 1.01 The work in this section includes, but is not limited to, the following:
      - a. Plastic laminate casework, countertops, and work surfaces.
      - b. Shelving, closet rods, and cabinet hardware.
      - c. Decorative moulding.
    - 1.02 Provide work complying with the latest requirements of AWI Section 400 Custom Grade quality standards or better unless noted otherwise. Woodwork to be familiar with applicable AWI Standards & Methods.
  2. Products
    - 2.01 Provide plastic laminate casework, countertops and work surfaces as indicated.
      - a. Provide plastic laminate complying with NEMA LD-3, for rated type, 0.05" thick horizontal grade.
        1. Color: Provide color as indicated or directed by Architect.
        2. Core: Provide medium density fiber board (mdfb) or medium density particle board (mdpb).
      - b. Provide vertical grade high pressure plastic laminate for both sides of doors and cabinet ends, edges, drawer fronts and edges, and all exposed cabinet ends.
      - c. Provide Flush Overlay construction of doors and drawer fronts, unless detailed otherwise. Provide cabinets with fully finished exposed interior and exterior surfaces. Provide 4 mil. low pressure laminated interiors for cabinets and drawers.
      - d. Do not use any exposed fasteners, including finish nails or staples.
    - 2.02. Hardware:
      - a. Provide at least (2) concealed, self closing, full overlay hinges per door. Blum 170° or equal.
      - b. Door pulls: Wire pulls by Colonial Bronze #752, US26D Finish.
      - c. Adjustable Shelf Hardware: Recessed Knape and Vogt 255 pilasters and 256 shelf clips.
      - d. Door silencers: Glynn Johnson SR-66. Provide resilient pads to silence door closing.
    - 2.03 Provide shelving coat rods and hardware as indicated.
      - a. 3/4" thick, birch veneer furniture grade plywood with 3/8" x 3/4" band on exposed edges. Provide (2) coats clear finish.
      - b. Hardware: Provide the following or Architect approved equal.
        - 1). Closet Rods & Flange: Knape and Vogt 770-5 chrome with for round tubing.
        - 2). Heavy duty shelf and closet rod support: Stanley Hardware
        - 3). Adjustable Shelf Standards and Brackets: Knape and Vogt white.
        - 4). Cafe Counter Brackets: Iron Shore, Inc. Knee Saver Standards with #185ANO Brackets. Contractor to coordinate sizes.
      - 4). Cafe Counter Brackets: Iron Shore, Inc. Knee Saver Support, Color: Black.
3. General Procedures and Project Conditions
  - 3.01 Install millwork in compliance with AWI 1700-G standards and manufacturer's recommendations. Make sure all painted work is back primed before installation.
  - 3.02 Installation:
    - a. Verify adequacy of backing and support framing.
    - b. Verify that mechanical, electrical and building items affecting work of this section are placed and ready to receive work.
    - c. Scribe work abutting other components with maximum gap of 1/32".
  4. Adjusting
    - 4.01 Adjust installed work.
    - 4.02 Adjust moving or operating parts to function smoothly and correctly.
  10. Cleaning
    - 10.01 Protect installed products until completion of project
    - 10.02 Clean casework, countertops, shelves, hardware and fittings thoroughly.
    - 10.03 Touch-up, repair or replace damaged products.

END OF SECTION

**SECTION 09 67 23-RESINOUS FLOORING**

**1 - GENERAL**

**1.1 SYSTEM DESCRIPTION**

- A. The work shall consist of preparation of the substrate, the furnishing and application of a cementitious urethane based self-leveling seamless flooring system with flintshot quartz aggregate broadcast and urethane topcoat.
- B. The system shall have the color and texture as specified in the finish schedule with a nominal thickness of 3/16 inch. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.
- C. Cove base to be applied where noted on plans and per manufacturers standard details unless otherwise noted

**1.2 QUALITY ASSURANCE**

- A. No requests for substitutions shall be considered that would change the generic type of the specified System.
- B. System shall be in compliance with requirements of United States Department of Agriculture (USDA), Food, Drug Administration (FDA), and local Health Department.
- C. System shall be in compliance with the Indoor Air Quality requirements of the building code.

**1.3 PROJECT CONDITIONS**

- A. Site Requirements
  - 1. Application may proceed while air, material and substrate temperatures are between 55 F and 85 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
  - 2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.
  - 3. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
- B. Conditions of new concrete to be coated with cementitious urethane material.
  - 1. Concrete shall be moisture cured for a minimum of 7 days and have fully cured a minimum of 14 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests.
  - 2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary or desirable).
  - 3. Sealers and curing agents should not to be used.
  - 4. Concrete surfaces on grade shall have been constructed with a vapor barrier to protect against the effects of vapor transmission and possible delamination of the system.

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- 2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary or desirable).
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- 4. Concrete surfaces on grade shall have been constructed with a vapor barrier to protect against the effects of vapor transmission and possible delamination of the system.

**2 - PRODUCTS**

**2.1 FLOORING**

- A. Based on Dur-A-Flex, Inc, Poly-Crete SLB (self leveling broadcast quartz), urethane topcoat seamless flooring system.

- 1. System Materials:
  - a. Topping: Dur-A-Flex, Inc, Poly-Crete SL resin, hardener and SL aggregate.
  - b. The aggregate shall be Dur-A-Flex, Inc, Flintshot quartz aggregate.
  - d. Topcoat: Dur-A-Flex, Inc, Poly-Crete Color-Fast resin, hardener and powdered aggregate.
- 2. Patch Materials
  - a. Shallow Fill and Patching: Use Dur-A-Flex, Inc, Poly-Crete MD (up to 1/4 inch).
  - b. Deep Fill and Sloping Material (over 1/4 inch): Use Dur-A-Flex, Inc, Poly-Crete WR.

**3 - EXECUTION**

- 3.1 EXAMINATION
  - A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.

- 1. Verify that substrates and conditions are satisfactory for flooring installation and comply with manufacturer's requirements.

**3.2 PREPARATION**

- A. General
  - 1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.
  - 2. Moisture Testing: Perform tests recommended by manufacturer and as follows.
    - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
    - b. If the relative humidity exceeds 99% then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
    - c. If the vapor drive exceeds 99% relative humidity or 20 lbs/1,000 sf/24 hrs then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.

- 3. Mechanical surface preparation
  - a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 4-5 as described by the International Concrete Repair Institute.
  - b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
  - c. Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/4 inch key cut shall be made to properly seat the system, providing a smooth transition between areas. The detail cut shall also apply to drain perimeters and expansion joint edges.
  - d. Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.

- 4. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufactures recommendations.

**CONTINUE WITH: SECTION 09 67 23-RESINOUS FLOORING**

**3.3 APPLICATION**

- A. General
  - 1. The system shall be applied in three distinct steps as listed below:
    - a. Substrate preparation
    - b. Topping/overlay application with quartz aggregate broadcast.
    - c. Topcoat application
  - 2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
  - 3. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
  - 4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
  - 5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.
- B. Topping
  - 1. The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch.
  - 2. The topping shall be comprised of three components, a resin, hardener and filler as supplied by the Manufacturer.
  - 3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. SL Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.
  - 4. The topping shall be applied over horizontal surfaces using 1/2 inch "v" notched squeegee, trowels or other systems approved by the Manufacturer.
  - 5. Immediately upon placing, the topping shall be degassed with a loop roller.
  - 6. Quartz aggregate shall be broadcast to excess into the wet material at the rate of 1 lbs/sf.
  - 7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.
- C. Topcoat
  - 1. The topcoat shall be mixed and applied per manufacturer recommended procedure.
  - 2. The topcoat shall be comprised of three components, a resin, hardener and filler as supplied by the manufacturer.
  - 3. The topcoat will be applied at the rate of 100 sf per kit (1.1 gal).
  - 4. Non-Skid if required is broadcast at the rate of 1 lb per 100 sf and back rolled into the coating.
  - 5. The finish floor will have a nominal thickness of 3/16 inch.

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- 2. The topcoat shall be comprised of three components, a resin, hardener and filler as supplied by the manufacturer.
- 3. The topcoat will be applied at the rate of 100 sf per kit (1.1 gal).
- 4. Non-Skid if required is broadcast at the rate of 1 lb per 100 sf and back rolled into the coating.
- 5. The finish floor will have a nominal thickness of 3/16 inch.

**3.4 CLEANING AND PROTECTION**

- A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.
- B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

**END OF SECTION**

**09900 PAINTING**

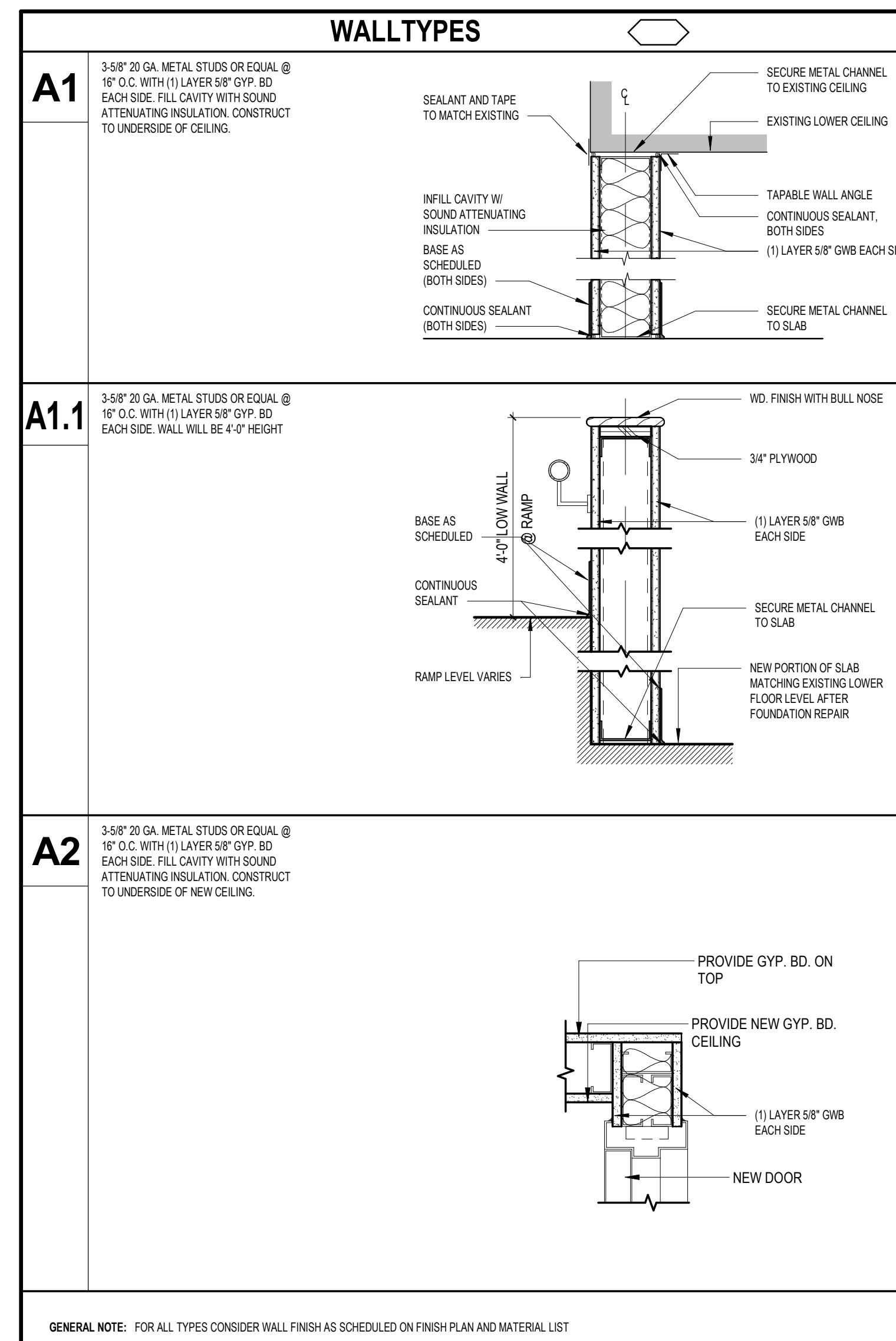
- 1. General
  - 1.00 The work includes, the painting and finishing of exposed surfaces entailing new construction and repair and restoration of existing construction. Refer to Finish Plans.
- 2. Products
  - 2.01 Provide primers and other undercoat paint produced by the same manufacturer as finish coat. Apply per manufacturers' instructions and recommendations.
  - 2.02 Provide products as indicated for application to new and existing surfaces. Submit samples for those items not identified for Architect's approval.
- 3. Paint Schedule
  - 3.01 Gypsum Wallboard
    - a. Primer: Latex Wall Primer
    - b. Finish: Benjamin Moore Eco-Spec W.B. Interior Latex Eggshell
  - Finish #374 - two coats.
  - 3.02 Metals
    - a. Primer Filler. Recommended by Paint manufacturer for use under finish paint.
    - b. Finish: Benjamin Moore Regal Select Semi-Gloss #551 - 2 coats.
  - 3.03 Wood (Painted)
    - a. Primer: Water Base Undercoat
    - b. Finish: Benjamin Moore Regal Select Semi-Gloss #551

- 4. Preparation and Application
  - 4.01 Paint surfaces in compliance with manufacturers' instructions. Properly prepare and clean all surfaces in accordance with finish manufacturers' requirements prior to commencing painting.
  - 4.02 Back prime all painted items prior to installation.
  - 4.03 All exposed surfaces to have finish. Contractor to contact Architect for any surface without a finish indication prior to submitting bid. Owner's acceptance of bid indicates that Contractor has reviewed contract documents & agrees that all exposed surfaces are finished.

**END OF SECTION**

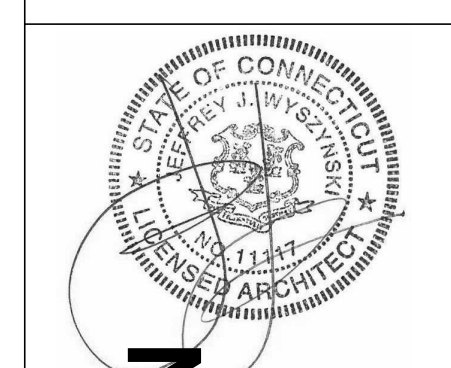
**113100 RESIDENTIAL APPLIANCES**

- Washing Machine: Specified by owner and installed by contractor



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Revisions	
No.	Date



**ART LAB RELOCATION**

**BASEMENT WHITE HALL**

**PROJECT SPECIFICATIONS 0.3**

**Project No. BI-RD-294**

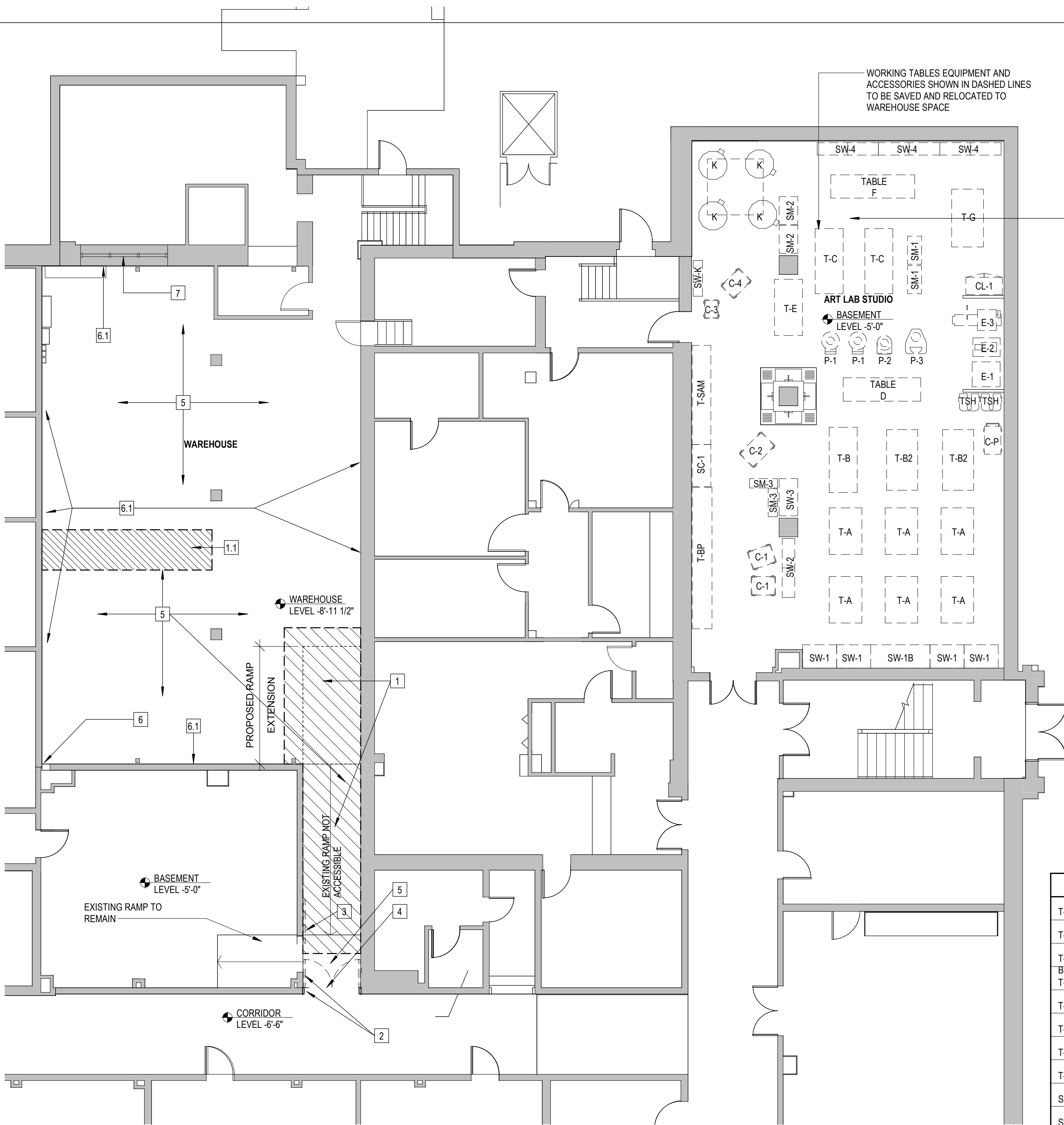
**By: E.FRANCO**

**Scale: As indicated**

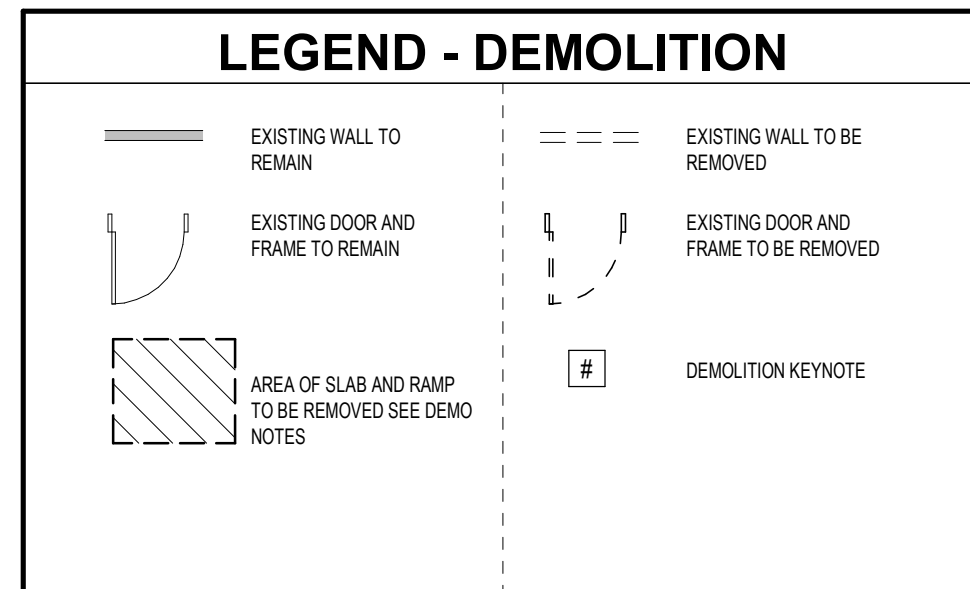
**Issue Date: 12-06-17**

**A-0.3**





LOWER LEVEL ENLARGED PLAN  
DEMOLITION  
1/8" = 1'-0"



KEYNOTES - DEMOLITION	
1	REMOVE RAMP AS REQUIRED AND PREPARE FLOOR FOR NEW RAMP EXTENSION. SEE PROPOSED PLAN
1.1	SAWCUT AND REMOVE EXISTING SLAB TO INSTALL SUMP PIT AND TRENCH DRAIN. COORDINATE WITH S-1
2	EXISTING DOOR AND WALL TO BE REMOVED. CUT CMU FLUSH WITH EXISTING CORRIDOR AND REPAIR AS REQUIRED
3	EXISTING SLIDING DOOR AND ACCESSORIES TO BE REMOVED. PREPARE OPENING TO INFILL WALL FOR NEW DOOR DIMENSION. PREPARE FOR NEW UNIT.
4	EXISTING LANDING TO BE PREPARED FOR NEW FLOOR TO MATCH EXISTING FINISH AT CORRIDOR. SEE PROPOSED PLAN
5	SCARIFY AND PREPARE EXISTING FLOOR TO RECEIVE NEW EPOXY FLOOR FINISH AT ENTIRE NEW ART LAB SPACE
6	INFILL CORNER WALL AND PATCH AS REQUIRED TO MATCH EXISTING
6.1	INFILL WALL, REPAIR AND PATCH AS REQUIRED TO MATCH EXISTING AT DAMAGED AREAS (VERIFY IN FIELD DAMAGED AREAS)
7	HIGH WINDOW WITH EXISTING FAN AND LOUVER TO BE REMOVED. SEE DETAIL 2A-4 AND 3A-4
8	WORKING TABLES, EQUIPMENT AND ACCESSORIES SHOWN IN DASHED LINES TO BE CAREFULLY REMOVED AND SAVE AS OWNER INDICATES FOR FUTURE RELOCATION IN NEW SPACE

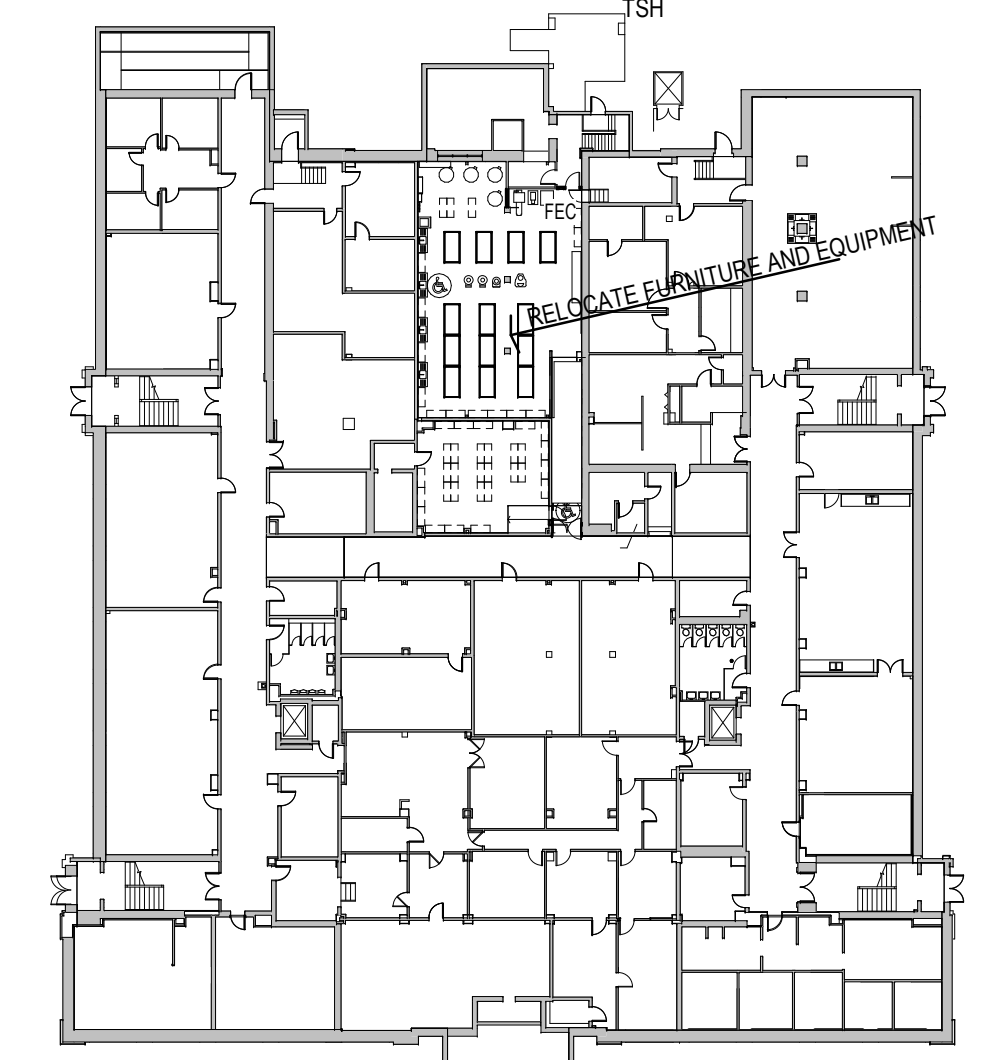
### GENERAL NOTES - DEMOLITION

- THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL AND PROPER DISPOSAL, INCLUDING ALL COSTS FOR CARRYING AND DUMPING, OF ALL MATERIAL DEMOLISHED FROM THE PROJECT. THE CONTRACTOR SHALL PROVIDE OWNER WITH FIRST RIGHTS TO ALL MATERIALS INCLUDING DOORS, HARDWARE, WINDOWS, PLUMBING FIXTURES, ETC., BEFORE REMOVING FROM SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO PATCH AND REPAIR ALL EXISTING, TO REMAIN AREAS AND SURFACES AS NOTED AND/OR SHOWN. THIS INCLUDES ALL WORK NECESSARY TO READY SURFACES FOR NEW FINISH (N.I.C.) TO FOLLOW IN CONSTRUCTION PHASE. MATCH ALL ADJACENT MATERIALS WHERE PATCHING OCCURS.
- ANY AND ALL PLUMBING FIXTURES/ACCESSORIES SHOWN DASHED ARE TO BE REMOVED AND DISCARDED, UNLESS OTHERWISE NOTED. ANY RELATED PIPING WHICH IS BEING ABANDONED SHALL BE REMOVED AND CAPPED TO NEAREST TERMINATION POINT. ALL RELATED WORK REQUIRED IN ADJACENT WALLS, FLOORS BELOW, FLOORS ABOVE OR ON THE EFFECTED FLOOR ITSELF SHALL BE PATCHED AND PREPARED FOR NEW FINISH.
- ALL WALLS SHOWN DASHED ARE TO BE REMOVED AND DISCARDED, UNLESS OTHERWISE NOTED. ANY WALL OR SURFACE BEING WORKED ON SHALL BE PATCHED AND REPAIRED WITH A COMPLETE FINISH TO THE NEAREST CORNER, CHANGE OF PLANE OR OTHER JUNCTURE WHICH ALLOWS FOR A SMOOTH AND CLEAN TRANSITION FROM THE NEWLY FINISHED SURFACE TO THE SURROUNDING EXISTING SURFACES (THE INTENT IS TO AVOID THE APPEARANCE OF A PATCHED CONDITION).
- UNLESS NOTED OTHERWISE, ALL FLOOR SURFACES/ FINISHES AND FLOORING BASE TRIM ARE TO BE REMOVED TO FLOOR SLAB AND DISCARDED. CLEAN AND PREPARE CONCRETE AS NECESSARY FOR INSTALLATION OF NEW FINISHES/ CONSTRUCTION
- IT IS NOT THE INTENT TO SHOW EVERY PIECE OR ITEM TO BE REMOVED IN DEMOLITION WORK. MECHANICAL, ELECTRICAL AND OTHER WORK RELATED TO A WALL OR AREA SCHEDULED FOR DEMOLITION AND REMOVAL SHALL BE PERFORMED WHETHER SO NOTED OR NOT. PROTECT ALL ITEMS INTENDED FOR SALVAGE AND REUSE OR SCHEDULED TO REMAIN.
- WHEN WALLS, COLUMNS, ROOF CONSTRUCTION, OR OTHER SUPPORTING AND / OR BRACING ELEMENTS ARE SCHEDULED FOR DEMOLITION, TEMPORARY STRUCTURAL SUPPORTS AND BRACING FOR THE ADJACENT CONSTRUCTION SHALL BE PROVIDED AND MAINTAINED UNTIL THE PERMANENT STRUCTURES ARE IN PLACE AND ABLE TO SUPPORT THE IMPOSED LOADS.
- REPAIR ALL REMAINING WALLS, CEILINGS AND FLOOR SURFACES WHERE DEMOLITION OCCURS. THIS INCLUDES M.E.P. AND OTHER NECESSARY WORK IN CEILINGS AND WALLS AT FLOOR BELOW. SEE M.E.P. DRAWINGS FOR PROBABLE EXTENT.
- ALL EQUIPMENT OR FURNITURE SHOWN DASHED IS TO BE REMOVED AND STOCKPILED FOR OWNER REUSE OR STORAGE. SEE PROPOSED PLANS AND VERIFY WITH OWNER FOR ANY LAST MINUTE CHANGES.
- REFER TO MEP PLANS AND OR SPECS FOR SCOPE OF ALL MEP DEMOLITION.
- ALL DOORS AND WINDOWS SHOWN DASHED ARE TO BE REMOVED AND DISCARDED, INCLUDING FRAMES AND HARDWARE EXCEPT WHERE NOTED OTHERWISE.

EQUIPMENT LEGEND	
T-A	TABLE SMALL 5'-0"X3'-6" H: 2'-6"
T-B	TABLE 7'-0"X3'-0" H:2'-6"
T-	TABLE 6'-6"X3'-4" H:2'-7"
BZ	TABLE 7'-0"X3'-0" H:3'-0" TALL TABLE
T-C	TABLE 8'-4"X2'-6 1/4" H:2'-6 1/4"
T-D	TABLE 6'-14"X3'-0" H:3'-0"
T-E	TABLE 9'-0"X2'-6" H:2-10 3/4"
T-F	TABLE 6'-2 1/2"X3'-5" H:3'-0"
T-G	TABLE 3'-8"X2'-6" H:8'-4"
SW-1	WOOD SHELVES 6'-4 1/4"X2'-6" H:8'-4"
SW-1B	WOOD SHELVES 4'-0"X2'-0" H:8'-0"
SW-2	WOOD SHELVES 6'-4 1/4"X1'-4 1/4" H:8'-0"
SW-3	METAL SHELVES 3'-0"X2'-0" H:6'-3"
SM-1	METAL SHELVES 3'-0"X1'-0" H:7'-3"
SM-2	METAL SHELVES 3'-10"X1'-0" H:7'-0"
SM-3	METAL SHELVES 15'-2"X2'-1 1/2" H:2'-10"
SC-1	WOOD SHELVES CLOSET 4'-6 1/4"X2'-0" H:7'-4"
CL-1	WOOD SHELVES CLOSET 4'-6 1/4"X2'-0" H:7'-4"
T-SAM	TABLE SAMPLES 10'-7 1/2"X2'-0" H:3'-1/2"
K	KLIN 3'-0" DIAMETER
E-1	EQUIPMENT(MIXER) 2'-8"X3'-0" H: 3'-3"
E-2	EQUIPMENT 2'-11"X2'-0" H: 4'-1"
E-3	EQUIPMENT 9'-3"X2'-7" H: 4'-0"
P-1	POTTERY WHEEL 2'-4 1/2"X1'-11" H:1-7 1/2"
P-2	POTTERY WHEEL 2'-0"X1'-7" H:1-7 1/2"
P-3	POTTERY WHEEL 2'-8"X2'-3" H:1'-9"
C-1	CAR ROLLING SHELVES 2'-8 1/2"X2'-0" H:4'-6"
C-2	CAR ROLLING SHELVES 3'-4"X2'-1 1/4" H:3'-8"
C-3	CAR ROLLING SHELVES 2'-0"X1'-6" H:2'-10"
C-4	CAR ROLLING SHELVES 2'-8 1/2"X1'-11" H:4'-6"
C-P	CAR PLATFORM 3'-0"X1'-9" H:
TSH	TRASH CONTAINERS 2'-1"X1'-10" H:2'-9"
S	NEW PLASTIC HEAVY DUTY SINKS 3'-4"X2'-0" H:2'-10"
R-B	NEW RACK FOR BACK PACKS (SIZE TO BE DETERMINED)

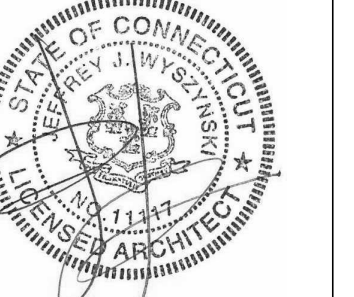


### EXISTING EQUIPMENT



### KEY PLAN

Revisions	
No.	Date



# ART LAB RELOCATION BASEMENT WHITE HALL

### DEMOLITION PLAN

Project No. BI-RD-294

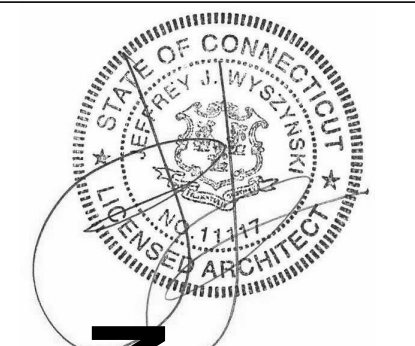
By: E.F.

Scale: As indicated

Issue Date: 12-06-17



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No.	Date



**ART LAB RELOCATION**  
**BASEMENT WHITE HALL**

**PROPOSED PLAN AND RCP PLAN**

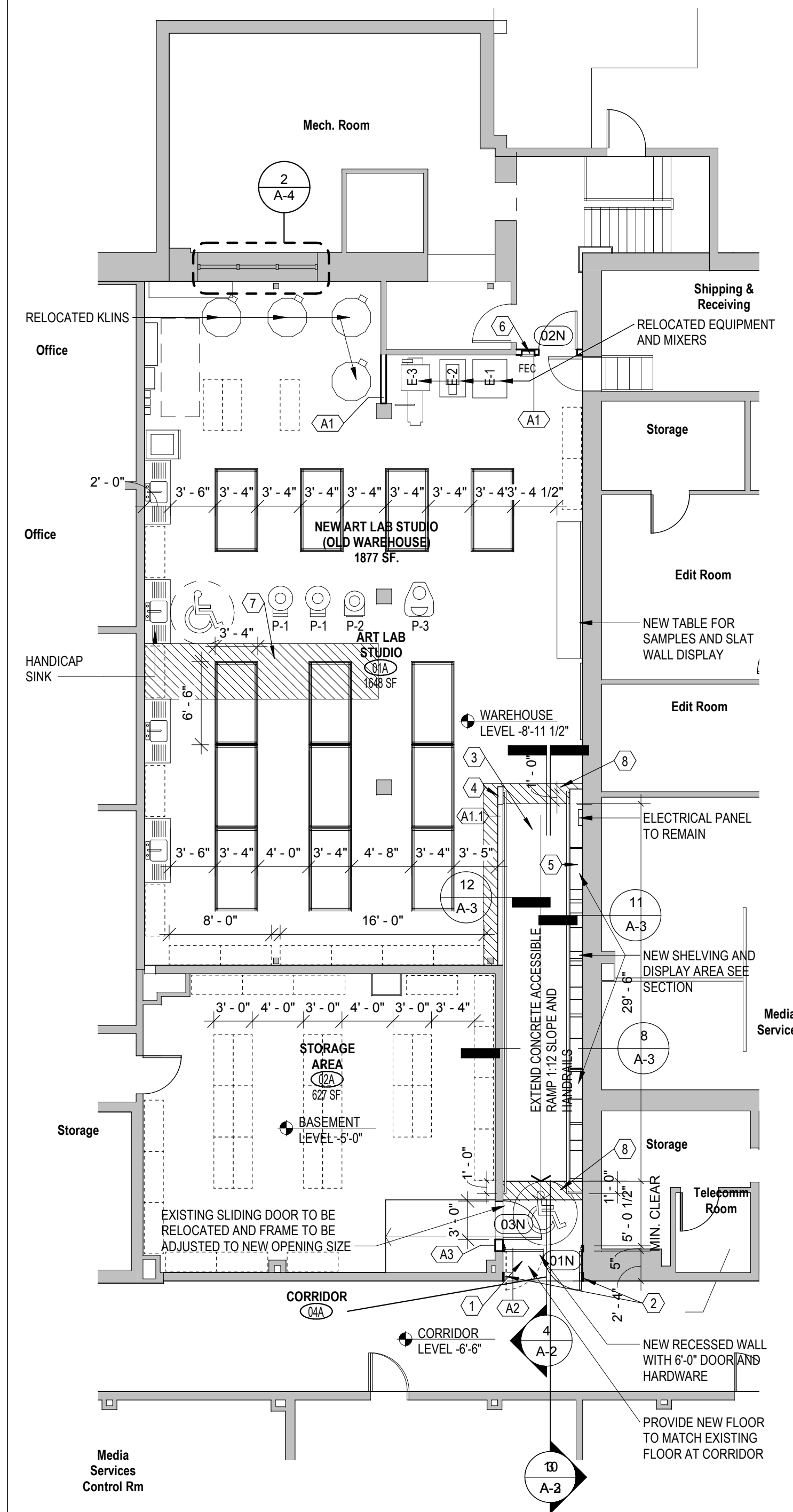
Project No. BI-RD-294

By: E.FRANCO

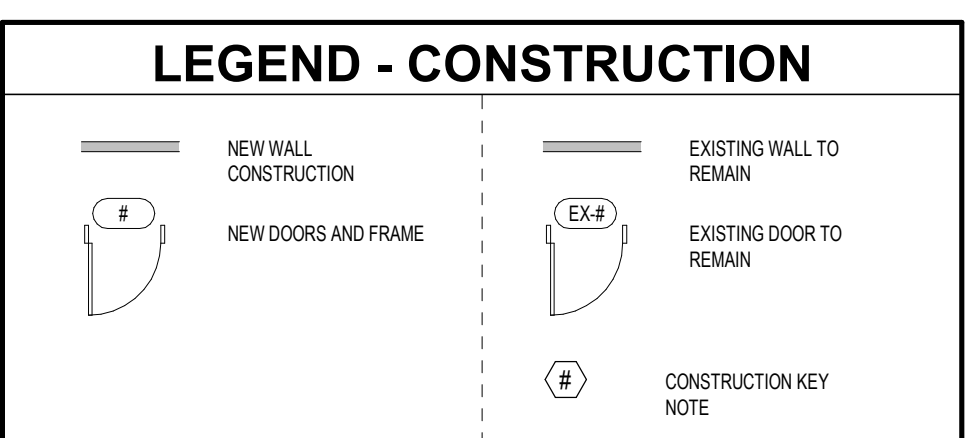
Scale: As indicated

Issue Date: 12-06-17

**A-2**



1 LOWER LEVEL ENLARGED PLAN PROPOSED  
1/8" = 1'-0"

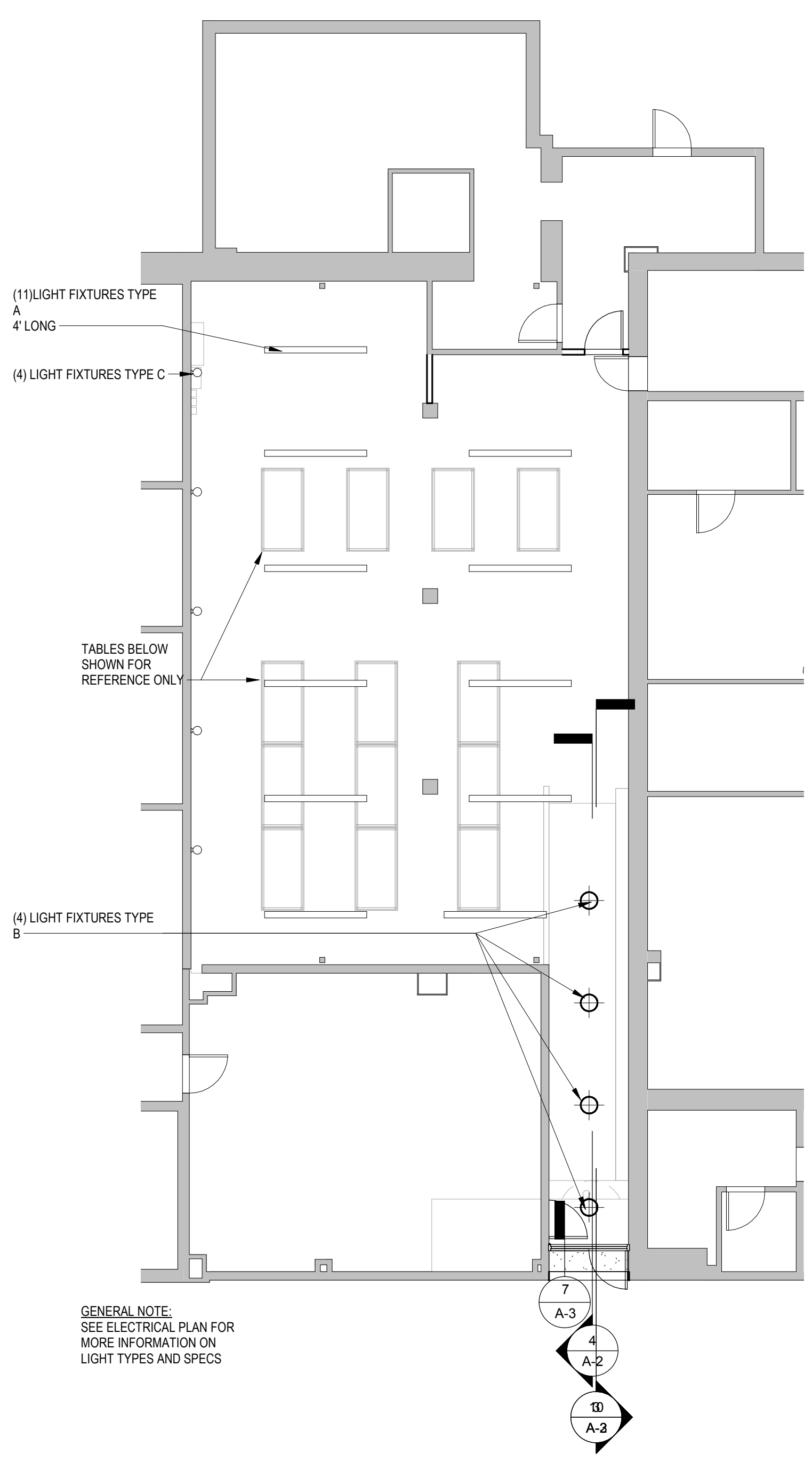


**GENERAL NOTES - CONSTRUCTION**

1. FOR NEW WALLS SEE WALL TYPE. PARTITION TYPES CONTINUE AROUND CORNERS UNLESS INDICATED OTHERWISE.
2. WHERE TWO DENOTED WALL TYPES COINCIDE, THE MOST STRINGENT OF BOTH WALL CONSTRUCTION DEFINITIONS APPLIES TO THAT WALL (i.e. FIRE CODE GYP. BATT INSUL). WHERE A RATED CONSTRUCTION BEGINS/TERMINATES @ AN EXISTING COOL. ENCLOSURE OR NEW FURRED, NON-RATED ENCLOSURE, THE HIGHER RATING MUST BE PROVIDED. THE INTENT IS TO PROVIDE A COMPLETE ENVELOPE OF INTENDED, DESIGN RATINGS.
3. PROVIDE SOLID WOOD BLOCKING FOR ALL INDICATED WALL HUNG EQUIPMENT.
4. FIRE SAFE ALL PENETRATIONS IN RATED WALL ASSEMBLIES. SEE TYPICAL RATED WALL PENETRATION DETAIL.
5. ALIGN FACE OF NEW FINISH WITH FACE OF EXIST'G FINISH @ ALL GYP. BD. INFILL CONSTRUCTION UNLESS OTHERWISE NOTED.
6. VERIFY LOCATION OF ALL ACCESS PANELS WITH M.E.P. EQUIPMENT.
7. ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND ANY DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE ARCHITECT.
8. WHERE THE DRAWINGS AND SPECIFICATIONS CONFLICT THE MOST STRINGENT, GREATEST QUANTITY AND OR BEST QUALITY SHALL BE USED.
9. FIRE RATED PARTITIONS INDICATED ON THE FLOOR PLANS ARE COMPONENTS OF CONTINUOUS RATE ASSEMBLIES CONSISTING OF WALLS, FLOOR, DOORS, INTERIOR BORROWED LIGHTS, MECHANICAL PENETRATIONS & CEILINGS. REFER TO PLANS & SPECIFICATIONS FOR METHODS OR ACHIEVING THE NECESSARY RATINGS. WHERE THE SPECIFIC METHOD OF ACHIEVING THE RATINGS IS NOT INDICATED, OBTAIN CLARIFICATION FROM ARCHITECT PRIOR TO BIDDING.
10. PATCH, REPAIR & REFINISH ALL SURFACES EXPOSED BY DEMOLITION WORK OR CUTTING TO ALIGN WITH EXISTING SURFACES SCHEDULED TO REMAIN OR NEW FINISHES SPECIFIED.
11. ALL EXISTING FINISHED REMAINING IN PLACE, SHALL BE CLEANED UTILIZING EFFECTIVE CLEANING METHODS WHICH WILL PRODUCE THE MOST DESIRABLE RESULTS POSSIBLE.
12. WHERE DOORS IN METAL STUD PARTITIONS ARE NOT SPECIFICALLY LOCATED ON THE PLANS WITH DIMENSION STRINGS, PROVIDE A MINIMUM HINGE SIDE JAMB DIMENSION OF 6". WHERE DOORS APPEAR TO BE CENTERED WITHIN PARTITIONS, LOCATE THE DOOR IN THE CENTER OF THE PARTITION.
13. CAULK ALL JOINT OR CRACKS WHICH OCCUR WHERE DISSIMILAR MATERIALS INTERSECT PERPENDICULAR TO EACH OTHER AND THE INTERSECTION IS EXPOSED TO VIEW UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

**KEYNOTES - CONSTRUCTION**

1. PROVIDE NEW FLOOR FINISH TO MATCH EXISTING AT CORRIDOR
2. REPAIR CMU CORNERS AFTER DEMOLITION AND SAW CUT AND PAINT TO MATCH EXISTING. EXISTING LINTEL TO BE REPAIR. REPLACE LINTEL IF EXTENSION OF REMOVED WALL REQUIRE NEW LINTEL FOR NEW OPENINGS
3. NEW CONCRETE RAMP EXTENSION TO MEET CODE WITH SLOPE 1:12. PROVIDE HANDRAILS BOTH SIDES
4. PROVIDE NEW LOW WALL AT RAMP SIDE. SEE WALL TYPE
5. NEW LOW WALL SEE DETAILS AND SECTIONS
6. NEW FIRE EXTINGUISHER AND CABINET. FIRE EXTINGUISHER PER BUILDING STANDARDS
7. NEW 4" MN. CONCRETE SLAB REFER TO ENGINEERING DRAWINGS FOR EXTENT OF SLAB INFILL INFILL AS SHOWN ON DETAIL 9/A-3
8. NEW 4" MN. CONCRETE SLAB AS PART OF NEW RAMP CONFIGURATION LANDING AND TO COMPLETE PART OF DEMOLITION WORK INVOLVED INFILL AS SHOWN ON DETAIL 9/A-3



2 LOWER LEVEL CEILING PLAN PROPOSED  
1/8" = 1'-0"

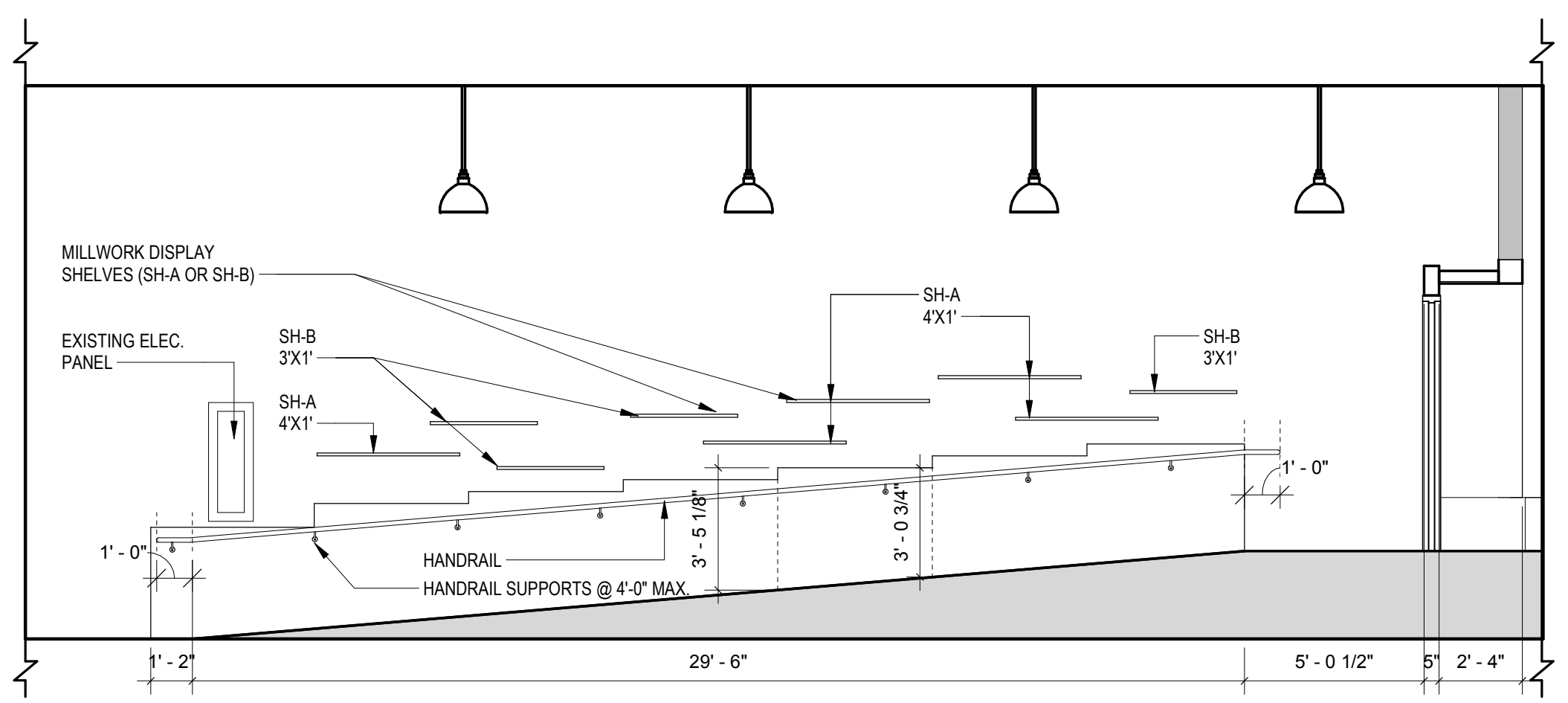


3 STAINLESS STEEL SINK (ONE SHOULD BE HANDICAP ACCESSIBLE WITHOUT LOWER SHELVE)

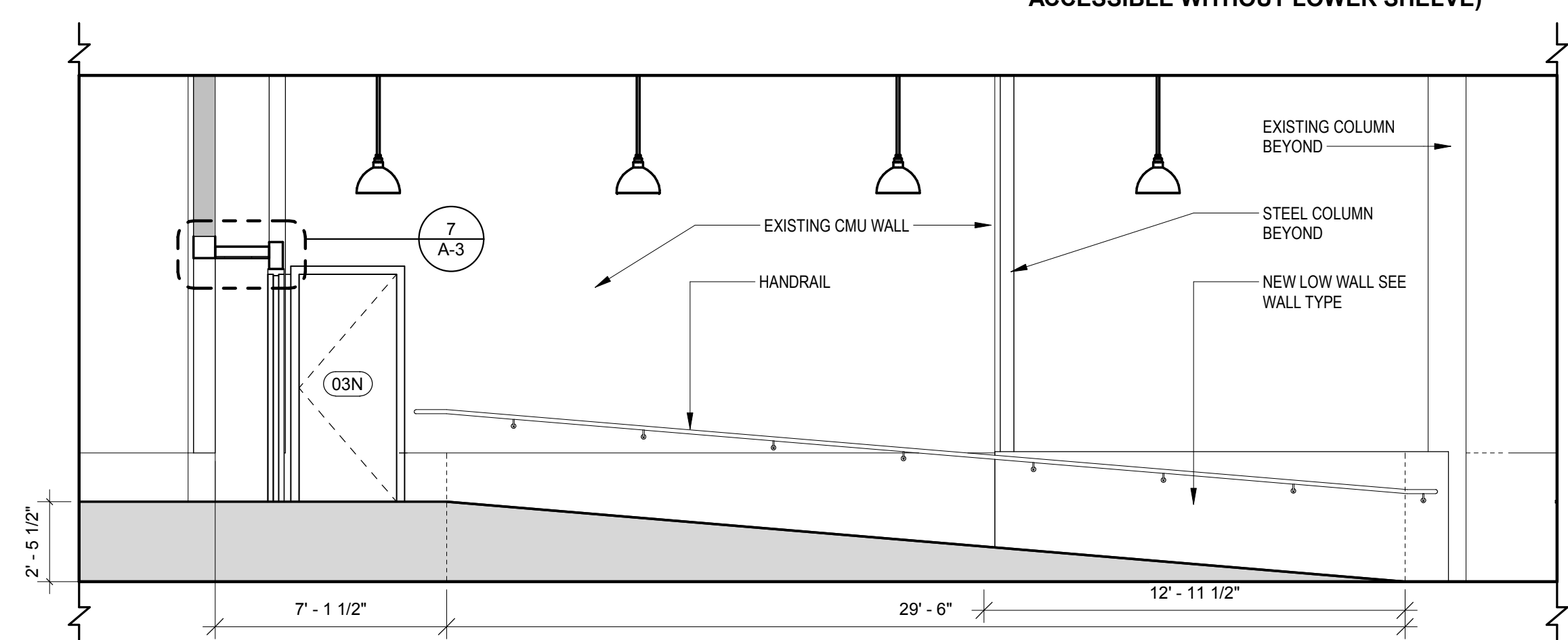
- RELOCATE FURNITURE FROM EXISTING ART LAB STUDIO TO EXISTING WAREHOUSE AREA
- PROVIDE NEW TABLES AS REQUIRE
- PROVIDE NEW RACK FOR BACKPACKS
- EXTEND RAMP TO MEET CODE
- PROVIDE NEW (4) SINKS SPREAD ON THE ROOM



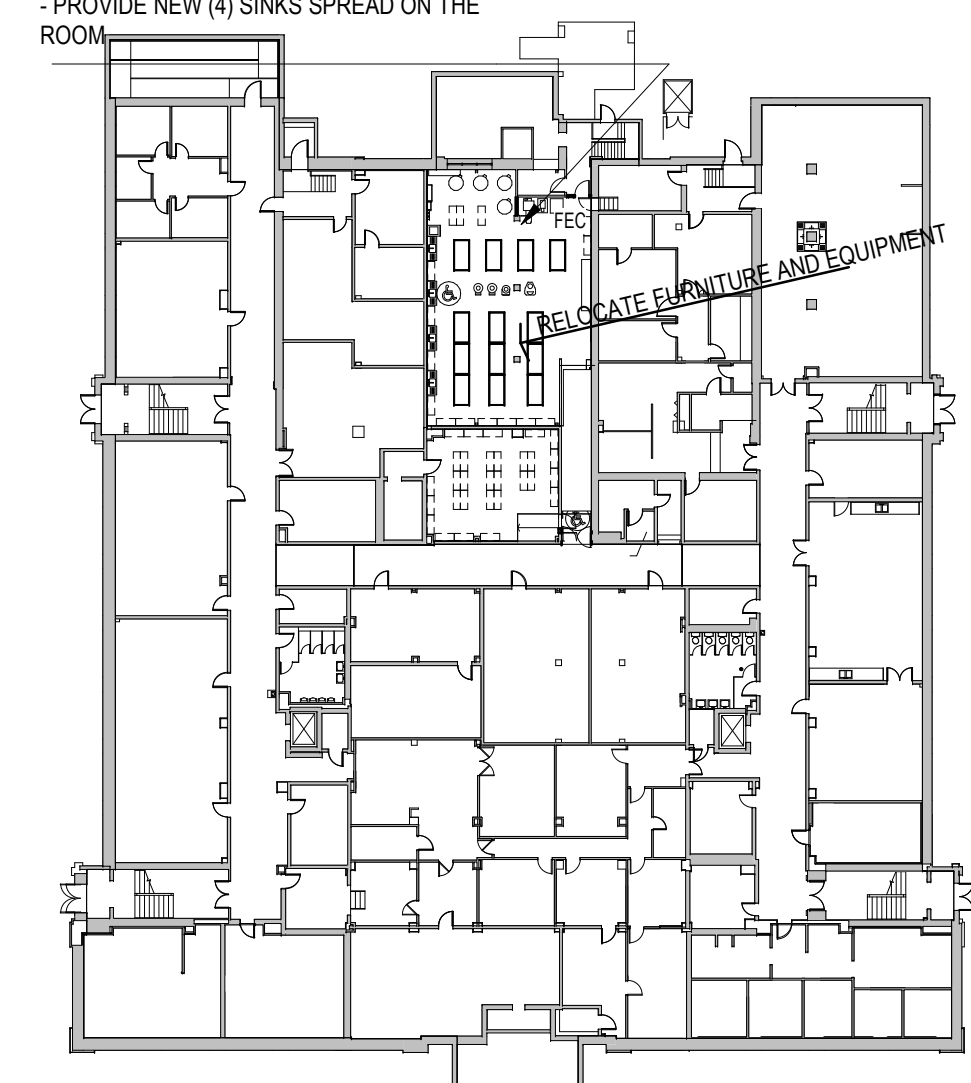
4 WOOD SHELVING AT HANDICAP RAMP (4'X1' AND 3'X1') WD. SHELVING WILL BE ENCLOSED WD. BOX. SEE DETAIL 8/A-3



5 Section 1  
1/4" = 1'-0"



6 Section 2  
1/4" = 1'-0"

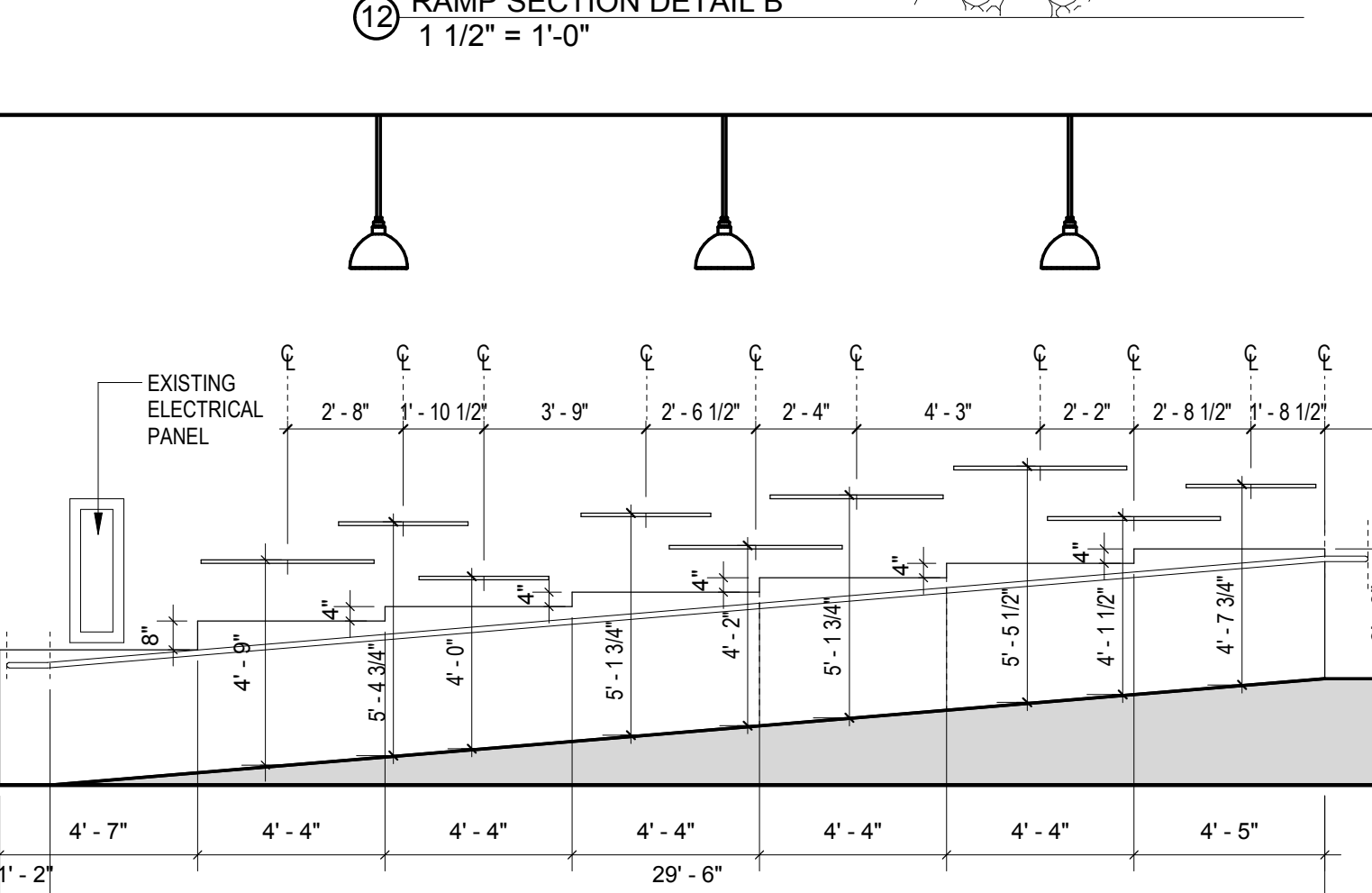
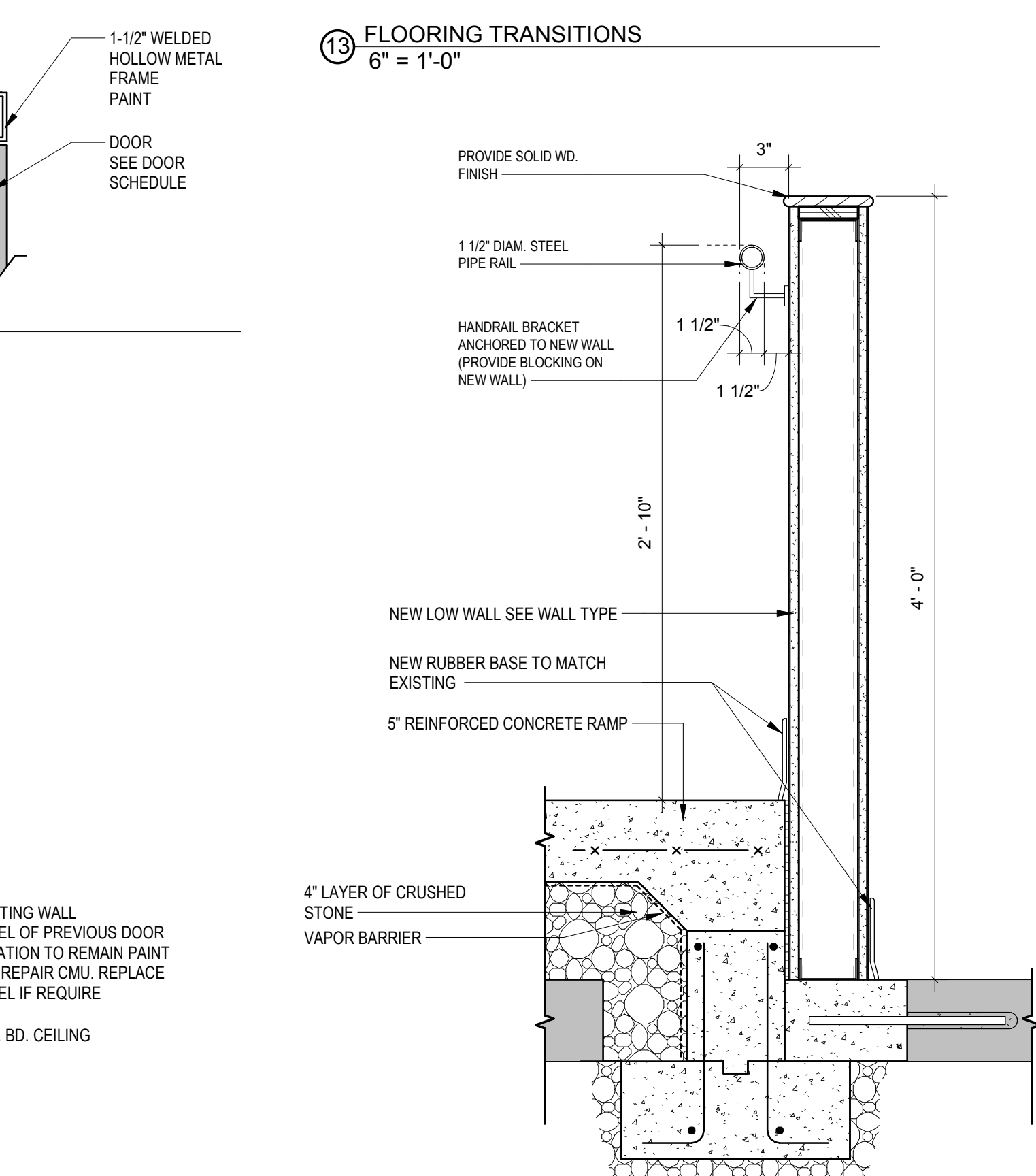
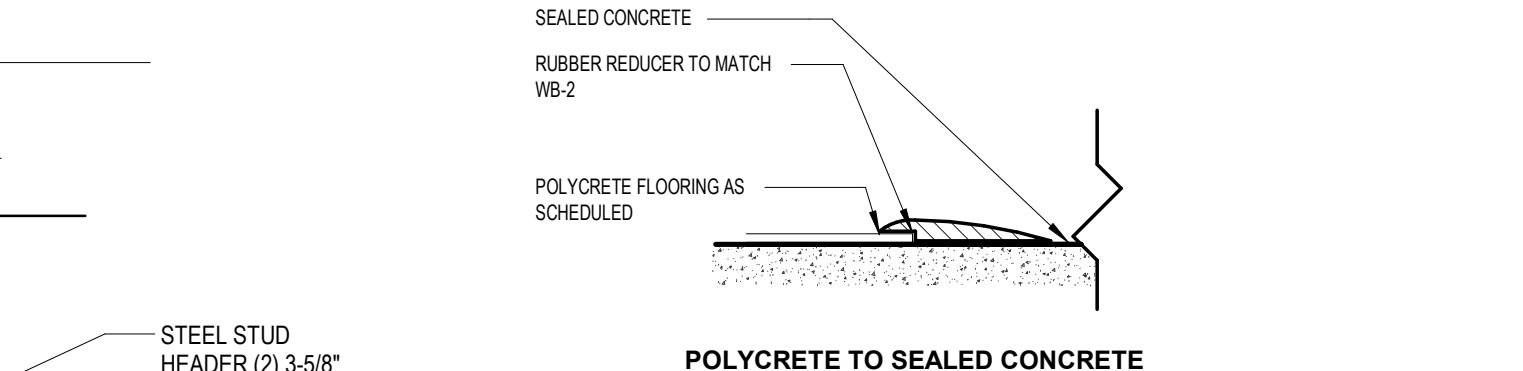
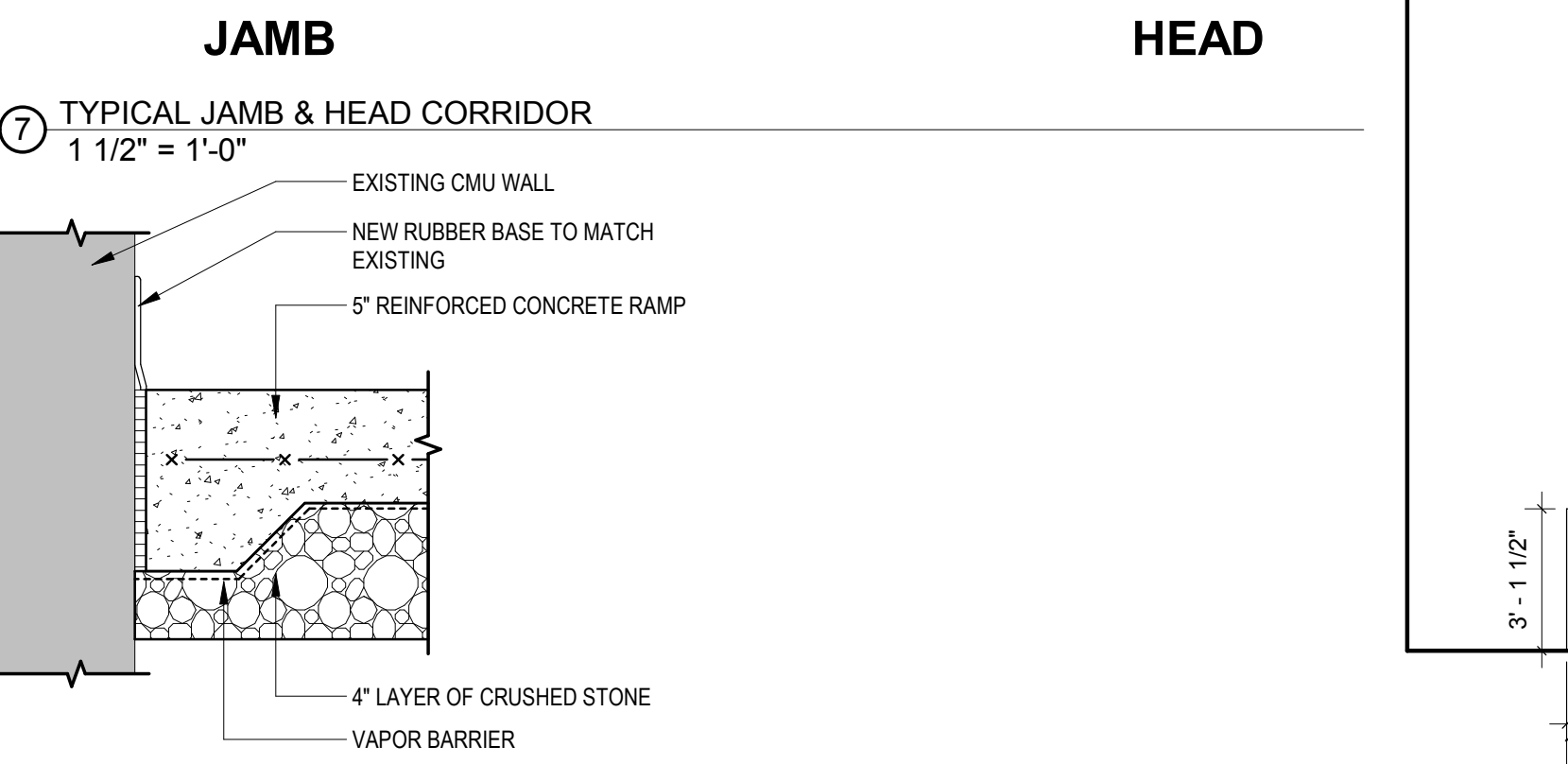
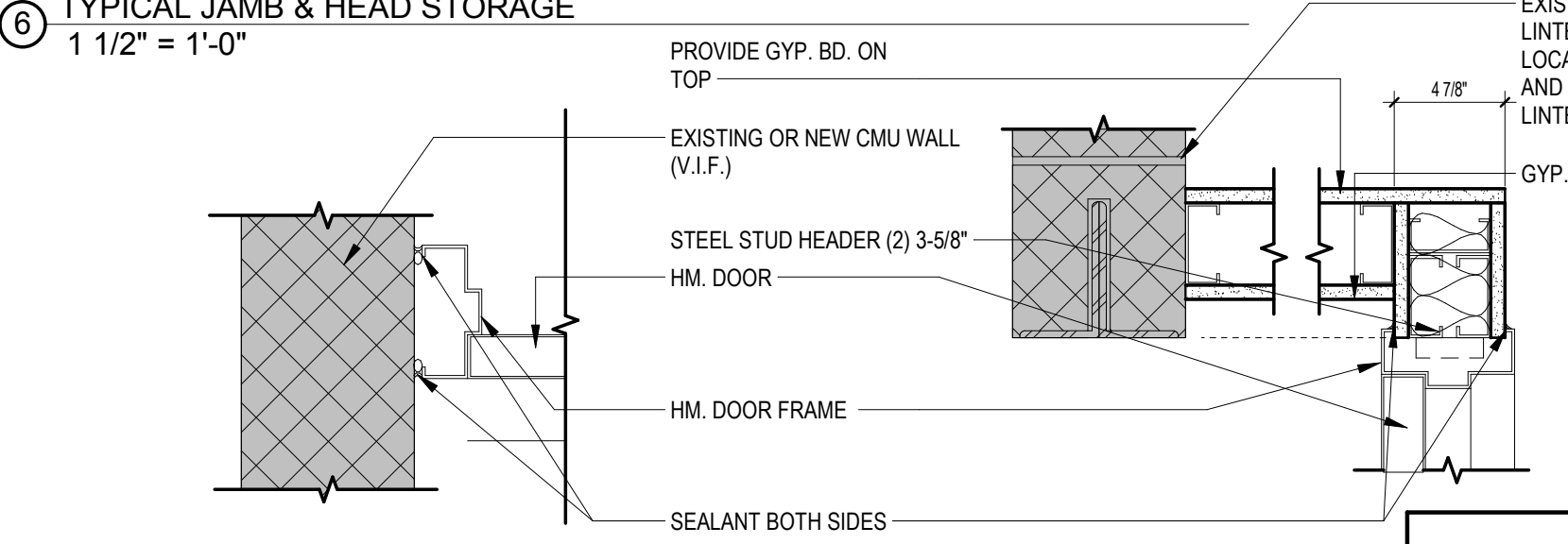
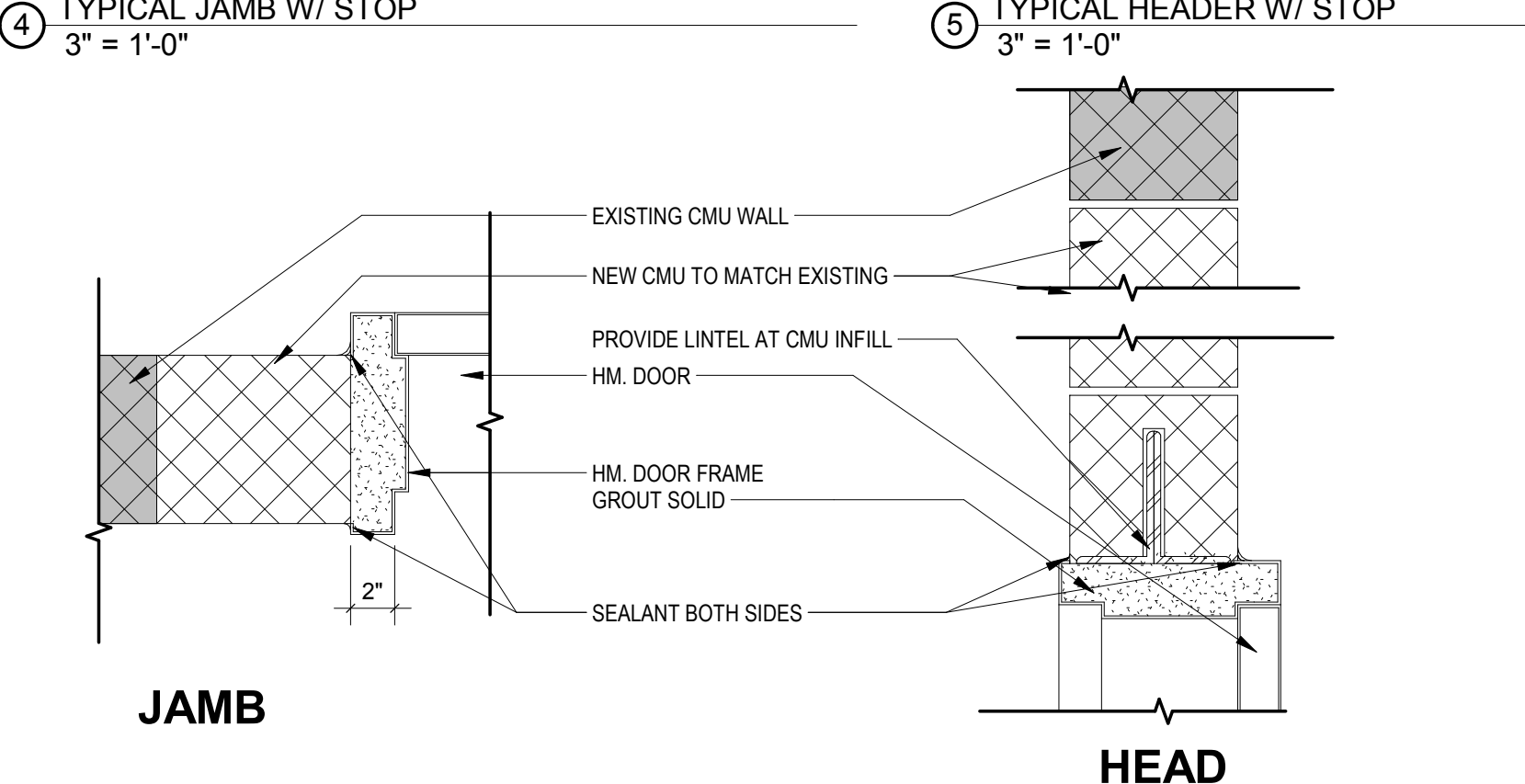
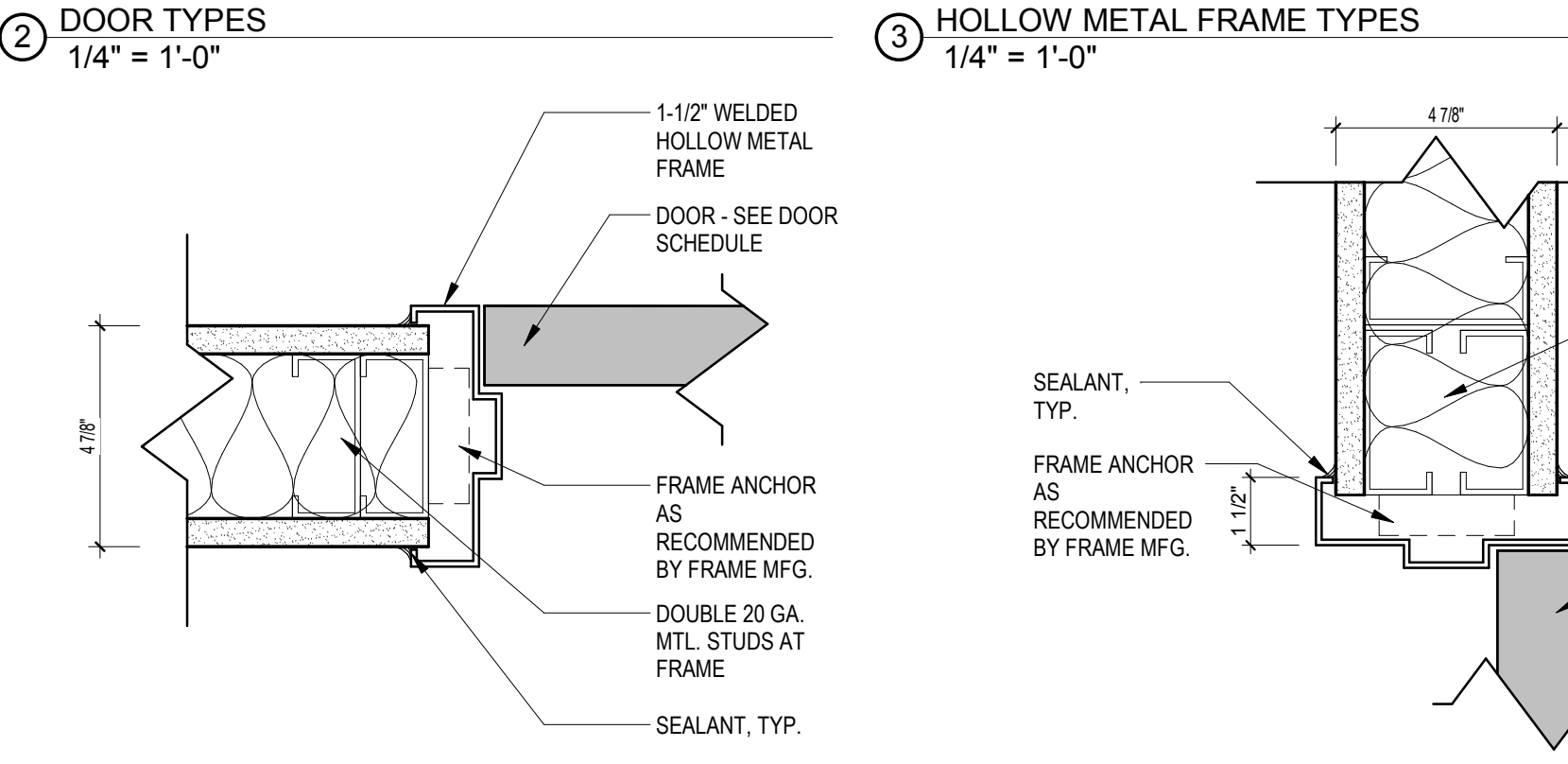
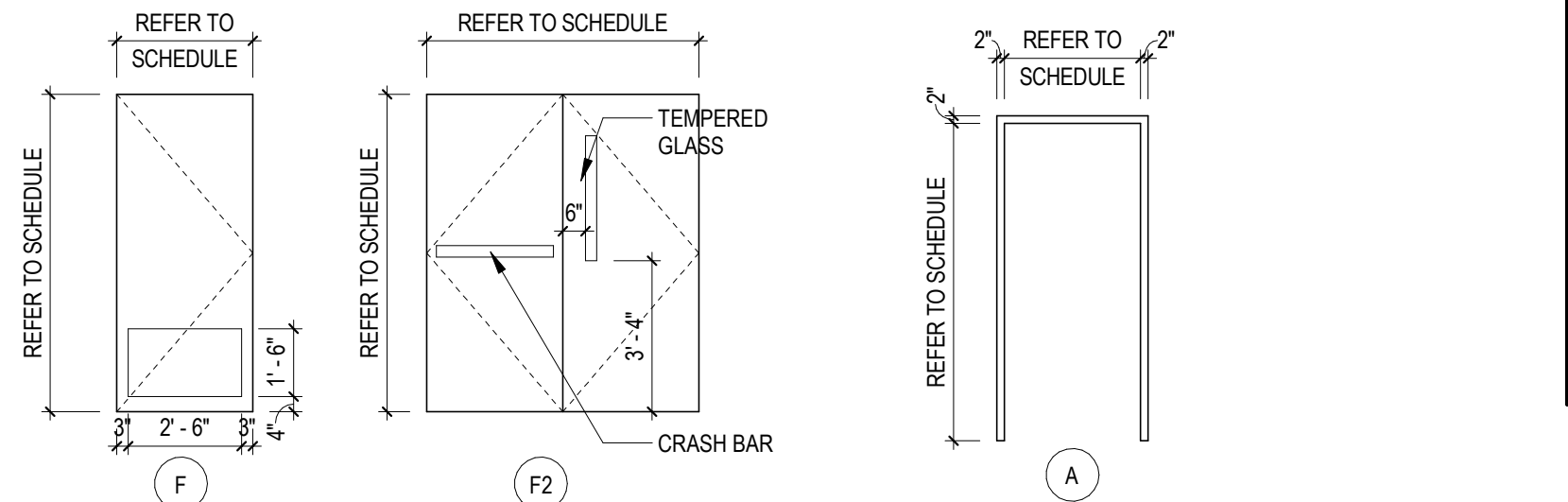
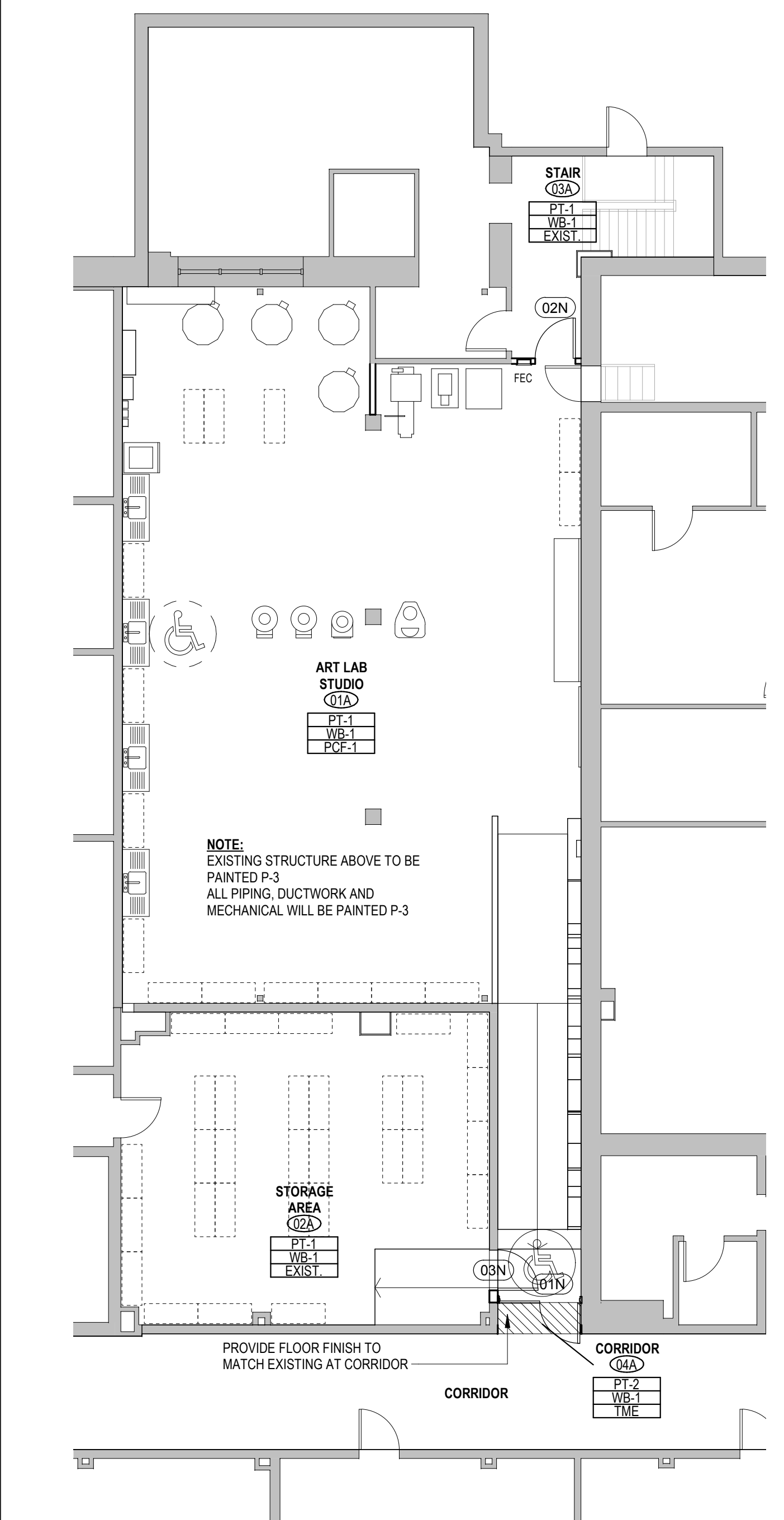


7 KEY PLAN

DOOR AND FRAME SCHEDULE-2ND FLOOR-A															
DOOR NUMBER	FIRE RATING	DOOR LABEL	DOOR			DESCRIPTION			FRAME			DETAILS		HARDWARE	REMARKS
			SIZE	LEAF QTY	HEIGHT	TYPE	MATERIAL	FINISH	INSULATED	TYPE	MATERIAL	FINISH	HEAD		
CORRIDOR	01N		6' - 0"	2	7' - 0"	F2	HM		A	HM	7/A3	7/A3		1	DOOR TO BE PAINTED TO MATCH EXISTING DOORS AT CORRIDOR (MATCH EXISTING RATING)
STAIR	02N		3' - 0"		7' - 0"	F	HM		A	HM	4/A3	5/A3		2	DOOR TO BE PAINTED (COLOR TO BE DETERMINED)
STAIR	03N	3/4HR	3' - 0"		7' - 0"	F	HM		A	HM	6/A3	6/A3		3	DOOR TO BE PAINTED (COLOR TO BE DETERMINED)

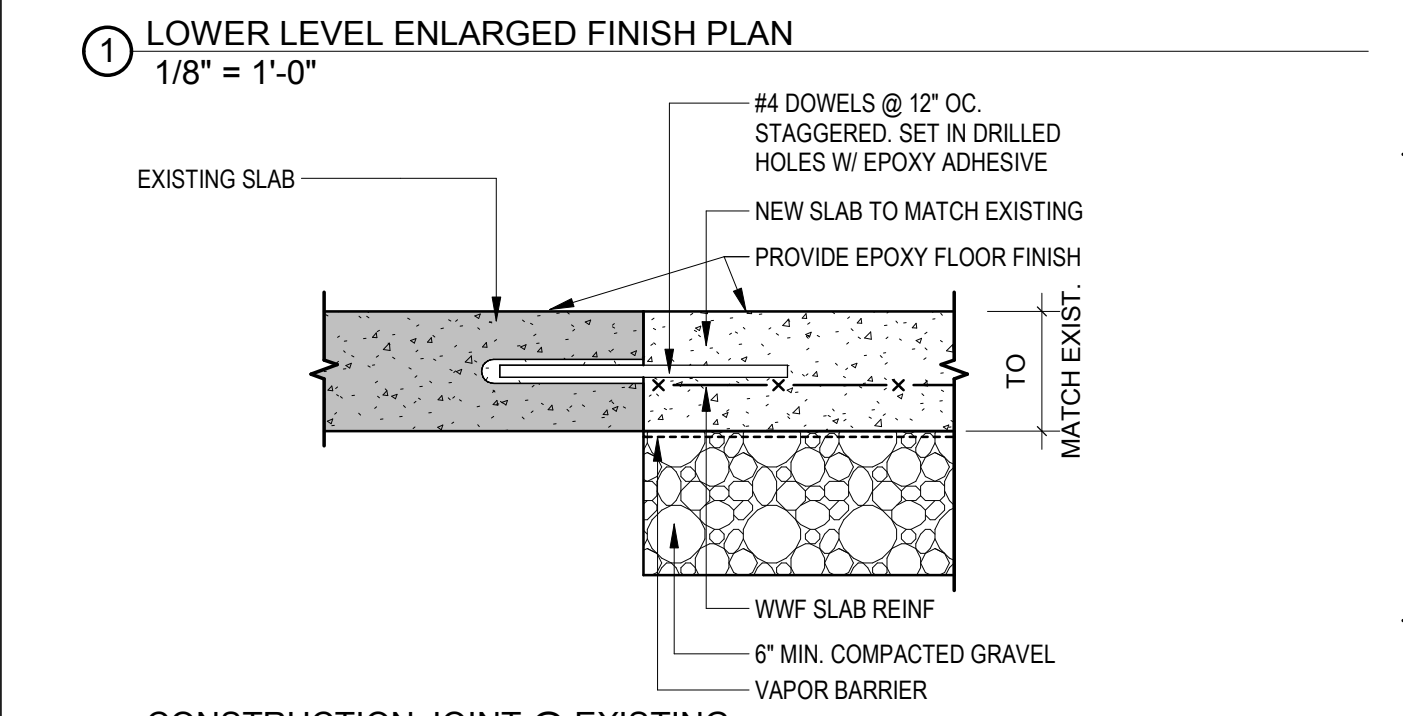
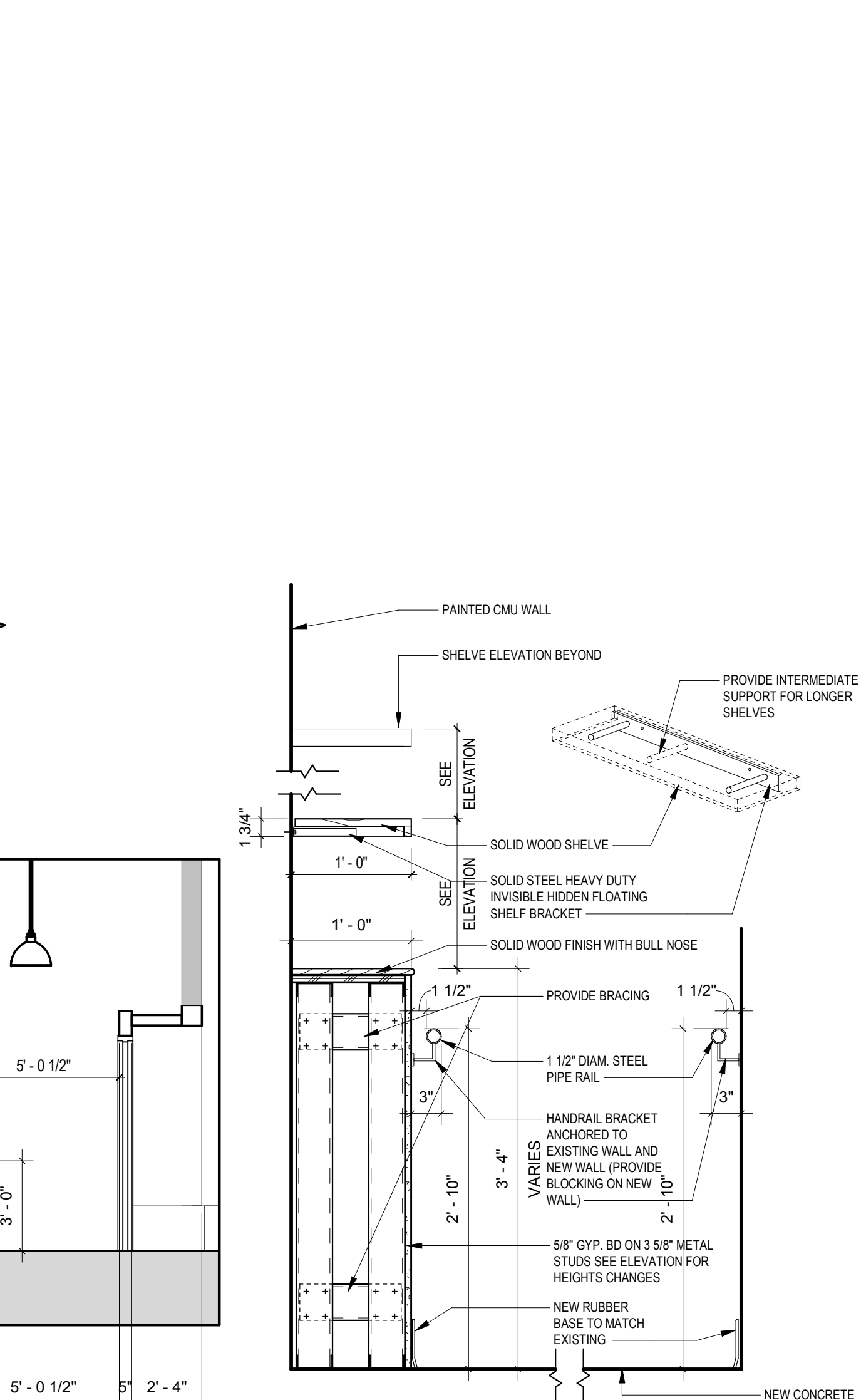
HARDWARE SETS			
<b>SET #1</b>	TA2714 4-1/2" x 4-1/2"	US26D	MCKINNEY
6 BUTTS	CL3310 SERIES W/ ARMSTRONG LEVER	US26D	CORBIN/RUSSWIN
1 PASSAGE SET	442	US26D	ROCKWOOD
2 WALL STOP	608	GRAY	ROCKWOOD
6 SILENCERS			
<b>SET #2</b>	ED4000 SERIES NARROW	US26D	CORBIN/RUSSWIN
1 CRASHBAR	DC2200 SERIES W/ PLATED MTL.	US26D	CORBIN/RUSSWIN
1 CYLINDER DOGGING	556VS WINDSTORM FLUSH BOLTS	US26D	ASSABLOY
2 CLOSER			
2 FLUSH BOLTS, AUTOMATIC			
(1 TOP, 1 BOTTOM ON ONE LEAF)			
<b>SET #3</b>	TA2714 4-1/2" x 4-1/2"	US26D	MCKINNEY
3 BUTTS	CL3310 SERIES W/ ARMSTRONG LEVER	US26D	CORBIN/RUSSWIN
1 PASSAGE SET	ED4000 SERIES NARROW	US26D	CORBIN/RUSSWIN
1 CRASHBAR	DC2200 SERIES W/ PLATED MTL. COVER	US26D	CORBIN/RUSSWIN
1 CLOSER	10" H x 3/4" W 16 GAUGE S.S.	US26D	ROCKWOOD
1 KICKPLATE	442	US26D	IVES
1 WALL STOP	608	GRAY	ROCKWOOD
3 SILENCERS			
<b>SET #4</b>	TA2714 4-1/2" x 4-1/2"	US26D	MCKINNEY
3 BUTTS	CL3357 SERIES W/ NEWPORT LEVER	US26D	CORBIN/RUSSWIN
1 STOREROOM LOCKSET	442	US26D	ROCKWOOD
1 FLOOR STOP	608	GRAY	ROCKWOOD
3 SILENCERS			

MATERIALS LIST	
<b>WALL BASE</b>	<b>WALL PAINT</b>
WB-1	PT-1
TYPE: VINYL BASE TO MATCH EXISTING BASE AT CORRIDOR.	MFR: BENJAMIN MOORE
MANUFACTURER: JOHNSONITE	COLOR: TO BE DETERMINED BY OWNER
LOCATION: AT CORRIDOR, ART LAB STUDIO AND STORAGE	LOCATION: ART LAB STUDIO AND STORAGE
<b>FLOOR</b>	PT-2
PCF-1	MFR: BENJAMIN MOORE
ITEM: POLYCRETE URETHANE FLOORING	COLOR: TO MATCH EXISTING COLOR AT CORRIDOR
MANUFACTURER: DUR-A-FLEX	LOCATION: CORRIDOR
COLOR: TO BE DETERMINED	
EXIST.	PT-3
EXISTING TO REMAIN	MFR: WATERBORNE
	ITEM: WATERBORNE ACRYLIC DRYFALL FLAT
	MFR: SHERWIN WILLIAMS
	COLOR: TO BE SELECTED BY OWNER
	LOCATION: EXISTING CEILING STRUCTURE AND NEW MECHANICAL EQUIPMENT
TME	
TO MATCH EXISTING (EPOXY) AT CORRIDOR	



FINISH LEGENDS & ABBREVIATIONS	
<b>ROOM NAME</b>	ACCENT WALLS
NUM	INDICATES LOCATION OF ACCENT WALL (WHEN MULTIPLE COLORS IDENTIFIED IN ONE ROOM)
Wall Finish	MFR = MANUFACTURER FINISH
Base Finish	INT. = INTEGRAL BASE (REFER TO MAT. LIST FOR FLOORING)
Floor Finish	NA = FINISH NOT IN SCOPE OF TECTON ARCHITECTS
	ETR = EXISTING TO REMAIN

- FINISH NOTES**
- WHERE WD-1 AND PT-1 ARE CALLED OUT TOGETHER, PT-1 IS TO BE APPLIED TO WD-1.
  - WHERE MULTIPLE WALL FINISHES ARE IDENTIFIED IN A ROOM, REFER TO MATERIAL LIST AND TO ELEVATIONS FOR CLARIFICATIONS.
  - POLYCRETE FLOORING IN WALK-IN COOLER AREAS TO BE INSTALLED WITH A 4" INTEGRAL COVE BASE AFTER WALK-IN COOLERS HAVE BEEN INSTALLED.
  - FRP TO BE INSTALLED AT FULL-HEIGHT ON ALL FULL-HEIGHT WALLS IN BACK OF HOUSE AREA, AS NOTED.

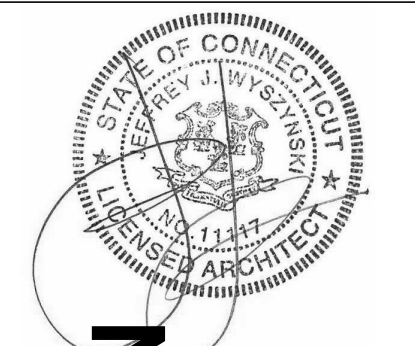


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Revisions	
No.	Date



**ART LAB RELOCATION**  
**BASEMENT WHITE HALL**

**DOOR SCHEDULE, FINISH SCHEDULE AND DETAILS**

Project No. BI-RD-294  
 By: E.FRANCO  
 Scale: As indicated  
 Issue Date: 12-06-17





**STAINLESS STEEL WORK TABLES**  
STANDARD Series - 5" Backsplash - Open Base Style

Item #: \_\_\_\_\_ Qty #: \_\_\_\_\_  
Model #: \_\_\_\_\_  
Project #: \_\_\_\_\_

**FEATURES:**

Top is furnished with 1 5/8" sanitary rolled rim edge on front and square sides, and a 5" splash with a 1" return on the rear side.  
TWO hat channels stud welded to reinforce and maintain a level working surface. 30" and 36" wide tables supplied with THREE hat channels.  
Pre-engineered welded angle adapters insure ease of future drawer installation.  
Front to back stretchers are welded to legs. Left to right stretcher bolted to legs and requires assembly.

**CONSTRUCTION:**  
All TIG welded. Exposed weld areas polished to match adjacent surfaces.

Entire top mechanically polished to a satin finish.  
Top is sound deadened.  
Roll formed embossed galvanized hat channels are secured to top by means of structural adhesive and weld studs.  
Gussets welded to support hat sections.

**TKMS-Series: Stainless Steel Legs & Stretchers**

L	24" Wide	30" Wide	36" Wide
30"	TKMS-240	TKMS-300	
24"	TKMS-242	TKMS-302	
36"	TKMS-243	TKMS-303	TKMS-363
48"	TKMS-244	TKMS-304	TKMS-364
60"	TKMS-245	TKMS-305	TKMS-365
72"	TKMS-246	TKMS-306	TKMS-366
84"	TKMS-247	TKMS-307	TKMS-367
96"	TKMS-248	TKMS-308	TKMS-368
108"	TKMS-249	TKMS-309	TKMS-369
120"	TKMS-2410	TKMS-310	TKMS-3610
132"	TKMS-2411	TKMS-311	TKMS-3611
144"	TKMS-2412	TKMS-312	TKMS-3612

**TKMG-Series: Galvanized Steel Legs & Stretchers**

L	24" Wide	30" Wide	36" Wide
30"	TKMG-240	TKMG-300	
24"	TKMG-242	TKMG-302	
36"	TKMG-243	TKMG-303	TKMG-363
48"	TKMG-244	TKMG-304	TKMG-364
60"	TKMG-245	TKMG-305	TKMG-365
72"	TKMG-246	TKMG-306	TKMG-366
84"	TKMG-247	TKMG-307	TKMG-367
96"	TKMG-248	TKMG-308	TKMG-368
108"	TKMG-249	TKMG-309	TKMG-369
120"	TKMG-2410	TKMG-310	TKMG-3610
132"	TKMG-2411	TKMG-311	TKMG-3611
144"	TKMG-2412	TKMG-312	TKMG-3612

Create Your Own Efficient Workstation with the Available Standard Accessories (Visit Section K)

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**STAINLESS STEEL HEAVY DUTY WORK TABLES**  
With Adjustable Undershelf

Item #: \_\_\_\_\_ Qty #: \_\_\_\_\_  
Model #: \_\_\_\_\_  
Project #: \_\_\_\_\_

**FEATURES:**

**MSLAG:** Top is furnished with 1 5/8" square bend on sides and 1 5/8" sanitary rolled rim on front and rear & square sides.  
**KMSLAG:** Top is furnished with 1 5/8" square bend on sides and 1 5/8" sanitary rolled rim on front with 5" Rear Splash.  
Two hat-channels stud welded under tabletop to reinforce and maintain a level work surface.  
Aluminum die cast "leg-to-shell" clamp secures shell to leg eliminating unsightly nuts and bolts. Undershelf is fully adjustable.

**CONSTRUCTION:**

All TIG welded. Exposed weld areas polished to match adjacent surface.  
Top is sound deadened.  
Roll formed embossed galvanized hat channels are secured to top by means of structural adhesive and weld studs.  
Gussets welded to support hat channels.

**MATERIAL:**

**TOP:** 16 gauge stainless steel type "304" series.  
**SHELF:** 18 gauge stainless steel.  
**LEGS:** 1 5/8" diameter tubular stainless steel. Stainless steel gussets. 1" adjustable stainless steel bullet feet.



FLAT TOP MSLAG-X Series



5" BACKSPLASH KMSLAG-X Series

L	Model #	WT. Ft.	Model #	WT. Ft.
<b>FLAT TOP</b>				
24"	MSLAG-242-X	43 lbs. 4	KMSLAG-242-X	47 lbs. 6
30"	MSLAG-240-X	52 lbs. 4	KMSLAG-240-X	55 lbs. 6
36"	MSLAG-243-X	57 lbs. 4	KMSLAG-243-X	62 lbs. 6
48"	MSLAG-244-X	70 lbs. 6	KMSLAG-244-X	75 lbs. 6
60"	MSLAG-245-X	80 lbs. 7	KMSLAG-245-X	85 lbs. 6
72"	MSLAG-246-X	96 lbs. 8	KMSLAG-246-X	100 lbs. 13
84"	MSLAG-247-X	109 lbs. 10	KMSLAG-247-X	119 lbs. 15
96"	MSLAG-248-X	130 lbs. 11	KMSLAG-248-X	139 lbs. 17
<b>5" SPLASH</b>				
24"	MSLAG-302-X	46 lbs. 5	KMSLAG-302-X	51 lbs. 8
30"	MSLAG-300-X	60 lbs. 5	KMSLAG-300-X	63 lbs. 8
36"	MSLAG-303-X	69 lbs. 5	KMSLAG-303-X	74 lbs. 8
48"	MSLAG-304-X	85 lbs. 7	KMSLAG-304-X	91 lbs. 11
60"	MSLAG-305-X	103 lbs. 9	KMSLAG-305-X	109 lbs. 13
72"	MSLAG-306-X	120 lbs. 10	KMSLAG-306-X	127 lbs. 16
84"	MSLAG-307-X	136 lbs. 12	KMSLAG-307-X	139 lbs. 18
96"	MSLAG-308-X	161 lbs. 13	KMSLAG-308-X	166 lbs. 20
36"	MSLAG-363-X	75 lbs. 6	KMSLAG-363-X	79 lbs. 10
48"	MSLAG-364-X	94 lbs. 9	KMSLAG-364-X	98 lbs. 13
60"	MSLAG-365-X	112 lbs. 10	KMSLAG-365-X	119 lbs. 15
72"	MSLAG-366-X	132 lbs. 12	KMSLAG-366-X	139 lbs. 18
96"	MSLAG-368-X	179 lbs. 16	KMSLAG-368-X	190 lbs. 24

\*All 8 ft. Tables Provided With 6 Legs

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**Welded Sinks Into Table Top**  
Fabricated Sink Bowls

Item #: \_\_\_\_\_ Qty #: \_\_\_\_\_  
Model #: \_\_\_\_\_  
Project #: \_\_\_\_\_

Includes Lead Free Compliant Faucet & K-6 Basket Drain(s)

**Flat Top, 1", 1-1/2" & 5 Backsplash Include Deck Mount Faucet**  
• Single Sink Bowl provided with K-50 Swing Spout Faucet  
• Double Sink Bowls provided with K-53 Swing Spout Faucet

**10" Backsplash Include Splash Mount Faucet**  
• Single & Double Sink Bowls provided with K-1 Swing Spout Faucet  
Splash Mount Faucet Available On 5" Backsplash - Add TA-11Z



Flat Top w/ K-50 Deck Mount Faucet Shown

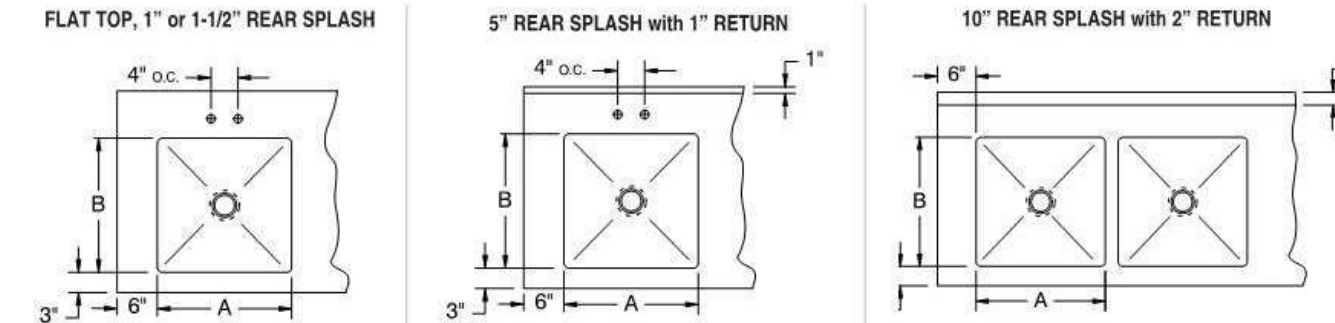


10" Backsplash w/ K-1 Splash Mount Faucet Shown

Single Bowl	Double Bowl	Size
TA-11A**	TA-11A-2**	18" x 20" x 12"
TA-11B**	TA-11B-2**	24" x 24" x 14"
TA-11C*	TA-11C-2*	18" x 20" x 12"
TA-11D*	TA-11D-2*	20" x 20" x 12"
TA-11E*	TA-11E-2*	24" x 24" x 14"
TA-11F	TA-11F-2†	18" x 24" x 12"
TA-11J	TA-11J-2	14" x 16" x 12"
TA-11L	TA-11L-2	18" x 24" x 14"
TA-11N	TA-11N-2	18" x 18" x 14"
TA-11P*	TA-11P-2*	20" x 24" x 14"
TA-11Q	TA-11Q-2	10" x 14" x 5"
TA-11R*	TA-11R-2*	24" x 36" x 14"
TA-11S*	TA-11S-2*	20" x 30" x 14"
TA-11T*	TA-11T-2*	24" x 30" x 14"

\*Only Installed In Tables 30" Wide or Wider  
\*\*Bowl Area Turned In 24" Wide Tables  
†K-50 Swing Spout Faucet (Double Bowl)

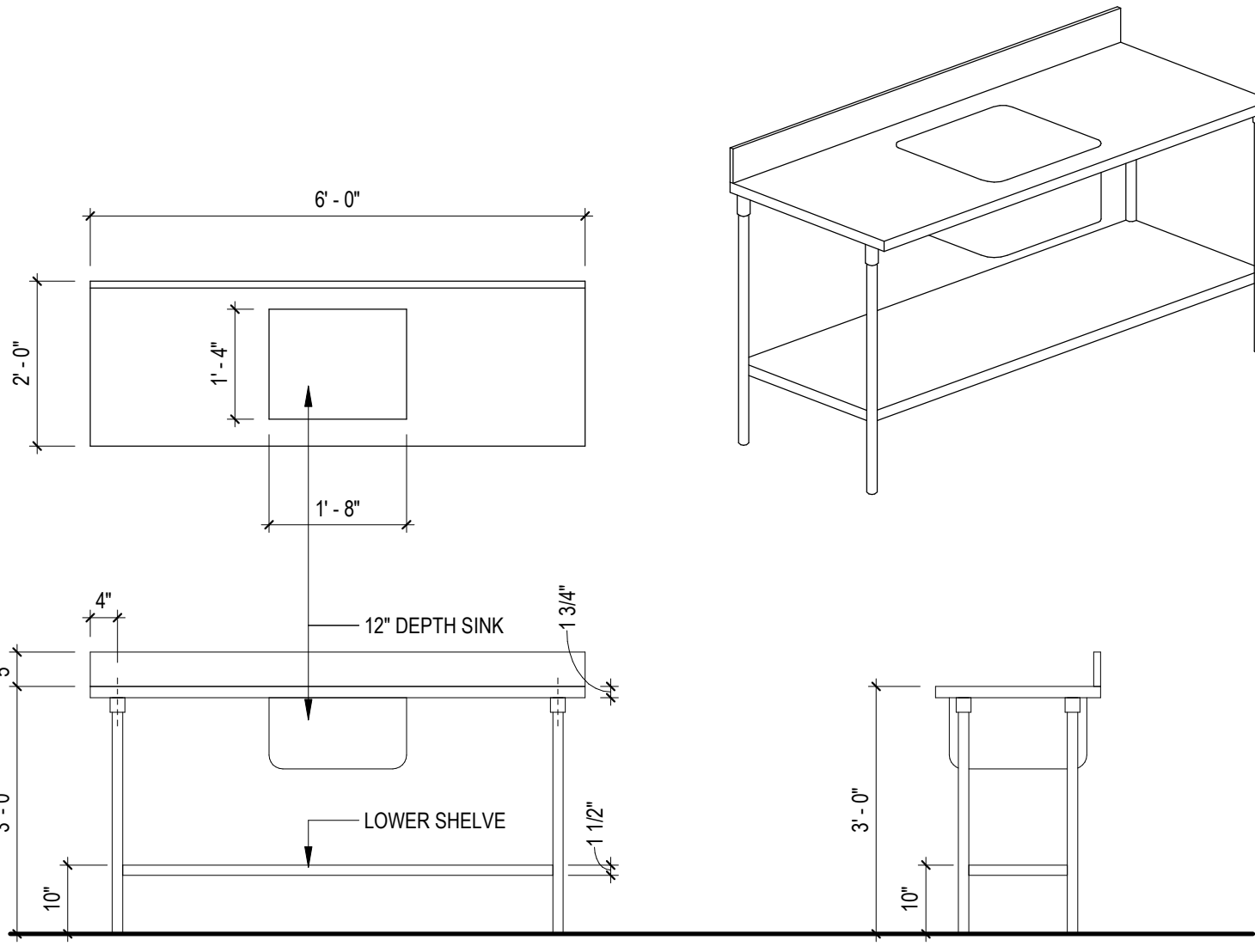
SIMILAR: ONLY FOR HANDICAP SINK ACCESSIBLE (REQUEST A SINGLE BOWL WITH 6" DEPTH CLEARANCE INSTEAD OF 8" FOR HANDICAP ACCESSIBLE (16"X20"X6"))



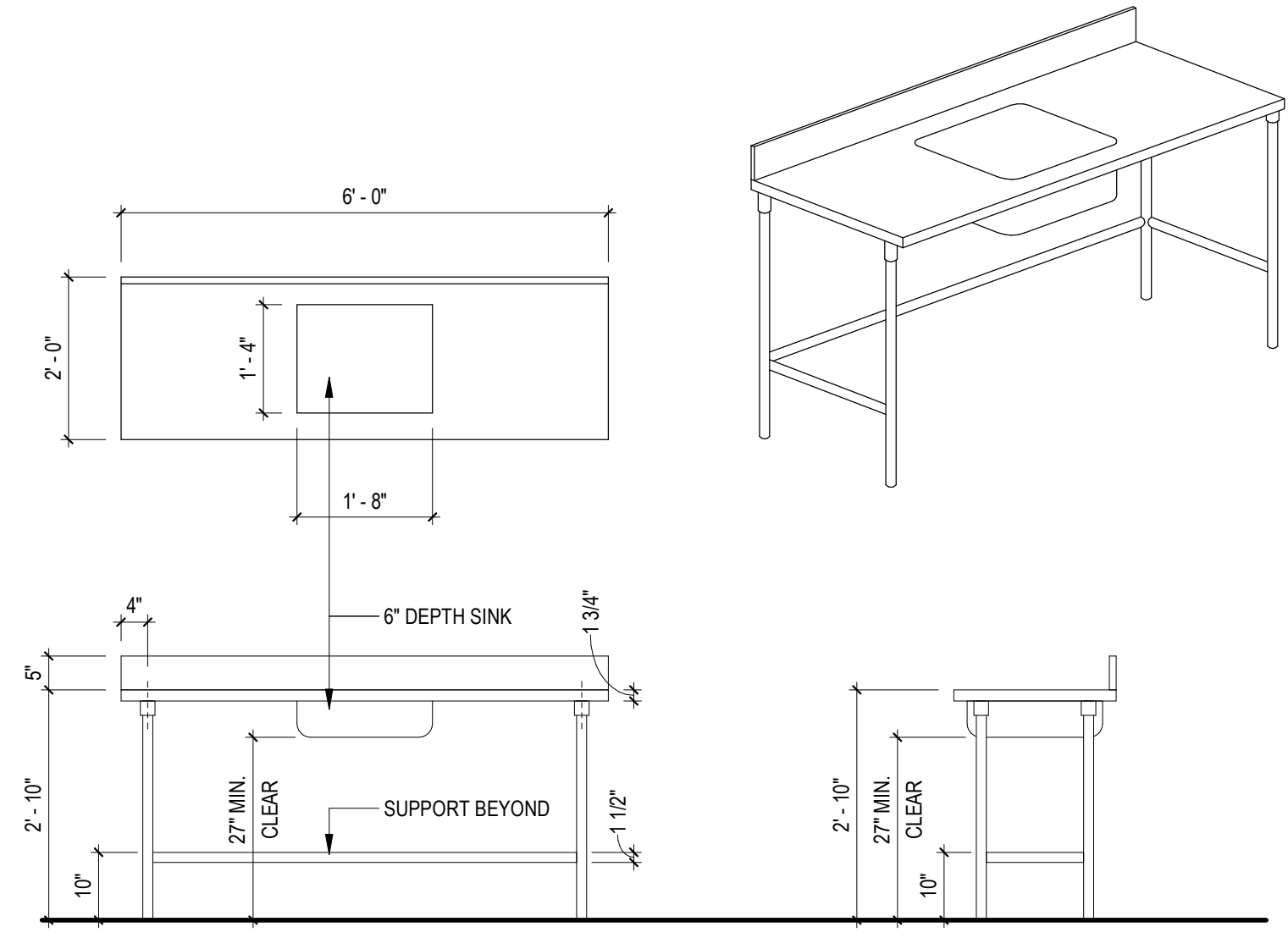
**Faucets & Accessories**

K-2B	Poly-Vance Sink Cutting Board for 14" x 18" Bowls	K-55	3 1/2" Spout 4" O.C. Deck Mounted Goswreck Faucet
K-2C	Poly-Vance Sink Cutting Board for 18" x 20" Bowls	K-60	4" O.C. Splash Mounted Goswreck Faucet
K-2D	Poly-Vance Sink Cutting Board for 18" x 24" Bowls	K-62	X.H.D. 4" O.C. Deck Mounted Goswreck Faucet
K-2E	Poly-Vance Sink Cutting Board for 20" x 20" Bowls	K-105	1/4" Splash Mounted 6" O.C. Faucet
K-2F	Poly-Vance Sink Cutting Board for 14" x 24" Bowls	K-112	Extra Heavy Duty 12" Splash Mounted Faucets
K-2J	Poly-Vance Sink Cutting Board for 18" x 18" Bowls	K-316-LIUNA	Wrist Handles For Splash Mounted Faucets
K-4	Lever Drain Bracket	K-350	Residential Finish & Packaging
K-5	Lever Drain	K-452	6" x 9" Control Bracket
K-12	Deck Mounted Soap Dispenser	K-453	14" x 18" Control Bracket
K-15	Lever Drain With Overflow	K-460	Installation Of Disposal Case w/ 6" x 9" Control Bracket
K-50	8" Deck Mounted 4" O.C. Swing Spout Faucet	K-461	Installation Of Collar w/ 6" x 9" Control Bracket
K-50OMIT	Ornate Swing Spout	K-470	14" Deep Bowls
K-52	3 1/2" Spout Deck Mounted 4" O.C. Goswreck Faucet	K-472	Faucet Hole Revision
K-52OMIT	Ornate Swing Spout Goswreck Faucet	DTA-100	Premise Basket for 20" x 20" Bowls
K-54	8-1/4" Water Filler Faucet	K-53	12" Deck Mounted 4" O.C. Swing Spout Faucet
K-54A	12" Water Filler Faucet	DTA-125	Premise Basket for 18" x 20" Bowls

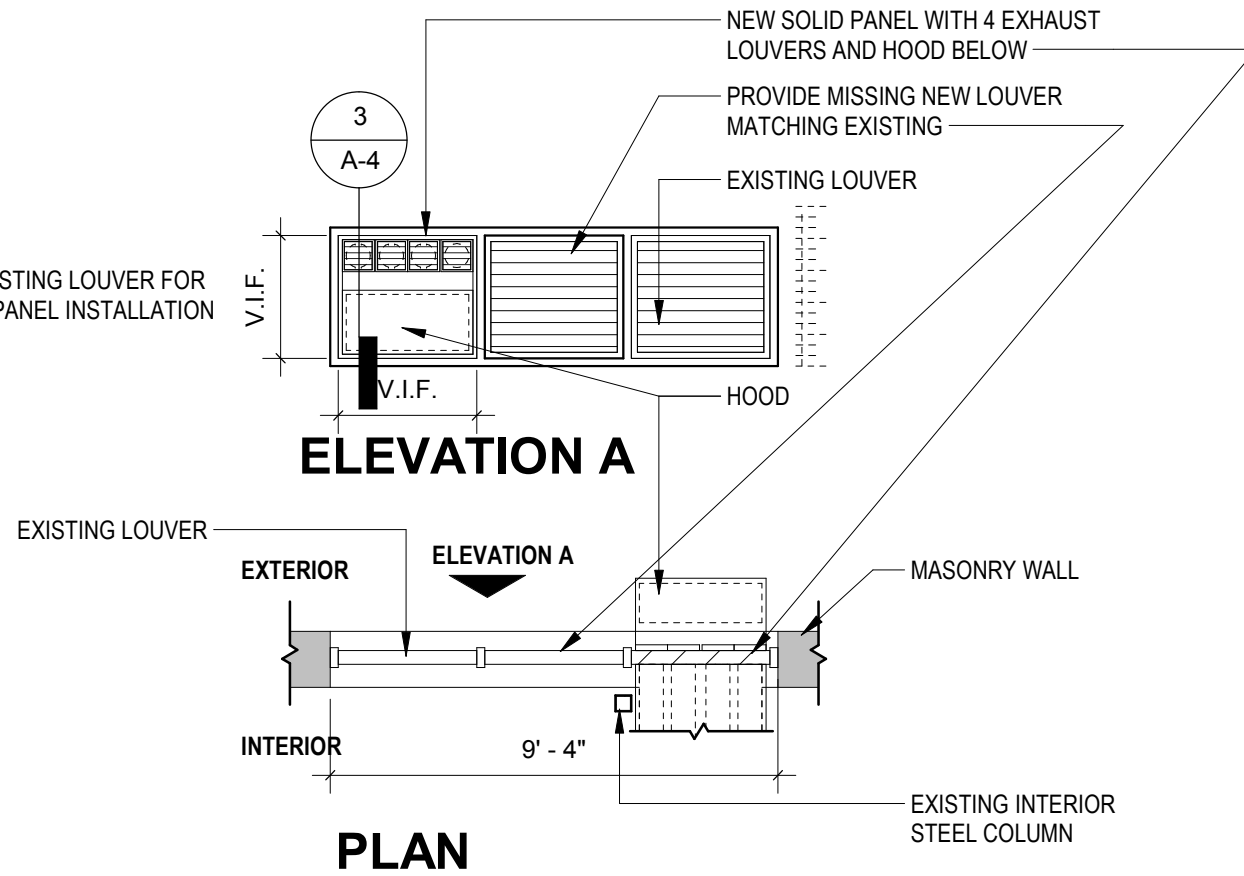
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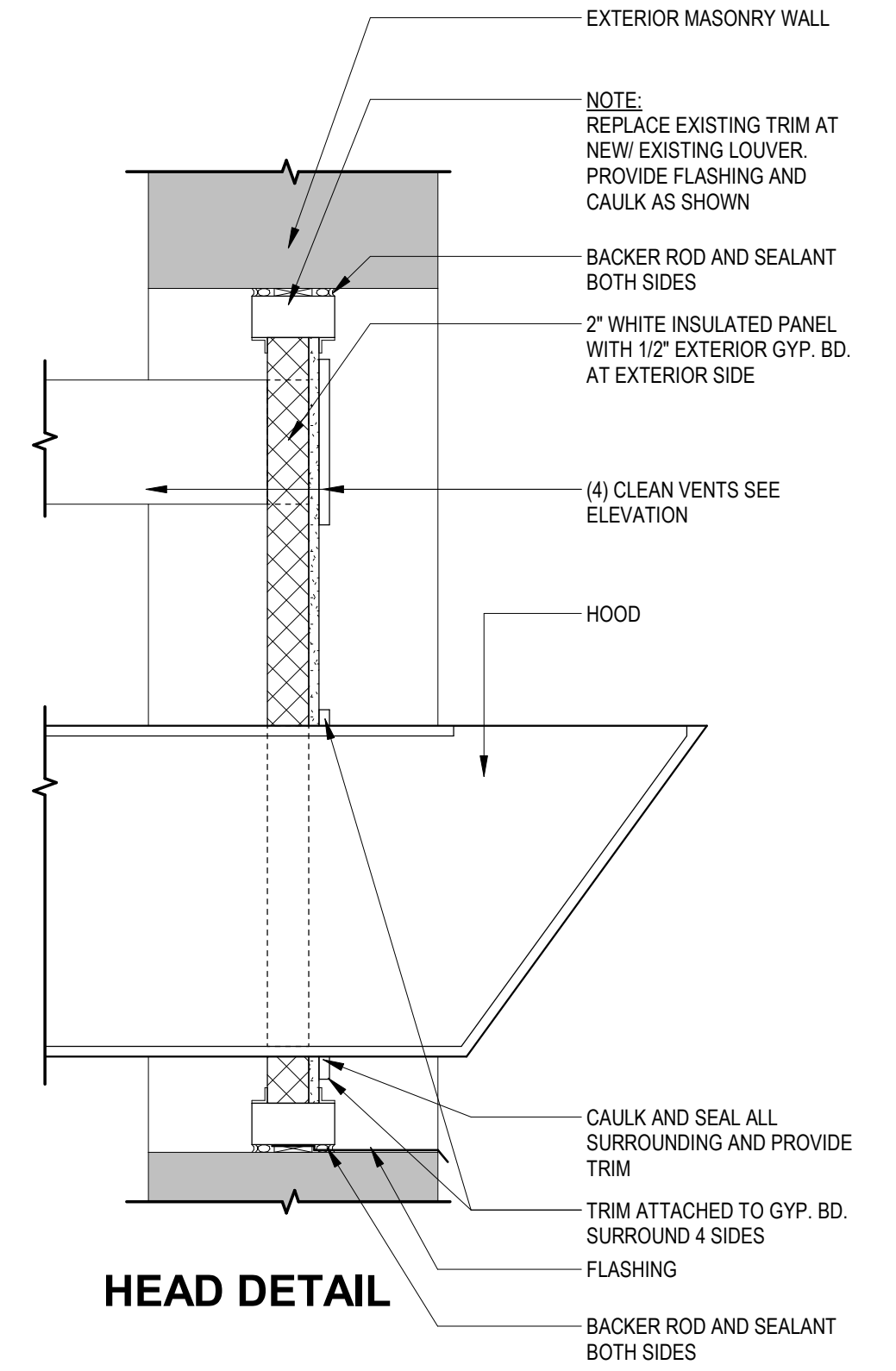
(3) TABLES WITH LOWER SHELF 3'-0" HEIGHT



(1) TABLE WITHOUT LOWER SHELF HANDICAP ACCESSIBLE



(2) LOUVER KLIN DETAIL @ EXT. WINDOW 1/4" = 1'-0"



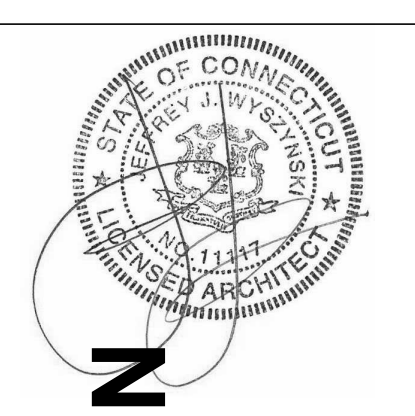
(3) INSULATED PANEL @ EXTERIOR WINDOW 1 1/2" = 1'-0"



WCSU Planning and Engineering  
181 White Street  
Danbury, CT 06810  
www.wcsu.edu

**Revisions**

No.	Date



**ART LAB RELOCATION**  
**BASEMENT WHITE HALL**

**DETAILS AND SPECS**

Project No. BI-RD-294  
By: E.FRANCO  
Scale: As indicated  
Issue Date: 12-06-17

**A-4**





WCSU  
**Planning and Engineering**  
 181 White Street  
 Danbury, CT 06810  
[www.wcsu.edu](http://www.wcsu.edu)

Revisions	
No.	Date



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 Danbury, CT 06802  
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**ART LAB RELOCATION**  
**BASEMENT WHITE HALL**

**GENERAL NOTES AND SYMBOLS**

**Project No. BI-RD-294**

**By: BLH**

**Scale: N.T.S.**

**Issue Date: 12/6/2017**

**G-1**



**MEPT GENERAL NOTES**

- PLUMBING**
- IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW INDIVIDUAL BRANCH PIPING TO EACH PLUMBING FIXTURE; ONLY THE BRANCH PIPING TO GROUPS OF FIXTURES IS INDICATED. EACH AND EVERY FIXTURE SHALL BE PROPERLY PIPED TO WATER, WASTE, AND VENT PIPING SYSTEMS. REFER TO THE PLUMBING SCHEDULES FOR INDIVIDUAL PIPE SIZES TO EACH FIXTURE.
  - INSTALL TRAP PRIMERS FOR ALL FLOOR DRAINS AND WATER HAMMER ARRESTORS AT ALL QUICK CLOSING VALVES (FUSH VALVES, SOLENOID VALVES, ETC.); SIZE SHALL BE BASED ON FIXTURE UNITS PER PDI STANDARDS.
  - INCLUDE NECESSARY PIPING OFFSETS AND TRANSITIONS AS REQUIRED TO INSTALL THE PLUMBING FIXTURES AND EQUIPMENT. PIPING, DRAINS AND VENTS SHALL BE THOROUGHLY CLEANED AND FLUSHED IMMEDIATELY BEFORE PROJECT COMPLETION. PROVIDE CERTIFICATION ON CONTRACTOR'S LETTER HEAD THAT THIS WORK HAS BEEN COMPLETED.
  - DOMESTIC WATER DROPS AND RISERS INSTALLED IN EXTERIOR WALLS SHALL BE INSTALLED ON THE WARM SIDE OF INSULATION AND THE LOCATION SHALL BE MADE IN FILTRATION FREE.
  - PROVIDE COOLING COIL CONDENSATE TRAPS AND DRAIN PIPING FOR ALL MECHANICAL EQUIPMENT REQUIRING SAME; PIPE CONDENSATE DRAINS BY GRAVITY TO INDIRECT WASTE FLOOR DRAIN OR OTHER APPROVED LOCATION.
  - COORDINATE EXACT LOCATION OF UNDERGROUND UTILITIES (WATER, GAS, SANITARY, ETC.) EXITING OR ENTERING THE BUILDING WITH THE SITE CONTRACTOR, GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.

- HVAC**
- PROVIDE THROTTLING VALVES AND SHUT-OFF VALVES AS SPECIFIED IN ADDITION TO THOSE INDICATED ON THE DOCUMENTS.
  - PROVIDE DUCT TAKE-OFF TYPES AND VOLUME DAMPERS PER THE SPECIFICATIONS AND DUCT TAKE-OFF DETAILS ON DRAWINGS. TAKE-OFFS SHOWN ON FLOOR PLANS DO NOT REPRESENT THE SPECIFIC TYPE OF TAKE-OFF REQUIRED. CONSULT THE DETAILS AND SPECIFICATIONS.
  - INSTALL SMOKE DETECTORS FOR AIR HANDLING EQUIPMENT PER THE MEP DETAILS. PROVIDE SMOKE DAMPERS AND INSTALL ASSOCIATED SMOKE DETECTORS AT DUCT PENETRATIONS OF SMOKE-BARRIERS, AT AIR HANDLING UNITS, AND AT ELEVATOR SHAFT VENTS PER THE MEP DETAILS AND CODE REQUIREMENTS.
  - PROVIDE AN AUTOMATIC TEMPERATURE CONTROL SYSTEM COMPLETE IN ALL REGARDS. ALL ZONES, VAV'S AND SYSTEMS SHALL BE THERMOSTATICALLY CONTROLLED. REVIEW THE PLANS AND SPECIFICATIONS OF ALL MEP TRADES FOR A COMPLETE SCOPE OF THE WORK.
  - PIPING SHALL BE SUPPORTED FROM STRUCTURE ABOVE. TO MAXIMIZE HEAD ROOM, INSTALL TIGHT TO BOTTOM OF BEAMS WHEN RUNNING PERPENDICULAR TO BEAM. INSTALL TIGHT TO FLOOR SLAB WHEN RUNNING PARALLEL TO BEAM. PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS.
  - PROVIDE AIR VENTS AT ALL HIGH POINTS AND DRAINS AT ALL LOW POINTS.
  - PROVIDE FIRE DAMPERS AT DUCT PENETRATIONS OF FIRE-RATED CONSTRUCTION, INCLUDING WALLS, SHAFTS AND FLOOR PENETRATIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
  - PAINT AND INTERNALLY INSULATE ALL EXPOSED DUCTWORK PER THE SPECIFICATIONS.
  - PROVIDE PRESSURE RELIEF DOORS FOR AIR SYSTEMS PER THE SPECIFICATIONS.
  - PROVIDE MOTORIZED DAMPERS AT ALL PERMANENT OPENINGS (EXHAUST, SUPPLY, RELIEF, O.A. INTAKES, MAKE-UP AIR, SMOKE VENTS, ETC.) EXCEPT DRYER, KITCHEN, AND FUME EXHAUST AND PROVIDE A MEANS TO CONTROL THE DAMPER OPERATION.

- ELECTRICAL**
- IT IS NOT THE INTENTION TO SHOW EVERY FITTING, WIRE, OR DEVICE. ALL SUCH ITEMS SHALL BE FURNISHED AND INSTALLED AS NECESSARY FOR A COMPLETE SYSTEM.
  - CONCEAL RACEWAYS IN FINISHED AREAS. RACEWAYS WITHIN MECHANICAL AND ELECTRICAL ROOMS MAY BE SURFACE-MOUNTED.
  - DO NOT INSTALL CONDUIT IN CONCRETE SLABS, UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER.
  - EACH INDIVIDUAL ELECTRICAL HOMERUN SHOWN ON FLOOR PLANS, DETAILS, OR SCHEDULES SHALL BE PROVIDED IN A DEDICATED RACEWAY.
  - SERIES RATING OF PROTECTIVE/ISOLATION DEVICES AND/OR ELECTRICAL EQUIPMENT IS UNACCEPTABLE. ALL ELECTRICAL EQUIPMENT AND PROTECTIVE DEVICES SHALL BE "FULLY" RATED.
  - PROVIDE POWER TO MECHANICAL EQUIPMENT SHOWN ON MECHANICAL PLANS, RISERS, SCHEDULES, OR IN SPECIFICATIONS. MECHANICAL EQUIPMENT IS NOT NECESSARILY SHOWN ON ELECTRICAL PLANS. REFER TO MECHANICAL PLANS AND SCHEDULES ON MEP DRAWINGS FOR LOCATIONS AND SPECIFIC ELECTRICAL REQUIREMENTS. COORDINATE EXACT LOCATION AND ORIENTATION OF EQUIPMENT WITH OTHER TRADES.
  - PROVIDE INTERFACE CONNECTIONS TO THE FIRE ALARM SYSTEM AND FIRE PROTECTION SYSTEM EQUIPMENT SHOWN ON PLANS, SCHEDULES, RISERS, OR IN SPECIFICATIONS. THIS EQUIPMENT IS NOT NECESSARILY SHOWN ON ELECTRICAL PLANS. COORDINATE EXACT LOCATION AND QUANTITY WITH THE FIRE PROTECTION CONTRACTOR.
  - FURNISH AND COORDINATE THE LOCATION OF DUCT SMOKE DETECTORS. PROVIDE AND WIRE DEVICES TO THE FIRE ALARM SYSTEM; FURNISH DETECTORS TO THE MECHANICAL CONTRACTOR FOR INSTALLATION.
  - MAKE CONNECTIONS TO LUMINAIRES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS. PROVIDE SWITCHING, AND OCCUPANCY SENSORS AND NORMAL CIRCUIT MONITORING AS PER THE DETAILS.
  - EXIT SIGNS ARE NOT NECESSARILY SHOWN WIRE ON THE DRAWINGS. PROVIDE SINGLE CIRCUIT EXIT SIGNS WITH BATTERY BACKUP; CONNECT POWER TO THE UN-SWITCHED LIGHTING CIRCUIT IN THE AREA SERVED BY THE EXIT SIGN.
  - CONNECT EMERGENCY FLUORESCENT POWER UNITS (BATTERY BELLT(S)) OR EMERGENCY LIGHTING UNITS TO LINE SIDE OF SWITCHING. THESE UNITS MUST MONITOR THE NORMAL LIGHTING CIRCUIT WITHIN THE SPACE.
  - INSTALL WIRING FROM AN EMERGENCY SOURCE OR EMERGENCY DISTRIBUTION OVERCURRENT PROTECTION TO EMERGENCY LOADS ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND EQUIPMENT EXCEPT WITHIN THE EQUIPMENT, EXIT SIGNS, AND EMERGENCY LUMINAIRES.
  - REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT LOCATION OF ALL CEILING MOUNTED LUMINAIRES SHOWN ON ELECTRICAL PLANS.
  - BOND ALL OF THE FOLLOWING SERVICES TOGETHER PER THE NEC: POWER, TELECOMMUNICATIONS, CATV AND LIGHTNING PROTECTION.
  - PROVIDE BRANCH CIRCUITS FROM ELECTRICAL PANELS WITH SUFFICIENT CAPACITY AND SPACE FOR MISCELLANEOUS SYSTEMS. THESE SYSTEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO, MONITORING SYSTEMS, CONTROL PANELS, ANNUNCIATOR PANELS, PLUMBING ACCESSORIES, ETC. FURNISH AND INSTALL ALL BRANCH CIRCUIT WIRING AND CIRCUIT BREAKERS FOR THE EQUIPMENT SHOWN.
  - PROVIDE GROUND FAULT RECEPTACLES WITHIN SIX FEET (6') OF SINK OR OTHER WATER SOURCE; PROVIDE GROUND FAULT WEATHER PROOF RECEPTACLES AT ALL EXTERIOR LOCATIONS.

DRAWING #	DRAWING NAME
PEP-0	FIRE PROTECTION SPECIFICATIONS
E-0	ELECTRICAL SPECIFICATIONS
H-0	HVAC SPECIFICATIONS
H-5	HVAC CONTROLS
H-4	HVAC DETAILS
H-6	Unnamed
C-0	COVER SHEET
A-1	DEMOLITION AND PROPOSED PLANS
A-2	PROPOSED PLAN AND RCP PLAN
G-1	GENERAL NOTES AND SYMBOLS
S-1	DEMOLITION AND PROPOSED STRUCTURAL PLANS
MEP-1	MEP SCHEDULES
PEP-1	DEMOLITION AND PROPOSED PLUMBING AND FIRE PROTECTION PLANS
H-1	DEMOLITION AND PROPOSED HVAC PLANS
E-1	DEMOLITION AND PROPOSED ELECTRICAL PLANS

**MEPT GENERAL NOTES**

- GENERAL**
- THE PROJECT DRAWINGS AND SPECIFICATIONS ARE BASED ON THE CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI) RELOCATION FORMAT. SPECIFICATION AND DRAWING CONTENTS ARE ARRANGED BY TOPIC AND CATEGORY AND ARE NOT INTENDED TO AWARD DIVISION OF WORK.
  - THE INTENT OF THESE DOCUMENTS IS FOR THE MEP TRADES TO FURNISH AND INSTALL COMPLETE MECHANICAL AND ELECTRICAL SYSTEMS. THE SPECIFIED FIRE PROTECTION, PLUMBING, HVAC, ELECTRICAL AND SPECIAL SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS; OPERATIONAL, TESTED, ADJUSTED, CALIBRATED, APPROVED BY THE AUTHORITIES HAVING JURISDICTION AND READY FOR BENEFICIAL USE BY THE OWNER.
  - UTILIZING THE DESIGN INTENT MODEL: THE CONTRACT DOCUMENTS ARE SOLELY A TWO DIMENSIONAL SET OF DOCUMENTS. IF UTILIZED, THE DESIGN INTENT MODEL HAS BEEN DEVELOPED TO A LEVEL OF DEVELOPMENT LOD 200 AND LOD 300 MODEL CONTENT REQUIREMENTS AS DEFINED BY AIA G-202-2013. THE DESIGN INTENT MODEL IS A THREE DIMENSIONAL TOOL UTILIZED TO CREATE A TWO DIMENSIONAL CONTRACT DOCUMENT, A TWO DIMENSIONAL CONTRACT DOCUMENT REQUIRES, FOR REASON OF CLARITY AND OTHERWISE, THAT COMPONENTS OF THE DESIGN NOT BE MODELED IN THREE DIMENSIONS AND/OR THAT THE MODEL BE FORMED IN A WAY THAT CONSTRUCTION MEANS AND METHODS WILL DICTATE OTHER WAYS OF PERFORMING THE INSTALLATION. THE DESIGN INTENT MODEL IS NOT A SUBSTITUTE FOR THE CONTRACTOR'S COORDINATION PROCESS AS OUTLINED IN THE CONTRACT DOCUMENTS; FULL COORDINATION REMAINS THE RESPONSIBILITY OF THIS CONTRACTOR AND THEIR SUB-CONTRACTORS. THE CONTENTS OF THE MODEL ARE NOT TO BE USED FOR THE BASIS OF DETAILED COST ESTIMATING, COORDINATING EQUIPMENT LOCATIONS AND SYSTEMS ROUTING WITH ALL OTHER TRADES, THE CONTRACTOR MAY USE THE DESIGN INTENT MODEL TO HELP ESTABLISH THE BACKGROUNDS AND/OR STARTING POINT FOR THE COORDINATION DRAWINGS BASED ON THE STIPULATIONS OF THE RELEASE FORM THAT CAN BE PROVIDED IF AND WHEN THE MODEL IS REQUESTED.
  - CREATION OF THE CONSTRUCTION COORDINATION MODEL: CREATE A CONSTRUCTION COORDINATION MODEL. THE CONSTRUCTION COORDINATION MODEL SHALL BE DEVELOPED TO A MINIMUM LEVEL OF DEVELOPMENT LOD 400 MODEL CONTENT REQUIREMENTS AS DEFINED BY AIA G-202-2013. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR CREATING AND MAINTAINING A CONSTRUCTION COORDINATION MODEL AND COORDINATION DRAWINGS AS REQUIRED FOR DETAILED CONSTRUCTION INSTALLATION AND COORDINATION WITH ALL OTHER TRADES.
  - DIFFERENCES BETWEEN THE DESIGN INTENT MODEL AND THE CONSTRUCTION COORDINATION MODEL AND/OR ACTUAL INSTALLATION LOCATION, MEANS AND METHODS ARE INCLUDED IN THIS CONTRACT AND SHALL NOT CONSTITUTE A CHANGE ORDER ON THE BASIS OF DRAWING, ENGINEERING AND/OR COORDINATION TIME.
  - THE TRADES SHALL OBTAIN AND REVIEW ALL CONTRACT DOCUMENTS BEFORE SUBMITTING A BID. INFORMATION IS PROVIDED ON THE VARIOUS DRAWINGS, SCHEDULES, SPECIFICATIONS AND ALL OF THE VARIOUS DOCUMENTS IN THE BIDDING PACKAGE. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND FORM A TOTAL PROJECT DESIGN AND INFORMATION SOURCE FOR CONSTRUCTION PURPOSES.
  - THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. COORDINATE LOCATIONS OF EQUIPMENT WITH OTHER TRADES BEFORE AND DURING CONSTRUCTION. ANY MODIFICATION TO THE EQUIPMENT LAYOUT, REQUIRED FOR INSTALLATION, IS TO BE PERFORMED UNDER THE CONTRACT AGREEMENT, AT NO ADDITIONAL COST.
  - REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION AND MOUNTING HEIGHTS OF VARIOUS EQUIPMENT. ALL SUCH EQUIPMENT AND EQUIPMENT COLORS AND FINISHES SHALL BE COORDINATED WITH THE ARCHITECT. MOUNTING HEIGHTS SHALL BE APPROVED BY THE ARCHITECT.
  - PERFORM ALL WORK IN COMPLIANCE WITH THE SPECIFICATIONS, APPLICABLE CODES, ORDINANCES AND THE REGULATORY AGENCIES HAVING JURISDICTION. THE SPECIFICATIONS MAY EXCEED THE REQUIREMENTS OF THE CODE, IN WHICH CASE, THE SPECIFICATION MUST BE FOLLOWED.
  - INSTALL ALL EQUIPMENT IN ACCESSIBLE LOCATIONS. WHERE EQUIPMENT MUST BE INSTALLED ABOVE AN INACCESSIBLE CEILING OR BEHIND A WALL, AN APPROPRIATE ACCESS DOOR SHALL BE PROVIDED AND THE LOCATION SHALL BE COORDINATED WITH THE ARCHITECT.
  - COORDINATE PIPING AND CONDUITS ENTERING OR LEAVING THE BUILDING WITH THE SITE CONTRACTOR(S) BEFORE INSTALLATION. COORDINATE INVERTS WITH THE STRUCTURE AND SYSTEM REQUIREMENTS PRIOR TO INSTALLATION.
  - WHERE A CONFLICT OCCURS BETWEEN THE DOCUMENTS, IT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. CARRY AS PART OF THE BID THE LARGER QUANTITY AND/OR MORE EXPENSIVE ITEM(S).
  - BEFORE INSTALLATION, COORDINATE THE WORK WITH OWNER-FURNISHED EQUIPMENT, INCLUDING REQUIRED SERVICE CONNECTIONS, FACTORY START UPS AND INSTALLATION OF FIELD DEVICES.
  - PROVIDE TEST REQUIRE/SPECIFIED SLEEVES AND SEALS FOR PIPES OR CONDUIT PENETRATING INTERIOR AND EXTERIOR WALLS OR FLOOR SLABS.
  - INSTALL FLOOR-MOUNTED EQUIPMENT ON A CONCRETE HOUSEKEEPING PAD.
  - SEISMICALLY SUPPORT THE EQUIPMENT AS REQUIRED BY CODE, THE AUTHORITY HAVING JURISDICTION, AND/OR AS SPECIFIED. SUBMIT ENGINEERED INSTALLATION DETAILS PER THE SPECIFICATIONS. THE CONTRACTOR'S SEISMIC ENGINEER SHALL REVIEW THE INSTALLATION AND PROVIDE A REPORT ON THE FINDINGS.
  - PROVIDE MEP COORDINATION DRAWINGS AS REQUIRED BY THE SPECIFICATIONS.
  - ENCLOSED CONTROLLERS SHALL BE PROVIDED BY THE CONTRACTOR PROVIDING THE EQUIPMENT REQUIRING AN ENCLOSED CONTROLLER. REQUIREMENTS ARE SPECIFIED UNDER DIVISION 26: "ENCLOSED CONTROLLERS". MOTOR EFFICIENCIES SHALL BE AS INDICATED IN THE SPECIFICATIONS.
  - PROVIDE PIPING, DUCTWORK, CONDUIT AND ALL OTHER ACCESSORIES AS REQUIRED FOR PROPER AND PROFESSIONAL SYSTEMS INSTALLATION.
  - TEST AND BALANCE ALL MECHANICAL AND ELECTRICAL SYSTEMS. PROVIDE ADDITIONAL TESTS AS REQUIRED BY THE SPECIFICATIONS.
  - DO NOT INSTALL PIPING OR DUCTWORK OVER ELECTRICAL PANELS, TRANSFORMERS, SPECIAL EQUIPMENT, ELEVATOR MACHINE ROOMS OR SHAFTS.
  - DO NOT INSTALL ANY SYSTEMS IN OR THROUGH ELEVATOR MACHINE ROOMS THAT DO NOT SERVE THE ROOM. MAINTAIN A MINIMUM OF SEVEN (7) FOOT HEAD CLEARANCE IN THE ELEVATOR MACHINE ROOM.
  - DO NOT INSTALL IN STAIRWELL OR STAIRWELL WALLS, PIPING, DUCTWORK, CONDUIT OR OTHER DEVICES OR EQUIPMENT NOT ASSOCIATED WITH OR SERVING THE RESPECTIVE STAIR.
  - PROVIDE PIPE EXPANSION COMPENSATION FOR THE VARIOUS PIPING SYSTEMS. SUBMIT ENGINEERED DETAILS FOR APPROVAL AND VERIFY INSTALLATION IS IN ACCORDANCE WITH CODE. THE CONTRACTOR'S CONSULTING ENGINEER SHALL REVIEW THE INSTALLATION AND PROVIDE A REPORT OF THE FINDINGS.
  - PROVIDE ADDITIONAL TRANSITIONS AND OFFSETS IN ALL PIPING, DUCTWORK OR CONDUIT FOR COORDINATION WITH BUILDING STRUCTURE AND CONSTRUCTION.
  - NO MECHANICAL OR ELECTRICAL SYSTEM COMPONENTS MAY BE SUPPORTED FROM STRUCTURAL BRACED FRAMES.

- RENOVATION**
- THIS PROJECT INVOLVES THE RENOVATION OF AN EXISTING FACILITY; BEFORE SUBMITTING THE BID, CONTRACTORS SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH THE PROJECT IS TO BE COMPLETED.
  - CONTRACTORS SHALL BE HELD RESPONSIBLE FOR ASSUMPTIONS, OMISSIONS OR ERRORS MADE AS A RESULT OF FAILURE TO BECOME FULLY FAMILIAR WITH THE EXISTING CONDITIONS.
  - IT IS NOT THE INTENT OF THESE DOCUMENTS TO SHOW EVERY DEVICE, APPURTENANCE, PIPE, WIRE OR CONDUIT TO BE REMOVED. MEP EQUIPMENT, UNITS, AND SYSTEMS NOT BEING REUSED, SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ASSOCIATED HANGERS, SUPPORTS, BASES, PADS, PIPES, DUCTS, CONDUITS, WIRES, INSULATION, AND CONTROLS BACK TO THE POINT OF ORIGIN.
  - EQUIPMENT, PIPING, OR CONDUIT SHALL NOT BE ABANDONED IN-PLACE UNLESS SPECIFICALLY SO NOTED.
  - PROPERLY DISPOSE OF DEMOLISHED EQUIPMENT IN COMPLIANCE WITH CODES, REGULATIONS, AND DEEP STANDARDS. TURN OVER TO THE OWNER EQUIPMENT SO INDICATED.
  - RELOCATE EXISTING EQUIPMENT, DEVICES, PIPING, WIRING, AND RELATED SYSTEMS AS REQUIRED FOR CONSTRUCTION PURPOSES. ALL EXISTING SYSTEMS SHALL BE FULLY OPERATIONAL, INCLUDING RECONNECTION TO SERVICES AND UPGRADED SYSTEMS. ALL RELOCATED EQUIPMENT SHALL BE PROTECTED DURING CONSTRUCTION. PROVIDE TEMPORARY CONNECTIONS AND SYSTEM MODIFICATIONS AS REQUIRED FOR CONSTRUCTION AND PHASING PURPOSES.
  - INCLUDE ALL WORK REQUIRED TO ALLOW PHASED CONSTRUCTION WHEN NECESSARY. COORDINATE WITH GENERAL CONTRACTOR/CONSTRUCTION MANAGER FOR PHASING REQUIREMENTS.
  - ALL EXISTING EQUIPMENT, FIXTURES, AND DEVICES TO BE REMOVED AND RELOCATED SHALL BE FIELD VERIFIED FOR EXACT QUANTITY AND CONDITION. KEEP AN ACCURATE RECORD OF STORED EQUIPMENT AND ITS CONDITION. REBALANCE NEW AND EXISTING MECHANICAL AND ELECTRICAL SYSTEMS ASSOCIATED WITH THE RENOVATION, INCLUDING RENOVATED AREAS AND AREAS AFFECTED BY SYSTEM MODIFICATIONS.
  - SYSTEMS REQUIRING TO REMAIN IN OPERATION DURING DEMOLITION SHALL BE CAREFULLY PROTECTED FROM DAMAGE AND CONTAMINATION BY THE CONSTRUCTION PROCESS.

GENERAL SYMBOLS	
	THICK, DARK SOLID LINES INDICATE NEW OR RELOCATED ITEMS OR NEW RACEWAY AND WIRING
	THIN, LIGHT LINES INDICATE EXISTING ITEMS OR RACEWAY TO REMAIN IN PLACE AND BE REUSED
	THICK, DASHED LINES INDICATE EXISTING ITEMS TO BE REMOVED
	POINT OF NEW TO EXISTING CONNECTION, INCLUDING TRANSITIONS
EX	SUB LETTERS "EX" INDICATES EXISTING EQUIPMENT TO REMAIN INTACT
RE	SUB LETTER "RE" INDICATES EXISTING EQUIPMENT TO BE DISCONNECTED AND REMOVED
RL	SUB LETTER "RL" INDICATES EXISTING EQUIPMENT TO BE DISCONNECTED, REMOVED AND RELOCATED
NL	SUB LETTER "NL" INDICATES NEW LOCATION OF RELOCATED EQUIPMENT
NR	SUB LETTER "NR" INDICATES NEW EQUIPMENT TO REPLACE EXISTING
RR	SUB LETTER "RR" INDICATES REMOVE EQUIPMENT AND REPLACE ON NEW SURFACE
*	* = a, b, cd, AF, GF, IG OR TP. WHEN TAGGED IN THE ELECTRICAL SYMBOL LIST, REFER TO THE ABBREVIATION LIST
PLUMBING SYMBOLS	
	HOT WATER
	COLD WATER
	VENT
	FORCE MAIN
	BALL VALVE
	TRENCH DRAIN
	SEDIMENT TRAP
	SUMP PIT
HVAC SYMBOLS	
	EXHAUST AIR DUCT UP
	EXHAUST AIR DUCT DOWN
	FLEXIBLE DUCT CONNECTION
DUCT SIZING	
20x12	RECTANGULAR DUCT
200	ROUND DUCT
20/12	FLAT OVAL DUCT
ELECTRICAL SYMBOLS	
	PENDANT LIGHT FIXTURE
	LINEAR LIGHT FIXTURE
	PENDANT MOUNTED LIGHT FIXTURE
	RECESSED DOWNLIGHT FIXTURE
	RECESSED WALL WASH DOWNLIGHT FIXTURE
	SURFACE-MOUNTED LIGHT FIXTURE
	WALL-MOUNTED LIGHT FIXTURE
	RECESSED OR SURFACE-MOUNTED FIXTURE
	OPEN LAMP LIGHT FIXTURE
	LIGHTING TRACK (NUMBER OF FIXTURES INDICATED ON PLANS)
	CEILING OR WALL-MOUNTED EXIT LIGHT FIXTURE
	CEILING OR WALL-MOUNTED EMERGENCY LIGHT UNIT
	LIGHT FIXTURE (PART OF EMERGENCY ILLUMINATION SYSTEM)
	ENCLOSED SWITCH
	DUPLEX RECEPTACLE
	TWIST LOCK RECEPTACLE
	POWER WIRING

- GENERAL**
- THE STRUCTURE IS DESIGNED TO BE STABLE AND SELF SUPPORTING AT THE COMPLETION OF CONSTRUCTION. TEMPORARY BRACES, GUYS, TIE-DOWNS, SHORING, ETC. DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND DETAILS. ALSO, SEE STRUCTURAL SPECIFICATIONS.
  - STRUCTURAL CONDITIONS WHERE SECTIONS OR DETAILS ARE CUT SHALL ALSO APPLY TO COMPARABLE SIMILAR LOCATIONS ELSEWHERE ON THE PLANS REGARDLESS IF THE SECTION MARK IS NOT INDICATED. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE NOTED. DO NOT SCALE DRAWINGS.
  - CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, ELEVATIONS, QUANTITIES, ETC., IN THE FIELD PRIOR TO BEGINNING OF ANY NEW CONSTRUCTION. NOTIFY ENGINEER/ARCHITECT OF ANY DISCREPANCIES FOUND IMMEDIATELY.
  - CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS, LAYOUT AND DETAILS OF ALL OPENINGS, PENETRATIONS, SLEEVES, SLAB DEPRESSIONS, DRAINS, EQUIPMENT PADS, BLOCKOUTS, SLOPED SLABS, ETC. CONTRACTOR SHALL REVIEW ALL OF THE CONTRACT DOCUMENTS AND CONSULT WITH THE SUBCONTRACTORS AND SUPPLIERS TO OBTAIN THE REQUIRED INFORMATION, OPENINGS, PENETRATIONS, SLEEVES, SLAB DEPRESSIONS, DRAINS, EQUIPMENT PADS, BLOCKOUTS, SLOPED SLABS, ETC. THAT VARY FROM OR HAVE NOT BEEN INDICATED ON THE STRUCTURAL DOCUMENTS, SHALL BE INSTALLED AT NO ADDITIONAL COST, ONLY AFTER APPROVAL BY THE STRUCTURAL ENGINEER HAS BEEN OBTAINED.
  - CONTRACTOR SHALL VERIFY AND COORDINATE THE FINAL LOCATION, LAYOUT, AND DETAILS OF ALL FRAMING FOR MECHANICAL EQUIPMENT, DRAINS, ELEVATOR EQUIPMENT, ELEVATOR SHAFTS, MECHANICAL SHAFTS, ETC. THE CONTRACTOR SHALL CONSULT WITH THE SUBCONTRACTORS AND SUPPLIERS TO OBTAIN THE REQUIRED INFORMATION FOR EQUIPMENT AND/OR MATERIALS THAT WILL BE PROVIDED FOR THE PROJECT. VARIATIONS TO THE FRAMING INDICATED ON THE STRUCTURAL DOCUMENTS INCLUDING ADDITIONAL SUPPORT AT MECHANICAL SHIPPING SPLITS SHALL BE COORDINATED AND INSTALLED AT NO ADDITIONAL COST. AFTER REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER IS OBTAINED.
  - AT EXTERIOR WINDOW SYSTEMS AND EXTERIOR (STORE FRONT/CURTAIN) WALL SYSTEMS, CONTRACTOR TO PROVIDE POSITIVE ATTACHMENT TO THE CONCRETE SLAB/BEAM PLATE POUR STOP AT FLOOR LEVELS, THE TOP FLANGE OF BEAMS AT ROOF LEVELS OR FLOOR AREAS WITHOUT SLABS, AND TO THE BOTTOM OF HUNG LINTEL ASSEMBLIES AT SLAB OPENINGS. PROVIDE VERTICAL SLIP CONNECTIONS AS INDICATED ON CONTRACT DOCUMENTS. ATTACHMENT TO STRUCTURAL STEEL AT OTHER LOCATIONS IS PROHIBITED UNLESS APPROVED BY THE ENGINEER OF RECORD. ANY ADDITIONAL BRACING OF THE STRUCTURAL STEEL (AS DETERMINED BY THE ENGINEER OF RECORD) REQUIRED BY THE CONTRACTORS REQUEST TO USE ALTERNATE ATTACHMENT LOCATIONS SHALL BE FURNISHED AND INSTALLED BY THE SAID CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
  - ALL TRADE CONTRACTORS SUPPORTING EQUIPMENT, PIPING, AND CONDUITS FROM NEW OR EXISTING STRUCTURE SHALL BE DESIGNED AND ENGINEERED TO DESIGN ALL TO SUPPORT SYSTEMS AND THEIR ATTACHMENTS TO MAIN BUILDING STRUCTURE. EACH TRADE CONTRACTOR SHALL SUBMIT A SUPPORT PLAN TO THE STRUCTURAL ENGINEER OF RECORD INDICATING ALL SUPPORT LOCATIONS TO THE MAIN BUILDING STRUCTURE SUPERIMPOSED ONTO THE STRUCTURAL DRAWINGS WITH CORRESPONDING HANGER LOADS FOR REVIEW AND APPROVAL. AT JOISTS, ALL HANGERS, PROVIDE DOWELS AT CORNERS AND INTERSECTIONS. LAP ALL SPLICES 30 BAR DIAMETERS UNLESS OTHERWISE NOTED. ALL SPLICES IN CONCRETE BEAMS, GRADE BEAMS, AND ALL FOUNDATION WALLS SPANNING HORIZONTAL TO CONFORM TO ACI 318 TENSION LAP SPLICES. SEE DEVELOPMENT LENGTH SCHEDULE ON "SXXX".
  - PROVIDE (2)-#5 BARS ON EACH SIDE OF ALL OPENINGS THROUGH CONCRETE WALLS. BARS SHALL EXTEND 2'-0" BEYOND EDGE OF OPENINGS. PROVIDE (2)-#5 x 5'-0" LONG DIAGONAL (ONE EACH FACE) AT ALL CORNERS.
  - DOWEL ALL VERTICAL REINFORCING STEEL IN WALLS, COLUMNS, PIERS, PIERS INTEGRAL WITH WALLS, ETC. INTO FOOTINGS.
  - AIR ENTRAIN ALL CONCRETE EXPOSED TO FREEZE THAW ACTION.
  - POCKET WALLS WHERE NECESSARY FOR COLUMNS, BEAMS AND SLABS. POCKET TO BE COMPLETELY FILLED WITH CONCRETE AFTER BEAM/COLUMN IS IN PLACE.
  - THE CONTRACTOR SHALL COORDINATE REQUIRED SIZES OF ALL ISOLATION JOINTS AROUND COLUMN BASES AT SLABS ON GRADE, AND SIZE OF COLUMN POCKETS IN FOUNDATION WALLS TO ACCOMMODATE DIAGONAL LATERAL BRACING CONNECTION DETAILS WITHOUT CONCRETE INTERFERENCE. ENCASED BASE OF COLUMN TO PROVIDE A MINIMUM TWO (2") INCH CONCRETE COVER AROUND COLUMN AND BASE PLATES.
  - ALL CONCRETE REINFORCING SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH ACI PROCEDURES AND THE REQUIREMENTS OF THE CODES IN THE PREVIOUSLY OUTLINED "CODES" SECTION AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI-315.
  - CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING CONSTRUCTION JOINTS, OPENINGS, REINFORCING SIZES, SPACING AND PLACEMENT SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. UNCHECKED SHOP DRAWINGS WILL BE REJECTED WITHOUT REVIEW.
  - ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2)-FULL MESH PANELS AND TIED SECURELY.
  - CONSTRUCTION JOINTS IN ALL WALLS AND BEAMS SHALL NOT BE SPACED FURTHER THAN 60 FEET IN ANY DIRECTION. HORIZONTAL WALL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED EXCEPT WHERE SHOWN. CONSTRUCTION JOINTS IN BASEMENT WALLS SHALL CONTAIN CONTINUOUS WATERSTOPS. SEE SPECIFICATIONS.
  - NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
  - SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL PARTITIONS, FLOOR FINISHES, FLOOR DEPRESSIONS AND CURBS. COORDINATE SIZE AND LOCATION OF EQUIPMENT PADS WITH MECHANICAL AND ELECTRICAL CONTRACTORS.
  - ALL CONSTRUCTION JOINTS IN STRUCTURAL SLABS SHALL BE MADE AT CENTER OF SPAN WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS OTHERWISE SHOWN OR APPROVED.
  - PROVIDE DOWELS INTO MASONRY UNITS AT ALL CONCRETE WALLS OR SLABS SUPPORTING CMU WALLS.
  - STRUCTURAL SLABS AND SLABS ON DECK SHALL NOT CONTAIN ANY CONDUITS, PIPING, OR OTHER BUILDING SYSTEMS.
  - ALL EXTERIOR SLABS ON GRADE, AND ALL STRUCTURAL SLABS SHALL CONTAIN #6xW2.9kW2.9 WELDED WIRE FABRIC MINIMUM, UNLESS OTHERWISE NOTED IN DETAILS OR ON PLAN.
  - ANY TRADE CONTRACTOR INSTALLING CORES IN EXISTING OR NEW CONCRETE SLABS SHALL SUBMIT A DETAILED CORE LOCATION PLAN INDICATING LOCATIONS AND SIZES OF ALL PROPOSED CORES. ALLOW A MINIMUM OF TWO WEEKS FOR REVIEW AND COORDINATION BY THE DESIGN TEAM FOR EACH SUBMISSION. TRADE CONTRACTORS SHALL ADJUST CORE LOCATIONS AT ADDITIONAL COST TO THE OWNER) AS REQUESTED BY THE STRUCTURAL ENGINEER OF RECORD TO AVOID NEGATIVELY IMPACTING THE BUILDING STRUCTURE. ALL CORES SHALL HAVE A MINIMUM CLEAR SPACING OF 12" O/C UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

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COMMERCIAL LAV AND SINK SCHEDULE									
TYPE	FIXTURE	SOIL	VENT	COLD	HOT	MOUNT	DESCRIPTION	NOTES	
S-1	ART SINK (FAUCET)	2"	--	1/2"	1/2"	FLOOR	ADVANCE TABCO #KMS-245-X, 60"x24" HEAVY DUTY WORK TABLE, ADJUSTABLE UNDERSHELF, 5" BACKSPLASH AND #TA-11B SINGLE BOWL SINK ON CENTER. ADVANCE TABCO #K-50 DECK MOUNT SWING SPOUT FAUCET AND #K-6 BASKET DRAIN.		
S-2	ADA ART SINK (FAUCET)	2"	--	1/2"	1/2"	FLOOR	ADVANCE TABCO #TKMS-245, 60"x24" STAINLESS STEEL WORK TABLE, OPEN BASE STYLE, 5" BACKSPLASH AND #TA-11A SINGLE BOWL SINK ON CENTER. ADVANCE TABCO #K-50 DECK MOUNT SWING SPOUT FAUCET AND #K-6 BASKET DRAIN. TRUE-BRO "SOFT-GUARD" INSULATION KIT TO COMPLY WITH 25 FLAME SPREAD/450 SMOKE INDEX.		

DOMESTIC WATER AND NATURAL GAS PIPING SPECIALTIES SCHEDULE		
TYPE	SPECIALTY ITEM	DESCRIPTION
HB-1	HOSE BIBB	WOODFORD #C22 HOT AND COLD WALL FAUCET W/ #50HA BACKFLOW PREVENTER.

DRAINAGE PIPING SPECIALTIES SCHEDULE		
TYPE	SPECIALTY TYPE	DESCRIPTION
FD-4	FLOOR DRAIN	JRS #2450Y CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEPHOLES, 1" THICK AND 12" SQUARE DUCTILE IRON TRACTOR GRATE, VANDAL RESISTANT SCREWS AND INTERNAL SEDIMENT BUCKET
SI-1	SOLIDS INTERCEPTOR	JRS #8710 CAST IRON SOLIDS INTERCEPTOR, ALUMINUM GASKETED COVER W/ LOCKING DEVICE AND SEDIMENT STRAINER W/ REMOVABLE STAINLESS STEEL SCREENS. PROVIDE ACID RESISTANT COATING INSIDE AND OUTSIDE. REFER TO PLUMBING PLAN FOR CONNECTIONS AND SIZES.

PLUMBING PUMP SCHEDULE		
TYPE	EQUIPMENT	DESCRIPTION
SEP-1	SEWAGE EJECTOR PUMP	ZOELLER #915 SIMPLEX GRINDER PACKAGE WITH #803 1/2HP, 120V, SINGLE PHASE, SEWAGE EJECTOR PUMP SYSTEM WITH FIBERGLASS BASIN W/ 4" INLET, 1-1/4" OUTLET AND 2" VENT CONNECTIONS. PUMP IS RATED FOR 20 GPM AT 20 TDH DESIGN POINT. PUMPS SHALL BE EQUIPPED WIT STAINLESS STEEL CUTTER. CONTROL PANEL SHALL BE NEMA 3R. BASIN SHALL BE 18" DIAMETER x 30" DEEP.

LUMINAIRES SCHEDULE					
TYPE	MFR. & SERIES	LUMINAIRE DESCRIPTION	VOLTS	LAMPS	KELVIN
K2	COLUMBIA 'LCL' SERIES OR EQUAL	CHAIN HUNG 8" INDUSTRIAL WRAP, STEEL HOUSING, ACRYLIC LENS, 0-10V DIMMABLE DRIVER DOWN TO 10%	120 V	10,300 LUMENS 84W	3000 K
K2E	COLUMBIA 'LCL' SERIES OR EQUAL	CHAIN HUNG 8" INDUSTRIAL WRAP, STEEL HOUSING, ACRYLIC LENS, 0-10V DIMMABLE DRIVER DOWN TO 10%, (2) INTEGRAL 1400 LUMEN BATTERY PACKS.	120 V	10,300 LUMENS 84W	3000 K
R1	HI-LITE 'H-16116' SERIES OR EQUAL	PENDANT MOUNTED LUMINAIRE, 16" DIAMETER, ALUMINUM REFLECTOR, VERIFY FINISH WITH ARCHITECT, CANOPY MOUNT 0-10V DRIVER DIMMABLE DOWN TO 10%.	120 V	2000 LUMENS 21W	3000 K
R1E	HI-LITE 'H-16116' SERIES OR EQUAL	PENDANT MOUNTED LUMINAIRE, 16" DIAMETER, ALUMINUM REFLECTOR, VERIFY FINISH WITH ARCHITECT, CANOPY MOUNT 0-10V DRIVER DIMMABLE DOWN TO 10%, PROVIDE BODINE BATTERY DRIVER.	120 V	2000 LUMENS 21W	3000 K
W1	HI-LITE 'H-CGU-SS-8-1B' SERIES OR EQUAL	WALL MOUNTED GLOBE LUMINAIRE, CANOPY MOUNT 0-10V DRIVER DIMMABLE DOWN TO 10%.	120 V	1600 LUMENS 18W	3000 K

MECHANICAL EQUIPMENT CIRCUIT SCHEDULE						
LOAD	PANEL	AMPS	POLES	BRANCH CIRCUIT SIZE	SW/FUSE SIZE	REMARKS
BC-1	B9	20 A	1	(2) #12 AND (1) #12 GND IN 3/4"	20A TOGGLE	
DH-1	B9	20 A	1	(2) #12 AND (1) #12 GND IN 3/4"	20A TOGGLE	
EF-1	B9	20 A	1	(2) #12 AND (1) #12 GND IN 3/4"	20A TOGGLE	
FP-1	B9	20 A	1	(2) #12 AND (1) #12 GND IN 3/4"	20A TOGGLE	
K1	B9	90 A	2	(2) #3 AND (1) #6 GND IN 1 1/4"	REUSE EXISTING	KILN #1
K2	B9	60 A	2	(2) #6 AND (1) #6 GND IN 1 1/4"	60A/60A	KILN #2
K3	B9	50 A	3	(3) #6 AND (1) #6 GND IN 1 1/4"	REUSE EXISTING	KILN #3
K4	B9	50 A	3	(3) #6 AND (1) #6 GND IN 1 1/4"	REUSE EXISTING	KILN #4
SEP-1	B9	20 A	1	(2) #12 AND (1) #12 GND IN 3/4"	20A TOGGLE	

PANELBOARD SCHEDULE										
GENERAL NOTES:										
1. PROVIDE (2) 48 POLE CAPACITY TUBS TO MEET TOTAL CAPACITY OF 96.										
2. VERIFY SIZE, QUANTITY AND TYPES OF CIRCUIT BREAKERS IN PANELBOARDS WITH PLANS, RISERS, SCHEDULES AND SPECIFICATION.										
3. ALL PANELBOARDS ARE LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARDS UNLESS LISTED OTHERWISE.										
PANEL NAME	VOLTAGE	MAIN OCPD SIZE	MAIN BUS SIZE	MOUNTING	POLE CAPACITY	MIN. AISC RATING	CIRCUITS			NOTES
B9	208Y/120V	400A	400A	SURFACE	96	65,000	AMPS	POLES	BRANCH	SPARE
							20	1	21	4
							30	2	1	1
							50	3	2	5
							60	2	1	2
							60	3	1	2
							90	2	1	1
90	3	1	1							
100	3	2	1							

BLOWER COIL UNIT SCHEDULE										
TAG	MFR	MODEL NO.	ARRANGEMENT	SIZE	CFM	OA CFM	ESP (IN W.C.)	FANS		
BC-1	TRANE	BCHD	HORIZONTAL	90	3800	1450	0.4	RPM	BHP	HP
BC-1								932	1.69	3
HOT WATER HEATING COIL										
TAG	EAT DB (°F)	LAT DB (°F)	EWT (°F)	LWT (°F)	MBH	GPM	MAX. WPD (FT)	ROWS	PIPE RUNOUT SIZE (IN)	
BC-1	43	85	180	160	160	17	3.3	1	1-1/2	
ELECTRICAL										
TAG	VOLTS / PHASE	HOME RUN	BRANCH CIRCUIT SIZE				SW / FUSE			
BC-1	208/3									

- GENERAL NOTES:**
- ACCEPTABLE MANUFACTURERS: TRANE, DAKIN, JOHNSON CONTROLS
  - UNIT SHALL BE PROVIDED WITH ELECTRICALLY COMMUTATED MOTOR WITH 0-10V TAP FOR SPEED CONTROL.
  - PROVIDE UNIT WITH MERV 8 FILTER.

DEHUMIDIFIER SCHEDULE							
TAG	MFR	MODEL	BLOWER	WATER REMOVAL	AMPS	DRAIN	SERVES
DH-1	THERMA-STOR	HI-E DRY 100	[2]	106 PINTS [1]	6.6	SEE NOTES	STORAGE
ELECTRICAL							
TAG	VOLTS / PHASE	HOME RUN	BRANCH CIRCUIT SIZE			SW / FUSE	
DH-1	120/1						

- GENERAL NOTES:**
- UNIT PROVIDED WITH 6 FOOT POWER CORD.
  - UNIT PROVIDED WITH INTEGRAL CONDENSATE PUMP AND 20' OF CONDENSATE HOSE. PUMP SHALL BE CAPABLE OF 17' LIFT.
  - UNIT SHALL BE PROVIDED WITH DEHUMIDIFICATION CONTROLLER WITH SETTINGS FROM 20% TO 80% RELATIVE HUMIDITY.
  - PROVIDE MANUFACTURER LISTED OR AN APPROVED EQUAL.
- SCHEDULE NOTES:**
- RATED AT 80°F AND 60% RELATIVE HUMIDITY
  - BLOWER SHALL BE CAPABLE OF CONTINUOUS OPERATION INDEPENDENT OF DEHUMIDIFICATION.

GRILLE AND DIFFUSER SCHEDULE								
CEILING SUPPLY DIFFUSER			DUCTED CEILING RETURN / EXHAUST GRILLE (NOT USED)		NON-DUCTED CEILING RETURN / EXHAUST GRILLE (NOT USED)		FLEXIBLE DUCT SIZES TO SUPPLY DIFFUSERS (NOT USED)	
CFM	SQUARE NECK SIZE	ROUND NECK SIZE	CFM	NECK SIZE	CFM	NECK SIZE	CFM	SIZE
0-400	12x12	12"Ø	0-150	6 x 6	0-350	12 x 12	0-100	6"Ø
TYPE	MODEL	DESCRIPTION						
B	355 RL	LOUVER TYPE CEILING/WALL RETURN OR EXHAUST GRILLE, 35° FIXED DEFLECTION, 1/2" SPACING WITH BLADES PARALLEL TO THE LONG DIMENSION.						
BB	112 RL	EXTRUDED ALUMINUM DOUBLE DEFLECTION SIDEWALL SUPPLY GRILLE, 1-1/4" ADJUSTABLE (AIRFLOW) SPACING, FRONT BLADES PARALLEL TO LONG DIMENSION.						
F	TMRA	ROUND CEILING DIFFUSER, 360° DISCHARGE PATTERN, FOUR (4) CONES, WITH ROTATING CENTER CONE FOR ADJUSTABLE AIR FLOW PATTERN FROM HORIZONTAL TO VERTICAL. TRANSITIONAL ADAPTER.						

HVAC POWER VENTILATORS SCHEDULE										
TAG	MFR	MODEL	TYPE	DRIVE	CFM	ESP (IN WC)	RPM	MOTOR HP	VFC	
EF-1	COOK		INLINE	DIRECT	1500	0.3				
ELECTRICAL										
TAG	VOLTS / PHASE	HOME RUN	BRANCH CIRCUIT SIZE				SW / FUSE			
EF-1	120/1									
SOUND POWER (db)										
TAG	1ST OCTAVE	2ND OCTAVE	3RD OCTAVE	4TH OCTAVE	5TH OCTAVE	6TH OCTAVE	7TH OCTAVE	8TH OCTAVE	REMARKS	
EF-1										

- SCHEDULE NOTES:**
- FAN SHALL BE PROVIDED WITH ELECTRONICALLY COMMUTATED MOTOR WITH INTEGRAL SPEED CONTROLLER. FAN SHALL ACCEPT 0-10V SIGNAL FOR SPEED CONTROL.

- GENERAL NOTES:**
- ACCEPTABLE MANUFACTURERS COOK, TWIN CITY, GREENHECK

PUMP SCHEDULE						
TAG	MFR	TYPE	SERIES / SIZE MODEL NO.	MINIMUM EFFICIENCY	GPM	FT OF HEAD (TDH)
FP-1	BELL & GOSSETT	INLINE	ECOCIRE 19-16	-	3	10
ELECTRICAL						
TAG	RPM	MOTOR HP	VFC	SERVES	OPERATION	
FP-1	-	60W	NO [1]	BC-1	FREEZE PUMP	
TAG	VOLTS / PHASE	HOME RUN	BRANCH CIRCUIT SIZE		SW / FUSE	
FP-1	120/1					

- SCHEDULE NOTES:**
- PUMP SHALL BE PROVIDED WITH ELECTRONICALLY COMMUTATED MOTOR WITH 0-10V INPUT FOR SPEED CONTROL.

- GENERAL NOTES:**
- ACCEPTABLE MANUFACTURERS BELL & GOSSETT, TACO, GRUDFOS

AIR FILTER SCHEDULE									
TAG	MFR	MODEL	SERVICE	LOCATION	TOTAL MEDIA AREA (SQ FT)	EFFICIENCY	MAX PRESS DROP		MAX FACE VELOCITY (FFM)
AF-1	CAMFIL FARR	HI-FLO ES	EXHAUST	SEE PLANS	71.45	MERV 13	CLEAN (IN WG)	REPLACE (IN WG)	450
AF-1							0.37	1.0	
TAG	SECTION x LENGTH	FILTERS (NOM)	SYSTEM	NUMBER OF FILTERS	SYSTEM SERVED	REMARKS			
AF-1	24x24x22	1	1800	1	EF-1 EXHAUST HOOD	MOUNTED IN VERTICAL			

- GENERAL NOTES:**
- PROVIDE WITH 1"x1" CAMFIL GLIDEPACK UNITRACK 25 FILTER HOUSING
  - PROVIDE WITH A DRYER 0"-2" SERIES 2000 MAGNEHELIC WITH A605 MOUNTING KIT. CONTRACTOR SHALL FIELD INSTALL.
  - PROVIDE MANUFACTURER LISTED OR AN APPROVED EQUAL.



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Revisions	
No.	Date



ART LAB RELOCATION  
BASEMENT WHITE HALL

MEP SCHEDULES

Project No. BI-RD-294

By: BLH

Scale:

Issue Date: 12/6/2017



MEP-1



**DIVISION 21 - FIRE-SUPPRESSION PIPING**  
**PART 1 - GENERAL**

- 1.1 RELATED DOCUMENTS  
A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.2 SUMMARY  
A. THIS SECTION INCLUDES FIRE-SUPPRESSION PIPING AND EQUIPMENT FOR THE FOLLOWING BUILDING SYSTEMS:  
1. WET-PIPE, FIRE-SUPPRESSION SPRINKLERS, INCLUDING PIPING, VALVES, SPECIALTIES, AND AUTOMATIC SPRINKLERS.
- 1.3 DEFINITIONS  
B. WORKING PLANS: DOCUMENTS, INCLUDING DRAWINGS, CALCULATIONS, AND MATERIAL SPECIFICATIONS PREPARED ACCORDING TO NFPA 13 FOR OBTAINING APPROVAL FROM AUTHORITIES HAVING JURISDICTION.
- 1.4 SYSTEM PERFORMANCE REQUIREMENTS  
A. DESIGN SPRINKLER PIPING ACCORDING TO THE FOLLOWING AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION:  
1. INCLUDE 10 PERCENT MARGIN OF SAFETY FOR AVAILABLE WATER FLOW AND PRESSURE.  
2. INCLUDE LOSSES THROUGH WATER-SERVICE PIPING, VALVES, AND BACKFLOW PREVENTERS.  
3. SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS: AS FOLLOWS:  
a. BUILDING SERVICE AREAS: ORDINARY HAZARD, GROUP 1.  
b. ELECTRICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.  
c. GENERAL STORAGE AREAS: ORDINARY HAZARD, GROUP 1.  
d. MECHANICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.  
e. OFFICE AND PUBLIC AREAS: LIGHT HAZARD.  
4. MINIMUM DENSITY FOR AUTOMATIC-SPRINKLER PIPING DESIGN: AS FOLLOWS:  
a. LIGHT-HAZARD OCCUPANCY: 0.10 GPM OVER 1600-SQ. FT. AREA.  
b. ORDINARY-HAZARD, GROUP 1 OCCUPANCY: 0.15 GPM OVER 1600-SQ. FT. AREA.  
c. ORDINARY-HAZARD, GROUP 2 OCCUPANCY: 0.20 GPM OVER 1500-SQ. FT. AREA.  
d. EXTRA-HAZARD, GROUP 1 OCCUPANCY: 0.30 GPM OVER 2500-SQ. FT. AREA.  
e. EXTRA-HAZARD, GROUP 2 OCCUPANCY: 0.40 GPM OVER 2500-SQ. FT. AREA.  
f. SPECIAL OCCUPANCY HAZARD: AS DETERMINED BY AUTHORITIES HAVING JURISDICTION.  
5. MAXIMUM PROTECTION AREA PER SPRINKLER: AS FOLLOWS:  
a. OFFICE SPACE: 225 SQ. FT.  
b. STORAGE AREAS: 130 SQ. FT.  
c. MECHANICAL EQUIPMENT ROOMS: 130 SQ. FT.  
d. ELECTRICAL EQUIPMENT ROOMS: 130 SQ. FT.
- B. COMPONENTS AND INSTALLATION: CAPABLE OF PRODUCING PIPING SYSTEMS WITH 175-PSIG MINIMUM WORKING-PRESSURE RATING, UNLESS OTHERWISE INDICATED.
- 1.5 SUBMITTALS  
A. PRODUCT DATA: FOR THE FOLLOWING:  
1. PIPE AND FITTING MATERIALS AND METHODS OF JOINING FOR SPRINKLER PIPING.  
2. PIPE HANGERS AND SUPPORTS.  
3. PIPING SEISMIC RESTRAINTS.  
4. VALVES, INCLUDING SPECIALTY VALVES, ACCESSORIES, AND DEVICES.  
5. SPRINKLERS, ESCUTCHEONS, AND GUARDS. INCLUDE SPRINKLER FLOW CHARACTERISTICS, MOUNTING, FINISH, AND OTHER PERTINENT DATA.  
6. PROFESSIONAL ENGINEERING SEAL ON SUBMITTALS
- B. APPROVED SPRINKLER PIPING DRAWINGS: WORKING PLANS, PREPARED ACCORDING TO NFPA 13, THAT HAVE BEEN APPROVED BY AUTHORITIES HAVING JURISDICTION. INCLUDE HYDRAULIC CALCULATIONS.
- C. FIELD TEST REPORTS AND CERTIFICATES: INDICATE AND INTERPRET TEST RESULTS FOR COMPLIANCE WITH PERFORMANCE REQUIREMENTS AND AS DESCRIBED IN NFPA 13 AND NFPA 14. INCLUDE "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING" AND "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING."
- D. MAINTENANCE DATA: FOR EACH TYPE OF SPRINKLER SPECIALTY TO INCLUDE IN MAINTENANCE MANUALS SPECIFIED IN DIVISION 1.
- 1.6 QUALITY ASSURANCE  
A. INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO HAS DESIGNED AND INSTALLED FIRE-SUPPRESSION PIPING SIMILAR TO THAT INDICATED FOR THIS PROJECT AND OBTAINED DESIGN APPROVAL AND INSPECTION APPROVAL FROM AUTHORITIES HAVING JURISDICTION.  
B. ENGINEERING RESPONSIBILITY: PREPARATION OF WORKING PLANS, CALCULATIONS, AND FIELD TEST REPORTS BY A QUALIFIED PROFESSIONAL ENGINEER. BASE CALCULATIONS ON RESULTS OF FIRE-HYDRANT FLOW TEST.  
C. PROFESSIONAL ENGINEER QUALIFICATIONS: A PROFESSIONAL ENGINEER WHO IS LEGALLY QUALIFIED TO PRACTICE IN JURISDICTION WHERE PROJECT IS LOCATED AND WHO IS EXPERIENCED IN PROVIDING ENGINEERING SERVICES OF THE KIND INDICATED. ENGINEERING SERVICES ARE DEFINED AS THOSE PERFORMED FOR INSTALLATIONS OF FIRE-SUPPRESSION PIPING THAT ARE SIMILAR TO THOSE INDICATED FOR THIS PROJECT IN MATERIAL, DESIGN, AND EXTENT.  
D. MANUFACTURER QUALIFICATIONS: FIRMS WHOSE EQUIPMENT, SPECIALTIES, AND ACCESSORIES ARE LISTED BY PRODUCT NAME AND MANUFACTURER IN UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" AND FMS "FIRE PROTECTION APPROVAL GUIDE" AND THAT COMPLY WITH OTHER REQUIREMENTS INDICATED.  
E. SPRINKLER COMPONENTS: LISTING/APPROVAL STAMP, LABEL, OR OTHER MARKING BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.  
F. NFPA STANDARDS: EQUIPMENT, SPECIALTIES, ACCESSORIES, INSTALLATION, AND TESTING COMPLYING WITH THE FOLLOWING:  
1. NFPA 13, "INSTALLATION OF SPRINKLER SYSTEMS."

**PART 2 - PRODUCTS**

- 2.1 MANUFACTURERS  
A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:  
1. GENERAL DUTY VALVES:  
a. MILWAUKEE VALVE COMPANY.  
b. NIBCO INC.  
c. VICTAULIC CO. OF AMERICA.  
2. SPRINKLERS:  
a. RELIABLE AUTOMATIC SPRINKLER CO., INC.  
b. VICTAULIC CO. OF AMERICA.  
c. VIKING CORP.
- 2.2 PIPING MATERIALS  
A. REFER TO PART 3 "PIPING APPLICATIONS" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, FITTINGS, AND JOINING MATERIALS.
- 2.3 PIPES AND TUBES  
A. STANDARD-WEIGHT SCHEDULE 40 STEEL PIPE: ASTM A 53/A 53M. PIPE ENDS MAY BE FACTORY OR FIELD FORMED TO MATCH JOINING METHOD.
- 2.4 PIPE AND TUBE FITTINGS  
A. CAST-IRON THREADED FLANGES: ASME B16.1.  
B. CAST-IRON THREADED FITTINGS: ASME B16.4.  
C. MALLEABLE-IRON THREADED FITTINGS: ASME B16.3.  
D. STEEL, GROOVED-END FITTINGS: UL LISTED AND FM APPROVED, ASTM A 47, MALLEABLE IRON OR ASTM A 536, DUCTILE IRON; WITH DIMENSIONS MATCHING STEEL PIPE AND ENDS FACTORY GROOVED ACCORDING TO AWWA C606.
- 2.5 GENERAL-DUTY VALVES  
A. IRON BUTTERFLY VALVES WITH INDICATORS: UL1091, EPDM SEAT, LOCKING HANDLE, 175 PSI. PRESSURE RATING.  
B. TRIM AND DRAIN VALVES: BRONZE, 175 PSI. PRESSURE RATING.  
1. BALL VALVES - TWO PIECE.  
2. ANGLE VALVES.  
3. GLOBE VALVES.

**2.6 SPRINKLERS**

- A. AUTOMATIC SPRINKLERS: WITH HEAT-RESPONSIVE ELEMENT COMPLYING WITH THE FOLLOWING:  
1. UL 199, FOR APPLICATIONS EXCEPT RESIDENTIAL.  
2. UL 1787, FOR EARLY SUPPRESSION, FAST-RESPONSE APPLICATIONS.
- B. SPRINKLER TYPES AND CATEGORIES: NOMINAL 1/2-INCH ORIFICE FOR "ORDINARY" TEMPERATURE CLASSIFICATION RATING UNLESS OTHERWISE INDICATED OR REQUIRED BY APPLICATION.
- C. SPRINKLER TYPES, FEATURES, AND OPTIONS INCLUDE THE FOLLOWING:  
1. CONCEALED CEILING SPRINKLERS, INCLUDING COVER PLATE.  
2. EXTENDED-COVERAGE SPRINKLERS.  
3. QUICK-RESPONSE SPRINKLERS.  
4. SIDEWALL SPRINKLERS.  
5. UPRIGHT SPRINKLERS.
- D. SPRINKLER FINISHES: CHROME-PLATED, BRONZE, AND PAINTED.
- E. SPRINKLER ESCUTCHEONS: ESCUTCHEONS FOR CONCEALED, FLUSH, AND RECESSED-TYPE SPRINKLERS ARE SPECIFIED WITH SPRINKLERS.
- F. SPRINKLER GUARDS: WIRE-CAGE TYPE, INCLUDING FASTENING DEVICE FOR ATTACHING TO SPRINKLER.

**2.7 SPECIALTY SPRINKLER FITTINGS**

- A. SPECIALTY FITTINGS: UL LISTED AND FM APPROVED; MADE OF STEEL, DUCTILE IRON, OR OTHER MATERIALS COMPATIBLE WITH PIPING.

**PART 3 - EXECUTION**

- 3.1 PREPARATION  
A. THE SUCCESSFUL BID CONTRACTOR SHALL PERFORM FIRE-HYDRANT FLOW TEST ACCORDING TO NFPA 13 AND NFPA 291. US RESULTS FOR SYSTEM DESIGN CALCULATIONS REQUIRED IN "QUALITY ASSURANCE" ARTICLE IN PART 1 OF THIS SECTION. B. REPORT TEST RESULTS PROMPTLY AND IN WRITING.
- 3.2 PIPING APPLICATIONS  
A. SPRINKLERS: USE THE FOLLOWING:  
1. NPS 1-1/2 AND SMALLER: STANDARD-WEIGHT SCHEDULE 40 STEEL PIPE WITH THREADED ENDS, CAST-OR MALLEABLE-IRON THREADED FITTINGS, AND THREADED JOINTS.  
2. NPS 2: STANDARD-WEIGHT SCHEDULE 40 STEEL PIPE WITH THREADED ENDS, CAST-OR MALLEABLE-IRON THREADED FITTINGS, AND THREADED JOINTS.  
3. NPS 2-1/2 AND HIGHER: STANDARD-WEIGHT SCHEDULE 40 STEEL PIPE WITH ROLL-GROOVED ENDS; STEEL, GROOVED-END FITTINGS; AND GROOVED JOINTS.
- 3.3 VALVE APPLICATIONS  
A. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIED VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY:  
1. GENERAL-DUTY VALVES: FOR APPLICATIONS WHERE UL LISTED AND FM-APPROVED VALVES ARE NOT REQUIRED BY NFPA 13.  
a. SHUTOFF DUTY: USE BUTTERFLY VALVES.
- 3.4 JOINT CONSTRUCTION  
A. STEEL-PIPING, GROOVED JOINTS: USE STANDARD-WEIGHT SCHEDULE 40 STEEL PIPE WITH CUT OR ROLL-GROOVED ENDS AND THREADED END FITTINGS. ASSEMBLE JOINTS WITH COUPLINGS, GASKETS, LUBRICANT, AND BOLTS. JOIN STEEL PIPE AND GROOVED-END FITTINGS ACCORDING TO AWWA C606 FOR STEEL-PIPE GROOVED JOINTS.  
B. STEEL-PIPING THREADED JOINTS: THREAD PIPE WITH TAPERED PIPE THREADS ACCORDING TO ASME B1.20.1  
C. FLANGED JOINTS: JOIN FLANGES WITH GASKET AND BOLTS ACCORDING TO ASME B31.9.
- 3.5 PIPING INSTALLATION  
A. LOCATIONS AND ARRANGEMENTS: DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING. INSTALL PIPING AS INDICATED, AS FAR AS PRACTICAL.  
1. DEVIATIONS FROM APPROVED WORKING PLANS FOR PIPING REQUIRE WRITTEN APPROVAL FROM AUTHORITIES HAVING JURISDICTION. FILE WRITTEN APPROVAL WITH ARCHITECT BEFORE DEVIATING FROM APPROVED WORKING PLANS.  
B. USE APPROVED FITTINGS TO MAKE CHANGES IN DIRECTION, BRANCH TAKEOFFS FROM MAINS, AND REDUCTIONS IN PIPE SIZES.  
C. INSTALL UNIONS ADJACENT TO EACH VALVE IN PIPES NPS 2 AND SMALLER. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES OR IN PIPING INSTALLATIONS USING GROOVED JOINTS.  
D. INSTALL FLANGES OR FLANGE ADAPTERS ON VALVES, APPARATUS, AND EQUIPMENT HAVING NPS 2-1/2 AND LARGER CONNECTIONS.  
E. INSTALL SPRINKLER PIPING WITH DRAINS FOR COMPLETE SYSTEM DRAINAGE.  
F. HANGERS AND SUPPORTS: COMPLY WITH NFPA 13 FOR HANGER MATERIALS. INSTALL ACCORDING TO NFPA 13 FOR SPRINKLER PIPING.  
G. EARTHQUAKE PROTECTION: INSTALL PIPING ACCORDING TO NFPA 13 TO PROTECT FROM EARTHQUAKE DAMAGE.  
H. INSISTING PIPING WITH GROOVED JOINTS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. CONSTRUCT RIGID PIPING JOINTS, UNLESS OTHERWISE REQUIRED.
- 3.6 SPECIALTY SPRINKLER FITTING INSTALLATION  
A. INSTALL SPECIALTY SPRINKLER FITTINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
- 3.7 VALVE INSTALLATION  
A. INSTALL FIRE-PROTECTION VALVES, TRIM, AND FITTINGS ACCORDING TO NFPA 13 AND MANUFACTURER'S WRITTEN INSTRUCTIONS, AND AUTHORITIES HAVING JURISDICTION.
- 3.8 SPRINKLER APPLICATIONS  
A. GENERAL: USE SPRINKLERS ACCORDING TO THE FOLLOWING APPLICATIONS:  
1. ROOMS WITHOUT CEILINGS: UPRIGHT SPRINKLERS.  
2. WALL MOUNTING: SIDEWALL SPRINKLERS.  
3. SPACES SUBJECT TO FREEZING: UPRIGHT, PENDENT, DRY-TYPE, AND SIDEWALL, DRY-TYPE SPRINKLERS.  
4. SPRINKLER FINISHES: USE SPRINKLERS WITH THE FOLLOWING FINISHES:  
a. UPRIGHT AND SIDEWALL SPRINKLERS: CHROME-PLATED IN FINISHED SPACES EXPOSED TO VIEW, ROUGH BRONZE IN UNFINISHED SPACES NOT EXPOSED TO VIEW.  
b. CONCEALED SPRINKLERS: ROUGH BRASS, WITH FACTORY-PAINTED WHITE COVER PLATE.
- 3.9 SPRINKLER INSTALLATION  
C. DO NOT INSTALL PENDENT OR SIDEWALL, WET-TYPE SPRINKLERS IN AREAS SUBJECT TO FREEZING. USE DRY-TYPE SPRINKLERS WITH WATER SUPPLY FROM HEATED SPACE.
- 3.10 LABELING AND IDENTIFICATION  
A. INSTALL LABELING AND PIPE MARKERS ON EQUIPMENT AND PIPING ACCORDING TO REQUIREMENTS IN NFPA 13.
- 3.11 FIELD QUALITY CONTROL  
A. FLUSH, TEST, AND INSPECT SPRINKLER PIPING ACCORDING TO NFPA 13, "SYSTEM ACCEPTANCE" CHAPTER.  
B. REPLACE PIPING SYSTEM COMPONENTS THAT DO NOT PASS TEST PROCEDURES AND RETEST TO DEMONSTRATE COMPLIANCE. REPEAT PROCEDURE UNTIL SATISFACTORY RESULTS ARE OBTAINED.  
C. REPORT TEST RESULTS PROMPTLY AND IN WRITING TO ARCHITECT AND AUTHORITIES HAVING JURISDICTION.
- 3.12 CLEANING  
A. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM INSIDE AND OUTSIDE OF PIPES, TUBES, AND FITTINGS BEFORE ASSEMBLY.  
B. CLEAN DIRT AND DEBRIS FROM SPRINKLERS.  
C. REMOVE AND REPLACE SPRINKLERS HAVING PAINT OTHER THAN FACTORY FINISH.
- 3.13 PROTECTION  
A. PROTECT SPRINKLERS FROM DAMAGE UNTIL SUBSTANTIAL COMPLETION.
- 3.14 COMMISSIONING  
A. VERIFY THAT SPECIALTY VALVES, TRIM, FITTINGS, AND ACCESSORIES ARE INSTALLED AND OPERATE CORRECTLY.  
B. VERIFY THAT SPECIFIED TESTS OF PIPING ARE COMPLETE.  
C. VERIFY THAT DAMAGED SPRINKLERS AND SPRINKLERS WITH PAINT OR COATING NOT SPECIFIED ARE REPLACED WITH NEW, CORRECT TYPE.  
D. VERIFY THAT SPRINKLERS ARE CORRECT TYPES, HAVE CORRECT FINISHES AND TEMPERATURE RATINGS, AND HAVE GUARDS AS REQUIRED FOR EACH APPLICATION.  
E. FILL WET-PIPE SPRINKLER PIPING WITH WATER.
- 3.15 DEMONSTRATION  
A. DEMONSTRATE EQUIPMENT, SPECIALTIES, AND ACCESSORIES. REVIEW OPERATING AND MAINTENANCE INFORMATION.  
B. SCHEDULE DEMONSTRATION WITH OWNER WITH AT LEAST SEVEN DAYS' ADVANCE NOTICE.

END OF SECTION  
REVISED 10/18/2017

**DIVISION 22 - PLUMBING SYSTEMS**

**PART 1 - GENERAL**

- 1.1 GENERAL  
A. ARCHITECT'S GENERAL CONDITIONS ARE A PART OF THIS DIVISION. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH APPLICABLE CODES AND UTILITY COMPANY REQUIREMENTS. ALL EQUIPMENT SHALL BE UL LISTED. THE CONTRACTOR SHALL BEAR THE COST OF ALL FEES, PERMITS, LICENSES AND TAXES, AND ANY UTILITY COMPANY CHARGES IN CONNECTION WITH HIS WORK.  
B. PROVIDE SIX (6) COPIES OF SUBMITTALS FOR ALL EQUIPMENT AND SYSTEMS SPECIFIED UNDER THIS PROJECT. SUBMIT INFORMATION ON ANY OTHER EQUIPMENT TO BE USED WHEN REQUESTED BY THE ARCHITECT OR THE ENGINEER.  
C. THE CONTRACTOR SHALL PROVIDE A GUARANTEE COVERING ALL MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR FOLLOWING THE DATE OF ACCEPTANCE, EXCEPT THAT COMPRESSORIZED EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF FIVE (5) YEARS.  
D. THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL PLANS AND THE PLANS AND SPECIFICATIONS OF OTHER TRADES TO DETERMINE THE EXTENT OF HIS WORK. HE SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE PROJECT AND LOCAL CONDITIONS BEFORE SUBMITTING HIS BID AS HE SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS MADE THEREOF. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IF SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT TO PREVENT CONFLICT WITH THOSE OF OTHER TRADES AND FOR PROPER INSTALLATION OF WORK. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.  
E. ALL EQUIPMENT AND PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.  
F. THE CONTRACTOR SHALL ARRANGE HIS WORK SO THAT ANY SHUTDOWN DOES NOT INTERFERE WITH THE OWNER'S OPERATION OF THE EXISTING FACILITY.  
G. SUBMIT AS-BUILT DRAWINGS AND OPERATION AND MAINTENANCE MANUALS AT THE COMPLETION OF THE PROJECT.
- 1.2 SCOPE OF WORK  
A. FURNISH AND INSTALL A COMPLETE PLUMBING SYSTEM INCLUDING, BUT NOT LIMITED TO: DEMOLITION, PIPING, FIXTURES, SUPPORTS, WATER HEATER, BACKFLOW PREVENTORS, INSULATION, AND ALL OTHER EQUIPMENT AND APPURTENANCES AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED. SYSTEM SHALL BE COMPLETE IN ALL RESPECTS, TESTED, APPROVED AND READY FOR THE BENEFICIAL USE OF THE OWNER.
- 1.3 ELECTRICAL CONNECTIONS  
A. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE FURNISHED AND INSTALLED PER DIVISION 16 SPECIFICATIONS.  
B. THE CONTRACTOR FURNISHING EQUIPMENT SHALL PROVIDE THE MOTOR CONTROLLER REQUIRED FOR THE EQUIPMENT. ALL MOTOR CONTROLLERS NOT FACTORY MOUNTED ON MECHANICAL EQUIPMENT SHALL BE MOUNTED BY THE CONTRACTOR FURNISHING THE EQUIPMENT AND MOTOR CONTROLLER. PROVIDE PROPERLY SIZED OVERLOAD HEATERS AND ALL REQUIRED ACCESSORIES WITH ALL MOTOR CONTROLLERS. SEE DIVISION 16 MOTOR CONTROLLERS FOR MOTOR CONTROLLER REQUIREMENTS.  
C. ALL POWER WIRING SHALL BE FURNISHED AND INSTALLED PER DIVISION 16 COMPLETE FROM POWER SOURCE TO MOTOR OR EQUIPMENT JUNCTION BOX INCLUDING POWER WIRING THROUGH THE MOTOR CONTROLLER AND PROPER MEANS OF DISCONNECT PER NEC AND DIVISION 16. THE DIVISION 16 CONTRACTOR SHALL PROVIDE ALL DISCONNECTS, UNLESS NOTED OTHERWISE.
- 1.4 WORK BY OTHERS  
A. CUTTING AND PATCHING IS SPECIFIED UNDER DIVISION 1.  
B. ACCESS DOORS SHALL BE PROVIDED WHERE REQUIRED, AND ARE SPECIFIED UNDER DIVISION 8.  
C. CHASES, OPENINGS AND FINISH WORK IS SPECIFIED UNDER THE PERTINENT DIVISIONS 3 THROUGH 14 SECTIONS.  
D. ALL HEATING HOT WATER PIPING AND THEIR RESPECTIVE CONNECTIONS TO PLUMBING EQUIPMENT IS SPECIFIED UNDER THE PERTINENT DIVISION 15 SECTIONS.  
E. ALL POWER WIRING TO MOTORS, STARTERS, CONTROLLERS, ALARMS, AND ALL ELECTRICAL DEVICES, INCLUDING DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT, IS SPECIFIED UNDER DIVISION 16.
- 1.5 FIELD MEASUREMENTS  
A. THE PLUMBING CONTRACTOR SHALL VERIFY IN THE FIELD ALL MEASUREMENTS NECESSARY FOR HIS WORK AND SHALL ASSUME RESPONSIBILITY FOR THEIR ACCURACY.
- 1.6 MATERIALS  
A. SANITARY, WASTE AND VENT PIPING ABOVE GRADE SHALL BE HUBLESS CAST IRON WITH NO-HUB COUPLINGS; BRANCH WASTE AND VENT PIPING ABOVE GRADE SHALL BE TYPE "M" COPPER WITH SOLDERED FITTINGS OR NO-HUB CAST IRON. WATER PIPE ABOVE GRADE SHALL BE TYPE "L" COPPER WITH WROUGHT COPPER SWEAT FITTINGS USING 95/5 SOLDER. VALVES SHALL BE BALL TYPE WITH SCREWED ENDS BY APOLLO #70-100, OR WATTS #B-6000 OR EQUIVALENT.  
B. DOMESTIC HOT WATER PIPING SHALL BE INSULATED WITH 1/2 INCH THICK FIBERGLASS INSULATION WITH PREFORMED INSULATED FITTINGS AND VAPOR BARRIER. INSULATION SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDED INSTRUCTIONS. INSULATION SHALL BE APPROVED FOR USE IN AIR PLENUM SPACES.  
C. DOMESTIC HOT WATER SUPPLY AND RECIRCULATION PIPING SHALL BE INSULATED WITH 1 1/2 INCH THICK FIBERGLASS INSULATION WITH PREFORMED INSULATED FITTINGS AND VAPOR BARRIER. INSULATION SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDED INSTRUCTIONS. INSULATION SHALL BE APPROVED FOR USE IN AIR PLENUM SPACES.  
D. PIPING AND TRAPS UNDER ACCESSIBLE FIXTURES SHALL BE INSULATED WITH PREFORMED INSULATION KITS WITH FINISHED JACKETS.  
E. PIPING OR FITTINGS EXPOSED AND NOT INSULATED IN FINISHED AREAS SHALL BE STANDARD-WEIGHT BRASS PIPE, CHROME PLATED.  
F. PROVIDE CHROME-PLATED ESCUTCHEONS WHERE EXPOSED PIPE PASSES THROUGH WALLS, FLOOR OR CEILING.
- 1.7 SEISMIC RESTRAINT  
A. GENERAL: ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED, SUPPORTED, AND SEISMICALLY RESTRAINED IN ACCORDANCE WITH APPLICABLE CODES.  
B. PROFESSIONAL ENGINEER QUALIFICATIONS: A PROFESSIONAL ENGINEER WHO IS LEGALLY QUALIFIED TO PRACTICE IN THE JURISDICTION WHERE THE PROJECT IS LOCATED AND WHO IS EXPERIENCED IN PROVIDING ENGINEERING SERVICES OF THE KIND INDICATED. ENGINEERING SERVICES ARE DEFINED AS THOSE PERFORMED FOR INSTALLATIONS OF VIBRATION ISOLATION BASES AND SEISMIC RESTRAINTS THAT ARE SIMILAR TO THOSE REQUIRED FOR THIS PROJECT IN MATERIAL, DESIGN, AND EXTENT.  
C. SHOP DRAWINGS: SHOW DESIGNS, PERFORMANCE CRITERIA WITH CODE REFERENCES, AND CALCULATIONS, CERTIFIED BY A PROFESSIONAL ENGINEER, FOR THE FOLLOWING:  
D. DESIGN CALCULATIONS: CALCULATIONS FOR SELECTION OF VIBRATION ISOLATORS, DESIGN OF VIBRATION ISOLATION BASES, DESIGN OF SEISMIC SUPPORTS AND SELECTION OF SEISMIC RESTRAINTS FOR ALL EQUIPMENT AND MATERIALS.  
E. VIBRATION ISOLATION BASE DETAILS: DETAIL FABRICATION, INCLUDING ANCHORAGES AND ATTACHMENTS TO THE STRUCTURE AND TO THE SUPPORTED EQUIPMENT. INCLUDE AUXILIARY MOTOR SLIDES AND RAILS, AND BASE WEIGHTS.  
F. SEISMIC RESTRAINT DETAILS: DETAIL FABRICATION AND ATTACHMENT OF RESTRAINTS, SUPPORTS AND SNUBBERS.  
G. INSTALLATION: INSTALLATION SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE SEISMIC ENGINEER'S SUBMITTAL, CURRENT CODE, ACCEPTED STANDARDS AND THE EQUIPMENT AND MATERIAL MANUFACTURER'S RECOMMENDATIONS. WALKTHROUGH WITH MANUFACTURER REPRESENTATIVE TO VERIFY INSTALLATION COMPLETE AND IN ACCORDANCE WITH SPECIFICATIONS AND ENGINEERED SUBMITTAL. PROVIDE MANUFACTURER APPROVAL LETTER.
- 1.8 EXECUTION  
A. WATER PIPING SHALL BE RUN CONCEALED IN ALL FINISHED AREAS AND SO ARRANGED THAT IT CAN BE DRAINED AT LOW POINTS. PROVIDE HOSE BIB DRAINS AT THESE LOW POINTS. SUPPORT PIPING WITH CLEVIS HANGERS IN SUCH A MANNER THAT THERE IS NO GAGGING OR NOISE DUE TO VIBRATION.  
B. SANITARY, WASTE AND VENT PIPING ABOVE GRADE SHALL BE SUPPORTED WITH CLEVIS HANGERS AT INTERVALS LISTED IN THE CODE, BUT AT NO GREATER SPACING THAN EIGHT (8) FEET ON CENTER.  
C. MINIMUM PITCH FOR SANITARY PIPING SHALL BE 1/8 INCH PER FOOT FOR PIPING 3 INCHES AND LARGER, AND 1/4 INCH PER FOOT FOR 2-1/2 INCHES AND SMALLER. PROVIDE CLEANOUTS AT END OF ALL LINES, CHANGES IN DIRECTION, BASE OF ALL STACKS AND ALL TRAPS WHETHER OR NOT SHOWN ON THE DRAWINGS. PROVIDE FLUSH ACCESS PANELS FOR WALL OR FLOOR MOUNTING AS REQUIRED AT EACH CLEANOUT.  
D. UNIONS SHALL BE USED AT CONNECTIONS TO FIXTURES AND OTHER APPARATUS TO ALLOW EASY REMOVAL.  
E. PROVIDE STANDARD-WEIGHT STEEL PIPE SLEEVES FOR PIPES PASSING THROUGH WALLS AND SHEET METAL SLEEVES FOR PIPES PASSING THROUGH FLOORS.  
F. ALL PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS OR FLOORS IN WHICH PIPES PASS SHALL BE SEALED WITH AN UL APPROVED FIRE-STOP FITTING CLASSIFIED FOR AN HOURLY RATE EQUAL TO THE RATING OF THE WALL, CEILING OR FLOOR.
- 1.9 TESTS  
A. DISINFECT ALL POTABLE WATER SYSTEMS PRIOR TO BUILDING OCCUPANCY PER CODES AND LOCAL OFFICIALS REQUIREMENTS. FLUSH SYSTEMS THOROUGHLY WITH POTABLE WATER AFTER DISINFECTION.  
B. HYDROSTATICALLY TEST ALL DOMESTIC WATER PIPING AT 150 PSI FOR THREE (3) HOURS WITHOUT LEAKS.  
C. TEST ALL SANITARY, WASTE AND VENT PIPING WITH A 10-FOOT HEAD OF WATER FOR A MINIMUM OF 15 MINUTES WITHOUT LEAKS.  
D. TESTING AGENCY CERTIFICATION: PROVIDE THE SERVICES ON AN INDEPENDENT TESTING AGENCY TO CERTIFY THAT SPECIFIED INSPECTION, TESTS, AND PROCEDURES HAVE BEEN PERFORMED AND REPORT RESULTS.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION  
REVISED 10-18-2017



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ART LAB RELOCATION  
BASEMENT WHITE HALL

FIRE PROTECTION SPECIFICATIONS

Project No. BI-RD-294

By: DLN

Scale: N.T.S.

Issue Date: 12/6/2017



PFP-0







DIVISION 23 - HVAC SYSTEMS  
PART 1 - GENERAL

1.1 DESCRIPTION

- A. ARCHITECT'S GENERAL CONDITIONS ARE A PART OF THIS DIVISION. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF LOCAL AND STATE AGENCIES AND UTILITY COMPANIES. THIS CONTRACTOR SHALL BEAR THE COST OF ALL FEES, PERMITS, LICENSES AND TAXES IN CONNECTION WITH THE WORK.
- B. PROVIDE ELECTRONIC COPY OF SUBMITTALS FOR ALL EQUIPMENT AND SYSTEMS SPECIFIED UNDER THIS PROJECT. SUBMIT INFORMATION ON ANY OTHER EQUIPMENT TO BE USED WHEN REQUESTED BY THE ARCHITECT OR THE ENGINEER.
- C. SUBMIT AN ELECTRONIC COPY OF DUCTWORK SHOP DRAWINGS SHOWING CLEARANCES WITH STRUCTURAL MEMBERS AND MAJOR EQUIPMENT OF OTHER TRADES.
- D. THE HVAC CONTRACTOR SHALL PROVIDE A GUARANTEE COVERING ALL MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR FOLLOWING THE DATE OF ACCEPTANCE.
- E. UPON COMPLETION OF THE PROJECT, HVAC CONTRACTOR SHALL FULLY INSTRUCT THE OWNER IN THE OPERATION ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT AND SYSTEMS FURNISHED.
- F. HVAC CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE (1) HARD COPY SET AND ONE (1) ELECTRONIC SET OF COMPLETE MAINTENANCE AND OPERATING INSTRUCTIONS, AND TECHNICAL DATA, IN BOOKLET FORM, OF ALL EQUIPMENT AND DEVICES FURNISHED IN CONTRACT.
- G. THE HVAC CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL DRAWINGS AND THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES TO DETERMINE THE EXTENT OF WORK. THE HVAC CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE PROJECT AND LOCAL CONDITIONS BEFORE SUBMITTING A BID. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IF SO DIRECTED BY THE ARCHITECT OR ENGINEER, THE HVAC CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT TO PREVENT CONFLICT WITH THOSE OF OTHER TRADES AND FOR PROPER INSTALLATION OF WORK. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF AIR DIFFUSERS, REGISTERS AND GRILLES. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION ARE TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
- H. ALL EQUIPMENT AND PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

1.2 SCOPE OF WORK

- A. FURNISH AND INSTALL A COMPLETE HVAC SYSTEM INCLUDING, BUT NOT LIMITED TO: DEMOLITION, DUCTWORK, PIPING, EQUIPMENT, INSULATION, AUTOMATIC TEMPERATURE CONTROLS, TESTING AND BALANCING, AND ALL OTHER EQUIPMENT AS SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED. SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, TESTED, ACCEPTED AND READY FOR THE BENEFICIAL USE OF THE OWNER.

1.3 FILTERS AND STRAINERS

- A. ANY EQUIPMENT WHICH OPERATES WITH FILTERS OR STRAINERS SHALL HAVE FILTERS AND STRAINERS INSTALLED AT ALL TIMES.
- B. WHEN EQUIPMENT AND SYSTEMS ARE OFFICIALLY TURNED OVER TO THE OWNER, ALL EQUIPMENT SHALL BE CLEAN AND HAVE CLEAN, NEW FILTERS INSTALLED.

1.4 ELECTRICAL CONNECTIONS

- A. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE FURNISHED AND INSTALLED PER DIVISION 26 SPECIFICATIONS.
- B. THE CONTRACTOR FURNISHING EQUIPMENT SHALL PROVIDE THE MOTOR CONTROLLER REQUIRED FOR THE EQUIPMENT. ALL MOTOR CONTROLLERS NOT FACTORY MOUNTED ON MECHANICAL EQUIPMENT SHALL BE MOUNTED BY THE CONTRACTOR FURNISHING THE EQUIPMENT AND MOTOR CONTROLLER. PROVIDE PROPERLY SIZED OVERLOAD HEATERS AND ALL REQUIRED ACCESSORIES WITH ALL MOTOR CONTROLLERS. SEE DIVISION 26 MOTOR CONTROLLERS FOR MOTOR CONTROLLER REQUIREMENTS.
- C. ALL POWER WIRING SHALL BE FURNISHED AND INSTALLED PER DIVISION 26 COMPLETE FROM POWER SOURCE TO MOTOR OR EQUIPMENT JUNCTION BOX INCLUDING POWER WIRING THROUGH THE MOTOR CONTROLLER AND PROPER MEANS OF DISCONNECT PER NEC AND DIVISION 26. THE DIVISION 26 CONTRACTOR SHALL PROVIDE ALL DISCONNECTS, UNLESS NOTED OTHERWISE.

1.5 WORK BY OTHERS

- A. THE HVAC CONTRACTOR SHALL INSTALL ALL MOTORS PROVIDED UNDER THE HVAC CONTRACT READY FOR WIRING BY THE ELECTRICAL CONTRACTOR AND SHALL FURNISH AND DELIVER TO THE ELECTRICAL CONTRACTOR WIRING DIAGRAMS FOR ALL MOTOR STARTERS FOR INSTALLATION AND WIRING. THE HVAC CONTRACTOR SHALL FURNISH MOTOR STARTERS AND RELAYS TO THE ELECTRICAL CONTRACTOR FOR INSTALLATION AND WIRING. THE GENERAL CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, CHASES, OPENINGS, CUTTING, PATCHING AND FINISH WORK.

1.6 FIELD MEASUREMENTS

- A. THE HVAC CONTRACTOR SHALL VERIFY IN THE FIELD ALL MEASUREMENTS NECESSARY FOR THE WORK. VERIFY THERMOSTATS LOCATION WITH THE OWNER BEFORE INSTALLATION.
- B. THE HVAC CONTRACTOR SHALL COORDINATE SUPPLY AND RETURN DUCTWORK LOCATIONS WITH STEEL, CONDUITS AND PIPING OF OTHER TRADES.

1.7 MATERIALS AND METHODS

- A. PIPING:
  - 1. HYDRONIC HEATING, PIPING 2 INCHES AND SMALLER SHALL BE SCHEDULE 40 BLACK STEEL WITH CLASS 125 CAST IRON SCREWED FITTINGS.
  - 2. HOT WATER HEATING PIPING MAY BE TYPE 1" COPPER WITH 98/5 (LEAD FREE) SOLDERED FITTINGS. PROVIDE PROPER DIELECTRIC FITTINGS WHERE COPPER PIPING CONNECTS TO STEEL PIPING MECHANICALLY PRESSED FITTINGS ARE ACCEPTABLE.
  - 3. WATER SYSTEM PIPING SHALL BE RUN LEVEL. TAKE-OFFS SHALL BE MADE FROM THE BOTTOM OF THE MAIN OR AT 45 DEGREES FROM THE BOTTOM OF THE MAIN. PROVIDE DRAIN VALVES AT ALL LOW POINTS; MANUAL AIR VENTS AT ALL HIGH POINTS. USE ECCENTRIC REDUCERS ON HORIZONTAL LINES, FLUSH TO TOP OF THE PIPE.
  - 4. ALL PIPING SHALL BE SUPPORTED IN A MANNER TO PREVENT VIBRATION OR SAGGING. IN NO CASE SHALL THE HANGER SPACING EXCEED THE DISTANCES LISTED IN THE INTERNATIONAL MECHANICAL CODE.
  - 5. ALL PIPING SHALL BE IDENTIFIED WITH SEMI-RIGID PLASTIC IDENTIFICATION MARKERS, SETON SETMARK, SNAP-AROUND TYPE OR EQUIVALENT. DIRECTION OF FLOW ARROWS SHALL BE INCLUDED ON EACH MARKER. ON HORIZONTAL PIPE RUNS, THE MARKERS SHALL BE INSTALLED 25 FEET APART OR LESS. ALSO, LOCATE MARKERS AT WALL PENETRATIONS, VALVES, CHANGES IN DIRECTION AND AT BRANCH MAIN TAKE-OFFS.
- B. DUCTWORK:
  - 1. ALL DUCTWORK AND ACCESSORIES SHALL BE CONSTRUCTED, FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS MANUALS FOR LOW PRESSURE. DUCTS AND FLEXIBLE DUCTS.
  - 2. SUPPLY DUCTWORK SHALL BE GALVANIZED STEEL WITH TWO (2") INCH ACOUSTICAL DUCT LINER AS INDICATED ON PLANS. TWO (2") INCH STATIC PRESSURE CLASSIFICATION, SEAL CLASS 'B'.
  - 3. INSTALL ADEQUATE BALANCING DEVICES, E.G., VOLUME DAMPERS, ETC., AS REQUIRED TO BALANCE EACH SYSTEM TO ITS DESIGN AIRFLOWS.
  - 4. ALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE FIRMLY ATTACHED TO AND SUPPORTED BY THE DUCT SYSTEM.
- C. INSULATION SYSTEMS:
  - 1. PIPING SYSTEMS SHALL BE INSULATED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
    - a. HOT WATER SYSTEMS
      - 1) 2" THROUGH 3/4" PIPE - 1 1/2" FIBERGLASS
    - b. ALL INDOOR FIBERGLASS PIPING INSULATION SHALL HAVE ALL SERVICE JACKET AND ZESTON COVERS ON ALL FITTINGS, VALVES, ETC.
    - c. PIPING INSULATION SHALL RUN CONTINUOUS THROUGH ALL PIPE HANGERS. PROTECT INSULATION WITH TWELVE (12) INCH LONG SHEET METAL INSULATION PROTECTION SADDLES. UNDER SADDLES OF PIPING 1-1/2 INCH OR LONGER, SUBSTITUTE RIGID/CALCIUM SILICATE INSULATION INSERTS FOR THE SPECIFIED INSULATION AND OF THE SAME THICKNESS AS THE SPECIFIED INSULATION.
    - d. MAINTAIN THE INTEGRITY OF ALL PIPING VAPOR BARRIERS. SHOULD CONDENSATION DEVELOP ON ANY PIPE, FITTING, ETC., CONTRACTOR SHALL CORRECT THE VAPOR BARRIER BREAK AND REPLACE ANY INSULATION DAMAGED BY MOISTURE.
    - e. ALL INSULATION PRODUCTS SHALL HAVE 25/50 RATINGS FOR FLAME-SPREAD AND SMOKE-DEVELOPMENT.
  - 2. DUCT SYSTEMS INSULATION:
    - a. CONCEALED AIR CONDITIONING SUPPLY DUCT SYSTEMS SHALL BE INSULATED WITH 1-1/2 INCH THICK FIBERGLASS DUCT WRAP WITH CONTINUOUS VAPOR BARRIER.
    - b. ACOUSTICAL LINING, WHERE SHOWN, SHALL BE NOMINAL ONE (1) INCH THICK FIBERGLASS DUCT LINER, UNLESS OTHERWISE INDICATED, AND SHALL BE IN CONFORMANCE WITH ASTM C 1071 TO PREVENT EROSION, 25/50 FLAME SPREAD/SMOKE-DEVELOPMENT RATINGS, AND MICROBIAL RESISTANCE.

1.8 VIBRATION CONTROLS

- A. GENERAL: ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED, SUPPORTED, AND RESTRAINED IN ACCORDANCE WITH APPLICABLE CODES.
- B. SHOP DRAWINGS: SHOW DESIGNS, PERFORMANCE CRITERIA WITH CODE REFERENCES, AND CALCULATIONS, FOR THE FOLLOWING:
  - 1. DESIGN CALCULATIONS: CALCULATIONS FOR SELECTION OF VIBRATION ISOLATORS.
  - 2. INSTALLATION: INSTALLATION SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE CURRENT CODE, ACCEPTED STANDARDS AND THE EQUIPMENT AND MATERIAL MANUFACTURERS' RECOMMENDATIONS.

1.10 REMOVAL, RELOCATION AND/OR ABANDONMENT

- A. ALL ITEMS OF EXISTING EQUIPMENT AND PIPING OR DUCTWORK, MADE OBSOLETE BY THIS PROJECT, SHALL BE REMOVED. ITEMS BEING REMOVED SHALL BE DISCONNECTED AND TURNED OVER TO THE OWNER OR DISPOSED OF BY THE CONTRACTOR IF THE OWNER SO REQUESTS. ITEMS NOTED FOR RELOCATION ARE INTENDED FOR REUSE IN ANOTHER LOCATION AS DESIGNATED ON THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE THE MATERIAL FROM ITS PRESENT LOCATION, STORE THE MATERIAL IN A SAFE PLACE AND REINSTALL THE MATERIAL IN ITS NEW LOCATION. QUESTIONS REGARDING THE SUITABILITY OF THE MATERIAL OR EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER IN WRITING. ABANDONMENT SHALL BE DEFINED AS ABANDONING IN PLACE ANY ITEM SO DESIGNATED AND SHALL INCLUDE PROPER PIPING OR DUCTWORK TERMINATION WITHIN ANY OCCUPIED OR OPEN AREA. ALL ABANDONED PIPES AND DUCTS SHALL BE DISCONNECTED AND CAPPED AT THEIR MAINS. ALL ABANDONED PIPES SHALL BE CAPPED.

1.12 PIPE PRESSURE TESTING

- A. PIPING SYSTEMS SHALL BE PRESSURE TESTED AS INDICATED BELOW FOR EACH SYSTEM. ALL PIPING SHALL BE TESTED BEFORE IT IS COVERED, CONCEALED OR MADE OTHERWISE INACCESSIBLE.
- B. LEAKS FOUND DURING PRESSURE TESTS SHALL BE CORRECTED BY REMAKING THE JOINT, TIGHTENING OR OTHER SUITABLE METHOD. THE CONTRACTOR SHALL NOT ADD ANY "STOP-LEAK" TYPE COMPOUNDS TO THE PIPING SYSTEM.
- C. ANY SYSTEM REQUIRING LEAK REPAIR SHALL BE RETESTED IN THE SAME MANNER AS THE ORIGINAL TEST.
- D. PIPING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
 

SYSTEM	TEST PRESSURE	TEST MEDIUM	PRESSURE DROP
HOT WATER	125 PSIG	WATER	24 HOURS
- E. THE CONTRACTOR SHALL FURNISH ALL BOOSTER PUMPS, COMPRESSORS, HOSES AND EQUIPMENT REQUIRED TO PERFORM ALL PRESSURE TESTS.

1.13 BALANCING AIR AND WATER SYSTEMS

- A. THIS CONTRACT IS FOR ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR BALANCING THE AIR AND WATER SYSTEMS.
- B. TAB FIRM QUALIFICATIONS: ENGAGE A TAB FIRM CERTIFIED BY EITHER ABC OR NEBB.
- C. CERTIFICATION OF TAB REPORTS: CERTIFY TAB FIELD DATA REPORTS. THIS CERTIFICATION INCLUDES THE FOLLOWING:
  - 1. REVIEW FIELD DATA REPORTS TO VALIDATE ACCURACY OF DATA AND TO PREPARE CERTIFIED TAB REPORTS.
  - 2. CERTIFY THAT TAB TEAM COMPLIED WITH APPROVED TAB PLAN AND THE PROCEDURES SPECIFIED AND REFERENCED IN THIS SPECIFICATION.
- D. TAB REPORT FORMS: USE STANDARD FORMS FROM ABC'S "NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS."
- E. ALL HYDRONIC SYSTEMS SHALL BE BALANCED.
- F. AIR SYSTEMS TO BE BALANCED INCLUDE ALL THE SUPPLY, RETURN, AND EXHAUST SYSTEMS. BALANCING SHALL INCLUDE REBALANCING (ADJUSTING OF SHAFTS AND REPLACING BELTS, IF NEEDED) OF EXHAUST FANS AND AIR HANDLING UNITS, AS REQUIRED TO PROVIDE AIR FLOWS SPECIFIED. THE BALANCING CONTRACTOR SHALL SECURE A SET OF AS-BUILT DUCTWORK PLANS PRIOR TO COMMENCING WORK.
- G. THE BALANCING CONTRACTOR SHALL ATTEND A COORDINATION MEETING WITH THE HVAC AND ATC CONTRACTOR TO COORDINATE SENSOR LOCATIONS.
- H. UPON COMPLETION OF ALL TESTS AND BALANCING OPERATIONS, THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF A CERTIFIED BALANCING REPORT TO THE ENGINEER. THIS REPORT SHALL INCLUDE ALL DATA FOR EACH OF THE AIR AND WATER SYSTEMS.
- I. BALANCING OF SYSTEMS SHALL BE FOLLOWED UP AFTER BUILDING IS OCCUPIED; ANY REBALANCING SHALL BE DONE AS REQUIRED TO MEET OCCUPANT'S REQUIREMENTS WITHOUT EXTRA CHARGE.

1.14 AUTOMATIC TEMPERATURE CONTROLS

- A. THIS CONTRACT IS FOR ALL LABOR, MATERIALS, TRAINING, SOFTWARE AND EQUIPMENT REQUIRED TO INTERFACE ALL NEW WORK WITH THE EXISTING AUTOMATIC TEMPERATURE CONTROL SYSTEM (ATCS). ALL NEW WORK SHALL BE SEAMLESSLY INTEGRATED WITH THE EXISTING ATC. THIS SHALL INCLUDE BUT IS NOT LIMITED TO: CONNECTION TO THE EXISTING HEAD END SYSTEM, GRAPHICS, ALARMS AND PROGRAMMING. THE EXISTING CONTROLS MANUFACTURER ON CAMPUS IS JOHNSON CONTROLS-METASYS.
- B. ANY APPARATUS, MATERIAL, AND WORK NOT SHOWN ON DRAWINGS, BUT MENTIONED IN THE SPECIFICATIONS, OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION AS DETERMINED BY GOOD TRADE PRACTICE EVENT IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED, DELIVERED AND INSTALLED UNDER THEIR RESPECTIVE DIVISIONS WITHOUT ANY ADDITIONAL EXPENSE TO THE OWNER.
- C. BIDS FOR THE ATC SHALL BE SUBMITTED FROM JOHNSON CONTROLS-METASYS.
- D. THE SCOPE OF WORK INCLUDES A COMPLETE, NEW AUTOMATIC TEMPERATURE CONTROL SYSTEM AS SPECIFIED HEREIN, COMPLETE IN ALL RESPECTS, TESTED, ACCEPTED, AND READY FOR THE BENEFICIAL USE OF THE OWNER. THE SCOPE SHALL INCLUDE ANY REQUIRED UPGRADES TO THE EXISTING HEAD-END SOFTWARE AND GRAPHICS SUCH THAT ALL NEW CONTROL POINTS ARE INTEGRATED AND DISPLAYED TYPICAL TO EXISTING BUILDING SYSTEMS.
- E. ALL EQUIPMENT SHALL BEAR THE LABEL OF A LISTING AGENCY AND SHALL MEET WITH ALL APPLICABLE NFPA STANDARDS.
- F. THE WORK OF THIS SECTION TO BE PROVIDED BY THE ATC CONTRACTOR INCLUDES:
  - 1. ALL CIRCUITS WHICH ARE ACTIVATED/DE-ACTIVATED BY OR ACTIVATED/DEACTIVATE A TEMPERATURE CONTROL SYSTEM COMPONENT, SUCH AS, BUT NOT LIMITED TO: HIGH AND LOW LIMIT PROTECTIVE DEVICES; RELAYS; END SWITCHES, ETC.
  - 2. ALL TEMPERATURE CONTROL PANEL WIRING TO TERMINAL STRIPS AND FIELD WIRING FROM TERMINAL STRIPS TO FIELD MOUNTED DEVICES.
  - 3. ALL WIRING TO THE "AUTO" SIDE OF HAND-OFF-AUTO SWITCHES ON UNITS BEING CONTROLLED BY THE ATC.
  - 4. WIRING OF ALL ELECTRO-MECHANICAL DEVICES REQUIRED TO BE LOCATED ON OR IN TEMPERATURE CONTROL PANELS.
  - 5. POWER AND CONTROL WIRING TO ALL ATOS EQUIPMENT, INCLUDING BUT NOT LIMITED TO: DDC CONTROLLERS, CONTROL PANELS, MOTORIZED DAMPERS, AND VALVE ACTUATOR, TIME CLOCKS, RELAYS, TRANSFORMERS, AND ALL OTHER CONTROL DEVICES. PROVIDE ALL CIRCUIT BREAKERS TO MATCH NEW OR EXISTING PANEL TYPE.
  - 6. ALL WIRING AND CONDUIT SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND ELECTRICAL SECTION OF THE SPECIFICATION, DIVISION 26. ALL WORK SHALL BE PERFORMED BY LICENSED ELECTRICIANS.
  - 7. CONTROL EQUIPMENT AND DEVICES SHALL BE PROVIDED IN VOLTAGES THAT ARE READILY AVAILABLE AT THE LOCATION OF INSTALLATION. COORDINATE WITH CONTRACT DOCUMENTS AND DIVISION 26.
  - 8. WIRING BETWEEN COMPONENTS OF PACKAGED EQUIPMENT (I.E., ROOFTOP UNIT TO THERMOSTAT; SPLIT SYSTEM COMPONENTS, ETC.).
  - 9. CONTROL WIRING FROM SMOKE DETECTORS TO FANS FOR FAN SHUTDOWN.
  - 10. POWER WIRING FROM ELECTRICAL PANELS TO ALL TEMPERATURE CONTROL EQUIPMENT. PROVIDE BREAKERS IN ELECTRICAL PANELS.
- G. WORK BY OTHERS:
  - 1. THE FOLLOWING WORK IS SPECIFIED UNDER DIVISION 26:
    - a. WIRING OF POWER FEEDS TO ALL DISCONNECTS, STARTERS AND EQUIPMENT MOTORS.
    - b. FURNISHING AND WIRING OF DUCT SMOKE DETECTORS.
- H. UPON COMPLETION OF PROJECT, SUBMIT TO THE OWNER CONTROL DRAWINGS CORRECTED FOR "AS-BUILT" CONDITIONS. DRAWINGS SHALL INCLUDE FINAL PRESSURE SETTINGS, TEMPERATURE RANGES, THROTTLING RANGES, TEMPERATURE CONTROL SETTINGS AND SEQUENCES OF OPERATION.
- I. PRODUCTS:
  - 1. ROOM THERMOSTATS/TEMPERATURE SENSORS SHALL BE PER THE BUILDING STANDARD INCLUDING FEATURE SET, SETPOINT ADJUSTMENT AND DISPLAY, AND LOCAL OVERRIDE.
  - 2. AUTOMATIC CONTROL VALVES SHALL BE FULLY PROPORTIONING, QUIET IN OPERATION AND FAIL-SAFE IN THE EVENT OF CONTROL FAILURE. ALL VALVES SHALL BE CAPABLE OF OPERATING IN SEQUENCE WHEN REQUIRED. ALL CONTROL VALVES SHALL BE SIZED BY THE CONTROL CONTRACTOR OR VALVE MANUFACTURER AND SHALL BE SUITABLE FOR THE SYSTEM PRESSURE CONDITIONS AND SHALL CLOSE AGAINST THE DIFFERENTIAL PRESSURE INVOLVED.
  - 3. CONTROL DAMPERS SHALL BE SINGLE OR MULTIPLE BLADE AS REQUIRED AND PROPERLY SIZED FOR MINIMUM PRESSURE DROP AND NOISE GENERATION. AIR LEAKAGE THROUGH THE DAMPER SHALL NOT EXCEED 1/2 OF 1 PERCENT OF SYSTEM CAPACITY AT 4" WATER STATIC PRESSURE. DAMPER LEAKAGE SPECIFICATIONS AND FLOW CHARACTERISTICS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE. DAMPER OPERATORS SHALL HAVE AMPLE POWER TO OPERATE THE DAMPER AGAINST THE EXPECTED SYSTEM PRESSURES. DAMPERS SHALL BE CAPABLE OF OPERATING IN SEQUENCE AND SHALL FAIL SAFE UPON A CONTROL FAILURE.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF DIVISION 23



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ART LAB RELOCATION  
BASEMENT WHITE HALL

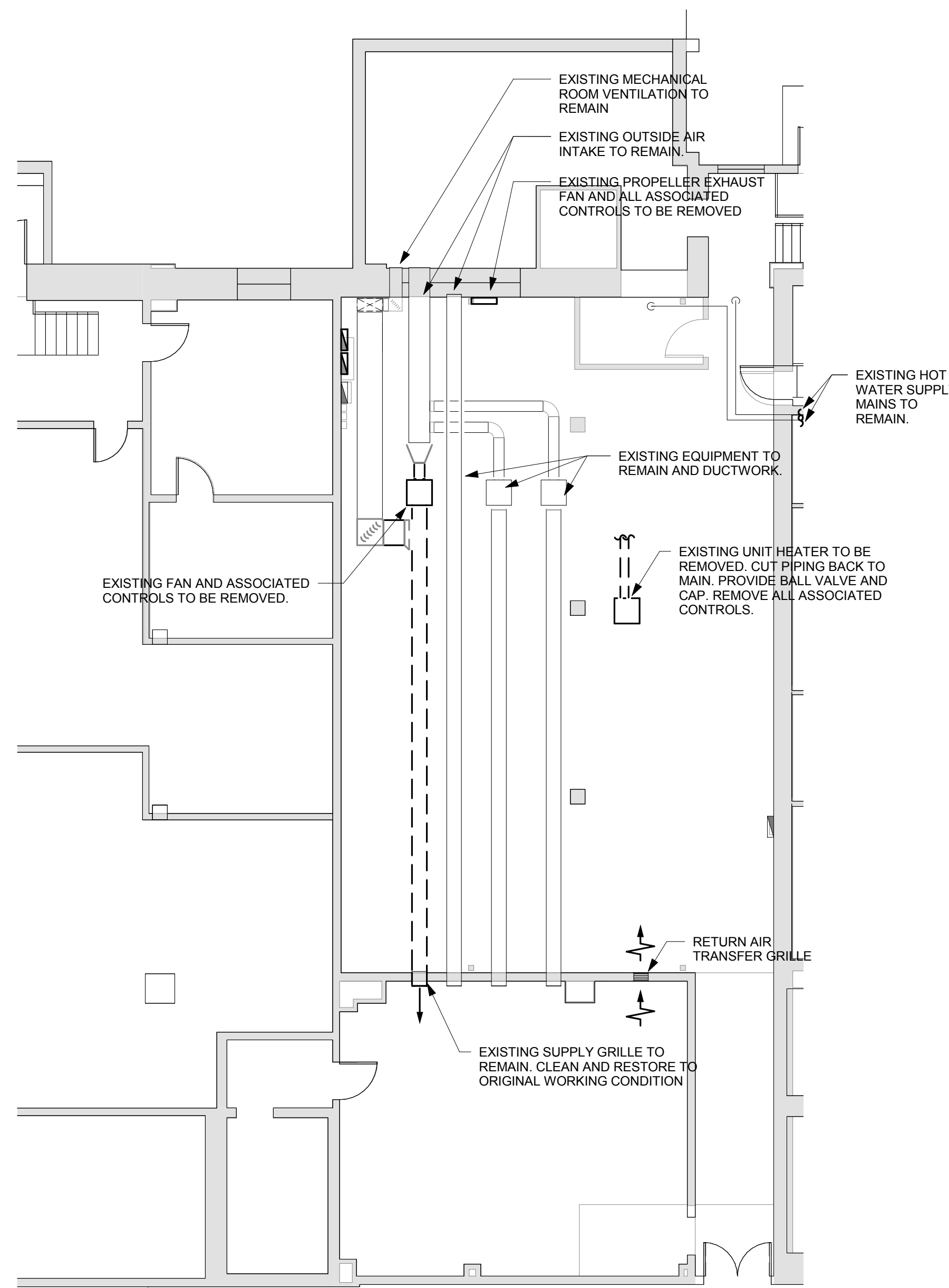
HVAC  
SPECIFICATIONS

Project No. BI-RD-294  
By: BLH  
Scale: N.T.S.  
Issue Date: 12/6/2017

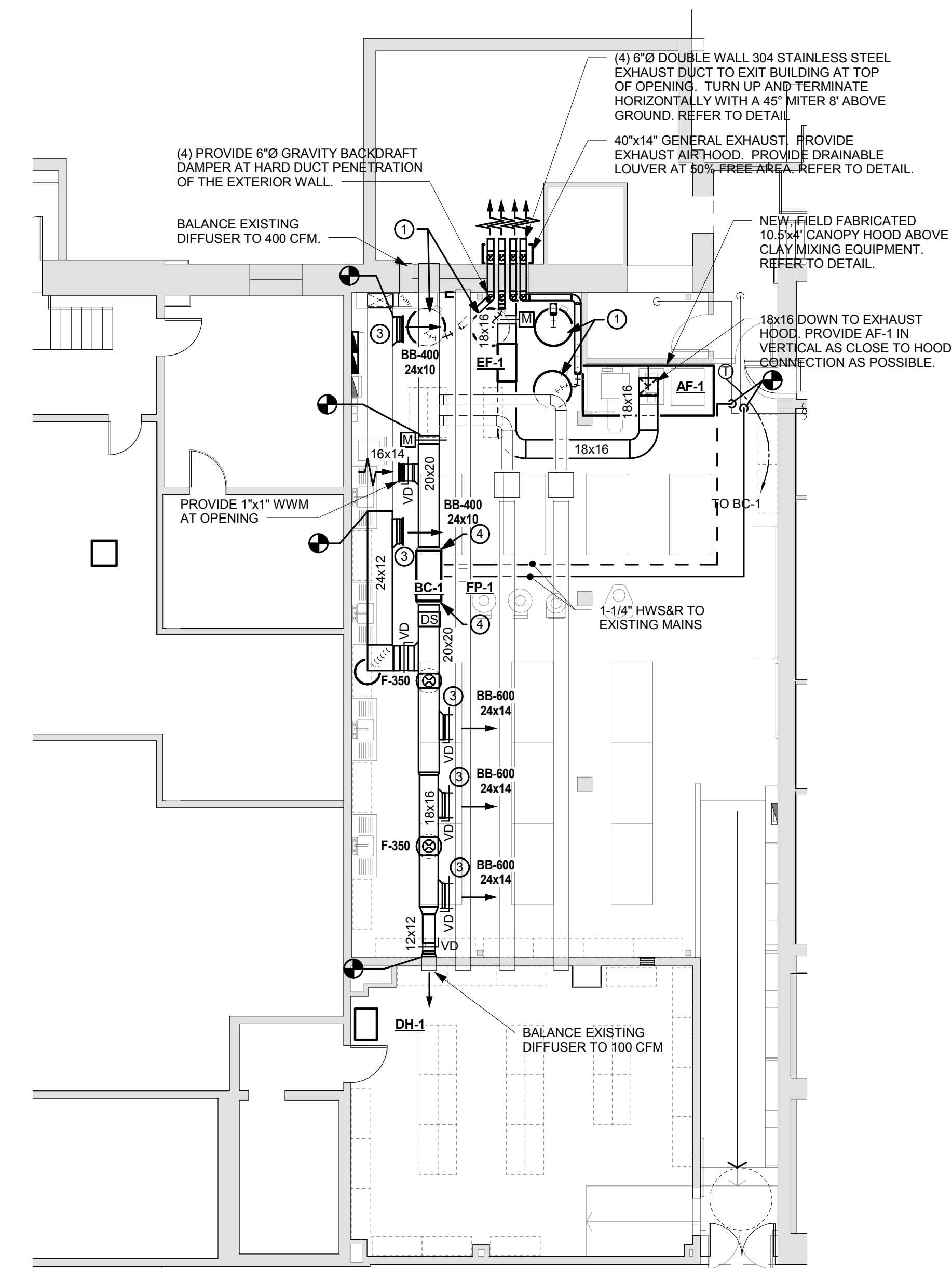
H-0







2 HVAC DEMOLITION PLAN  
 1/8" = 1'-0"



1 NEW HVAC PLAN  
 1/8" = 1'-0"

**NEW HVAC DRAWING NOTES:**

- 1 VENT-A-KILN MODEL 1544 HEAT AND CONTAMINANT CAPTURE SYSTEM. THE SYSTEM SHALL BE PROVIDED WITH A 44"Ø ALUMINUM HOOD, INTEGRAL 1/8 HP MOTOR AND BLOWER, AND COUNTERWEIGHTED OVERHEAD PULLEY SYSTEM FOR LIFTING OF THE HOOD. THE KILN HOOD SHALL BE PROVIDED WITH A PROGRAMMABLE MINI-TIME CONTROLLER BY THE MANUFACTURER. THE BLOWER SHALL BE CAPABLE OF 450 CFM AT 0.01" W.G. THE UNIT SHALL BE PROVIDED WITH 6"Ø, 10' FLEX HOSE. SYSTEM SHALL BE PROVIDED WITH STANDARD POSITIVE PRESSURE BLOWER ARRANGEMENT. CONTRACTOR SHALL PROVIDE SUPPORT FOR PULLEY SYSTEM MOUNTING. PROVIDE FAN WITH NEMA L520P
- 2 PROVIDE 6"Ø 304 STAINLESS STEEL HARD DUCT CONNECTION TO THE VENT-A-KILN FLEX CONNECTION.
- 3 SET DIFFUSER BLADES AT 22.5° ANGLE ABOVE HORIZONTAL (UP).
- 4 PROVIDE FLEXIBLE DUCT CONNECTION FROM METAL DUCT TO BC-1.

**NEW HVAC GENERAL NOTES:**

1. BC-1 AND EF-1 SHALL BE PROVIDED WITH ACOUSTICALLY LINED DUCTWORK BOTH UP AND DOWNSTREAM FOR A 10' LENGTH.



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**ART LAB RELOCATION  
 BASEMENT WHITE HALL**

**DEMOLITION AND PROPOSED HVAC PLANS**

Project No. BI-RD-294  
 By: MW  
 Scale: 1/8" = 1'-0"  
 Issue Date: 12/6/2017

**H-1**







Revisions	
No.	Date



ART LAB RELOCATION  
BASEMENT WHITE HALL

HVAC  
CONTROLS

Project No. BI-RD-294
By: BLH
Scale: 12" = 1'-0"
Issue Date: 12/6/2017

H-5

### HVAC CONTROLS LEGEND

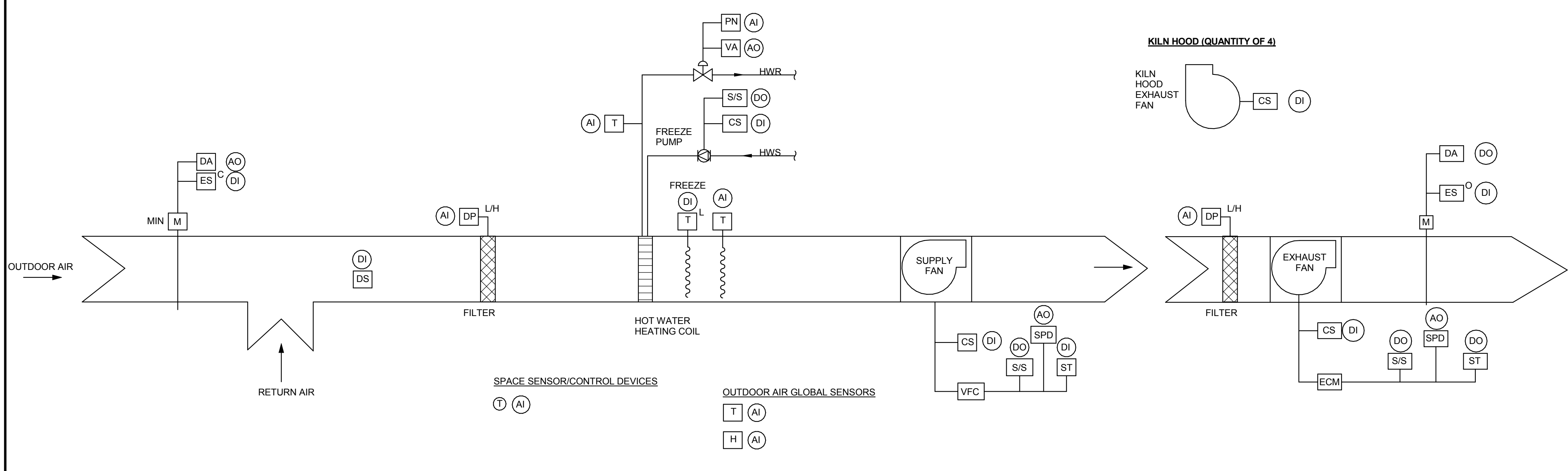
**CONTROL ABBREVIATIONS**  
 BMS CENTRAL BUILDING MANAGEMENT SYSTEM  
 C COMMON  
 EA EXHAUST AIR  
 MA MIXED AIR  
 NC NORMALLY CLOSED  
 NO NORMALLY OPEN  
 OA OUTDOOR AIR  
 RA RETURN AIR  
 SA SUPPLY AIR

**CONTROL SYMBOLS**

- 2-WAY CONTROL VALVE
- FLOW SWITCH
- MOTORIZED DAMPER
- DAMPER ACTUATOR
- DUCT SMOKE DETECTOR
- VALVE ACTUATOR
- VARIABLE FREQUENCY CONTROLLER
- AIR FLOW STATION
- AVERAGING SENSOR
- PILOT LIGHT SWITCH
- MARK TIME SWITCH
- SMOKE DAMPER
- COMBINATION FIRE / SMOKE DAMPER
- FLOW METER
- FIRE ALARM ADDRESSABLE INTERFACE DEVICE
- SPACE SENSOR / TRANSMITTER
- SENSOR / TRANSMITTER

**INTERFACE**

- AI ANALOG INPUT
- AO ANALOG OUTPUT
- BAC BACNET MS / TP LAN INTERFACE
- DI DIGITAL INPUT
- DO DIGITAL OUTPUT
- HDW HARDWARE THRU RELAY
- LEG LEGACY MAPPED INTERFACE
- LON LOWWORKS INTERFACE
- RS MAPPED RS INTERFACE



**BLOWER COIL (BC-1), EXHAUST FAN (EF-1), AND KILN HOOD CONTROL**

1. **GENERAL:**
  - A. CONTENT VOLUME BLOWER COIL UNIT PROVIDED FOR HEATING AND VENTILATION. THE BLOWER COIL HAS A FILTER, HOT WATER COIL WITH FREEZE PROTECTION PUMP, AND SUPPLY FAN. THE EXHAUST FAN SHALL BE INTERLOCKED WITH THE OUTDOOR AIR INTAKE DAMPER AND KILN HOOD EXHAUST FAN CURRENT SENSORS.
2. **OCCUPIED/UNOCCUPIED (OCC/UNOCC) MODE:**
  - A. OCC/UNOCC SCHEDULES SHALL BE ESTABLISHED VIA PROGRAMMED HEAD END SCHEDULES AS COORDINATED WITH AND DIRECTED BY OWNER
  - B. WHENEVER ANY ZONE IS OVERRIDDEN TO OCCUPIED MODE THE ASSOCIATED BLOWER COIL SHALL BE INDEXED TO OCCUPIED MODE
  - C. IN UNOCCUPIED MODE SUPPLY AND RETURN FANS SHALL BE DISABLED AND UNIT SHALL CYCLE TO MAINTAIN BUILDING SETBACK ZONE TEMPERATURES
3. **MORNING WARM UP SEQUENCE MODE:**
  - A. COMMAND UNIT ON 1 HOUR (ADJ) PRIOR TO OCCUPANCY.
  - B. UNIT SHALL OPERATE IN NORMAL OCCUPIED MODE EXCEPT IN FULL RETURN AIR CONFIGURATION.
  - C. WHEN ALL SPACE ZONE TEMPERATURES HAVE REACHED A STABLE OCCUPIED SET POINT WARM-UP CYCLE SHALL END AND THE UNIT WILL INDEX TO OCCUPIED MODE
4. **DISABLED CONDITION**
  - A. WHENEVER THE UNIT IS DISABLED FANS SHALL BE OFF AND, OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL BE CLOSED. THE HEATING COIL VALVE SHALL MODULATE TO MAINTAIN AN INTERNAL CASE TEMPERATURE OF 50°F (ADJ) AT THE HEATING COIL DISCHARGE AIR TEMPERATURE SENSOR.
5. **RESTART/START COMMAND:**
  - A. WHEN THE SYSTEM IS STARTED OR RESET, THE FANS SHALL BE SENT A START COMMAND. THE SUPPLY FAN SHALL RAMP UP OVER 30 SECONDS (ADJ) AND HEATING COIL SHALL COME UNDER NORMAL CONTROL. ONCE FANS AND COILS ARE UNDER STABLE CONTROL AT SET POINT, MINIMUM OUTSIDE AIR AND EXHAUST AIR DAMPERS AND EXHAUST FAN SHALL COME UNDER CONTROL OVER 240 SECONDS SUBJECT TO MORNING WARM UP SEQUENCES.
7. **STOP/SHUT-DOWN COMMAND:**
  - A. A UNIT SHUTDOWN SHALL OCCUR UNDER THE CONDITIONS INDICATED BELOW. THE SUPPLY AND EXHAUST FAN SHALL RAMP DOWN TO MINIMUM SPEED IN 30 SECONDS (ADJ) AND COMMAND OFF. ALL EMERGENCY COMMANDS SHALL BE A HARD WIRE INTERLOCK THAT IMMEDIATELY DISCONNECTS POWER TO THE SUPPLY AND EXHAUST FANS AND IS ALARMED AT OPERATOR WORKSTATION. ONCE COMMANDED TO SHUTDOWN, THE UNIT SHALL GO TO DISABLED MODE. EACH EMERGENCY CONDITION SHUTDOWN REQUIRES A MANUAL RESET TO CLEAR ALARM AND ALLOW START OF UNIT. SUBJECT TO OPTIMUM / DEMAND LIMITING CONTROL SEQUENCE.
  - B. EMERGENCY SMOKE CONDITION IN BC RETURN DUCT DISTRIBUTION AS SENSED BY AHU/DUCT DISTRIBUTION SMOKE DETECTORS
  - C. EMERGENCY SHUTDOWN CONDITION AS COMMANDED FROM BUILDING FIRE ALARM SYSTEM FOR BOTH ALARM CONDITION IN ACCORDANCE WITH AHJ AND OWNER REQUIREMENTS AND FOR A MANUAL EMERGENCY SHUTDOWN COMMAND.
  - F. EMERGENCY FREEZE CONDITION
  - H. MANUAL COMMAND FROM THE OPERATOR'S WORKSTATION
8. **SUPPLY FAN CONTROL:**
  - A. THE SUPPLY FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. THE SUPPLY FAN SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE SET POINT DURING UNOCCUPIED HOURS.
  - C. FANS SHALL BE SUBJECT TO A MAXIMUM SPEED LIMIT OF 60HZ
9. **EXHAUST FAN CONTROL:**
  - A. THE EXHAUST FAN, SUBJECT TO THE EXHAUST AIR DAMPER END SWITCH, SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. THE EXHAUST FAN SPEED SHALL VARY ACCORDING TO THE FOLLOWING SCHEDULE:
    1. 0" KILN HOOD FAN ACTIVE (AS SENSED BY KILN FAN CURRENT SENSORS) FULL SPEED AS DETERMINED BY TAB CONTRACTOR
    2. 1" KILN HOOD FAN ACTIVE (AS SENSED BY KILN FAN CURRENT SENSORS) FULL SPEED AS DETERMINED BY TAB CONTRACTOR
    3. 2" KILN HOOD FAN ACTIVE (AS SENSED BY KILN FAN CURRENT SENSORS) 1/2 SPEED AS DETERMINED BY TAB CONTRACTOR
    4. 3" KILN HOOD FAN ACTIVE (AS SENSED BY KILN FAN CURRENT SENSORS) 1/2 SPEED AS DETERMINED BY TAB CONTRACTOR
    5. 4" KILN HOOD FAN ACTIVE (AS SENSED BY KILN FAN CURRENT SENSORS) OFF

**11. HOT WATER HEATING COIL WITH FREEZE PROTECTION PUMP:**

- A. DURING OCCUPIED PERIODS, WHEN FAN IS RUNNING, ON A CALL FOR HEATING MODULATE CONTROL VALVE TO MAINTAIN SUPPLY AIR TEMPERATURE SET POINT OF 85°F (ADJ). WHEN SPACE TEMPERATURE SET POINT IS SATISFIED AND OUTSIDE AIR TEMPERATURE IS LESS THAN 55°F (ADJ) MODULATE THE CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE OF 70°F (ADJ).
- B. DURING UNOCCUPIED PERIODS, ENABLE THE FREEZE PROTECTION PUMP WHENEVER THE OUTDOOR AIR TEMPERATURE IS BELOW 45°F
- C. DURING UNOCCUPIED PERIODS, ENABLE THE FREEZE PROTECTION PUMP WHENEVER THE OUTDOOR AIR TEMPERATURE IS BELOW 35°F
- D. MONITOR PUMP STATUS AND IF PUMP FAILS, ALARM AND OPEN HEATING VALVE TO FULL OPEN POSITION
- E. DURING UNOCCUPIED MODE, WHEN FAN IS OFF, MODULATE CONTROL VALVE TO MAINTAIN A LOW LIMIT TEMPERATURE OF 50°F AT THE HEATING COIL DISCHARGE AND A LOW LIMIT HOT WATER RETURN TEMPERATURE OF 45°F

**12. ALARMS:**

- A. CAUTIONARY ALARM WHEN UNOCCUPIED MODE IS OVERRIDDEN
- B. UNIT STOPPED CONDITION
- C. SUPPLY FAN STOPPED
- D. SUPPLY FAN FAULT/FAILURE CONDITION
- E. EXHAUST FAN STOPPED CONDITION
- F. EXHAUST FAN FAULT/FAILURE CONDITION
- G. SMOKE CONDITION
- M. FREEZE CONDITION
- N. FREEZE PUMP FAILURE CONDITION
- Q. LOW/HIGH UNIT DISCHARGE AIR TEMPERATURES
- S. LOW/HIGH FILTER BANK PRESSURES
- T. EXHAUST/OUTDOOR AIR DAMPERS FAILURE CONDITION

**13. GRAPHICS:**

- A. ALARM CONDITIONS
- B. OCCUPIED/UNOCCUPIED MODE
- C. SUPPLY FAN STATUS
- D. SUPPLY FAN SPEED
- E. SUPPLY FAN AIR FLOW
- G. DISCHARGE AIR TEMPERATURE
- J. HW COIL FREEZE PUMP STATUS
- L. HW COIL VALVE POSITION PERCENTAGE
- M. HW COIL DISCHARGE AIR TEMPERATURE
- U. EXHAUST FAN STATUS
- V. EXHAUST FAN SPEED
- AD. OUTSIDE AIR TEMPERATURE (GLOBAL)
- AE. OUTSIDE AIR HUMIDITY (GLOBAL)
- AG. OUTSIDE AIR FLOW (MIN/MAX/TOTAL)
- AH. FILTER DIFFERENTIAL PRESSURE

**14. MISCELLANEOUS MONITORING POINTS:**

1. SEQUENCE OF OPERATION
  - A. MONITOR GENERAL STATUS AND ALARM OF PACKAGED CONTROLS.
2. ALARMS
  - A. GENERAL FAULT/FAILURE
3. GRAPHICS
  - A. ALARM CONDITIONS
  - B. PACKAGED PUMP STATUS

**BLOWER COIL (BC-1), EXHAUST FAN (EF-1), AND KILN HOOD CONTROL SCHEMATIC**  
N.T.S.

NOTE: REFER TO PLANS AND SPECIFICATIONS OF ALL TRADES FOR QUANTITIES AND LOCATIONS.

**COMMON REQUIREMENTS FOR SEQUENCES OF OPERATIONS**

1. ALL SETPOINTS SHALL BE PROGRAMMED ADJUSTABLE AT THE OPERATOR WORKSTATION.
2. ALL HIGH AND LOW LIMITS SHALL BE ALARMED.
3. ALL HYDRONIC PROOF OF FLOW SHALL BE VIA CURRENT SENSORS.
4. ALL FAN PROOF OF OPERATION SHALL BE HIGH AND LOW CURRENT SENSORS.
5. ALL UNIT SMOKE DETECTION, FREEZE PROTECTION, HIGH CONDENSATE LEVEL EMERGENCY SHUTDOWN/HIGH/LOW LIMIT AND/OR OTHER PROTECTIVE DEVICES SHALL BE DONE BY HARDENED RELAY INTERLOCK WITH LOCAL MANUAL RESET AND SHALL NOT RELY ON CONTROL SYSTEM PROGRAMMING.
6. ALL DAMPERS SHALL HAVE OPEN AND CLOSED STATUS INDICATION THROUGH END SWITCHES OR INTEGRAM ACTUATOR FEATURE.
7. ALL DAMPERS SHALL HAVE AN INDEPENDENT CONTROL POINT. MULTIPLE DAMPERS OF DIFFERENT APPLICATIONS (I.E., OUTDOOR, RETURN, RELIEF) CONTROLLED FROM A SINGLE POINT ARE NOT ACCEPTABLE
8. ALL AIR HANDLING SYSTEMS WITH DUCTED OUTDOOR AIR SHALL BE PROVIDED WITH FREEZE PROTECTION.





**SECTION 26000 - ELECTRICAL SYSTEMS  
PART 1 - GENERAL**

- 1.1 DESCRIPTION
- A. ARCHITECT'S GENERAL CONDITIONS ARE A PART OF THIS DIVISION. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH APPLICABLE CODES AND UTILITY COMPANY REQUIREMENTS. ALL EQUIPMENT SHALL BE UL LISTED. THE CONTRACTOR SHALL BEAR THE COST OF ALL FEES, PERMITS, LICENSES AND TAXES, AND ANY UTILITY COMPANY CHARGES IN CONNECTION WITH HIS WORK.
  - B. PROVIDE ELECTRICAL COPY OF SUBMITTALS FOR ALL EQUIPMENT AND SYSTEMS SPECIFIED UNDER THIS PROJECT. SUBMIT INFORMATION ON ANY OTHER EQUIPMENT TO BE USED WHEN REQUESTED BY THE ARCHITECT OR ENGINEER.
  - C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A GUARANTEE COVERING ALL MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR FOLLOWING THE DATE OF ACCEPTANCE.
  - D. THE ELECTRICAL CONTRACTOR SHALL EXAMINE ARCHITECTURAL DRAWINGS AND THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES TO DETERMINE THE EXTENT OF HIS WORK. HE SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE PROJECT AND LOCAL CONDITIONS. UPON SUBMITTING HIS BID HE SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS MADE THEREOF. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IF SO DIRECTED BY THE ENGINEER, THE ELECTRICAL CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT TO PREVENT CONFLICT WITH THOSE OF OTHER TRADES AND FOR PROPER INSTALLATION OF WORK. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION ARE TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
  - E. ALL EQUIPMENT AND PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
  - F. THE ELECTRICAL CONTRACTOR SHALL ARRANGE HIS WORK SO THAT ANY POWER OUTAGE DOES NOT INTERFERE WITH THE OWNER'S OPERATION.
- 1.2 SCOPE OF WORK
- A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE ELECTRICAL SYSTEM FOR WORK IN THE RENOVATED AREA WHICH INCLUDES, BUT IS NOT LIMITED TO: DEMOLITION, RACEWAYS, PANELBOARDS AND CIRCUIT BREAKERS, BRANCH CIRCUITS AND FEEDERS, LIGHT FIXTURES, SWITCHES, RECEPTACLES, DISCONNECT SWITCHES, FURNITURE WIRING BASE-POWER INS, WALL WIRING BASE-POWER-INS, WIRING OF MECHANICAL EQUIPMENT, FIRE ALARM SYSTEM, TELECOMMUNICATIONS RACEWAYS, AND ALL OTHER ITEMS AND EQUIPMENT AS SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED.
  - B. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING OR MODIFYING EXISTING EQUIPMENT AND WIRING REQUIRED FOR NEW CONSTRUCTION.
  - C. THE ELECTRICAL SYSTEM SHALL BE COMPLETE IN ALL RESPECTS, TESTED, APPROVED AND READY FOR THE BENEFICIAL USE OF THE OWNER.
- 1.3 WORK BY OTHERS
- A. CUTTING, PATCHING, PREPARATION AND PAINTING OF FINISH WORK SHALL BE DONE BY THE GENERAL CONTRACTOR.
  - B. THE HVAC AND PLUMBING CONTRACTORS SHALL INSTALL ALL RESPECTIVE MOTORS AND STARTERS READY FOR WIRING BY THE ELECTRICAL CONTRACTOR AND SHALL FURNISH AND DELIVER WIRING DIAGRAMS FOR ALL MOTORS, STARTERS AND OTHER EQUIPMENT TO THE ELECTRICAL CONTRACTOR.
  - C. ALL AUTOMATIC TEMPERATURE CONTROL PANELS, THERMOSTATS, AQUASTATS ZONE VALVES, ETC., FOR THE MECHANICAL SYSTEMS WILL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. ALL CONTROL WIRING AND REQUIRED FINAL CONNECTIONS TO CONTROL DEVICES SHALL BE BY THE MECHANICAL CONTRACTOR, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 1.4 FIELD MEASUREMENTS
- A. THE ELECTRICAL CONTRACTOR SHALL VERIFY IN THE FIELD ALL MEASUREMENTS NECESSARY FOR HIS WORK. CONDUITS, SWITCHES, RECEPTACLES, PANELS AND LIGHT FIXTURES WHICH HAVE NOT ALREADY BEEN INSTALLED MAY BE RELOCATED UP TO TEN FEET FROM LOCATIONS SHOWN ON THE DRAWING WHEN SO DIRECTED BY THE ENGINEER, AT NO COST TO THE OWNER.
  - B. VERIFY ALL INTERIOR LIGHTING FIXTURE LOCATIONS AND MOUNTING HEIGHTS WITH THE ARCHITECT BEFORE INSTALLATION.
- 1.5 WIRING METHODS
- A. PROVIDE DEDICATED NEUTRALS. COMMON NEUTRALS ARE NOT PERMITTED.
  - B. ELECTRIC METALLIC TUBING (EMT) SHALL BE USED FOR FEEDERS RUN ABOVE GROUND, ALL EXPOSED BRANCH CIRCUIT WIRING AND TELEPHONE. EMT SHALL BE USED FOR ALL CIRCUIT HOMERUNS.
  - C. TYPE MC METAL-CLAD CABLE MAY BE USED FOR BRANCH WIRING ONLY TO LIGHT FIXTURES, RECEPTACLES AND SWITCHES. THE MC CABLE SHALL BE CONSTRUCTED OF GALVANIZED STEEL ARMOR OUTER COVERING WITH A SUPPLEMENTAL CABLE TAPE, INTEGRAL MARKER TAPE, TYPE THHN/THWN INSULATED CONDUCTORS AND INTERNAL COPPER EQUIPMENT GROUND CONDUCTOR. ALL CABLES SHALL BE RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE AT LEAST FOUR (4) FOOT ON CENTER AND RUN IN LINES PARALLEL OR PERPENDICULAR TO BUILDING STRUCTURAL MEMBERS. NO CABLE SHALL REST ON THE CEILING STRUCTURE. TYPE MC CABLE SHALL BE AS MANUFACTURED BY AFC OR ACCEPTABLE EQUIVALENT. TYPE AC ARMORED CABLE SHALL NOT BE PERMITTED ON THE JOB.
  - D. FLEXIBLE METALLIC CONDUIT (FMC) OR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC) SHALL BE USED FOR CONNECTIONS TO VIBRATING EQUIPMENT.
  - E. ALL WIRING SHALL BE RUN CONCEALED WHERE POSSIBLE. WIRING THAT MUST BE RUN ALONG THE SURFACE OF EXISTING WALLS SHALL BE APPROVED BY THE ARCHITECT/ENGINEER BEFORE INSTALLATION AND SHALL BE RUN IN EMT RACEWAY.
  - F. FEEDERS AND BRANCH CIRCUITS: COPPER THWN OR THHN INSULATION AS REQUIRED BY NEC. SOLID FOR NO. 12 AWG AND SMALLER, STRANDED FOR NO. 10 AND LARGER.
  - H. THE CONTRACTOR SHALL INCLUDE A GREEN GROUND CONDUCTOR FOR ALL CIRCUITS; THE USE OF THE CONDUIT SYSTEM OR CABLE COVERING AS THE SOLE MEANS OF GROUNDING WILL NOT BE PERMITTED.
  - I. ALL EXPOSED CONDUITS SHALL BE RUN NEATLY IN LINES PARALLEL OR PERPENDICULAR TO BUILDING WALLS. ALL SPLICES SHALL BE MADE WITH SCOTCHLOK SPRING CONNECTORS OR ACCEPTABLE EQUIVALENT. ENTIRE WIRING SYSTEMS SHALL BE GROUNDED AS MENTIONED ABOVE. CONNECTIONS TO LIGHTING FIXTURES AND MECHANICAL EQUIPMENT SHALL BE IN FLEXIBLE METALLIC TUBING.
- 1.6 PANELBOARDS
- A. EXISTING PANELS UNDER THIS RENOVATION SHALL BE ALTERED AS INDICATED ON THE DRAWINGS.
  - B. EXISTING BRANCH CIRCUIT BREAKERS IN ALTERED PANELS SHALL BE USED FOR NEW BRANCH CIRCUITS AND/OR PROVIDED WITH NEW BREAKERS. CONTRACTOR SHALL CHECK EXISTING BREAKERS TO BE REUSED AND ANY BREAKER FOUND DEFECTIVE SHALL BE REPLACED WITH AN APPLICABLE TYPE BREAKER MATCHING THE EXISTING.
  - C. NEW PANELS: ALL PANELBOARDS WILL BE SQUARE D TYPE "NGOD" OR I-LINE SERIES PANELBOARDS OR ACCEPTABLE EQUIVALENT BY GENERAL ELECTRIC OR WESTINGHOUSE. PANELBOARDS WILL BE FURNISHED WITH MAIN LUGS OR MAIN CIRCUIT BREAKER, AND BOLT-ON TYPE BRANCH BREAKERS AS NOTED ON THE PANELBOARD SCHEDULE, CATON LOCKS, GROUND BUS, AND CIRCUIT INDEX CARD HOLDER AND HINGED DOOR-IN-DOOR COVER.
- 1.7 SWITCHES, RECEPTACLES AND ACCESSORIES
- A. WALL SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR, UNLESS OTHERWISE INDICATED. WHERE THERE IS MORE THAN ONE (1) SWITCH IN ONE (1) LOCATION, SWITCHES SHALL BE GANGED UNDER ONE (1) COVER. DUPLEX RECEPTACLES SHALL BE MOUNTED 18" AFF TO THE BOTTOM, UNLESS OTHERWISE INDICATED. ALL WALL SWITCHES AND RECEPTACLES SHALL BE SURFACE MOUNTED, WHERE APPLICABLE AND FURNISHED WITH STAINLESS STEEL COVER PLATES OR OTHER TYPE PLATE AS REQUESTED BY OWNER.
  - B. OUTLET AND SWITCH BOXES SHALL BE ZINC-COATED STEEL. USE PLASTER COVERS FOR BOXES INSTALLED IN SHEET ROCK WALLS.
  - C. SWITCHES AND RECEPTACLES SHALL BE AS MANUFACTURED BY ARROW HART, LEVITON, PASS AND SEYMOUR OR HUBBELL AND EQUIVALENT TO THE FOLLOWING SPECIFICATION GRADES:
    - 1. SINGLE-POLE SWITCHES SHALL BE HUBBELL #1221
    - 2. 3-WAY SWITCHES SHALL BE HUBBELL #1223
    - 3. DUPLEX GROUNDING TYPE RECEPTACLES SHALL BE 20 AMPERE HUBBELL #5362

- 1.8 WALL PLATES
- A. SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES.
    - 1. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.
    - 2. MATERIAL FOR FINISHED SPACES: 0.035-INCH THICK SATIN-FINISHED STAINLESS STEEL.
    - 3. MATERIAL FOR DAMP LOCATIONS: CAST ALUMINUM WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN "WET LOCATIONS."
  - B. WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R WEATHER-RESISTANT IN-USE - DIE-CAST ALUMINUM WITH LOCKABLE COVER - WET LOCATION IN-USE TYPE.
- 1.9 OUTLET AND JUNCTION BOXES
- A. OUTLET BOXES FOR LIGHT FIXTURES IN CONCRETE WALLS OR SLABS SHALL BE 4 INCH OCTAGONAL MUD BOXES NOT LESS THAN 2-1/2 INCHES DEEP. INCLUDE FIXTURE STUDS WHERE REQUIRED.
  - B. SWITCH AND RECEPTACLE OUTLET BOXES IN MASONRY WALLS AND PARTITIONS WHERE WIRING IS CONCEALED SHALL BE STANDARD 4 INCHES SQUARE, 1-1/2 INCHES DEEP, GALVANIZED, WITH EXTENSION COVER FOR THE PARTICULAR DEVICE THEY WILL RECEIVE. USE 1-1/2 INCH DEEP SQUARE CORNER TILE WALL EXTENSION FOR BOXES INSTALLED IN TILE, EXPOSED BRICK OR EXPOSED BLOCK MASONRY WALLS.
  - C. ALL BOXES SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE. SUITABLE MEANS SHALL BE PROVIDED TO SUPPORT THE OUTLET BOX TO TAKE THE WEIGHT OF THE FIXTURE. RECEPTACLE BOXES SHALL BE APPROXIMATELY 18 INCHES ON CENTER ABOVE THE FINISHED FLOOR, UNLESS OTHERWISE NOTED. SWITCH OUTLETS SHALL BE LOCATED 48 INCHES ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL CHECK WITH THE ARCHITECTURAL DRAWINGS FOR POSSIBLE INTERFERENCE.
  - D. JUNCTION AND OUTLET BOXES, WHERE EXPOSED TO THE WEATHER AND WET LOCATIONS, SHALL BE THREADED HUB TYPE AND PROVIDED WITH WATERTIGHT SCREW ON COVERS AND GASKETS.
- 1.10 LIGHTING FIXTURES
- A. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING EQUIPMENT AS SPECIFIED.
  - B. PROVIDE ALL REQUIRED MOUNTING HARDWARE, SUPPORTS, HANGERS, BRACKETS, RAILS, YOKES, STEM, CHAINS, ETC. AND SEISMIC BRACING FOR FIXTURES, INCLUDING RECESSED FIXTURES.
    - C. BIDS SHALL BE BASED ON THE LISTED MANUFACTURER OR MANUFACTURERS FOR EACH FIXTURES.
    - D. ALL FIXTURES SHALL BE UL OR ETL LISTED.
    - E. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENT, MOUNTING HEIGHTS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES SHALL BE SELECTED BY THE ARCHITECT.
- 1.11 SYSTEMS OPERATIONAL MANUALS
- A. UPON COMPLETION OF THE WORK AND AT A TIME DESIGNATED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH INSTRUCTION MANUALS, DATA, WARRANTIES, ETC., AND INSTRUCT THE OWNER OR HIS REPRESENTATIVE AS TO THE ARRANGEMENT, LOCATION AND OPERATION OF ALL EQUIPMENT AND SYSTEMS FURNISHED AND INSTALLED UNDER THE ELECTRICAL CONTRACT.
- 1.12 LOAD BALANCE
- A. THE ELECTRICAL SUBCONTRACTOR SHALL BALANCE THE LOADS ON THE THREE PHASES IN THE ELECTRICAL SWITCHGEAR AND PANELBOARDS INsofar AS PHYSICALLY POSSIBLE, AND REPORT EACH PANEL LOADING TO THE ENGINEER.
- 1.13 DEMOLITION
- A. ALL ELECTRICAL DEMOLITION WORK SHALL BE PART OF THE ELECTRICAL CONTRACT. ALL WORK MADE OBSOLETE BY THIS PROJECT SHALL BE REMOVED AND PROPERLY DISBURSED OF. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION WORK REQUIRED AND INCLUDE ALL WORK UNDER THIS CONTRACT.
  - B. BE RESPONSIBLE FOR RELOCATING AND/OR DISCONNECTING AND REMOVING LIGHTING AND RECEPTACLE BRANCH CIRCUIT WIRING OR OTHER POWER CIRCUIT WIRING LOCATED IN OR ALONG WALLS AND CEILINGS WHICH ARE DESIGNATED TO BE REMOVED.
  - C. WHEN IT IS NECESSARY TO REMOVE EXISTING ELECTRICAL DEVICES, EQUIPMENT OR FIXTURES, THE ELECTRICAL CONTRACTOR SHALL REWIRE THE EXISTING REMAINING CIRCUITRY IN A METHOD TO KEEP CONTINUITY IN THE CIRCUIT.
  - D. REWIRE CIRCUITS IN A METHOD SO AS NOT TO EXCEED 80 PERCENT OF THE RATED LOAD OF THE CIRCUIT.
  - E. REMOVE ALL EXISTING EQUIPMENT OR DEVICES, WIRING AND CONDUIT WHICH ARE MADE OBSOLETE DUE TO THE DEMOLITION OR NEW CONSTRUCTION. INCLUDE REMOVAL OF UNUSED WIRING WITHIN IN-FLOOR CELLWAY SYSTEM.
  - F. COORDINATE THE REMOVAL OR RELOCATION OF ANY AND ALL EQUIPMENT INVOLVED IN THE RENOVATION OR NEW CONSTRUCTION. EXISTING WIRING AND CONDUIT TO BE EXTENDED AND ITEMS WHICH NEED TO BE REWIRED SHALL BE INCLUDED AS PART OF THE ELECTRICAL CONTRACT.
  - G. ALL MODIFIED AND NEW ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC AND APPLICABLE TO FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
- 1.14 SHOP DRAWINGS
- A. THE FOLLOWING LIST OF ELECTRICAL ITEMS MUST BE SUBMITTED BY THIS CONTRACTOR FOR APPROVAL:
    - 1. CIRCUIT BREAKERS
    - 2. CONDUIT AND WIRE WITH FITTINGS AND CONNECTORS
    - 3. LIGHT SWITCHES, MOTION SENSORS, RECEPTACLES AND PLATES (SUBMIT SAMPLES AS REQUESTED).
    - 4. FIRE ALARM DEVICES
- 1.15 GENERAL WIRING TESTS
- A. AT THE TIME OF FINAL INSPECTION AND TEST, ALL WIRING AND CONNECTIONS THROUGHOUT THE EXPANSION AREAS MUST BE COMPLETED, DEVICES AND EQUIPMENT PROPERLY OPERATING, ALL LIGHTING FIXTURES INSTALLED, AND POWER AND LIGHTING CIRCUIT AND CONTROL WIRING CLEARLY IDENTIFIED WITH APPROVED TAGS READY FOR ACCEPTANCE. EACH SYSTEM SHALL TEST FREE FROM SHORT CIRCUITS AND FROM GROUNDS.
  - B. INSULATION RESISTANCE FOR LOW VOLTAGE CABLES AND WIRING SHALL BE PERFORMED AT 1000 VOLT D.C. FOR ONE-HALF (1/2) MINUTE. WHEN INSULATION RESISTANCE MUST BE DETERMINED, ALL SWITCHBOARDS, PANELBOARDS, FUSE HOLDERS, SWITCHES AND OVERCURRENT DEVICES SHALL BE IN PLACE, AND THE INSULATION RESISTANCE WHEN TESTED AT 500 VOLTS D.C. SHALL BE NO LESS THAN 100,000 OHMS FOR #14 AND #12 WIRE AND 250,000 OHMS FOR #10 WIRE AND LARGER.

END OF SECTION 26000



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Revisions	
No.	Date



**ART LAB RELOCATION**

**BASEMENT WHITE HALL**

**ELECTRICAL SPECIFICATIONS**

Project No. BI-RD-294  
By: MS  
Scale: N.T.S.  
Issue Date: 12/6/2017



**E-0**



Revisions	
No.	Date

**ART LAB RELOCATION  
BASEMENT WHITE HALL**

**DEMOLITION AND PROPOSED  
ELECTRICAL  
PLANS**

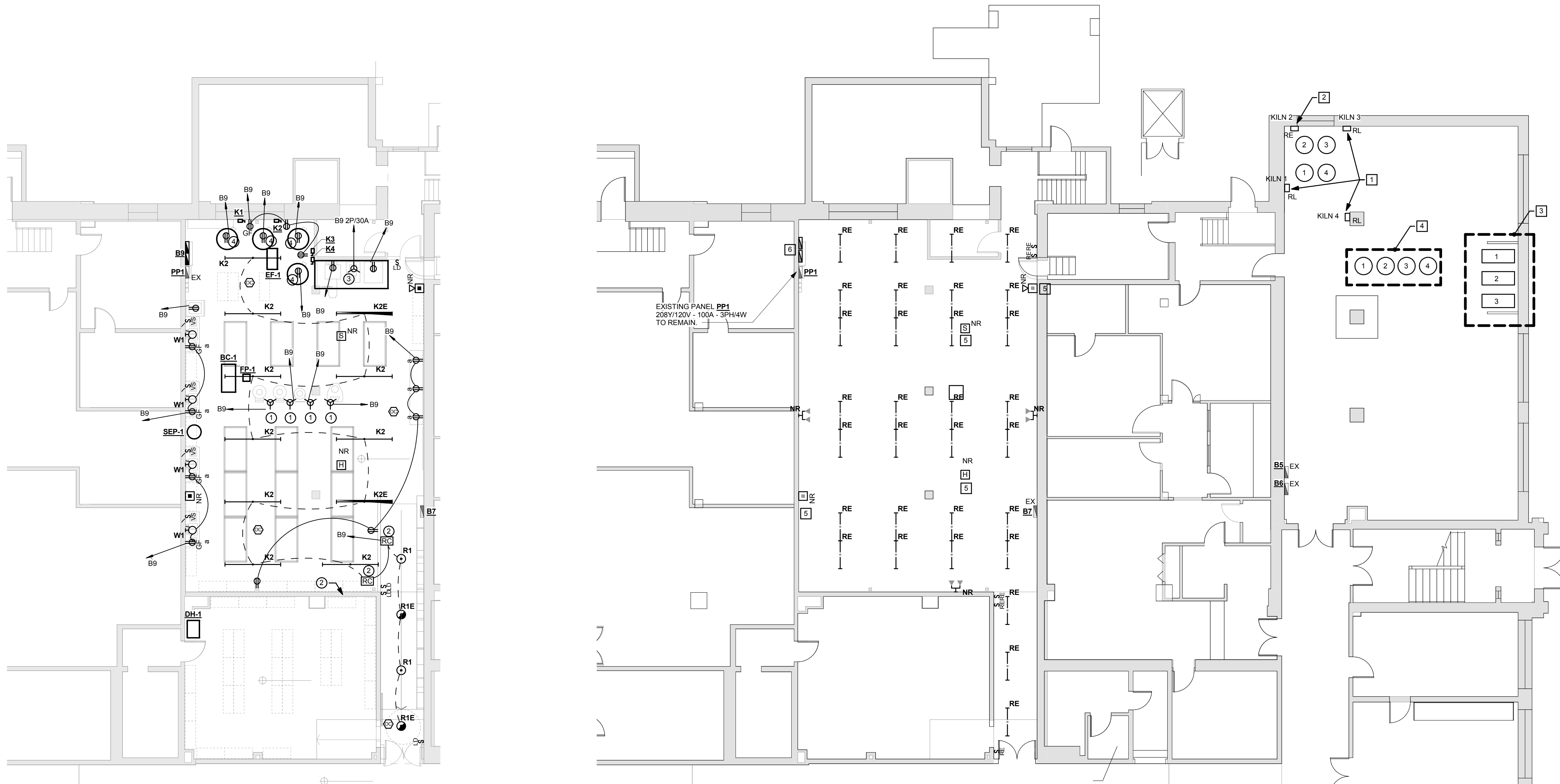
Project No. BI-RD-294

By: MS

Scale: As indicated

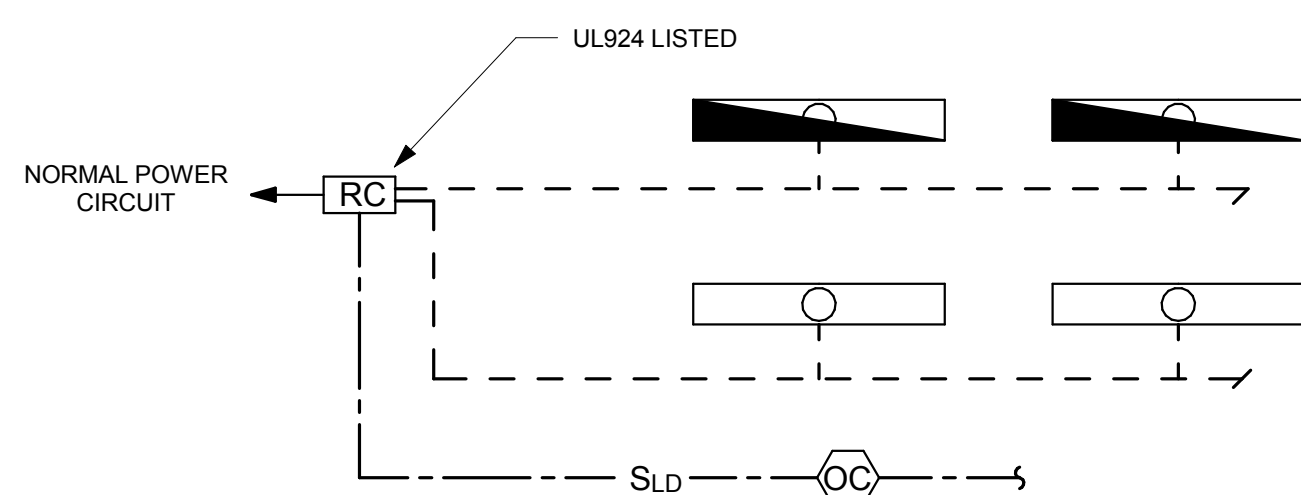
Issue Date: 12/6/2017

**E-1**



**2** PROPOSED ELECTRICAL PLAN  
E-1  
1/8" = 1'-0"

**1** ELECTRICAL DEMOLITION & EXISTING CONDITIONS PLAN  
E-1  
1/8" = 1'-0"



**TYPICAL 'OPEN OFFICE' LIGHTING CONTROL DETAIL**  
SEQUENCE OF OPERATIONS

**NORMAL OPERATION**

- LUMINAIRE(S) TO TURN ON WHEN LOW VOLTAGE SWITCH IS ACTIVATED WHILE LIGHTS ARE OFF.
- LUMINAIRE(S) TO TURN OFF WHEN LOW VOLTAGE SWITCH IS ACTIVATED WHILE LIGHTS ARE ON OR WHEN VACANCY SENSOR HAS NOT BEEN TRIGGERED FOR 15 MINUTES.
- DIMMING LEVELS TO BE DETERMINED BY LOW VOLTAGE DIMMING SWITCH CORRESPONDING TO EACH ZONE.

**EMERGENCY OPERATION**

- ALL CONTROLS FOR LIGHTING SHALL BE OVERRIDDEN AND BYPASSED TO "FULL ON" VIA UL924 LISTED CONTROLS AUTOMATICALLY UPON LOSS OF LINE SIDE OF LOCAL NORMAL POWER FOR LIGHTING. EMERGENCY POWER TO BE PROVIDED BY FIXTURE MOUNTED BATTERY DRIVERS.

**SWITCHING**

- FOR EACH DEVICE INDICATED ON FLOORPLANS, PROVIDE LOW VOLTAGE (4) BUTTON WALL STATION WITH THE FOLLOWING FUNCTIONS: ON, RAISE, LOWER, OFF.

**POWER DRAWING NOTES:**

- PROVIDE NEMA L5-20R ON SO CORD. PROVIDE NEW TWIST LOCK NEMA L5-20P PLUGS ON EACH WHEEL'S POWER CORD. EACH DROP SHALL HANG FROM THE UNDERSIDE OF SLAB ABOVE TO 24" ABOVE FINISHED FLOOR. PROVIDE STRAIN RELIEF.
- ROOM CONTROLLERS TO BE WALL MOUNTED IN ACCESSIBLE LOCATION.
- COORDINATE EXACT NEMA CONFIGURATION IN FIELD WITH EXISTING EQUIPMENT.
- PROVIDE NEMA L5-20R ON SO CORD FOR KILN EXHAUST FANS. EACH DROP SHALL HANG FROM THE UNDERSIDE OF SLAB ABOVE TO 48" ABOVE FINISHED FLOOR. VERIFY FINAL LOCATION WITH OWNER IN FIELD.

**POWER DEMOLITION DRAWING NOTES:**

- REMOVE EXISTING DISCONNECTS FROM POWER SOURCE (PANEL B6 AND B5). REMOVE WIRING AND CONDUIT FROM DISCONNECTS BACK TO PANEL. REMOVE LABELS / REFERENCES FROM PANEL AND NOTE BREAKERS "SPARE". THE EXISTING DISCONNECTS SHALL BE RELOCATED ALONG WITH THE RESPECTIVE KILNS INTO THE NEW CERAMICS STUDIO.
- REMOVE EXISTING DISCONNECT FROM POWER SOURCE (PANEL B6 AND B5). REMOVE WIRING AND CONDUIT FROM DISCONNECTS BACK TO PANEL. REMOVE LABELS / REFERENCES FROM PANEL AND NOTE BREAKERS "SPARE".
- EXISTING MIXERS SHALL BE UNPLUGGED AND RELOCATED TO NEW CERAMICS STUDIO. EXISTING OUTLETS SHALL REMAIN AS-IS.
- EXISTING POTTERS WHEELS SHALL BE UNPLUGGED AND RELOCATED TO NEW CERAMICS STUDIO. EXISTING POWER DROPS AND FEEDS SHALL BE REMOVED BACK TO PANEL. REMOVE LABELS / REFERENCES AND NOTE BREAKERS "SPARE".
- REMOVE EXISTING DEVICE. CONDUIT AND CONDUCTORS TO REMAIN TO REFEED NEW DEVICES.
- REMOVE EXISTING ITC PANELBOARD. FEEDERS ARE TO REMAIN TO REFEED NEW PANELBOARD. REMOVE ANY EXISTING BRANCH CIRCUITRY THAT IS CURRENTLY IN THE OFF POSITION. REFEED EXISTING BRANCH CIRCUITRY THAT IS CURRENTLY IN THE ON POSITION TO NEW PANELBOARD. LABEL ALL CIRCUITS INCLUDING EXISTING.

