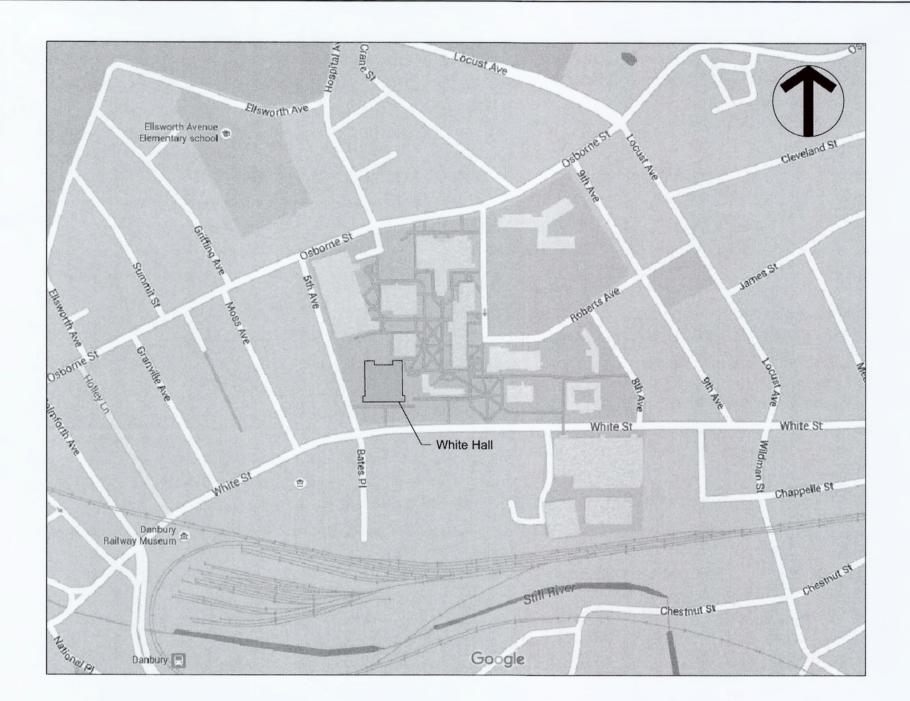
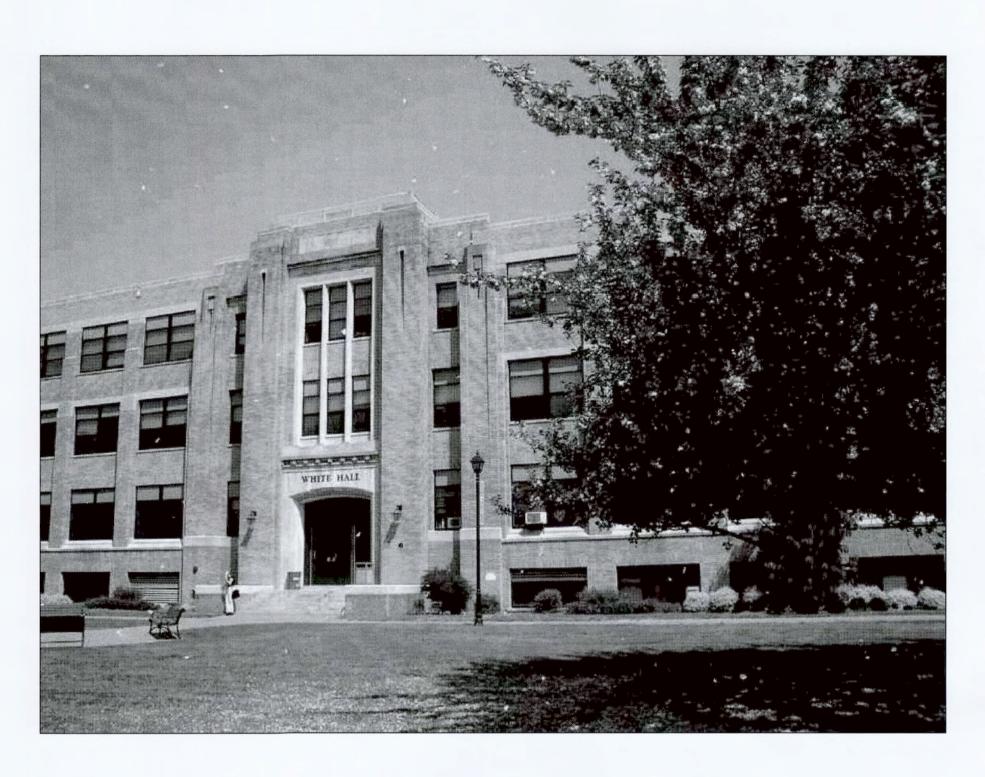
# Western Connecticut State University Nursing Sim Lab

White Hall 181 White Street, Danbury, CT 23 September 2016 - Project No. 2016.035

LOCATION PLAN





LIST OF	DRAWINGS		
Sheet	Title	Revision	Status
T-1	Title Sheet	⚠	Issued 9/23/2016
T-2	Code and Egress Plan	<u> </u>	Issued 9/23/2016
T-3	Specifications	<u> </u>	Issued 9/23/2016
.T-4	Specifications	<u> </u>	Issued 9/23/2016
D101	Demolition Plan	<u> </u>	Issued 9/23/2016
D201	Reflected Ceiling Demolition Plan	<u> </u>	Issued 9/23/2016
A101	Construction Plan	<u> </u>	Issued 9/23/2016
A201	Reflected Ceiling Plan	<u> </u>	Issued 9/23/2016
A300	Details and Schedules	<u> </u>	Issued 9/23/2016
A500	Finish Plan	⚠	Issued 9/23/2016
MD-101	Mechanical Demolition Floor Plan	<u> </u>	Issued 9/23/2016
M-101	Mechanical Floor Plan	<u> </u>	Issued 9/23/2016
M-102	Mechanical Roof Plan	∕Ò.	Issued 9/23/2016
M-401	Mechanical Symbols, Abbreviations, Legend	₾.	Issued 9/23/2016
M-402	Mechanical Details	₾.	Issued 9/23/2016
M-601	Mechanical Schedules	₾.	Issued 9/23/2016
M-602	Mechanical Specifications	⚠	Issued 9/23/2016
E-001	Electrical Legend, Symbols, Notes	<u> </u>	Issued 9/23/2016
E-101	Electrical Floor Plan	<u></u> ♠	Issued 9/23/2016
E-400	Electrical Details, Riser and Schedules	<u> </u>	Issued 9/23/2016
E-600	Electrical Specifications	⚠	Issued 9/23/2016

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**ARCHITECT** 



Jniversity Western

#### CODE INFORMATION

Western Connecticut State University White Hall

181 White Street Danbury, CT

Governing Codes: Connecticut State Building Code (2003 IBC with 2005 CT Supplement and subsequent Amendments), 2003 International Existing Building Code (IEBC), 2005 State Fire Safety Code, ICC/ANSI A117.1-2003.

Code Review based on 2003 IEBC Work Area Compliance Method (Chapters 4-12) per IEBC 101.5.2.

Existing Occupancy (Non-Separated Mixed Uses),	A, B
First Floor Area (A, B)	33,450 SF
Second Floor Area (Á, B)	33,450 SF
Third Floor Area (A, B)	33,450 SF
Forth Floor Area (A, B)	33,450 SF
Proposed Occupancy (Non-Separated Mixed Uses), First Floor Area (A, B) Second Floor Area (A, B) Third Floor Area (A, B) Forth Floor Area (A, B)	33,450 SF 33,450 SF

Type of Construction \_\_\_\_\_\_IIB Noncombustible/Unprotected

Year Constructed \_\_\_\_\_\_1927

#### IEBC CHAPTER 3, CLASSIFICATION OF WORK

305.1 - Level 2 Alteration.

2	CHAPTER 5 - Level 1 Alterations Interior Finishes (503.1)	Complies
	Carpeting (503.2)	Complies
Ш	Materials and Methods (503.3)	Complies
٦	Fire Protection (504)	Maintained
4	Means of Egress (505)	Maintained
I	Accessibility (506)	Complies
_	Structural (507)	Complies

CHAPTER 6 - Level 2 Alterations	
Vertical Openings (603.2)	Complies
Automatic Sprinklers (604.2)	Not Req'd
Means of Egress (605)	
Accessibility (606)	
Structural (607)	
Electrical (608)	
Mechanical (609)	Complies
Plumbing (610)	

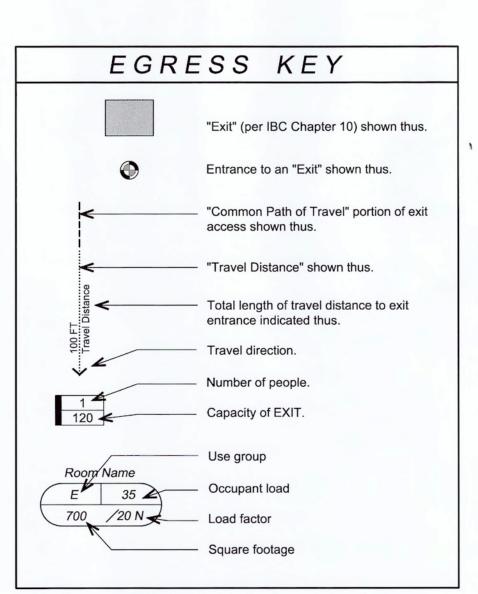
#### INTERIOR FINISH REQUIREMENTS

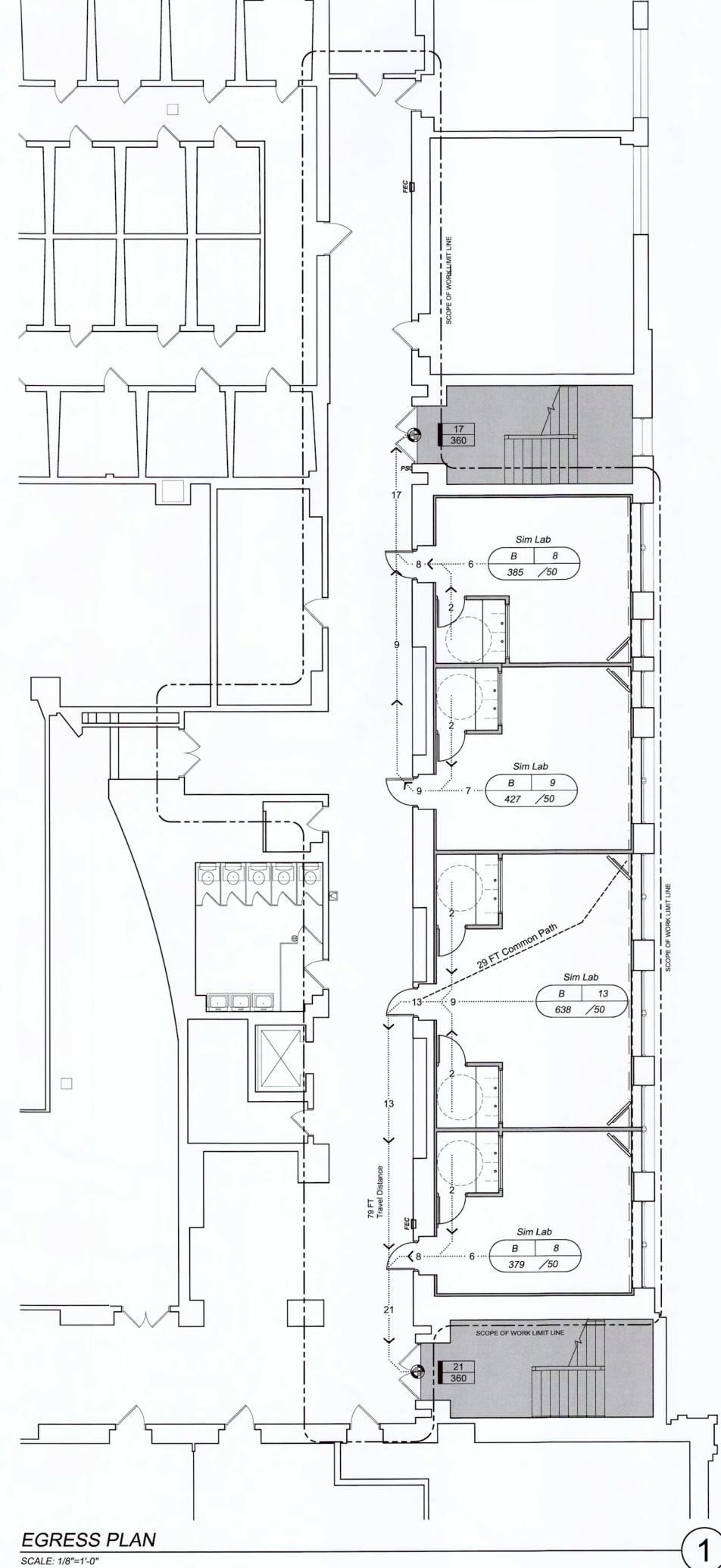
- All interior finishes shall comply with CT Fire Rating requirements and ASTM E84
- Wall Coverings and Ceiling Tile
- A. Required Exits and Passageways: Class A, Flamespread 0-25, Smoke Development 0-450
- B. Exit Access Corridors: Class B, Flamespread 26-75, Smoke Development 0-450
- C. Rooms or Enclosed Spaces: Class C, Flamespread 76-200, Smoke Development 0-450
- 2. Floor Finishes
- A. Required Exits and Passageways: NFPA 253, Class II, Average Critical Radiant Flux Greater Than or Equal to 0.22 Watts per Square Centimeter.
   B. Exit Access Corridors: NFPA 253, Class II, Average Critical Radiant Flux Greater Than or Equal to 0.22 Watts per Square Centimeter.
- C. Rooms or Enclosed Spaces: Pass DOC-FF-1 "Pill Test" (CPSC CFR Part

#### FIRE RESISTANCE RATING OF STRUCTURAL ELEMENTS

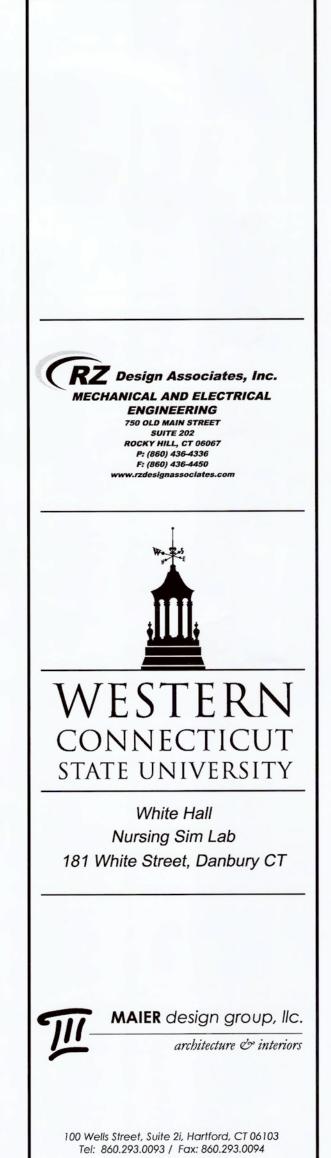
Ratings From IBC Table 601 for Construction Type 2B

Ratings From IBC Table 60 Ffor Construction Type 2B	
<ul> <li>Structural Frame, Including columns, girders, trusses:</li> </ul>	0 Hours
<ul> <li>Bearing Walls         Exterior, Separation &gt; 30 FT:         Interior:     </li> </ul>	0 Hours 0 Hours
<ul> <li>Non-Bearing Walls         Exterior:         Interior:     </li> </ul>	0 Hours 0 Hours
<ul> <li>Floor Construction Including supporting beams and joists:</li> </ul>	0 Hours
<ul> <li>Roof Construction Including supporting beams and joists:</li> </ul>	0 Hours



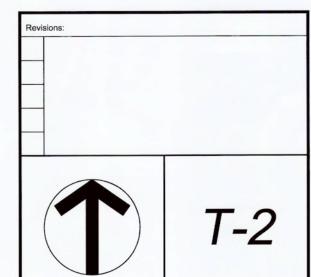






## CODE AND EGRESS PLAN

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
1/8" = 1'-0"	16035_T-2
Drawn By:	Checked By:
TMS	EAL





- A Awarded Contractor shall execute AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor.
- B AIA Document A201-2007, General Conditions of the Contract for Construction shall be in force for the work of this contract, and the terms, conditions and provisions of that document shall be considered to be a part of this work. The following notes and specifications are intended to supplement AIA A201, not supersede it. In the event of a conflict AIA Document A201 shall take precedence over notes in the Contract
- C All work shall comply with all applicable codes, laws, standards and regulations including but not limited to the Connecticut State Building Code, NFPA 101 Life Safety Code, ADAAG, Connecticut General Statutes, and local ordinances and zoning.
- D Contractor shall pay for and obtain all permits prior to commencing ANY work. The contractor shall indicate the permit value on the bid form. Any changes to permit fees due to change orders shall be handled as a SINGLE change order at the end of the job.
- Bidder shall be held to have examined the project location and to have compared it with the Drawings and Specifications and to have satisfied himself of the conditions existing at the site, the storage and handling of materials and all other matters that may be incidental to the Work under the Contract before submitting his proposal. Submission of a proposal will be considered as evidence that an examination has been made. No allowance will subsequently be made to the Contractor by reason of any error on his part due to his neglect to comply with the requirements of this clause.
- F Submission of bid will be considered presumptive evidence that each bidder is conversant with local facilities and difficulties, the requirements of the documents and of pertinent Local and State codes, state of labor and material markets, and has made due allowance in his bid for all contingencies.
- G No compensation will be allowed for any difficulties which the bidder could have discovered or reasonably anticipated prior to bidding.
- H The contractor shall assume full responsibility for his sub-contractors. Performance, timely completion of work, and adherence to the contract documents shall be monitored at all times by the contractor. Sub-contractors shall not be allowed to work unsupervised unless approval is given by the Architect and the Owner.
- Before performing Work or ordering any materials, Contractor shall verify all dimensions of any existing and new Work and shall be responsible for their accuracy. Any differences found shall be submitted to the Architect for consideration before proceeding with the Work. No extra compensation will be permitted because of differences between actual dimensions and measurements indicated on the project Drawings.
- J The project limits are established on the Drawings. Contractor shall confine his operations within the project limits and shall utilize the area in an efficient and orderly manner.
- K The Contractor is responsible for coordinating the use of building facilities and utilities with the Owner and is prohibited from interrupting any occupant's day to day activities. Hours of operation, use of parking, access to facilities contained within the building and placement of dumpsters and other equipment will be dictated by the Owner. The Contractor will comply with these requirements.
- L The Contractor shall coordinate ALL work included in the Contract with the Owner and shall perform ALL work in a manner that does not affect any existing maintenance or service agreements. The Contractor shall make every effort to employ sub-contractors recommended by the
- M Extreme care must be taken to minimize and contain noise, dust and construction debris. Materials may be stored on site at a location to be determined by the Owner, however materials must not exceed beyond the designated area. All materials and equipment required for the work shall be stored or placed so as not to endanger the general public, the Owner's employees and clients, or the Contractors own workers.
- N The Contractor shall provide suitable protection for the general public and their own workers for the duration of the work. No exits shall be blocked, adequate lighting shall be maintained throughout all areas affected by the work, and all life safety and security equipment and systems must remain fully operational and accessible.
- O All manufactured articles, material, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned, as directed by manufacturer's instructions unless specified herein to the contrary.

  Whosever possible, building standard materials shall be utilized upless.
- P Wherever possible, building standard materials shall be utilized unless specifically designated otherwise by these documents. In case of a discrepancy between apparent building standards and specified products, request written clarification from the Architect prior to proceeding.
- Q Contractor shall and does hereby warrant and/or guarantee the Work as follows: For a period of 1 year from the date of Final Completion, and Owner acceptance, the Contractor shall and does hereby guarantee all Work whether Work is performed by his Subcontractors or performed by him directly. (Nothing in the above intends or implies that this guarantee shall apply to Work which has been abused or neglected by the Owner or his successors in interest.) Individual components and assemblies specified herein with warrantee periods greater than 1 year shall be provided with warrantee periods as called for in their specific specification section(s).
- Any dimensions, finishes or materials noted M.E., Match Existing, VIF, Verify, or +/- shall be checked and confirmed by the Contractor in the field. Errors or omissions attributable to inadequate or incomplete field measurements or field determinations made by the Contractor or any of his agents, are the sole responsibility of the Contractor.
- Where conflicts between the drawings and/or specifications occur, the Contractor shall notify the Architect during the bidding period for a clarification. In the absence of a clarification during the bidding process, the more restrictive and/or more costly option shall apply unless specifically noted otherwise by the Architect.

#### 01110 - GENERAL REQUIREMENTS

- A PROJECT DESCRIPTION
- Renovation of vacant classrooms and hallway including construction of new gypsum board and metal stud partitions, installation of a new suspended acoustical ceiling. The new classrooms will serve as simulation labs and control rooms and will require new electrical panel, lighting and power and data receptacles. The existing HVAC system will be removed and replaced.
- B CONTRACTOR QUALIFICATIONS
- The Contractor shall have been regularly engaged in construction and the installation and fabrication of the type work set forth in the Contract Documents for a period of not less than five (5) years prior to the Bid date set forth in the Contract Documents.
- The Contractor shall have adequate equipment, facilities and personnel
  for the proper performance of the work set forth in the Contract
  Documents, and all such equipment, facilities and personnel shall be
  subject to the approval of the Owner.
- 3. The Owner shall be the sole judge and shall have the final privilege to approve or disapprove the qualifications of the Contractor, and to approve or disapprove his equipment, facilities and personnel available to perform the work required by the Contract Documents.
- WORK SEQUENCE

- The building will be occupied throughout the duration of the project.
   Work must be closely coordinated and scheduled with the Owner.
- 2. On-Site storage of any/all materials must be approved by the Owner and the Owner's Representative. A site logistic plan must be prepared and approved by the Owner and the Owner's Representative. All storage costs are borne by the Contractor. Any long term storage locations must be coordinated with the Owner and the Owner's Representative.
- Any exterior building penetrations cannot remain open to the elements overnight. All such openings or penetrations must be fully secured at the end of each work day.
- D JOB SITE SAFETY
- Caution shall be exercised by the Contractor at all times for the
  protection of persons and property and all safety regulations and other
  provisions of applicable Federal, State and local laws, Building and
  Construction codes, including the requirements of the Occupational
  Safety and Health Administration shall be observed.
- 2. The drawings do not include standards or guidelines for construction safety. The Contractor is responsible for the adequacy and safety of all construction methods and the safe prosecution of the Work, including but not limited to forms, false-work, scaffolding, protective barricades, temporary paths, protective rails and warning lights. It is expressly stipulated that any examination and/or approval by the Architect and/or their consultants of the contractor's plans for such items as well as for any other items needed for the prosecution of the work will cover only general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Contractor shall assume full and complete responsibility for safe prosecution of the Work at all times and for obtaining satisfactory results.
- Design, engineering, construction, maintenance, repair, and inspection
  of all temporary work is the sole responsibility of the Contractor. Any
  review or comments made by the Architect and/or their consultants in
  regards to temporary work shall not be construed of as acceptance or
  design of such work.
- 4. During the course of the performance of the Work, if any operation, practice, or condition is deemed by the Architect and/or their consultants to be unsafe, the Contractor, whether notified verbally or in writing, shall take such corrective action immediately as appropriate.
- 5. Nothing in the foregoing paragraphs shall be construed as relieving the Contractor from full responsibility of safe prosecution of the Work at all times. In the event the Owner, the Architect and/or their consultants are held by court of administrative body to be liable for personal injuries or damages to property arising from deficiencies in the job-site safety, the Contractor shall promptly indemnify and hold them harmless.
- E INSPECTIONS, CODES AND REGULATIONS
- The Contractor shall comply with all codes and regulations of the local Municipality, the State of Connecticut, all utility companies (including but not limited to telephone and cable companies) and all other governing agencies having jurisdiction over the project.
- The Contractor shall be responsible for the proper inspection of his work during its installation by his workmen, his sub-contractors, all lawful authorities, other workmen which may be engaged by the Owner.
- The Contractor shall, prior to the acceptance of all work by the Owner, furnish written proof of the acceptance of all work by the local Municipality, the Utility Companies, the State of Connecticut, and all other governing agencies having jurisdiction over the Project.
- 4. The Contractor shall obtain and pay for all necessary permits, fees, and other requirements prior to commencing any work. This includes all fees in connection with the installation of the work and any fees charged by the local Municipality, by Utility Companies, and all other governing Agencies having jurisdiction over the Project.
- The Contractor shall comply with all laws relative to persons employed by him or his sub-contractors.
- The Contractor shall perform all work in accordance with the Owner's Rules and Regulations and the Terms of Conditions of their contract with the Owner.
- F CLEANING, REMOVAL OF DEBRIS
- The Contractor shall periodically and as directed during the progress of the work, remove and properly dispose of all debris, and shall keep the premises clean and clear of all obstructions. Upon completion of the work, he shall remove all temporary construction, facilities and materials, and shall leave the Building and the Project Site in a neat and clean condition.
- All debris due to removal and installation of new work shall be removed daily from the Job Site by the Contractor.
- G INTERPRETATION OF DRAWINGS & SPECIFICATIONS
- Any questions or disagreements arising as to the true intent of this specification or the Drawings, or the kind and quality of work required thereby, shall be decided by the Architect, whose interpretations thereof shall be final, conclusive, and binding on all parties.
- In the case of any discrepancies between Drawings and Specifications, or within either document itself, the better quality, greater quantity or more costly work shall be included in the Contract Price, and shall be furnished and installed in the performance of the required work.
- H PROTECTION OF WORK & PROPERTY
- The Contractor shall be responsible for the maintenance and protection of all equipment, materials, and tools, supplied by him and stored or installed on the job site, from loss or damage of all causes, until final acceptance.
- The Contractor shall be responsible for the protection of any finished work of other trades from damage or defacement by his operations and must remedy any such injury at his own expense.
- CONTRACTOR CONDUCT
- All contractors and their employees shall conduct themselves in a manner that is lawful, courteous, businesslike, and respectful of all Owner employees, guests, and visitors.
- 2. Contractors and their employees shall not engage in behavior that is rude, threatening, or offensive. Use of profane or insulting language is prohibited. Harassment of any type, including sexual harassment is strictly prohibited. Abusive, derogatory, obscene or improper language, gestures, remarks, whistling, cat calls or other disrespectful behavior will not be tolerated. Roughhousing, fighting, fisticuffs, physical threats, destruction of property, vandalism, littering, or physical abuse of anyone on site is not permitted under any circumstance.
- The use, possession, distribution, or sale of any weapon, alcohol, illegal drug, or controlled dangerous substance by any contractor or contractor's employee is prohibited. Offenders will be removed from the site and/or reported to the local police department.
- Contractors and their employees are not permitted to smoke in or near the building.
- 5. The use of radios, "boom boxes" and similar units shall not be permitted on-site at any time.6. Contractors and their employees are required to wear appropriate work wear, hard hats, safety gear and footwear while on-site. Articles of
- clothing shall not display offensive or inappropriate language, symbols or graphics.

7. The Contractor is responsible for his/her employees, agents, consultants

and guests. If prohibited conduct does occur, the contractor shall take all necessary steps to stop and prevent any future occurrence. Any breach of these conditions will result in the removal of the person responsible from the premises and prohibited actions could result in the termination of any contract or agreement with the Owner. The Contractor is required to report any matter involving a violation of these rules of conduct to the Owner or the Owner's Representative.

#### 01200 - PROJECT COORDINATION

#### A GENERAL

- Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
- a. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
- Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
- Make adequate provisions to accommodate items scheduled for later installation.
- Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   a. Prepare similar memoranda for the Owner and separate Contractors
- Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following
- a. Preparation of schedules.
- b. Installation and removal of temporary facilities.

where coordination of their Work is required.

- c. Delivery and processing of submittals.
- d. Progress meetings.
- e. Project Close out activities.
- Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
- a. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property
- Efficiency: Verify supplied products specified in other sections have a
  minimum or higher efficiency to comply with CL&P, EPA's Energy Star,
  D.O.E. and CNG requirements for HVAC, lighting/controls; building
  envelope and appliances.

#### B SUBMITTALS

- Coordination Drawings: Prepare and submit coordination Drawings
  where close and careful coordination is required for installation of
  products and materials fabricated off\_site by separate entities, and
  where limited space availability necessitates maximum utilization of
  space for efficient installation of different components.
- Show the interrelationship of components shown on separate Shop Drawings.
- b. Indicate required installation sequences.
- Staff Names: Submit within 3 days after "Notice to Proceed" a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses, telephone numbers and include a copy of their resumes.
- a. Post copies of the list in conspicuous locations in the Work Area including Project meeting rooms, temporary field offices, and at temporary telephone locations.

#### C COORDINATION

- Coordinate in field with affected trades for proper relationship to Work based on Project conditions.
   Notify Architect of conflicts and other coordination issues requiring
- resolutions prior to commencing construction in each affected area.
- Submit Contractor's certification to Architect that Coordination Drawings have been completed and coordination issues have been identified and resolved prior to commencing construction in each affected area.
- Make Coordination Drawings available in field office for review by Architect and Owner during entire period on construction.
- Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- Re-check measurements and dimensions, before starting each installation.
- Install each component to ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- 13. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
- D CLEANING AND PROTECTION
- progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

1. During handling and installation, clean and protect construction in

- Clean and maintain job site and completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging
- Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

#### 01400 - QUALITY CONTROL

#### A GENERAL

- The Contractor shall monitor and control quality of the work, and shall coordinate suppliers, manufacturers, products, services, site conditions and workmanship in order to produce work of specified quality.
- Contractor shall comply with manufacturer's handling and installation instructions. Conflicts between manufacturer's instructions and the Contract Documents shall be brought to the attention of the Architect prior to proceeding with any work.
- 3. The contractor shall be responsible for providing any layout, surveying, testing or inspections necessary to complete the work specified herein. Any additional required testing or inspections of structural repairs, structural modifications, hazardous or otherwise controlled materials shall be performed as required by an independent firm appointed, employed and paid for by the Owner. Reports shall be submitted by the independent firm in duplicate to the Architect and Contractor indicating the results of all tests and indicating compliance or non-compliance with the Contract Documents. The Contractor shall cooperate fully with the independent testing firm and allow the firms' agents full access to the Work. Contractor shall furnish or supply samples, mix designs, equipment, storage and incidental labor (within traditional and accepted standards) as requested by the independent testing firm, at the Contractor's cost. Testing does not relieve the Contractor from the requirements to perform the work as specified herein. Re-testing required because of non-conformance to specified requirements or defective work shall be performed by the same independent testing firm on instructions by the Architect or Engineer and shall be paid for by the Owner and charged back to the Contractor by deducting the cost of the tests from the Contract Sum/Price.

#### 01500 - ALLOWANCES, ALTERNATES AND UNIT PRICES

#### ALLOWANCES

- Selected materials and equipment, and in some cases, their installation are shown and specified in the Contract Documents by allowances.
- Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation.
- Additional requirements, if necessary, will be issued by Change Order.
   ALTERNATES
- An amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
- Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

#### C UNIT PRICES

- An amount stated on the Proposal Form or in the Specifications as a
  price per unit of measurement for materials or services that will be added
  to or deducted from the Contract Sum by Change Order in the event the
  quantities of Work required by the Contract Documents are increased or
  decreased.
- 2. Unit prices shall include all necessary labor, material, overhead, profit
- Refer to individual Specification Sections and the Drawings for construction activities requiring the establishment of unit prices.

  Methods of measurement and payment for unit prices shall be as

#### 01600 - SUBMITTAL PROCEDURES

and applicable taxes.

- A SHOP DRAWINGS
- Prior to delivery to the job site, but sufficiently in advance of requirements necessary to allow the Architect ample time for review, the Contractor shall submit for review six (6) copies each of shop drawings of all equipment, materials, tapered insulation, piping, wiring, hardware, fixtures, equipment, etc., and further shall obtain review approval for same from the Architect before installing any of the same in the work of
- the Project.
   The review shall be only for general conformance with the design concept and general compliance with the information given in the Contract Documents. It shall not include review of quantities, dimensions, weights or gauges, fabrication processes, construction methods, etc., all of which shall be the sole responsibility of the Contractor. The Contractor shall not be relieved from furnishing materials or work as may be required for the completion of all items of work intended by the Owner.
- Prior to submission of shop drawings, the Contractor shall thoroughly check each shop drawing and shall reject those not conforming to the Contract Documents and he shall indicate by his signature thereon that the shop drawings submitted in his opinion meet the full requirements of the Contract Documents.
- SUBSTITUTIONS
- Substitutions of equipment or materials other than those indicated on the Drawings or in the Specifications, shall be confined to only those manufacturer's listed, or those otherwise indicated, and may be made only upon written approval from the Architect.
- The Contractor shall submit his substitution for approval before releasing order for fabrication and/or shipment. Submittal will be forwarded with a letter of transmittal or cover letter listing all items for approval. The Architect reserves the right to disapprove such substitution, provided, in his opinion, the item offered is not equal to the item specified.
- 3. Where a Contractor proposes to use an item of material or equipment other than that specified or detailed on Drawings, and which requires any redesign of the roof and/or structure, or architectural lay-out, all such redesign and all new drawings and details required thereof shall, with the approval of the Architect be prepared by the Contractor at his own
- 4. Where such approved deviation requires a different quantity and arrangement of material and equipment from that specified or indicated on the drawings, subject to the approval of the Architect, the Contractor shall provide any such material, structural supports, and any other items at no additional cost to the Owner.
- 5. Whenever any product is specified in the Contract Documents by a reference to the name, trade name, make or catalog number of any manufacturer or supplier, "or approved equal", the Owner in conjunction with the Architect shall be sole judges as to whether a proposed equal is to be approved as such. For the purposes of these documents, the word "equal" shall be defined as "equivalent". Contractor shall have the

burden of proving, at his own expense and to the satisfaction of the Owner and Architect, that the proposed determination is equal to the named product. In making such determination the Architect may establish such objective and appearance criteria he may deem proper in order for the proposed product to be approved. This applies to ALL trades and ANY substitutions.

#### 01700 - PROGRESS CLEANING

#### A GENERAL

- Maintain areas under the General Contractor's control free of waste materials, debris, and rubbish. Maintain in a clean and orderly condition.
- Remove debris and rubbish from beneath access floor, pipe chases, plenums, crawl spaces, and other closed or remote spaces before closing the space.
- 3. Periodically clean areas before start of surface finishing and continue cleaning on an as-needed basis.
- The General Contractor shall control cleaning operations so that dust and other particulates will not adhere to wet or newly-coated surfaces.
- Remove waste materials, debris, and rubbish from site daily and dispose of legally off-site. No scrap/debris shall remain inside the building or anywhere on site upon final acceptance of the project.

#### 01800 - CONTRACT CLOSE-OUT

#### D OFNE

- GENERAL
   The Contractor shall clean the site PRIOR to final project assessment (Punch List). Cleaning shall include new AND existing surfaces.
   Contractor shall clean interior glass, mirrors and finish surfaces exposed to view, remove temporary signage, labels and barriers, remove stains and foreign substances, polish all glossy surfaces, vacuum carpeting, clean all floor surfaces as recommended by material manufacturer, remove all debris from construction areas, and remove waste and surplus materials.
- At the completion of the project and prior to final acceptance by the Owner, provide the Owner with 2 complete Operations and Maintenance Manuals (O&M Manuals) in hard cover plastic 3 ring binders.
- O&M Manuals shall include Record Documents, Record Specifications, Shop Drawings and submittals, sub-contractor contact list (including names addresses and telephone numbers), operation and maintenance instructions for all systems, all test reports, copies of all warranties, bonds and lien waivers, and originals of all certificates and documents.
- AS-BUILT DRAWINGS
- The Contractor shall keep concurrent with the installation of the progress
  of the work, an accurate record of the as-built location and condition of
  all work performed under the Contract. All as-built information shall be
  recorded on a clean set of Black and White Contract Drawings and shall
  indicate the final location of all items of work complete with dimensions,
  sizes, notations, etc.
- Upon completion of all work and prior to Final Acceptance of all work under the Contract, the Contractor shall transfer all as-built information to a clean black and white Xerox copy of the Contract Documents. Submit all final as built Drawings to the Architect for final approval and
- acceptance.
- ATTIC STOCK
   Contractor shall provide to Owner one gallon each of every color paint used to complete the work and 5% attic stock of all ceiling tile and floor

#### 02072 DEMOLITION

removed.

by paint removal procedures.

coverings.

- O2072 DEMOLITION

  A Dashed lines indicate existing construction to be removed or modified.

  Exercise care during demolition activities to maintain adjacent spaces and construction designated to remain. Take care during selective
- demolition not to damage or disturb any items to remain.

  B Patch and repair all existing surfaces and finishes intended to remain where damaged by demolition or construction activities. Patched surfaces to match and align with existing surfaces. Unfinished surfaces exposed by demolition or construction activities not specifically noted to receive new finishes shall be refinished to match nearest (or adjacent) similar surfaces. Painted surfaces requiring patching shall be repainted completely to nearest corner or edge. Other finish materials shall be
- repaired or replaced to nearest existing natural edge, joint or corner.

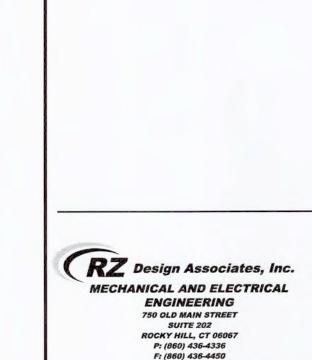
  C Owner shall have first right of refusal of all items. All fixtures, casework or other elements indicated to be removed and not specifically called out to be reused or salvaged are to be disposed of as follows: Where Owner requests items to be retained, Contractor shall return those items to a location (on site) designated by the Owner. Other items shall be appropriately disposed of by Contractor in accordance with the General
- Conditions.

  D Exercise care to insure that all items designated in the drawings (or specified herein) to be reused are carefully removed, stored and protected until they can be re-installed by the appropriate trade. Take note of any materials or items requiring special handling or repair before
- reinstallation and notify Owner and Architect before proceeding.

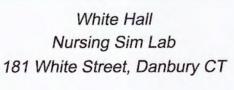
  E Provide and maintain temporary barriers and signage as required to protect the general public and building occupants from the demolition areas. Erect weatherproof enclosures at any exterior openings and provide temporary egress routes as necessary to maintain safety for building occupants.

  F Disconnect, remove and cap any utilities uncovered within the demolition
- areas. Contractor shall remove all switches and receptacles located in walls scheduled to be removed. Wiring and feeds shall be removed back to nearest accessible junction box or fixture housing, assuring power is maintained to other fixtures or receptacles on the same circuit. Existing thermostats located on walls to be removed shall remain connected and operational (coil excess wiring and tie-off). Existing electric and communications outlets within the demolition area shall be disconnected. Fill voids in floors and patch with appropriate materials prior to applying finish floors.
- G Fire alarm initiation and signaling devices, emergency fixtures and other similar appurtenances located on walls to be removed shall be disconnected and returned to the Owner. Disconnection of any items shall not compromise the integrity and functionality of devices not being
- H It is assumed that lead based paint is present in this project and the Contractor shall adhere to the Federal Lead PRE Rule. The contractor shall also adhere to the OSHA Lead in Construction Standard (OSHA 29 CFR 1926.62) when impacting any painted surfaces during renovation and/or demolition activities. The contractor shall conform to the "Guidance for the Management and Disposal of Lead Contaminated Materials Generated in the Lead Abatement, renovation, and Demolition Industries" issued by the Connecticut Department of Environmental Protection (CT DEP) on November 4, 1994 for all debris material created
- Proceed with Work in an orderly, careful, safe manner. Remove material as Work progresses, leaving area clean at completion of demolition activities.
- Provide X-Ray or Sono-graphic testing of all slab areas to be demolished and or core bored prior to initiating demolition activities. If diagnostic results indicate presence of structural steel, utilities or other cast-in-slab encumbrances to demolition, immediately notify Project Manager and Architect for direction.











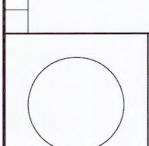
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**SPECIFICATIONS** 

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
N/A	16035_T-3





#### SPECIFICATIONS:

#### 02075 - CUTTING AND PATCHING

- A Employ skilled and experienced installer to perform cutting and patching.
- B Submit written request in advance of cutting or altering elements which affects structural integrity of element, integrity of weather-exposed or moisture-resistant elements, efficiency, maintenance, or safety of element, visual qualities of sight exposed elements or work by Owner by Owner's Vendor(s).
- C Execute cutting, fitting, and patching to complete Work, and to fit parts together, to integrate with other Work, to uncover Work, to install or correct ill-timed Work, to remove and replace defective and non-conforming Work, to remove samples of installed Work for testing and to provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D Execute work by methods to avoid damage to other Work, and which will
- provide proper surfaces to receive patching and finishing.

  E Cut masonry and concrete materials using masonry saw or core drill.
- F Restore Work with new Products in accordance with requirements of Contract Documents or to match existing adjacent products.
- through surfaces.

  H Maintain integrity of wall, ceiling, or floor construction; completely seal

Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations

- Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

  Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections. Where a change of plane of 1/4 inch or more occurs, request instructions from Architect.
- J Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- and appearance.
   When finished surfaces are cut so that a smooth transition with new
   Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Architect for
- L Identify any hazardous substance or condition exposed during the Work to the Architect for decision or remedy.
- M Provide X-Ray or Sono-graphic testing of all slab areas to be demolished and or core bored prior to initiating demolition activities. If diagnostic results indicate presence of structural steel, utilities or other cast-in-slab encumbrances to demolition, immediately notify Project Manager and Architect for direction.

#### 06114 - BLOCKING

- A GENERAL
- The contractor shall coordinate locations of concealed blocking with all other trades. Blocking shall be provided as called out in the drawings AND as necessary to securely fasten any wall mounted items.
- Blocking shall be securely fastened to framing members using galvanized nails or screws.
- At all existing walls which are scheduled to receive new wall mounted items, the contractor shall open up wall cavities as necessary (and patch as described in Section 02072 Demolition) to install new blocking in any condition where an existing stud cannot be utilized.
- Toggle and expansion type anchors are NOT a substitute for providing blocking and will NOT be accepted.
- B MATERIALS
- Acceptable materials shall include Hoover Treated Wood Products "Pyro-Guard" 1/2" minimum thick plywood or SPIB graded, SYP No. 2 kiln dried dimension framing lumber, nominal dimensions as called for in the drawings or as necessary and fire retardant treated to meet ASTM E-84, D3201, or approved equivalent.

#### 06200 - FINISH CARPENTRY AND CASEWORK

- A GENERAL
- The Millwork sub-contractor shall visit the site prior to beginning any work to verify site conditions, confirm locations of millwork, and to take accurate field notes and dimensions adequate for preparing shop drawings.
- The Millwork sub-contractor shall prepare shop drawings for the Architect's review and approval showing plans, elevations and sections through all custom millwork items. The shop drawings shall indicate materials, finishes and all required hardware.
- B MATERIALS
- Panel cores for laminate surfaces shall be Georgia Pacific UltraStock MR+FREE MDF or equal moisture resistant, medium density fiberboard conforming to CARB Phase 2 requirements for formaldehyde emissions.
- Hardboard shall be AWI Custom Grade, 1/4" thick pressed wood fiber with resin binder (hardboard approved for cabinet backs only)
- Plastic laminate shall be 0.048 inch thick Type HGS general purpose horizontal grade high pressure plastic laminate. Provide 0.020 Type BKL laminated backing sheet on opposite (non-exposed) sides of all laminated constructions.
- FS MMM-A-130 contact adhesive as recommended by laminate manufacturer.
- PS-20 plain sawn poplar cleats.
- Acceptable standing and running trim materials shall be AWI Custom,
   Grade II, poplar or maple shaped to profiles indicated on the Drawings or to match existing.
- C FABRICATION/INSTALLATION
- 1. Fabrication shall be completed to applicable AWI Standards.
- All custom architectural casework, including countertops, shall be constructed and installed in accordance with AWI Quality Standards, Section 400, standard for Custom Grade cabinetry.
- Edgebanding shall be laminate to match face laminate, thermoset overlay is not acceptable
- Coordinate locations of required in wall blocking with other trades, refer to Section 06114 for further information.
- Field drill holes for grommets or other miscellaneous items, coordinating all locations with Architect and Owner.
- 6. Seal all field or shop cut edges with clear 100% silicone caulk.

#### 08100 - STANDARD STEEL DOORS AND FRAMES

- A SUBMITTALS
- Submit door shop drawings indicating opening criteria, elevations, sizes, type, swing, and any special requirements.
- Submit frame shop drawings indicating layout, finish and reinforcement locations.
- Submit product data showing frame anchor types, door core material, door and frame reinforcement locations, construction type and installation instructions.

- B PRODUCTS
- Frames: Steelcraft F16 Series, ANSI A250.8, 16ga. cold rolled Galvannealed steel frames, shop primed with baked zinc chromate primer in accordance with ANSI A250.10, profiles as indicated in the Drawings.
- C FABRICATION/INSTALLATION
- Fabricate frames as knock-down (KD) unit, with hardware reinforcement plates welded in place and push-in style silencers installed on strike side of door.
- 2. Coordinate door and frame preparation with Section 08710 Door Hardware.
- Install doors and frames in accordance with ANSI/SDI-100 and Door Hardware Institute recommendations.

#### 08201 - ARCHITECTURAL FLUSH WOOD DOORS

- A GENERAL
- Section includes architectural flush wood doors.
- Coordinate all work with Sections 08100, 08710 and 09900.
   Substitutions considered in accordance with Section 01600.
- B SUBMITTALS
- Submit shop drawings indicating door opening criteria, elevations, sizes, type, swing, and special requirements.
- 2. Submit product data indicating door core material, reinforcement locations and construction type.
- C MATERIALS
- Semi-transparent finish quality, Flush Wood Doors: 1-3/4" thick, AWI Section 1300 Type PC-7, 7 ply particle board core doors with Custom Grade Type I, 3-ply, plain sliced, book matched white birch veneer facing and hardwood rail and stiles.
- D VISION PANELS
- 1. Provide vision panels as shown in the drawings.
- Clear glazing shall be ANSI Z97.1, 1/4" thick clear glass constructed of laminated or tempered panels.
- E FINISH
- Semi-transparent finished (stained) doors shall be factory finished to comply with AWI 1500 Standard, Custom Grade Transparent Finish System No. 5, catalyzed polyurethane finish, color to be wine.
- F MANUFACTURER
- Semi-transparent Finish Flush Doors: Marshfield Signature Series(non-rated flush) and Mohawk MFD3/4-7 (fire rated flush), or approved equivalent.

#### 08710 - DOOR HARDWARE

- A PRODUCTS
- Cylinder sets shall be Corbin Russwin CL33905-NZD-24DC-M92-626, heavy duty bored locksets.
- Hinges shall be McKinney HW Hinge TA3786 4.5x4.5 626H/D 4 1/2", 5 knuckle standard weight, full mortise, full ball bearing hinges.
- 3. Electrified hinges shall be McKinney TA3786 4.5x4.5 QC8 26D.
- 4. Closers shall be Corbin Russwin DC6200 M54.
- Card readers shall be Sensormatic RM Series, Indala RM2I-PI, mounted on the strike side of the door. Mounting location shall be 48" from the floor to the top of the reader and 12" from the frame of the door.
- Concealed door position switches shall be GE Interlogix/Sentrol 1076 Series 1" diameter, installed on top of frame 4" on center from the strike side of the frame.
- 7. Break Glass devices to be supplied by the University. Back box (single gang) and wire to be supplied by others. Break Glass shall be mounted on the strike side of the door 48" from the floor to the top of the unit, and within 12" from the door frame.
- Local audible device shall be ATW PC300, installed on wall above the door 90" to the top of the box and/or at least 4' below finished ceiling height.
- 9. Silencers shall be Stanley SP57-5480 push-in style rubber silencers.
- 10. Kick plates shall be Rockwood K1062 10 inch high stainless steel kick plates full width of door.B SUBMITTALS
- Submit hardware schedule indicating locations, function, finish, options and mounting requirements for each specified type of hardware. Include all pertinent electrical characteristics and connection requirements.
- C SCHEDULE

#### Refer to Drawings for Hardware Schedule

- 09260 GYPSUM WALLBOARD SYSTEMS

  A MATERIALS
- Low to Medium Height (14 FT) non-load bearing interior studs and tracks shall be GA-216, GA-2600, 20 gauge (33mils), galvanized sheet steel, "C" shape profile (studs), with knurled faces in widths as indicated in the drawings. Maximum height for standard 358CSN20 (362S137-33) studs is 14 FT.
- High Height (up to 19 FT) non-load bearing interior studs and tracks shall be 18 gauge (45 mils), galvanized sheet steel, 358CSJ18 (362S250-45) with knurled faces in widths as indicated in the drawings.
- Fasteners shall be ANSI/ASTM C1002 bugle-head Type "S" screws in lengths to suit application.
- Fire rated interior gypsum wallboard shall be 5/8" thick, ASTM C36/C 1396 Type FSW or FSW-G core, UL-rated, square cut with tapered edges.
- Standard (non-rated) interior gypsum wallboard shall be same as fire rated gypsum board.
- 6. Moisture resistant (MR) gypsum wallboard shall be Sheetrock Brand "Mold Tough" Firecode Core 5/8" Type X ASTM C630/C 1396 Gypsum Panels with ASTM E136 noncombustible gypsum core or approved equal. MR panels shall be used throughout all bathrooms and laundry areas and behind all kitchen cabinets and/or sinks.
- 7. Acoustic insulation shall be 2 inch minimum thick, unfaced, friction fit type, ASTM C665 pre-formed mineral wool insulation bearing a UL-label.
  8. Acoustic sealant shall be non-hardening, non-skinning type for use in
- Edge trim, control joints and corner beads shall be USG zinc accessories as required unless specifically noted to be vinyl.

conjunction with gypsum board panels.

 Joint materials shall be ASTM C475, GA-201, GA-216 reinforcing tape, joint compound, adhesive and water.

- 11. Refer to drawings for other accessories.
- B INSTALLATION
- GWB installation shall be in accordance with GA-201, GA-216, GA-600 and manufacturer's recommendations, over studs at 16 inch O.C. (unless specifically noted otherwise).
- Install control joints as noted in the drawings. Where locations are not given, do not extend GWB faces more than 20 FT without a control joint and coordinate location of joint with Architect in the field.
- Refer to Drawings for indications of partitions extending to finish ceilings only and for partitions extending through ceilings to structure above. Maintain clearance under structural members to avoid deflection transfer to studs.
- 4. Coordinate blocking installation and locations with Section 06114.
- receive finish treatment.

  6. Feather tape and joint coats to achieve 1/16 inch maximum camber
- Feather tape and joint coats to achieve 1/16 inch maximum camber and install GWB to achieve maximum variation from true flatness of less than 1/8 inch in 10 feet in any direction.

5. Exposed edges and joints shall be taped, filled and sanded smooth to

 Finish gypsum panels in accordance with ASTM C840 and GA-214 as follows: Level 0 - Not used, Level 1 - Ceiling plenums and concealed space, Level 2 - Not used, Level 3 - Not used, Level 4 - Standard minimum finish level throughout project, Level 5 - Not used.

#### 09511 - SUSPENDED ACOUSTICAL CEILINGS

- A GENERAL
- Conform to ASTM C635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings, ASTM C636 -Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels and Ceilings and Interior Systems Contractors Association (CISCA) - Acoustical Ceilings: Use and Practice Manual.
- Suspension system to rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.
- B SUBMITTALS
- Provide data on metal grid system components and acoustical units, and 6x6 sample of ceiling tile.
- Submit Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and interface connections to existing portions of ceiling suspension grid to
- C PRODUCTS
- Suspension system shall be Armstrong "Prelude white, 15/16" inch or equivalent ASTM C635, intermediate duty exposed tee system.
- Ceiling pads shall be Armstrong "Cortega" white, UL Class A, 24" x 24" x 5/8" thick, ASTM Type III, Form 1, Pattern EIK, wet-formed mineral fiber ceiling panel with square edges and a NRC range of 0.55 and a CAC rating of 33.
- D INSTALLATION
- Install suspension system in accordance with manufacturer's instructions
- and as supplemented in this section.
  Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers to span the extra distance.
- Do not support components or fixtures on main runners or cross runners. Support fixture loads by means of hanger wires connected directly to fixture and structural components independently.
- 5. Do not eccentrically load system, or produce rotation of runners.6. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at
- 7. Install panels in accordance with manufacturer's instructions in both new and existing grid areas, after above ceiling work is complete.8. Fit panels in place, free from damaged edges or other defects detrimental to appearance and function, and install panels level, in

junctions with other interruptions.

irregular grid and perimeter edge trim.9. Maximum variation from flat and level surface shall be no greater than 1/8 inch in 10 feet. Maximum variation from plumb of grid members

uniform plane, and free from twist, warp and dents. Cut panels to fit

#### 00651 VINIVI WALL BASE

- 09651 VINYL WALL BASE A SUBMITTALS
- Submit 2 inch long section of each resilient base scheduled and manufacturer's instructions indicating required surface preparation, and installation procedures, materials and conditions.

caused by eccentric loads shall be 2 degrees.

- B MATERIALS
- Vinyl wall base shall be FF SS-W-40, vinyl, 4 inch high, 1/8 inch thick solid colored cove base.
- Provide pre-manufactured end stops, external corners, and pre-molded edge transition strips to match base.
   Manufacturer, colors and styles shall be as scheduled. Substitutes considered in accordance with Section 00600.
- C INSTALLATION

1. Coordinate installation of base with all other wall finishes. Base shall not

- be installed until wall covering and painting has been completed.
  Install vinyl base and all accessories as instructed by manufacturer, directly over clean finish surfaces in sound condition using manufacturer's recommended adhesive for each specific application.
- 3. Maintain 18 inches minimum between joints, no joint shall be within 2 inches of an outside corner.4. Miter internal corners, use pre-molded units at end conditions and
- Miter internal corners, use pre-molded units at end conditions and outside corners. Field fabricated outside corners are not acceptable.

#### 09652 - LUXURY VINYL FLOORING

- A MANUFACTURERS
- Approved manufacturer shall be Teknoflor Forestscapes Series #3112, Rosewood.
- B PRODUCTS
- Product shall meet or exceed ASTM 1700 Class 3, Type B and Federal Specification SS-T-312b, Type III Vinyl.
   Minimum thickness: 0.100", minimum wear layer thickness: 0.020".
- 3. Products shall be ASTM E-684 Class 1 rated

- 4. Product shall meet or exceed HUD/FHA requirements.
- 5. Construction shall be plank and tile format with micro bevel edges.
- Styles and sizes shall be as selected by Owner.
   Adhesive shall be as recommended by the manufacturer for the
- Adhesive shall be as recommended by the manufacturer for the appropriate floor substrate and installation conditions.
- C INSTALLATION
- Sub-floor shall be hard, smooth, clean, dry and free from defects.
   Sub-flooring shall be prepared as directed by manufacturer. DO NOT install flooring over residual or cut-back asphalt-type adhesive. Perform manufacturer's recommended bond tests as necessary.
- 2. Test floors for moisture content by use of the in Situ Probe rH test
- method (ASTM F 2170). Moisture conditions shall not exceed 80% rH.
  Patching and leveling of the sub floor and underlayment shall be accomplished using a non-shrinking water resistant portland cement patching compound. Sweep or vacuum surfaces thoroughly prior to
- Handle and store product as directed by manufacturer prior to installation. All materials must stabilize to constant indoor temperatures (66-79 Degree F) for a minimum period of 48 hours prior to beginning the
- Installation shall be in strict accordance with Manufacturer's published technical manuals and shall not occur until all other trades have
- Maintain constant indoor temperature (66-79 Degree F) for 48 hours after installation and protect finished work from foot traffic for 24 hours
- after installation.
- SUBMITTALS
   Submit manufacturer's installation manual and two samples of each style

#### 09688 - CARPET

and color specified.

- A SUBMITTALS
- Submit 12" x 12" minimum sample of all carpets scheduled, test reports
  by an approved independent testing lab verifying smoke and flame
  spread ratings, and manufacturer's instructions indicating required
  surface preparation, and installation procedures and conditions.
- B MATERIALS
- Carpeting and pad as scheduled
- Sub floor filler as recommended by carpet manufacturer.
   Adhesive compatible with carpet and as recommended by manufacturer, base as scheduled.
- Provide appropriate Johnsonite or equal colored rubber material transitions and other accessories as necessary to complete the
- installation and as scheduled.

  C INSTALLATION
- Stabilize carpeting and all materials to project environment by storing on-site for a minimum of 24 hours prior to installation. Room temperature shall be 65 degrees F minimum for 48 hours prior to installation and 24 hours following installation. Relative humidity for the same period shall not exceed 65 percent.
- Verify subfloor meets carpet manufacturer's specifications for installation including moisture content, cleanliness, flatness and level of defects.
   Prepare and repair subfloor as necessary to receive carpet. Vacuum prior to beginning installation.
- For carpet tile installation, install carpet as directed by manufacturer.
   Install all tiles in pattern direction as directed by the Architect. Butt all joints tightly. Securely adhere perimeters of all carpeted areas to sub-floor as directed by carpet tile manufacturer. Do not mix dye lots.
- 4. Locate change of color or patterns at door centerline unless directed otherwise.5. Install vinyl cove base as specified, refer to Specification Section 09651.

#### acces DANITHIO

09900 - PAINTING

MATERIALS

in the drawings.

specified for stained finishes.

- A SUBMITTALS
   1. Submit 10" x 10" samples of all paints on GWB substrate illustrating
- color, sheen and texture.Submit 10" x 10" samples of all stains illustrating color and sheen on each different substrate specified. Substrates shall match wood species
- Submit all manufacturer's instructions indicating required surface preparation and conditions required for application and finish types.
- Sherwin Williams, or equivalent, latex enamel paint as called out herein and in the drawings.
   Sherwin Williams, or equivalent, oil based stain as called out herein and
- Sherwin Williams, or equivalent, water reducible polyurethane varnish as called out herein and in the drawings.
- PROCEDURE
   All surfaces shall be finished and prepared as recommended by the paint or stain manufacturer. By beginning the work, the Painting

sub-contractor accepts the quality of the substrate being painted.

recommended and required by the paint or stain manufacturer.

4. Primers, sealers, cleaning agents and accessory materials shall be as

- All surfaces to be painted shall receive primer coat and finish coat(s) as scheduled.
- SCHEDULE
   Drywall Walls: Eggshell finish. 1st coat: Sherwin Williams PrepRite 200
   Latex Primer, 2nd coat: Sherwin Williams ProMar 200 Latex Eg-Shel, 3rd
   coat: Sherwin Williams ProMar 200 Latex Eg-Shel.
- Drywall Ceilings and Soffits: Flat finish. 1st coat: Sherwin Williams
  PrepRite 200 Latex Primer, 2nd coat: Sherwin Williams ProMar 200
  Latex Flat, 3rd coat: Sherwin Williams ProMar 200 Latex Flat.
   Metal Surfaces: Semi-gloss finish. 1st coat: Sherwin Williams

Sherwin Williams Metalatex Semi-Gloss Coating (B42 Series).

Pro-Industrial Pro-Cryl Universal Primer B66-310 Series. 2nd coat:

Sherwin Williams Metalatex Semi-Gloss Coating (B42 Series). 3rd coat:

#### END OF SPECIFICATIONS







White Hall
Nursing Sim Lab

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SPECIFICATIONS

16035\_T-4

Checked By:

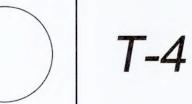
Project Number: Issue Date: 2016.035 23 SEPT 2016

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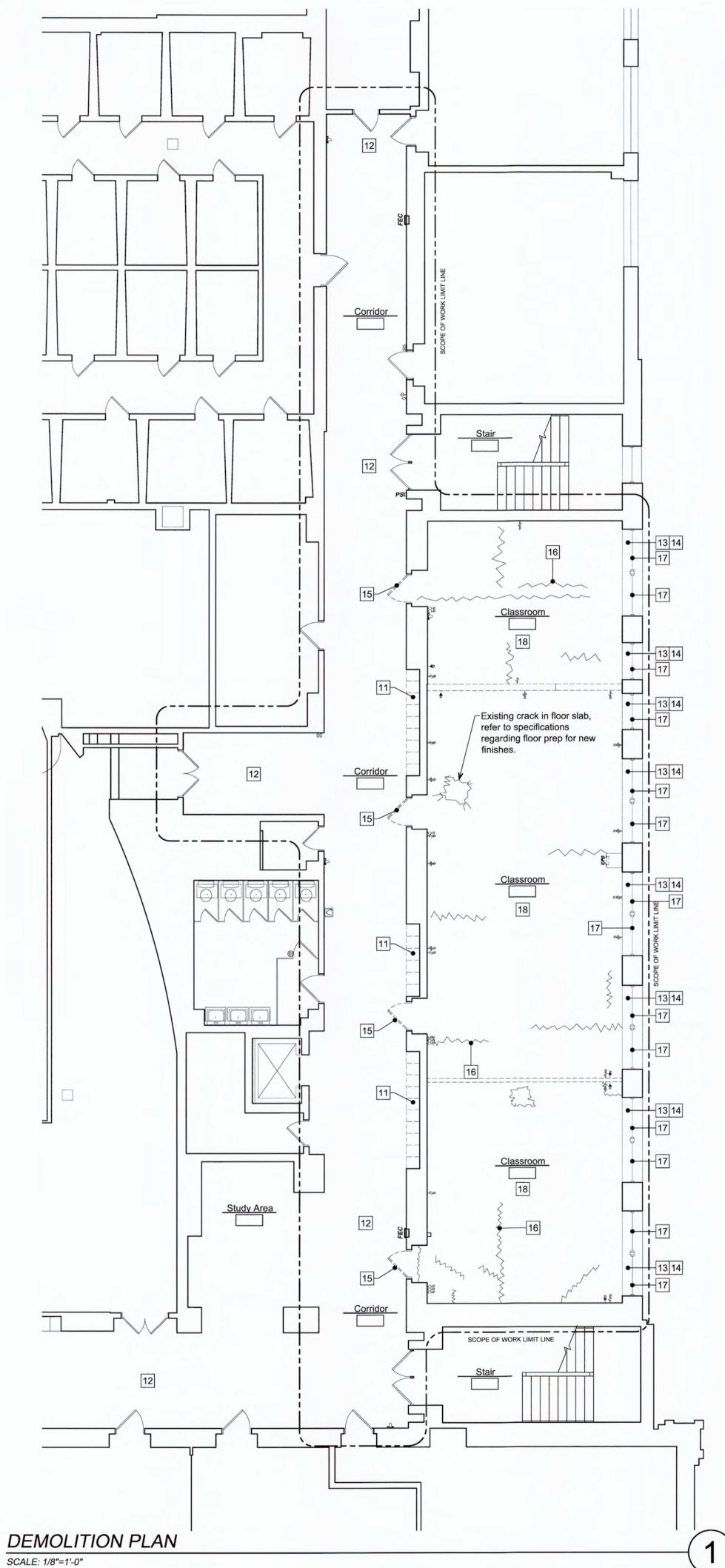
Revisions:



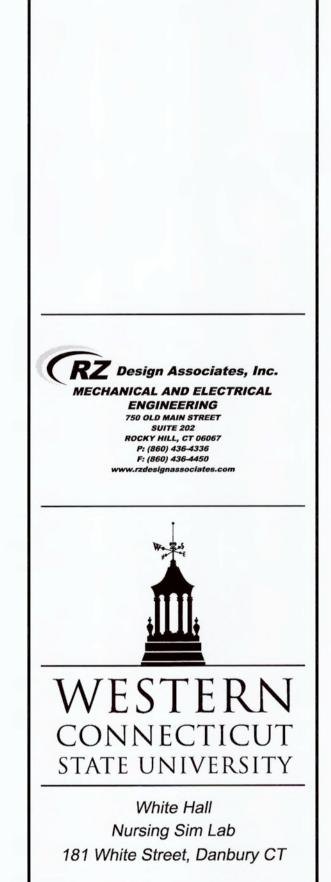
#### DEMOLITION NOTES:

Demo 1	Refer to Specifications prior to beginning any work for further	
	information regarding methods and materials.	

- Demo 2 Numbered Notes refer to this sheet only unless specifically indicated otherwise.
- Demo 3 Dashed lines indicate existing construction to be removed or modified. Exercise care during demolition activities to maintain adjacent spaces and construction designated to remain. Take care during selective demolition not to damage or disturb any items to remain.
- Demo 4 Refer to Mechanical and Electrical Design Specifications for further direction regarding demolition of items covered by those sections. Unless specifically noted otherwise, Contractor shall remove all switches and receptacles located in walls scheduled to be removed or furred out back to nearest accessible junction box or fixture housing, assuring power is maintained to other fixtures or receptacles on the same circuit.
- Demo 5 Existing finishes to remain unless otherwise noted. Take care to minimize disturbance of existing finishes during demolition activities.
- Demo 6 Fire alarm initiation and signaling devices, emergency fixtures and other similar appurtenances located on walls to be removed shall be disconnected and returned to the Owner. Disconnection of any items shall not compromise the integrity and functionality of devices not being removed.
- Demo 7 Proceed with Work in an orderly, careful, safe manner. Remove material as Work progresses, leaving area clean at completion of demolition activities. Take particular care to minimize dust and use temporary partitions or poly "Zip Walls" and construction filters on air handling systems to contain dust and debris.
- Demo 8 Owner shall have first right of refusal of all items. All fixtures, casework or other elements indicated to be removed and not specifically called out to be reused or salvaged are to be disposed of as follows: Where Owner requests items to be retained, Contractor shall return those items to a location (on site) designated by the Owner. Other items shall be appropriately disposed of by Contractor in accordance with the General
- Demo 9 Extreme care must be taken to minimize and contain noise, dust and construction debris. Materials may be stored on site at a location to be determined by the Owner, however materials must not exceed beyond the designated area. All materials and equipment required for the work shall be stored or placed so as not to endanger the general public, the Owner's employees and clients, or the contractors own workers.
- Demo 10 The contractor shall provide suitable protection for the general public and their own workers for the duration of the work. Provide and maintain temporary barriers and signage as required to protect people from the demolition areas. No exits shall be blocked, adequate lighting shall be maintained throughout all areas affected by the work, and all existing life safety and security equipment and systems must remain fully operational and accessible. Erect weatherproof enclosures at any exterior openings and provide temporary egress routes as necessary to maintain safety for building occupants.
- Demo 11 ALTERNATE #1: Remove existing lockers and prepare opening to receive new drywall finish and bench.
- Demo 12 Existing vinyl sheet flooring to remain.
- Demo 13 Remove existing wood window sills and discard.
- Demo 14 Existing window treatments to be removed and discarded.
- Demo 15 Remove existing door, frame, and transom complete. Prepare opening to receive new door, frame, and infill.
- Demo 16 Existing cracks in concrete floor slab shown thus. Refer to new floor finish specifications for information regarding preparation of slab prior to installation of new flooring.
- Demo 17 Remove upper pane of window and prepare opening to receive new spandrel panel.
- Demo 18 Remove all existing surface mounted devices and conduit from walls and ceiling scheduled to remain.







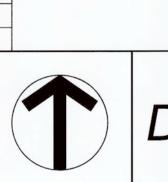
#### DEMOLITION PLAN

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Project Number:	Issue Date:	
2016.035	23 SEPT 2016	
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1/8" = 1'-0"	16035_D-101	
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TMS	EAL	







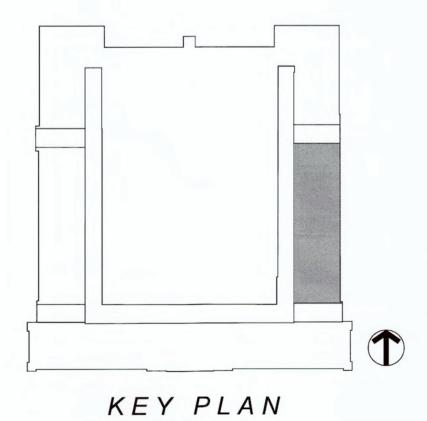
Existing construction to remain shown thus, typical. Refer to Finish Plans and Notes for any required preparation or repairs.

Selective portions of existing construction to

be removed or modified shown thus, typical.

========

Existing door and frame to be removed complete shown thus, typical. (Remove existing frames unless noted otherwise.)



#### CEILING DEMOLITION NOTES:

Demo 1	Refer to Specifications prior to beginning any work for further information regarding methods and materials.	
Demo 2	Numbered Notes refer to this sheet only unless specifically indicated	

Demo 2 Numbered Notes refer to this sheet only unless specifically indicated otherwise.

Demo 3 Dashed lines indicate existing construction to be removed or modified. Exercise care during demolition activities to maintain adjacent spaces and construction designated to remain. Take care during selective demolition not to damage or disturb any items to remain.

Demo 4 Refer to Mechanical, Electrical and Fire Protection Design Specifications for further direction regarding demolition of items covered by those sections. Unless specifically noted otherwise, Contractor shall remove all switches and receptacles located in walls scheduled to be removed or furred out back to nearest accessible junction box or fixture housing, assuring power is maintained to other fixtures or receptacles on the same circuit.

Demo 5 Existing finishes to remain unless otherwise noted. Take care to minimize disturbance of existing finishes during demolition activities.

Demo 6 Fire alarm initiation and signaling devices, emergency fixtures and other similar appurtenances located on walls to be removed shall be disconnected and returned to the Owner. Disconnection of any items shall not compromise the integrity and functionality of devices not being removed.

Demo 7 Proceed with Work in an orderly, careful, safe manner. Remove material as Work progresses, leaving area clean at completion of demolition activities. Take particular care to minimize dust and use temporary partitions or poly "Zip Walls" and construction filters on air handling systems to contain dust and debris.

Owner shall have first right of refusal of all items. All fixtures, casework or other elements indicated to be removed and not specifically called out to be reused or salvaged are to be disposed of as follows: Where Owner requests items to be retained, Contractor shall return those items to a location (on site) designated by the Owner. Other items shall be appropriately disposed of by Contractor in accordance with the General Conditions.

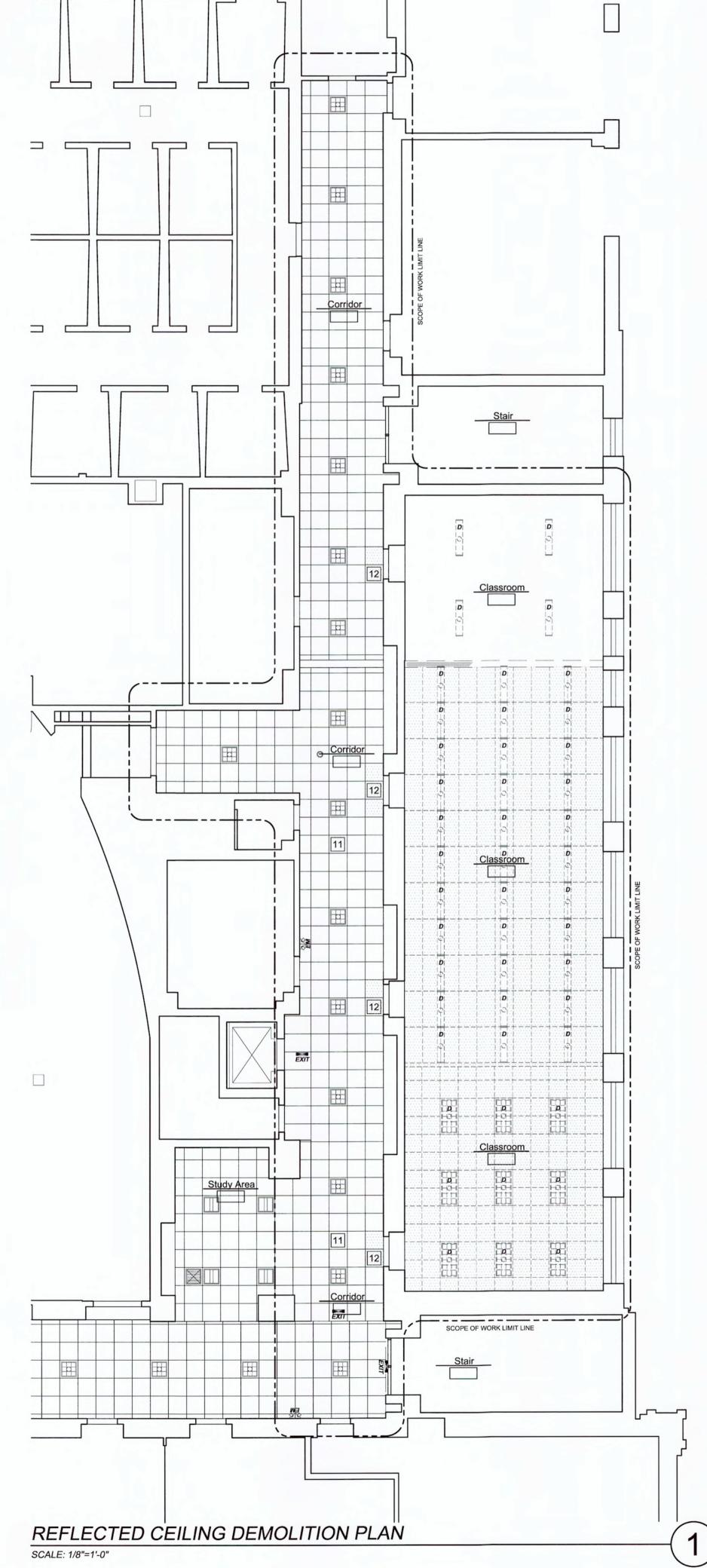
Demo 9 Extreme care must be taken to minimize and contain noise, dust and construction debris. Materials may be stored on site at a location to be determined by the Owner, however materials must not exceed beyond the designated area. All materials and equipment required for the work shall be stored or placed so as not to endanger the general public, the Owner's employees and clients, or the contractors own workers.

Demo 10 The contractor shall provide suitable protection for the general public and their own workers for the duration of the work. Provide and maintain temporary barriers and signage as required to protect people from the demolition areas. No exits shall be blocked, adequate lighting shall be maintained throughout all areas affected by the work, and all existing life safety and security equipment and systems must remain fully operational and accessible. Erect weatherproof enclosures at any exterior openings and provide temporary egress routes as necessary to maintain safety for building occupants.

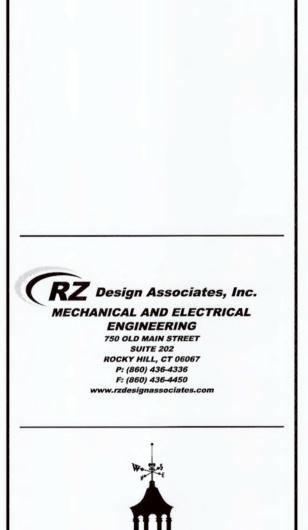
Demo 11 Existing ceiling to remain. Temporarily remove grid and pads as necessary to accommodate new HVAC piping. Refer to Mechanical drawings for further information.

Demo 12 Remove existing ceiling as necessary to accommodate installation of new door.

CEILIN	IG DEMOLITION LEGEND
SYMBOL	DESCRIPTION
	Existing 2' x 2' acoustical ceiling tiles and grid to be removed.
	Existing 2' x 4' acoustical ceiling tiles and grid to be removed.
E84830	Existing 2' x 4' lighting fixture to be removed.
	Existing 1' x 4' lighting fixture to be removed.
EXIT	Existing exit sign to remain.
56 EM	Existing emergency lighting to remain.









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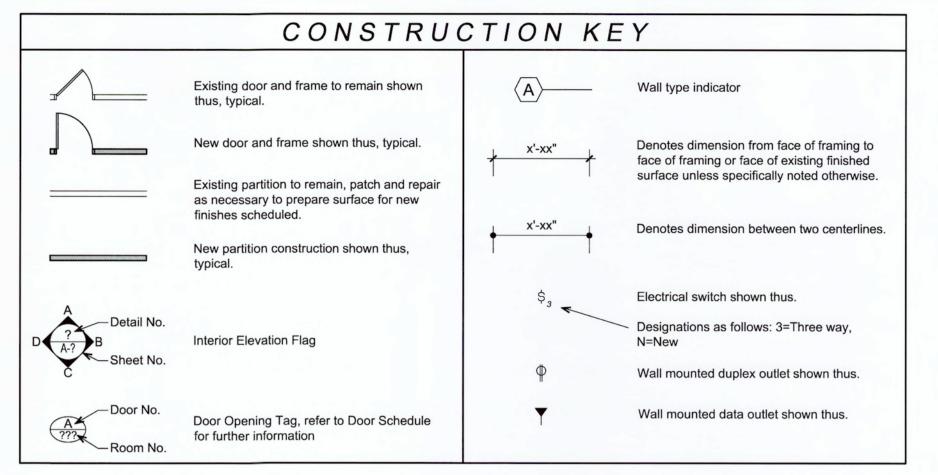
# REFLECTED CEILING DEMOLITION PLAN

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
1/8" = 1'-0"	16035_D-201.DWG
Drawn By:	Checked By:
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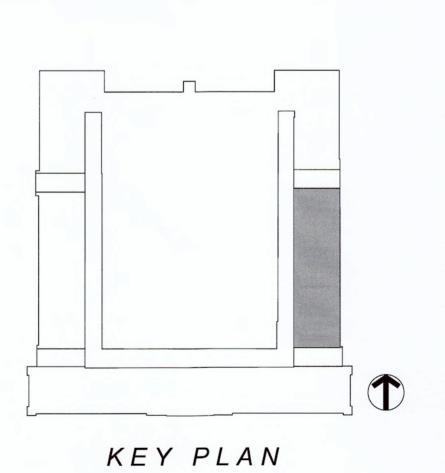


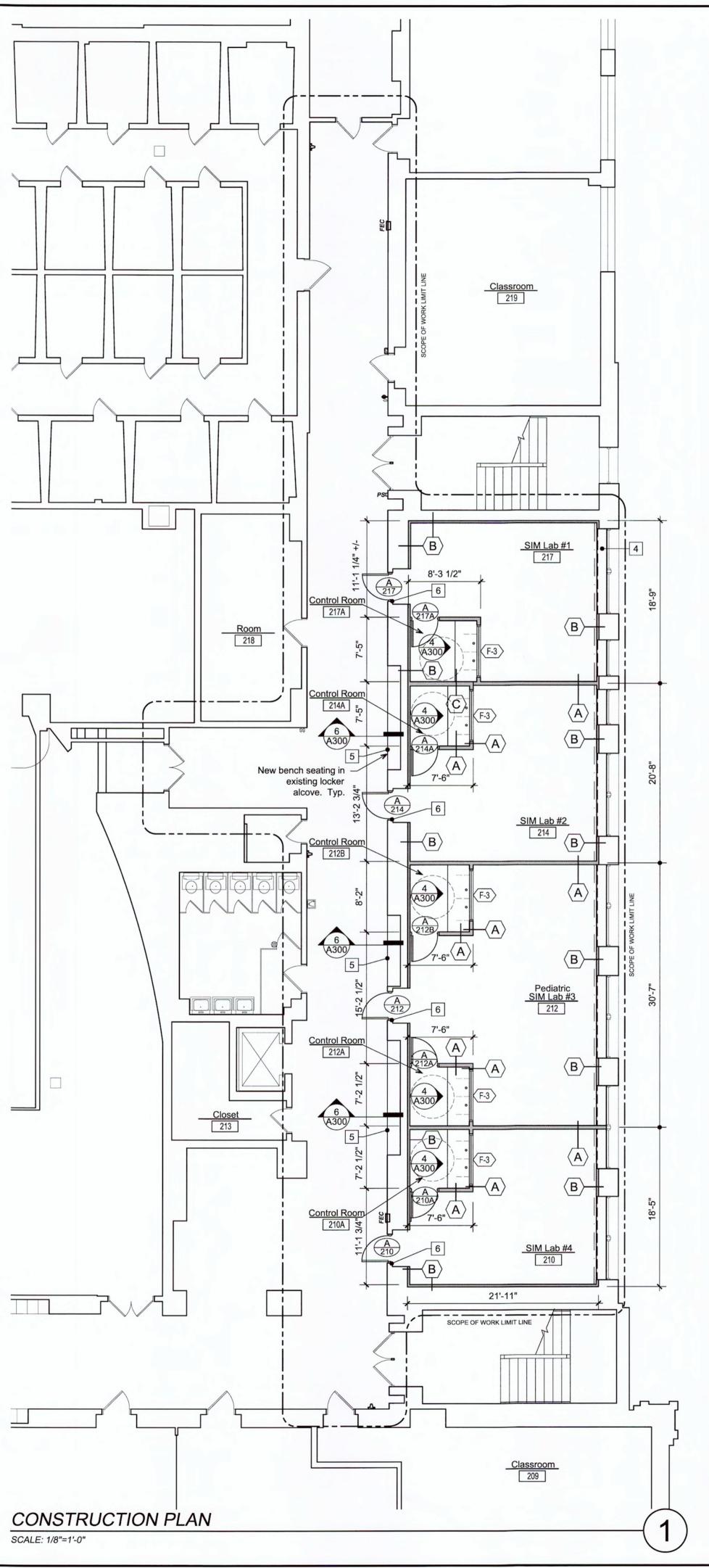




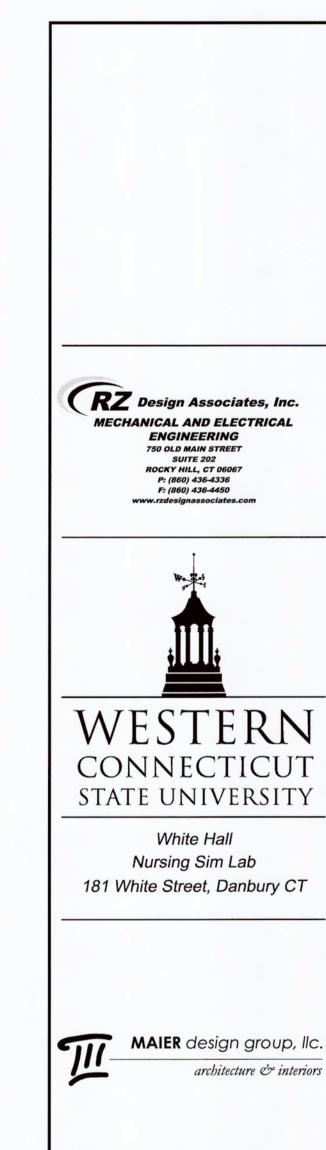
#### CONSTRUCTION NOTES:

- Con 1 Refer to the Specifications for further information regarding methods and materials prior to beginning any work
- Con 2 Numbered Notes refer to this sheet only unless specifically indicated otherwise.
- Con 3 Patch and repair all walls disturbed by demolition activities.
- Con 4 Walls below window to receive wall type "B" furring and new plastic laminate window sill, see detail B/A300.
- Con 5 ALTERNATE #1: Finish all surfaces of wall niche with 5/8" thick GWB and prepare opening to receive new millwork bench, detail
- Con 6 Infill opening above new door frame with Wall Type A. Substitute acoustical sealant in Wall Type A with fire sealant.







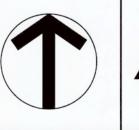


## CONSTRUCTION PLAN

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Project Number:	Issue Date:
2016.035	23 SEPT 2016
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TMS	EAL





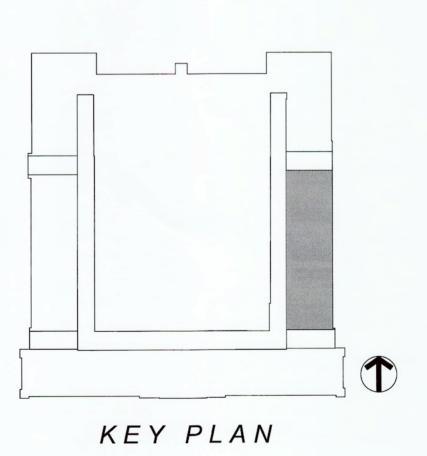
	CEILING	LEGEN	D	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
		⊠ <sub>N</sub>	New supply air diffuser.	
	Existing 2' x 2' acoustical ceiling tiles and grid to remain.	R N	New return air diffuser.	
		⊚s <sub>N</sub>	New ceiling mounted motion occupancy sensor.	
	New 2' x 2' acoustical ceiling tiles and grid.		Light Fixture circuit.	
	2' x 2' LED troffer light fixture, as specified. Provided by owner and installed by general contractor.	\$3	New light switch shown thus. All devices shall	
<b>□•</b> B	New AFX Ideal LED IDB Series; burnished nickel finish; 38-3/4" length. Provided by owner and installed by general contractor.		match existing.  Designations as follows: 3=three-way, 4= four-way, D=dimmer, F=fan, H=heater, CTA=call-to-aid pull cord switch.	
	Existing 2' x 2' light fixture to remain.		Gold Switch.	
	Existing return air diffuser.	ф	Ceiling mounted duplex receptacle for projector.	

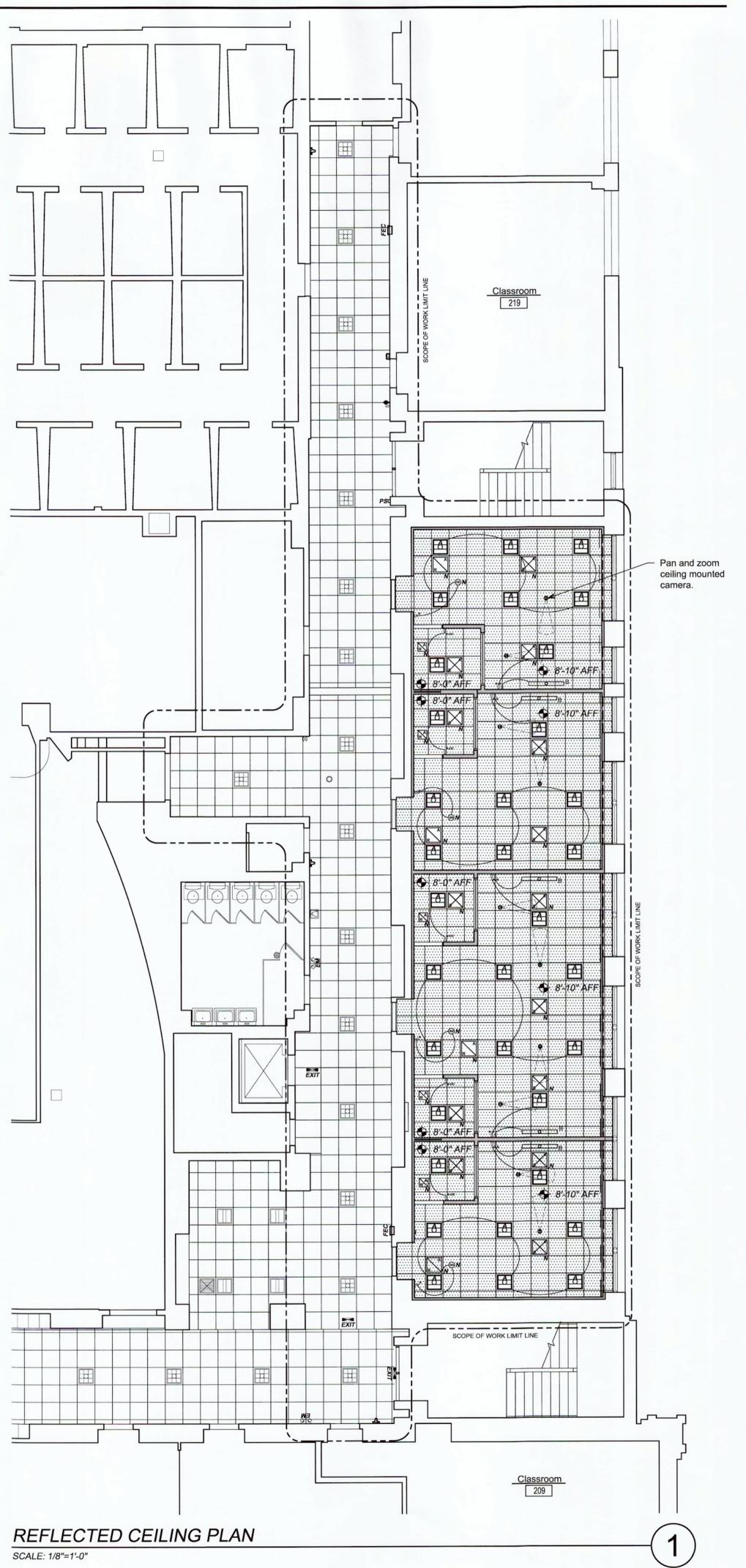
#### REFLECTED CEILING NOTES:

RCP 1 Refer to the Specifications prior to beginning any work or ordering

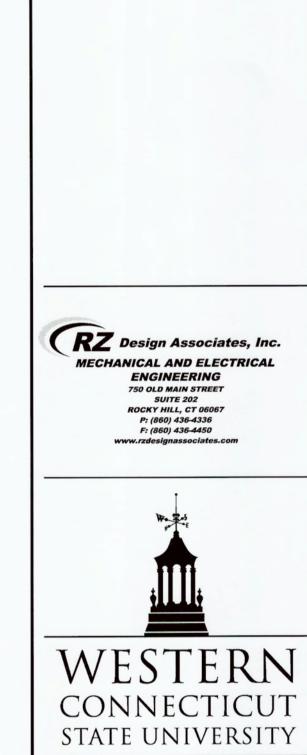
RCP 2 Numbered Notes refer to this sheet only unless specifically indicated otherwise.

RCP 3 Fixtures and devices shown on this plan are for architectural coordination purposes only. Refer to Mechanical, Electrical and Plumbing Design Build Specifications for further information.









# NURSE SIMULATION REFLECTED CEILING PLAN

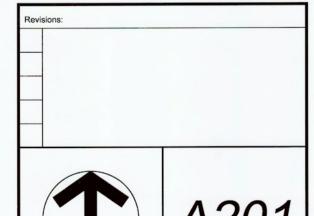
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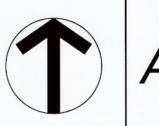
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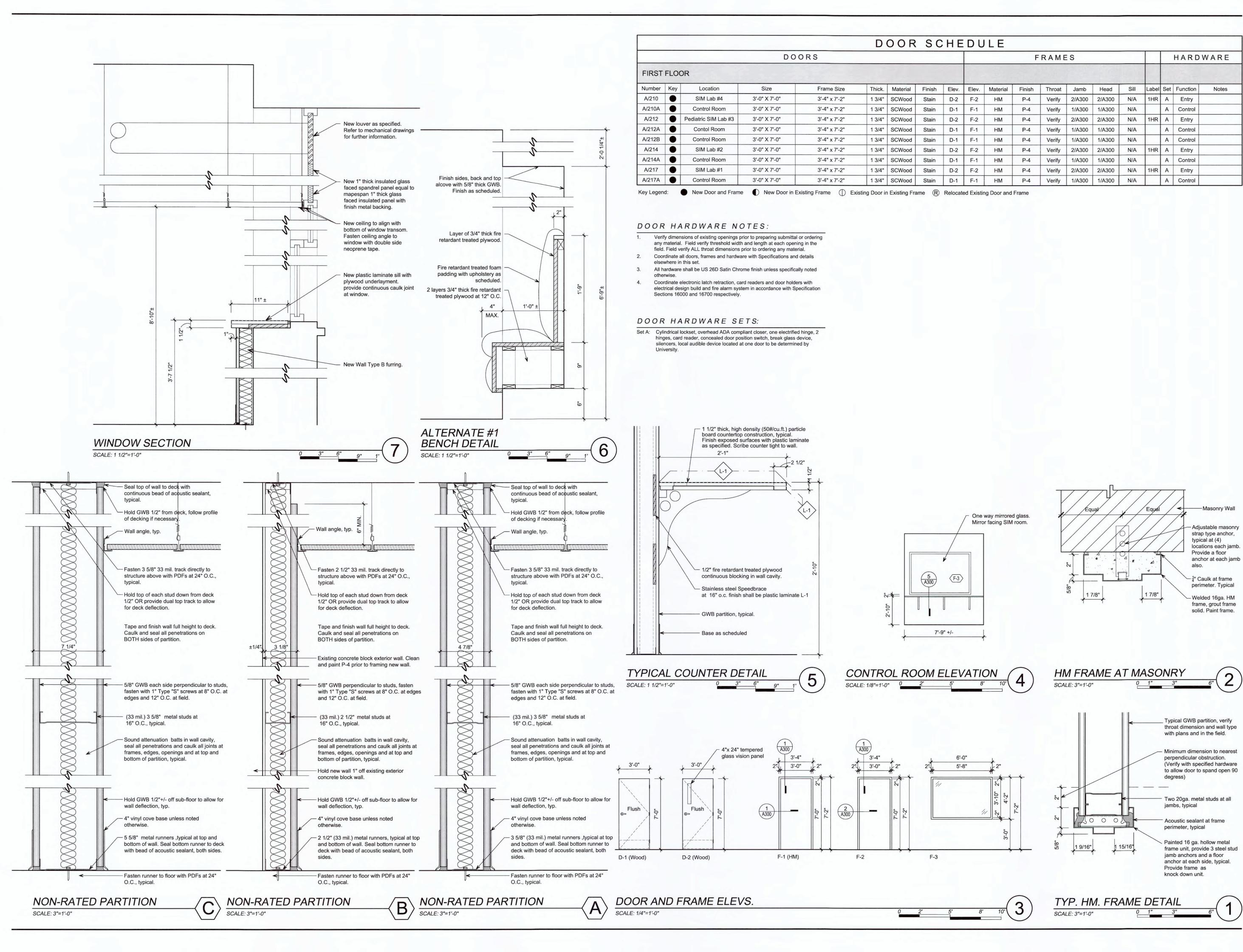
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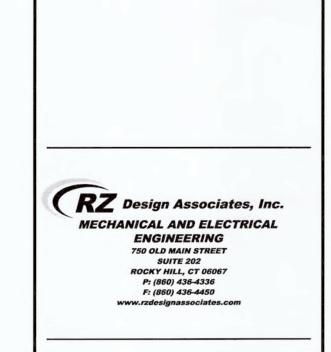
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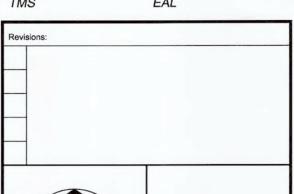


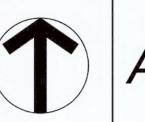
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DETAILS AND SCHEDULES

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
AS NOTED	16035_A-300.DWG
Drawn By:	Checked By:
TMS	EAL





			FIN	ISH SCHEDULE	
CODE	ITEM	MANUFACTURER/STYLE/COLOR	DESCRIPTION	FLAME SPREAD CLASSIFICATION	REMARKS
LVT-1	Tile	Teknoflor Forestscapes Series #3112 Rosewood			
C-1	Carpet Tile	Patcraft Connundrum/chess			
B-1	Vinyl Wall Base	Johnsonite #92 Blue Lagoon			
P-1	Field Paint	Pittsburgh Drifting Dune #417-3	Eggshell		Location to be determined
P-2	Accent Paint	Pittsburg Rattan Palm #512-6	Eggshell		Location to be determined
P-3	Accent Paint	Pittsburg Silver Blueberry #448-5	Eggshell		•
P-4	Frame Paint	Pratt and Lambart Heron #POR-1290-000-3	Semi-gloss		

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# ARCHINE

#### FINISH NOTES:

FIN	1 Refer	o specifications prior to commencing any work.
FIN	2 Number otherw	ered notes refer to this sheet only unless specifically noted ise.

FIN 3 See Finish Schedule for additional information and description of finishes.

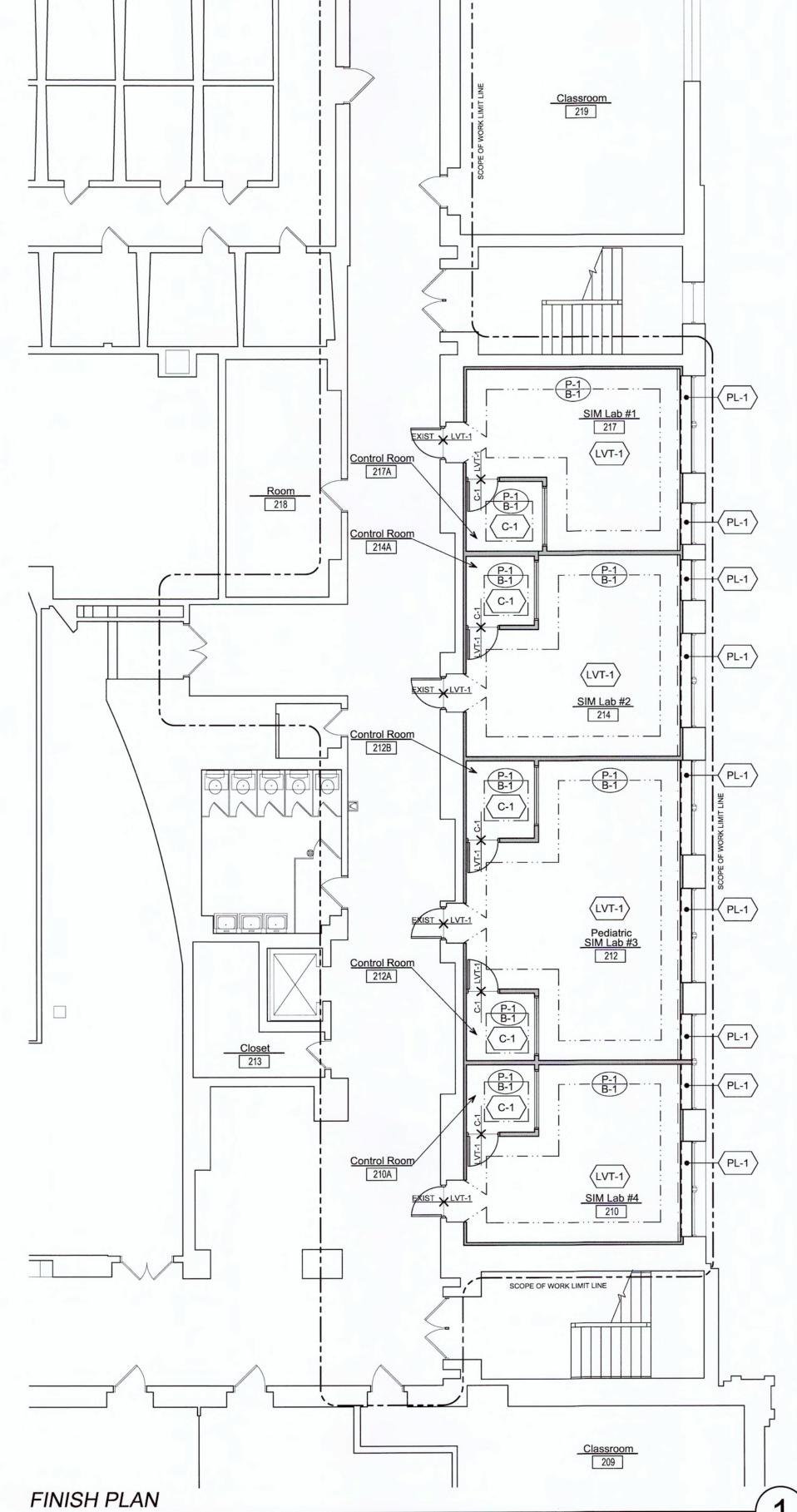
All conditions shall be verified in the field prior to proceeding with

FIN 5 All existing finishes intended to remain shall be protected from damage during construction and shall be cleaned prior to Project Closeout. Finishes damaged during construction shall be replaced or repaired as directed by the Architect with new finishes to match and align with existing.

any work. Notify Architect of any discrepancies.

- FIN 6 DO NOT apply finishes to any wall mounted electrical devices unless specifically noted otherwise. Remove all cover plates and mask off all devices while applying new finishes and reinstall or replace cover plates prior to Project Closeout.
- FIN 7 All floor and wall surfaces to receive new finishes shall be properly prepared and cleaned in accordance with manufacturer's specifications prior to application of new finish material.
- FIN 8 Verify that all floor surfaces to receive new finishes are smooth and flat within a maximum variation of 1/4 inch in ten feet and ready to receive work. Fill minor or local low spots and other defects with suitable filler compatible with finish floor material.
- FIN 9 Refer to specifications for prefinished door color.

FINISH KEY					
_ · · _ · · _ · Denotes areas where new finish is required the full height of wall unless otherwise noted.					
P-? B-?	Denotes new wall and base finish.				
VCT-1	Denotes new floor finish.				
Carpet X Carpet	Denotes floor transition.				
Α	Numbered Note Tag				



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





# WESTERN CONNECTICUT STATE UNIVERSITY

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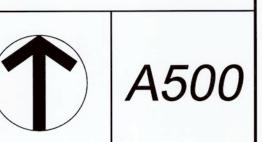


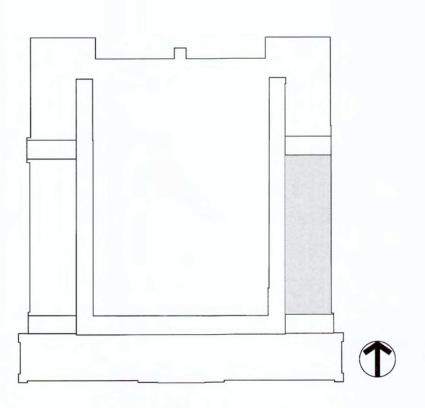
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#### FINISH PLAN

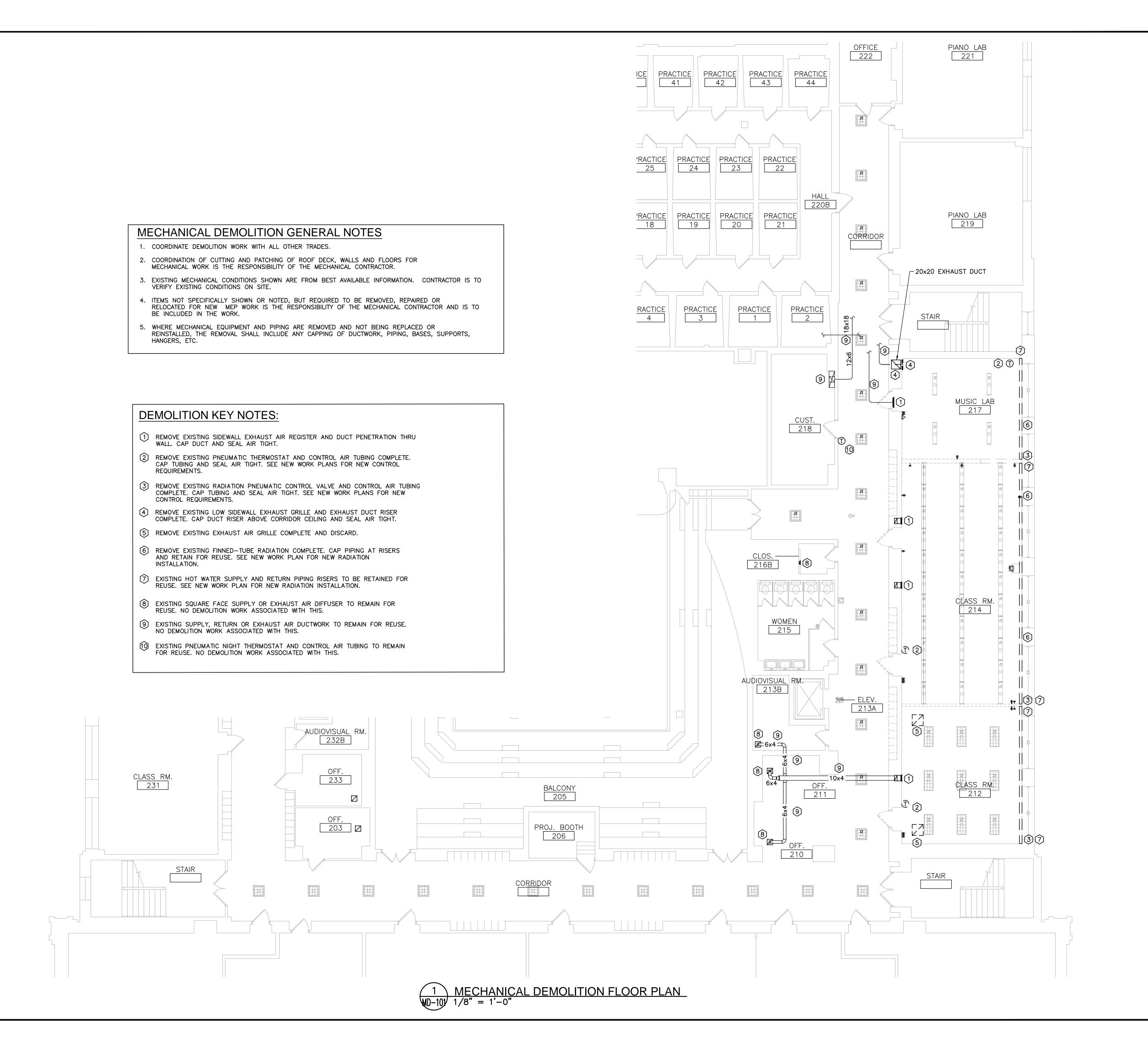
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2016.035	23 SEPT 2016
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KEY PLAN









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#### MECHANICAL DEMOLITION FLOOR PLAN

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Drawn By: Checked By:  DMR ALO	2016.035	23 SEPT 2016		
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	Drawn By:	Checked By:		
Revisions:	DMR	ALO		

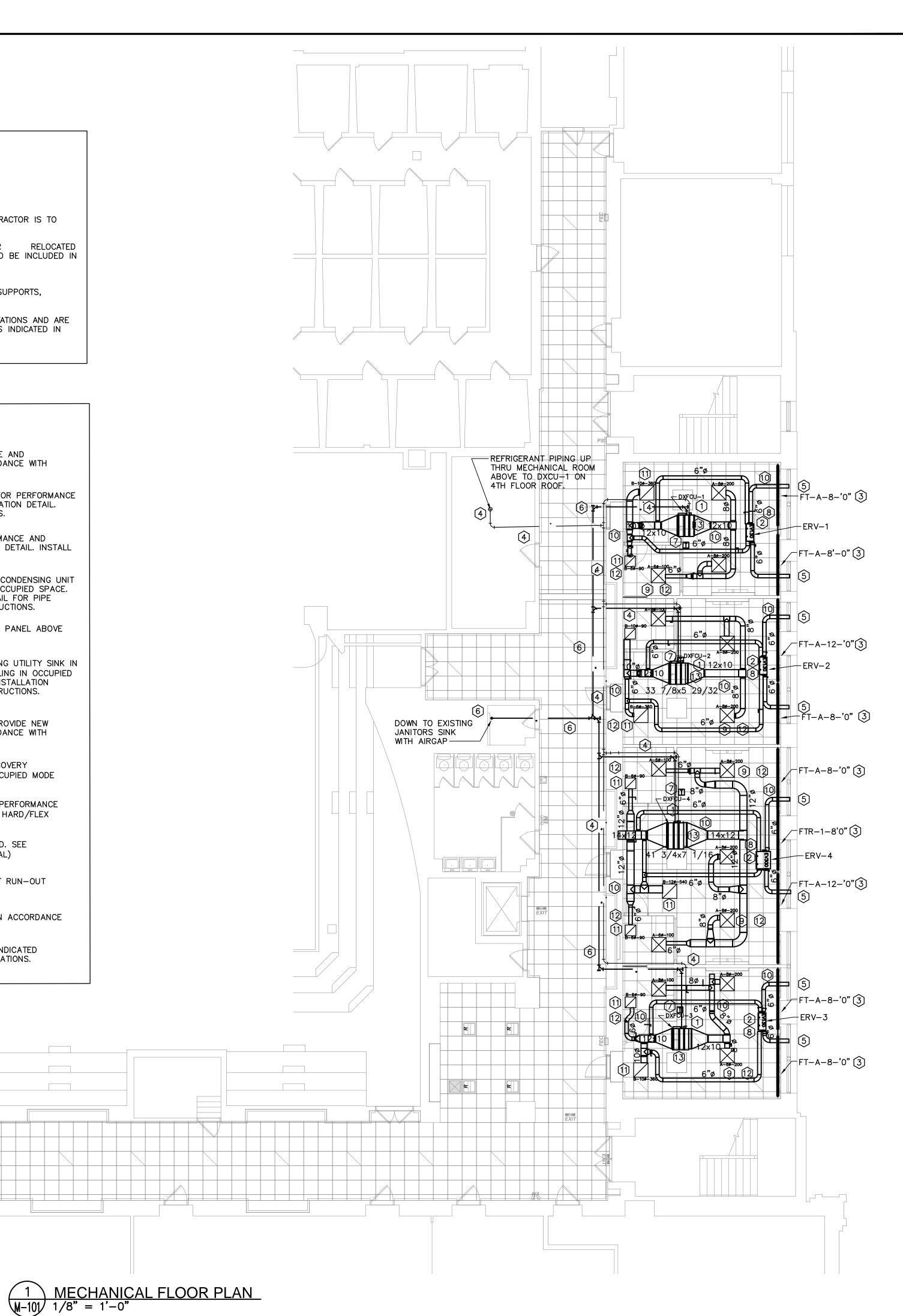
#### MECHANICAL CONSTRUCTION GENERAL NOTES

- 1. COORDINATE DEMOLITION WORK WITH ALL OTHER TRADES.
- 2. COORDINATION OF CUTTING AND PATCHING OF ROOF DECK, WALLS AND FLOORS FOR MECHANICAL WORK IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
- 3. EXISTING MECHANICAL CONDITIONS SHOWN ARE FROM BEST AVAILABLE INFORMATION. CONTRACTOR IS TO VERIFY EXISTING CONDITIONS ON SITE.
- 4. ITEMS NOT SPECIFICALLY SHOWN OR NOTED, BUT REQUIRED TO BE REMOVED, REPAIRED OR RELOCATED FOR NEW MEP WORK IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND IS TO BE INCLUDED IN THE WORK.
- 5. WHERE MECHANICAL EQUIPMENT AND PIPING ARE REMOVED AND NOT BEING REPLACED OR REINSTALLED, THE REMOVAL SHALL INCLUDE ANY CAPPING OF DUCTWORK, PIPING, BASES, SUPPORTS,
- 6. EXISTING DUCTWORK, RGD'S, PIPING, CONTROLS ETC. SHOWN ARE BASED ON FILED OBSERVATIONS AND ARE TO REMAIN UNLESS SPECIFICALLY INDICATED TO BE REMOVED, RELOCATED OR REPLACED AS INDICATED IN THE SPECIFIC DEMOLITION NOTES.

#### **NEW CONSTRUCTION KEY NOTES:**

- (1) INSTALL NEW VRF FAN COIL UNIT IN LOCATION SHOWN. SEE SCHEDULE FOR PERFORMANCE AND ACCESSORIES. SEE SPECIFICATION FOR CONSTRUCTION REQUIREMENTS. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
- (2) INSTALL NEW ENERGY RECOVERY VENTILATOR UNIT IN LOCATION SHOWN. SEE SCHEDULE FOR PERFORMANCE AND ACCESSORIES. SEE SPECIFICATION FOR CONSTRUCTION REQUIREMENTS. SEE INSTALLATION DETAIL. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
- 3 INSTALL NEW FINNED-TUBE RADIATION IN LOCATION SHOWN. SEE SCHEDULE FOR PERFORMANCE AND ACCESSORIES. SEE SPECIFICATION FOR CONSTRUCTION REQUIREMENTS. SEE INSTALLATION DETAIL. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
- (4) INSTALL NEW REFRIGERANT LIQUID AND VAPOR PIPING FROM VRF FAN COIL UNIT TO VRF CONDENSING UNIT ON ROOF. PIPING SHOWN IN CORRIDOR FOR CLARITY. INSTALL PIPING ABOVE CEILING IN OCCUPIED SPACE. SEE SPECIFICATION FOR PIPING AND INSULATION REQUIREMENTS. SEE INSTALLATION DETAIL FOR PIPE SIZES. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
- (5) CONNECT OUTDOOR AIR OR EXHAUST AIR DUCTWORK TO LOUVER INSTALLED IN SPANDREL PANEL ABOVE EXISTING WINDOW. SEE ARCHITECTURAL PLANS FOR PANEL AND LOUVER DETAILS.
- (6) INSTALL NEW CONDENSATE PUMP AND DRAIN PIPING FROM VRF FAN COIL UNIT TO EXISTING UTILITY SINK IN JANITOR'S CLOSET. PIPING SHOWN IN CORRIDOR FOR CLARITY. INSTALL PIPING ABOVE CEILING IN OCCUPIED SPACE.SEE SPECIFICATION FOR PIPING MATERIAL AND INSULATION REQUIREMENTS. SEE INSTALLATION DETAIL. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS. PROVIDE CLEANOUT AT ALL CHANGE OF DIRECTION.
- 1 INSTALL VRF TEMPERATURE CONTROLLER IN NEW LOCATION AT ELEVATION 4'-0" A.F.F. PROVIDE NEW LOW-VOLTAGE CONTROL WIRING TO FROM CONTROLLER TO VRF FAN COIL UNIT IN ACCORDANCE WITH THE INSTALLATION DETAIL.
- (8) INSTALL NEW LOW-VOLTAGE CONTROL WIRING TO FROM VRF CONTROLLER TO ENERGY RECOVERY VENTILATOR (ERV) CONTROL PANEL. PROGRAM VRF CONTROLLER TO RUN ERV DURING OCCUPIED MODE AND REMAIN OFF IN UN-OCCUPIED MODE.
- 9 INSTALL NEW SQUARE FACE SUPPLY DIFFUSER IN LOCATION SHOWN. SEE SCHEDULE FOR PERFORMANCE AND ACCESSORIES. SEE SPECIFICATION FOR CONSTRUCTION REQUIREMENTS. PROVIDE NEW HARD/FLEX DUCT RUN-OUT AS SHOWN. SEE INSTALLATION DETAILS. (TYPICAL)
- (1) INSTALL NEW LOW-PRESSURE SUPPLY, RETURN OR EXHAUST AIR DUCTWORK AS INDICATED. SEE INSTALLATION DETAILS. SEE SPEC FOR MATERIALS AND INSULATION REQUIREMENTS. (TYPICAL)
- 11 INSTALL NEW RETURN AIR REGISTER IN LOCATION SHOWN. PROVIDE NEW HARD/FLEX DUCT RUN-OUT AS SHOWN. SEE INSTALLATION DETAILS. (TYPICAL)
- (12) AIR BALANCE NEW SUPPLY AIR DIFFUSER OR RETURN REGISTER TO THE CFM INDICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS.

(3) AIR BALANCE NEW VRF FAN COIL UNIT OR ENERGY RECOVERY VENTILATOR TO THE CFM INDICATED IN THE EQUIPMENT SCHEDULE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS.









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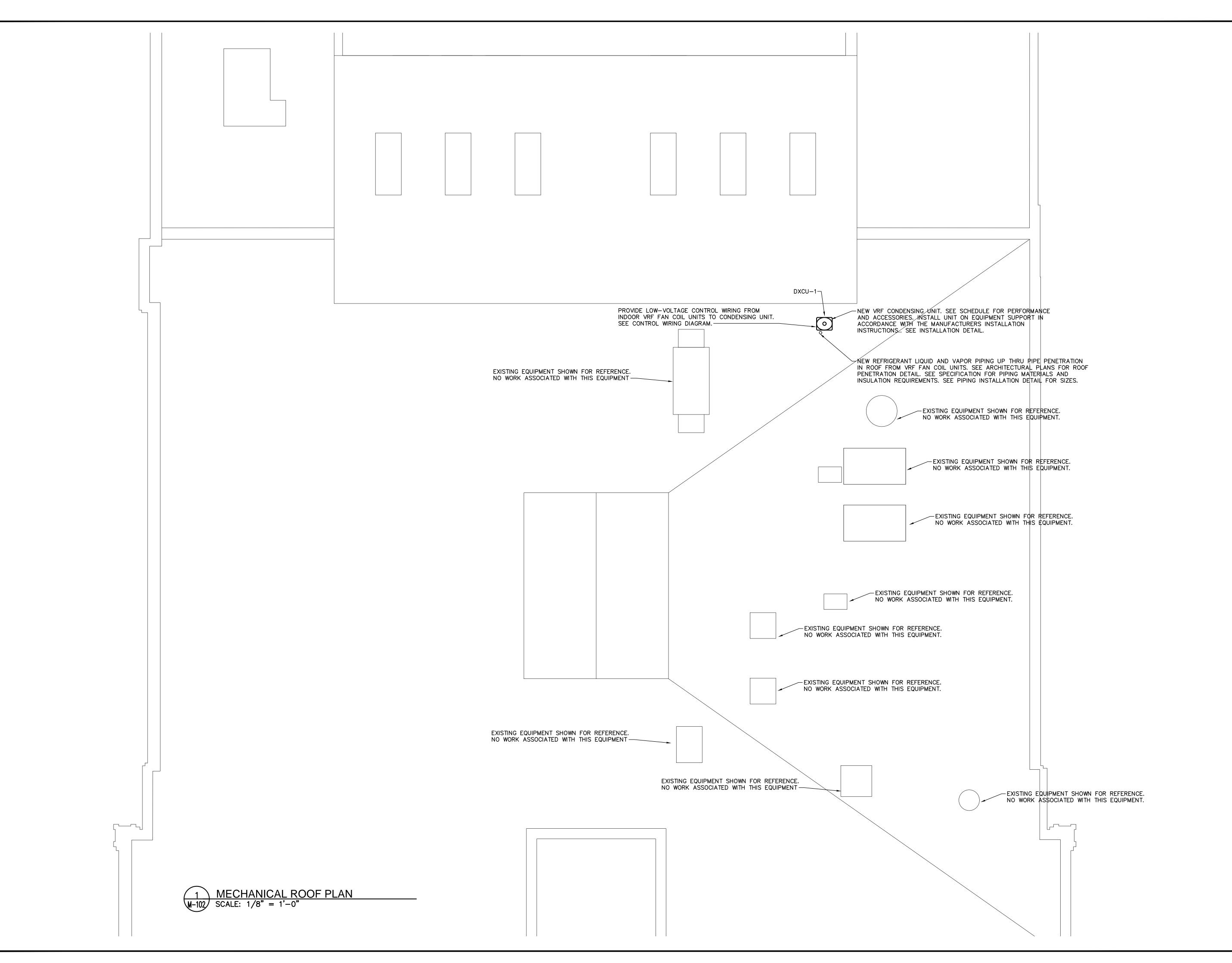
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#### **MECHANICAL FLOOR**

PLAN Project Number: Issue Date: 2016.035 23 SEPT 2016 CAD File: AS NOTED Checked By: ALO



M-101









STATE UNIVERSITY

White Hall
Sim Lab

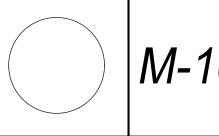
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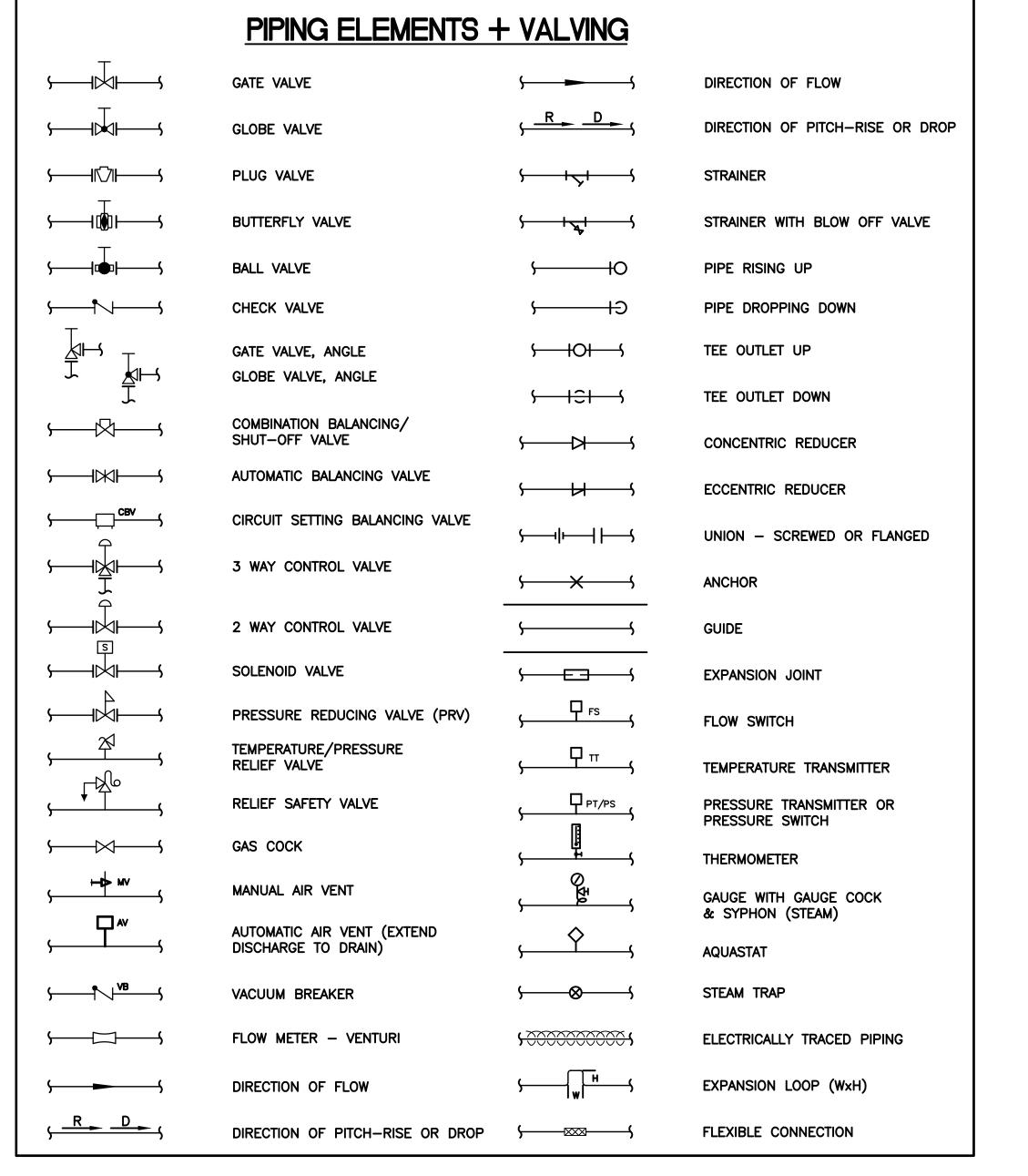


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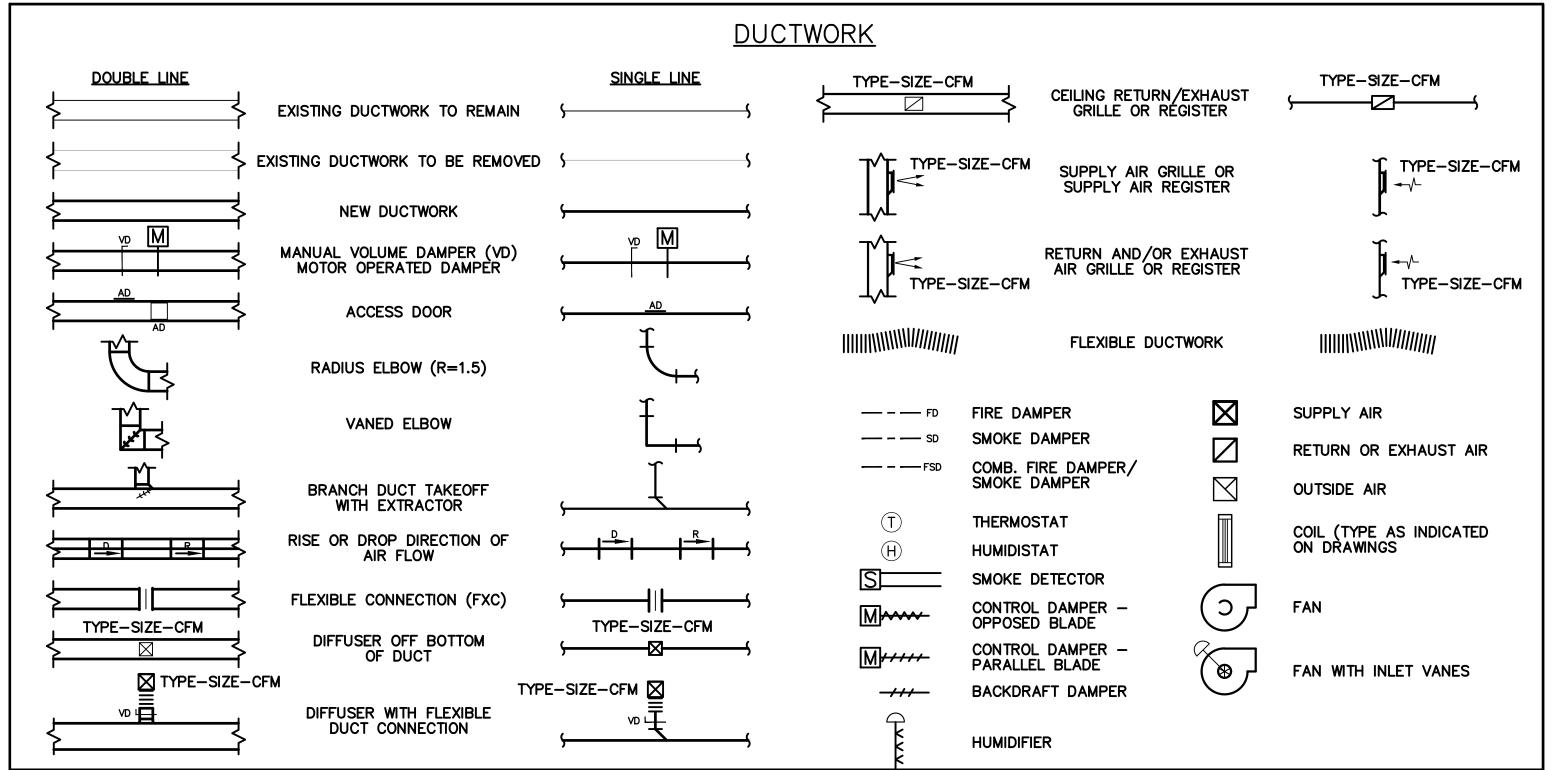
#### MECHANICAL ROOF PLAN

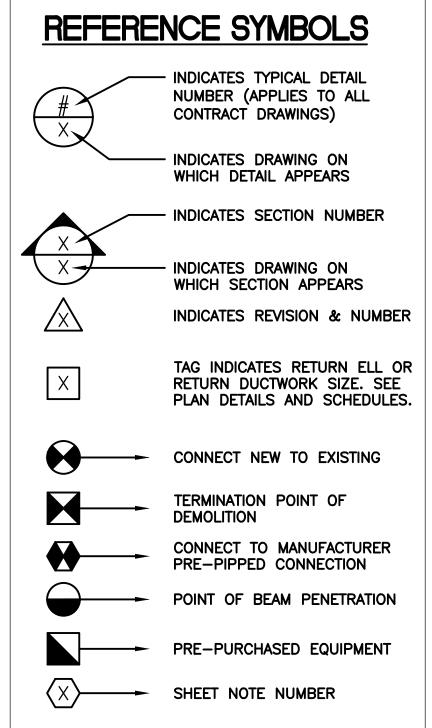
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2016.035	23 SEPT 2016
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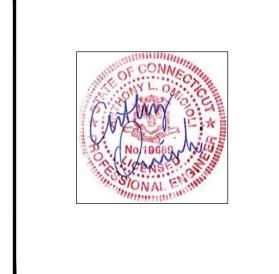
				<u>ABE</u>	BREVIATIONS				
ABV	AUTOMATIC BALANCING VALVE	DWG	DRAWING	FTC	FLOOR TO CENTERLINE	MIN	MINIMUM	RM	ROOM
AC	AIR CONDITIONING	EA	EACH	FTR	FINNED TUBE RADIATION	MISC	MISCELLANEOUS	RPM	REVOLUTIONS
AD	ACCESS DOOR	EAT	ENTERING AIR TEMPERATURE	FTU	FAN TERMINAL UNIT	MTD	MOUNTED		PER MINUTE
AFF	ABOVE FINISHED FLOOR	EF	EXHAUST FAN	FV	FACE VELOCITY	NC	NORMALLY CLOSED	SA	SUPPLY AIR
AHU	AIR HANDLING UNIT	EFF	EFFICIENCY	GA	GAUGE	NIC	NOT IN CONTRACT	SCH	SCHEDULE
AP	ACCESS PANEL	EJ	EXPANSION JOINT	GAL	GALLON	No	NUMBER	SD	SMOKE DAMPER WITH ACCESS DOOR
ATC	AUTOMATIC TEMPERATURE CONTROL	EL	ELEVATION	GALV	GALVANIZED	NO	NORMALLY OPEN	SENS	SENSIBLE
AVG	AVERAGE	ELEC	ELECTRIC	GC	GENERAL CONTRACTOR	NOM	NOMINAL	SF	SQUARE FEET
AWT	AVERAGE WATER TEMPERATURE	ELEV	ELEVATOR	GPD	GALLONS PER DAY	NTS	NOT TO SCALE	SH	SENSIBLE HEAT
BDD	BACK DRAFT DAMPER	ENT	ENTERING	GPH	GALLONS PER HOUR	OA	OUTSIDE AIR	SP	STATIC PRESSURE
BFF	BELOW FINISHED FLOOR	EQ	EQUAL	GPM	GALLONS PER MINUTE	OD	OUTSIDE DIMENSION	SPEC	SPECIFICATION
BG	BLAST GATE	EQUIP	EQUIPMENT	H <sub>2</sub> 0	WATER	ОС	ON CENTER	SQ	SQUARE
BLDG	BUILDING	EQUIV	EQUIVALENT	НВ	HOSE BIB	occ	OCCUPIED	SS	STAINLESS STEEL
BOD	BOTTOM OF DUCT	ESP	EXTERNAL STATIC PRESSURE	HWC	HOT WATER COIL	PART	PARTIAL	STD	STANDARD
BSMT	BASEMENT	ET	EXPANSION TANK	HD	HEAD (SEE SCHEDULES)	PD	PRESSURE DROP (SEE SCHEDULE)	STL	STEEL
BTU	BRITISH THERMAL UNIT	EUH	ELECTRIC UNIT HEATER	HP	HORSEPOWER	PERF	PERFORATED	STM	STEAM
CAP	CAPACITY	EWT	ENTERING WATER TEMPERATURE	HPG	HIGH PRESSURE GAS	PH	PHASE	STR	STRUCTURAL
CFM	CUBIC FEET PER MINUTE	EXH	EXHAUST	HR	HOUR	PNEU	PNEUMATIC	SUCT	SUCTION
CI	CAST IRON	EXIST	EXISTING	HTR	HEATER	POS	POSITIVE	SUP	SUPPLY
<u>E</u>	CENTER LINE	EXP	EXPANSION	нх	HEAT EXCHANGER	PRV	PRESSURE REDUCING VALVE	SYS	SYSTEM
CLG	CEILING	EXT	EXTERNAL	HZ	HERTZ	PS	PRESSURE SWITCH	TEMP	TEMPERATURE
C.O.	CLEAN OUT	۴	DEGREES FAHRENHEIT	ID	INTERNAL DIAMETER	PSI	POUNDS PER SQUARE INCH	TP	TOTAL PRESSURE
COL	COLUMN	FA	FREE AREA	IN	INCHES	PSIG	POUNDS PER SQUARE INCH GAUGE	TSP	TOTAL STATIC PRESSURE
СОМР	COMPRESSOR	FC	FAIL CLOSED	INV	INVERT	PVS	POLYVINYL COATED STEEL	TT	TEMPERATURE TRANSMITTER
CON	CONCENTRIC	FCU	FAN COIL UNIT	KW	KILOWATT	RA	RETURN AIR	TYP	TYPICAL
CONC	CONCRETE	FCV	FLOW CONTROL VALVE	L	LENGTH	RAC	RUN ABOVE CEILING	UC	UNDERCUT
COND/CD		FD/AD	FIRE DAMPER W/ACCESS DOOR	LAT	LEAVING AIR TEMPERATURE	RAF	RETURN AIR FAN	UH	UNIT HEATER
CONN	CONNECTION	FIN	FINISHED	LB	POUND	RBC	RUN BELOW CEILING	UNOCC	UNOCCUPIED
CONT	CONTINUATION	FL	FLOOR	LBS/HR	POUNDS PER HOUR (#/HR)	RBG	RUN BELOW GRADE	V	VOLTS
CONTR	CONTRACTOR	FLA	FULL LOAD AMPS	LIN	LINEAR	RBJ	RUN BETWEEN JOIST	VB	VACUUM BREAKER
CUH	CONDENSING UNIT CABINET UNIT HEATER	FLR	FLOOR	LPG	LOW PRESSURE GAS	RD	ROOF DRAIN	VD	VOLUME DAMPER
DB	DRY BULB	FM	FLOW METER	LRA	LOCK ROTOR AMPS	REG	REGISTER	VEL	VELOCITY
DEF	DRYER EXHAUST FAN	FP	FIRE PROTECTION	LWT	LEAVING WATER TEMPERATURE	REL	RELIEF	VOLT	VOLTAGE
DIA	DIAMETER	FPM	FEET PER MINUTE	MBH	THOUSANDS OF BTU PER HOUR	RET	RETURN	W	WIDTH
DIAG	DIAGRAM	FPS	FEET PER SECOND	MED	MEDIUM	RGD	REGISTERS, GRILLES, & DIFFUSERS	W/	WITH
DIF	DIFFERENTIAL	FS	FLOW SWITCH		MANUFACTURER	RH	RELATIVE HUMIDITY	w/o	WITHOUT
DIFF	DIFFUSER	FD/SD/AD	COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR	MIN	MINIMUM	RHC	REHEAT COIL	WB	WET BULB
DISCH	DISCHARGE	CT.	FEET	MISC	MISCELLANEOUS	RV	RELIEF VALVE	WC	WATER COLUMN
DN	DOWN	FT		NC	NORMALLY CLOSED	RLA	RATED LOAD AMPS	WT	WEIGHT
		FTB	FLOOR TO BOTTOM						

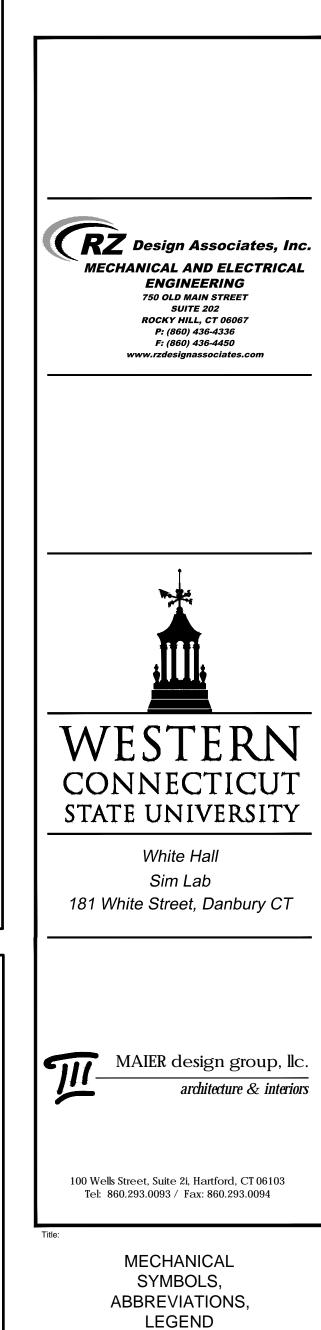


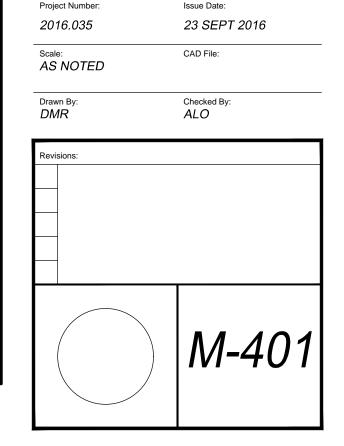


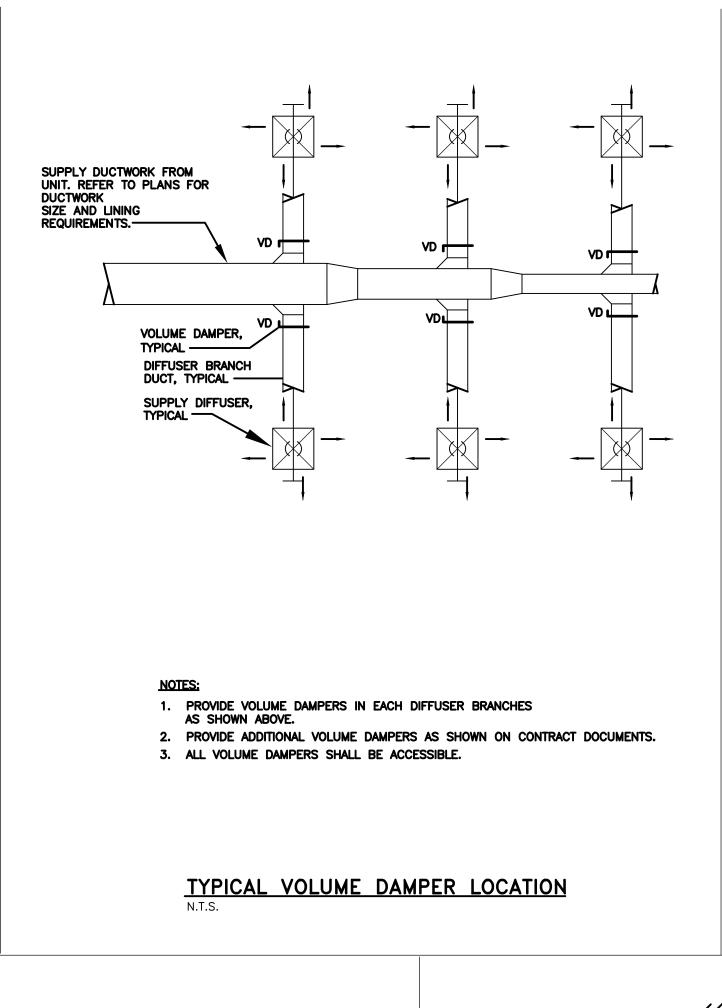
CO	CONTROLS LEGEND					
(AO)	ANALOG OUTPUT					
Al	ANALOG INPUT					
<u></u>	DIGITAL OUTPUT					
Ol	DIGITAL INPUT					
T	TEMPERATURE SENSOR					
DP	DIFFERENTIAL PRESSURE SENSOR					
F	FLOW STATION					
M	MOTORIZED DAMPER					
S	DUCT MOUNTED SMOKE DETECTOR					
⊠ <sup>†</sup>	DISCONNECT SWITCH					
Fs	FLOW SWITCH					
	VARIABLE FREQUENCY DRIVE WITH BYPASS					
HWS	HOT WATER SUPPLY					
HWR	HOT WATER RETURN					
DTS	DUAL TEMPERATURE SUPPLY					
DTR	DUAL TEMPERATURE RETURN					
OA	OUTSIDE AIR					
Со	CARBON MONOXIDE GAS SENSOR					
Ме	METHANE SENSOR					
ND	NITROGEN DIOXIDE SENSOR					
HGMP	HAZARDOUS GAS MONITORING PANEL					
DDC	DIRECT DIGITAL CONTROLLER					
S	SWITCH— MOMENTARY PUSHBUTTON MANUAL REMOTE OVERRIDE					
H	HUMIDITY SENSOR					
AS	AIRFLOW STATION					

LINE DESIGN	IATIONS
<b>&gt;</b>	EXISTING TO REMAIN (SERVICE AS INDICATED)
<b>S</b> ————————————————————————————————————	COMPRESSED AIR
}	BOILER FEEDWATER
<b>S</b> ————————————————————————————————————	BOILER BLOWDOWN
<b>CWS</b>	CONDENSER WATER SUPPLY
<b>S</b> ——CWR——— <b>S</b>	CONDENSER WATER RETURN
\ CHWS\	CHILLED WATER SUPPLY
\ CHWR\	CHILLED WATER RETURN
<b>S</b> ————————————————————————————————————	CONDENSATE DRAIN
<b>├</b>	GAS VENT
<b>├</b> ─── HPG ──── <b>├</b>	HIGH PRESSURE GAS
} OR	HOT WATER SUPPLY
<u> </u>	HOT WATER RETURN
<b>├</b> ——LPC —— <b>┤</b>	LOW PRESSURE CONDENSATE
\\LPG\	LOW PRESSURE GAS
<b>├</b> ────────── <b>├</b>	PUMPED CONDENSATE
\\-RL\	REFRIGERANT LIQUID
}	REFRIGERANT SUCTION
\\RD\	REFRIGERANT DISCHARGE
\\RHG\	REFRIGERANT HOT GAS
	VENT PIPING







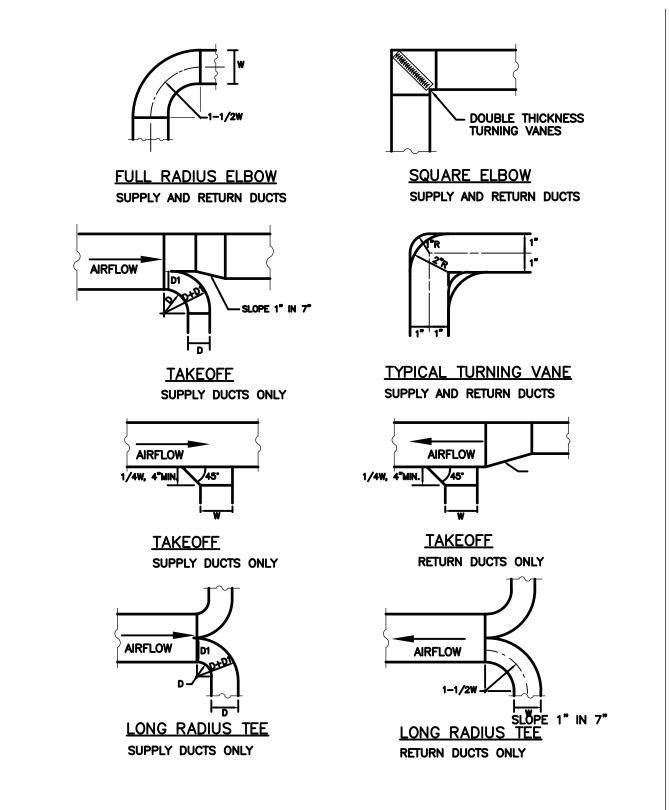


- PROVIDE ADJUSTMENT FOR

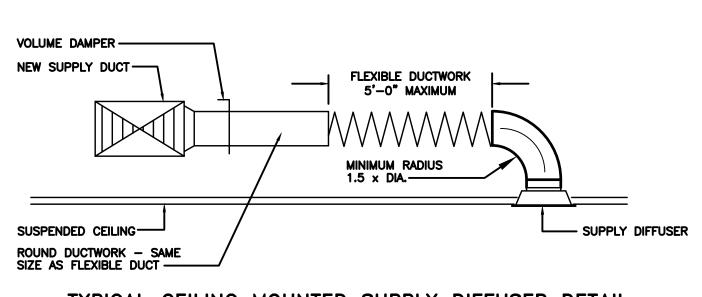
A LEVEL SURFACE

NOTE: SUPPORT TO BE BY MIRO IND. OR APPROVED EQUAL.

MODEL "HD" HEAVY DUTY, 48"x36", WITH GRATE. SUPPORT LOAD IS TO BE A MINIMUM OF 450 POUNDS.



TYPICAL DUCT DETAILS

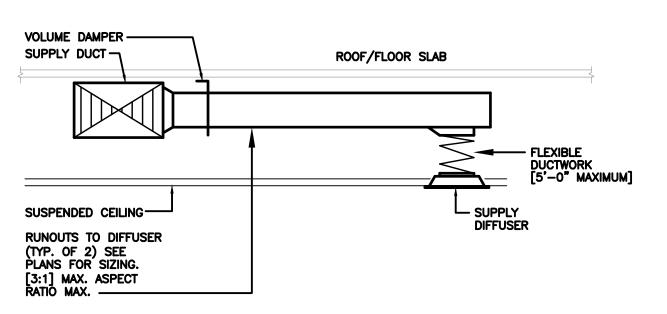


### TYPICAL CEILING MOUNTED SUPPLY DIFFUSER DETAIL

1. SEPARATELY SUPPORT FLEX DUCT FROM STRUCTURE.

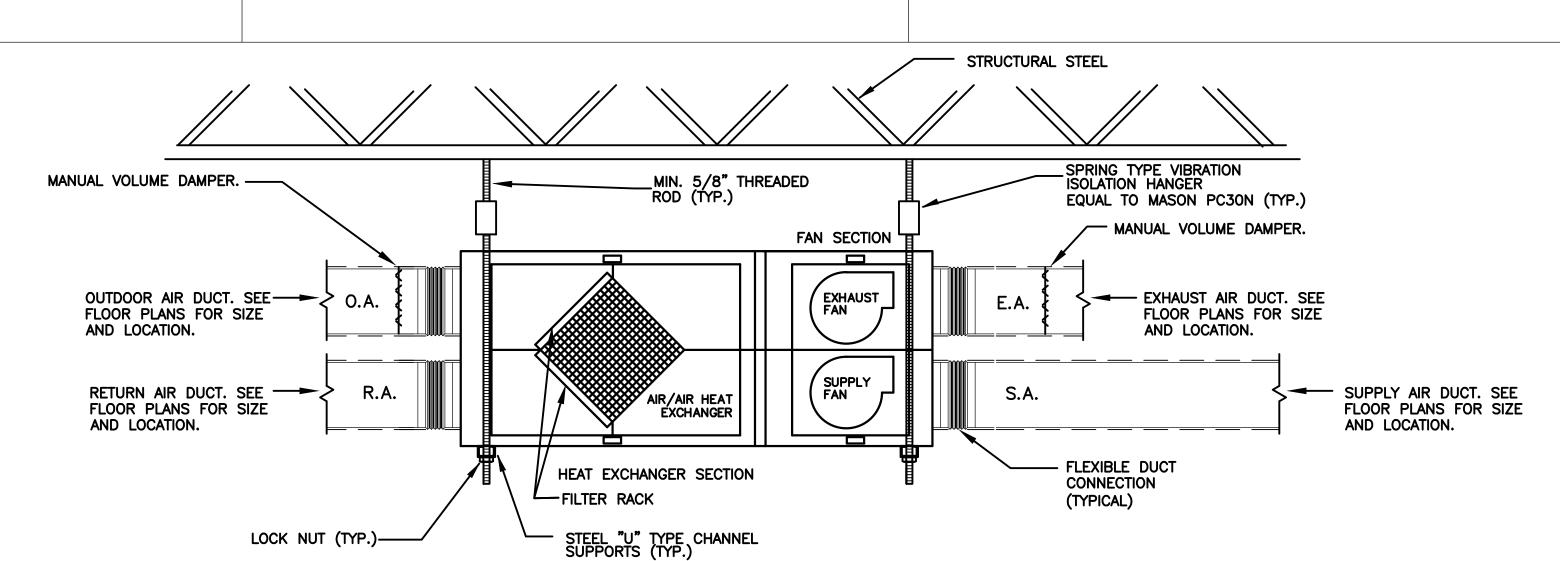
N.T.S.

2. AIR BALANCING SHALL BE CONTROLLED WITH DUCT MOUNTED VOLUME DAMPERS.



#### LIMITED CLEARANCE CEILING MOUNTED DIFFUSER DETAIL N.T.S. **NOTES**

- 1. SEPARATELY SUPPORT FLEX DUCT
- 2. AIR BALANCING SHALL BE CONTROLLED WITH DUCT MOUNTED VOLUME DAMPERS.



SUSPENDED ENERGY RECOVERY VENTILATOR DETAIL

### CONDENSING UNIT EQUIPMENT SUPPORT DETAIL

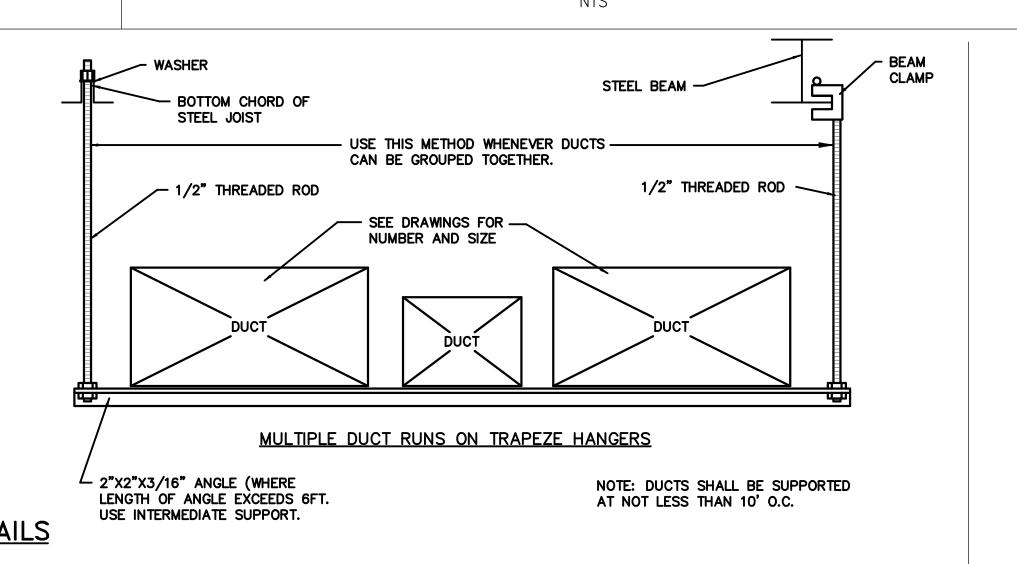
PROVIDE ANCHOR POINTS FOR CONDENSING UNIT- COORDINATE WITH UNIT MANUFACTURER

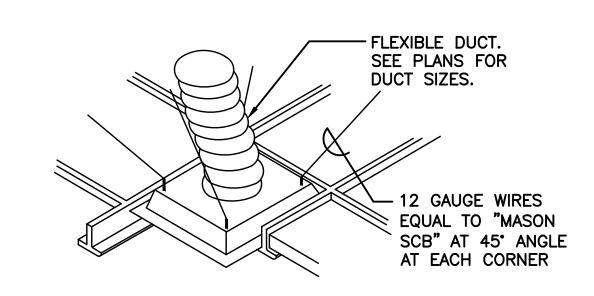
N.T.S.

CONCRETE SLAB - RAFTER OR JOIST - EXPANSION SHIELD — WOOD **SCREW** - 1"X16 GA.

- 1"X16 GA. STRAPS STRAPS - SHEET METAL SCREWS SHEET METAL SCREWS DUCT-SEE DUCT-SEE DRAWNG DRAWNG FOR SIZE. SINGLE RECTANGULAR DUCT SINGLE RECTANGULAR DUCT

> USE APPLICABLE METHOD OF ATTACHMENT **DUCT INSTALLATION DETAILS**



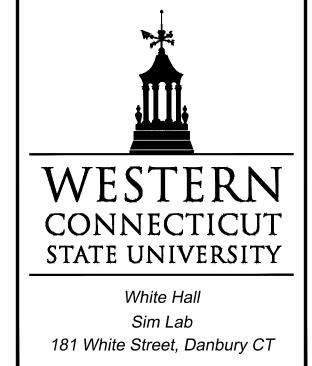


DETAIL SAME FOR RETURN & EXHAUST REGISTERS.

SEISMIC BRACING FOR DIFFUSER

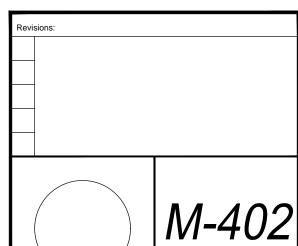








#### MECHANICAL **DETAILS**



#### ENERGY RECOVERY VENTILATOR SCHEDULE

"RENEWAIRE" AS STANDARD (AMERICAN ALDES, CON-SAV EQUALS)

TAG MO	DDEL No. AREA(S) SERVED	WEIGHT	DIMENSIONS (IN.)	SUPPLY	EXT.	EXT.	[EXH]													UNIT							HEAT E	XCHANGER PERF	FORMANC	-						
	,	(LBS)	(LxWxH)	FAN	STATIC [SUPPLY	STATIC '] [EXH]	FAN CFM				мото					мото				POWER			SUMME	ER OPERATI	ON			WINTER	OPERAT	ION		RI	ECOVERY E	FFECTIVENESS	j	REMARKS
				CFM				FILTI	ERS		[SUPPLY	FAN]			[E	KHAUS	T FAN]		MINIMU	A MAY		SUPPLY A	AIR	E:	XHAUST A	IR		SUPPLY AIR	E	XHAUST	AIR	SUMMI	ER	WIN <sup>-</sup>	ΓER	
								OUTDOOR	EXHAUST										CIRCUI	OVERI OAD	E.A	T. L.A.T.	A.P.	.D. E.A.T.	L.A.T.	A.P.D.	E.A.T.	L.A.T.	E.A.T.	L.A.T.	A.P.D.	SENSIBLE	TOTAL	SENSIBLE	TOTAL	
								AIR	AIR	W	MHP FLA	VOLT	TS PH	Hz	W	HP FL	_A VOLTS	S PH Hz	AMPAC	TY PROTECTIO	(F	WB DB/WB ) (°F)	("W	C) DB/%RH (F)	DB/WB (下)	("WC)	(F)	DB/WB ("WC)	) (F)	H (℉)	("WC)	(%)	(%)	(%)	(%)	
ERV-1 EV130	0 RM 217/217A	48	33.5x13.25x20	130	0.25	0.25	130	1" MERV 8	1" MERV 8	102	0.1 1.3	120	0 1	60	102	0.1 1.	.3 120	1 60	2.80	15.0	86/	73 78/68		- 75/52			8/6	53/45	70/49			73	50	73	66	SEE BELOW
ERV-2 EV130	0 RM 214/214A	48	33.5x13.25x20	130	0.25	0.25	130	1" MERV 8	1" MERV 8	102	0.1 1.3	120	) 1	60	102	0.1 1.	.3 120	1 60	2.80	15.0	86/	73 78/68		- 75/52			8/6	53/45	70/49			73	50	73	66	SEE BELOW
ERV-3 EV130	0 RM 217/217A	48	33.5x13.25x20	130	0.25	0.25	130	1" MERV 8	1" MERV 8	102	0.1 1.3	120	) 1	60	102	0.1 1.	.3 120	1 60	2.80	15.0	86/	73 78/68		- 75/52			8/6	53/45	70/49			73	50	73	66	SEE BELOW
ERV-4 EV30	00 RM 212/212A/212	B 115	33.75x24x20	300	0.25	0.25	300	1" MERV 8	1" MERV 8	315	0.2 3.3	120	) 1	60	315	).2 3.	.3 120	1 60	7.10	15.0	86/	73 78/68		- 75/52			8/6	53/45	70/49			74	51	74	67	SEE BELOW

#### EV130 NOTES:

- PASSIVE FROST CONTROL SYSTEM.
- PROVIDE FACTORY INSTALLED NON-FUSED DISCONNECT SWITCHES.
- 70 VA, 24V TRANSFORMER/RELAY PACKAGE.
- 2" PLEATED MERV 8 DISPOSABLE FILTERS IN SUPPLY AND EXHAUST AIRSTREAMS.
- 20 GAUGE, G90 GALVANIZED UNIT CASE, WITH LAPPED CORNERS, 1" 4 LB FIBERGLASS BOARD INSULATION. - PROVIDE WITH BACKDRAFT DAMPER FOR OUTDOOR AND EXHAUST AIR STREAMS.

#### EV300 NOTES:

- PASSIVE FROST CONTROL SYSTEM.
- PROVIDE FACTORY INSTALLED NON-FUSED DISCONNECT SWITCHES.
- 70 VA, 24V TRANSFORMER/RELAY PACKAGE.
- 2" PLEATED MERV 8 DISPOSABLE FILTERS IN SUPPLY AND EXHAUST AIRSTREAMS.
- 20 GAUGE, G90 GALVANIZED UNIT CASE, WITH LAPPED CORNERS, 1" 4 LB FIBERGLASS BOARD INSULATION. - PROVIDE WITH BACKDRAFT DAMPER FOR OUTDOOR AND EXHAUST AIR STREAMS.
- VARIABLE REFRIGERANT FLOW (VRF)
  AIR CONDITIONING / HEAT PUMP SPLIT SYSTEMS

- FORWARD-CURVED DIRECT DRIVE FANS w/ PERMANENT SPLIT CAPACITOR MOTOR (PSC) FOR EACH AIRSTREAM. - G-5 HYDROSCOPIC RESIN PLATE HEAT EXCHANGER CORE CONFIGURED FOR CROSS-FLOW AIR PATH.

- ACCESS DOORS FOR BLOWERS, ERV CORE AND FILTERS w/ COMPRESSION SEAL CLOSED-CELL FOAM GASKETS.

- FORWARD-CURVED DIRECT DRIVE FANS w/ PERMANENT SPLIT CAPACITOR MOTOR (PSC) FOR EACH AIRSTREAM.
- G-5 HYDROSCOPIC RESIN PLATE HEAT EXCHANGER CORE CONFIGURED FOR CROSS-FLOW AIR PATH. - ACCESS DOORS FOR BLOWERS, ERV CORE AND FILTERS w/ COMPRESSION SEAL CLOSED-CELL FOAM GASKETS.

LEGEND

"MITSUBISHI" AS STANDARD

						INDOOR	UNIT			OUTDOOR UNIT							OUTDOOR UNIT				OUTDOO	R CONDI	ITIONS
TAG	AREA(S) SERVED	MEGR MODEL	SYSTEM	EVAPORATO	OR UNIT	COOLING PERFORMANCE	HEATING PE	ERFORMANCE	NOTEC	TAG MFGR. MODEL	NOMINAL CAPACITY		Y CONDENSING UN		ENSING UNIT	NIT		SUMMER	WIN	NTER			
170	ANLA(S) SLIVED	WII GIV. WIODEL	IEER/COP	FAN CFM VO	OLTS FLA	ENT. DB/WB TOTAL/SEN	ENT. DB	MBH	NOTES	MI GIV. MODEL	COOLING	HEATING	VOLTS	FAN FLA	MOCP	MCA	NOTES	ENT. DB/WB	ENT. DB/	WB (HI/LO)			
DFCU-1	RM 217/217A	PEFY-P18NMSU-ER	28.1/4.44	530	8/230 1ø 0.0	18.1/12.8 MBH 80/67 F	70	10.5	1, 2, 3, 4, 5, 6	DXCU-1 PUHY-P72TLMU-A	84,454.1 BTU/h	49,334.9 BTU/h	208/230 3ø	N/A	35/35	24/22	1, 2, 3, 4, 5	85/74	47/43	17/15			
DFCU-1	RM 214/214A	PEFY-P18NMSU-ER	2 28.1/4.44	530 208	8/230 1ø 0.1	5 18.1/12.8 MBH 80/67 F	70	10.5	1, 2, 3, 4, 5, 6	1. NOMINAL COOLING CA			•	•	•								
DFCU-3	RM 210/210A	PEFY-P18NMSU-ER2	28.1/4.44	530	8/230 1ø 0.1	18.1/12.8 MBH 80/67 F	70	10.5	1, 2, 3, 4, 5, 6	2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70 DEG F (DB), OUTDOOR OF 43 DEG F (WB). 3. EFFICIENCY VALUES FOR EER, IEER, COP, ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED & NON-DUCTED INDOOR UNITS. 4. FOR SYSTEMS WITH MULTIPLE MODULES, REFRIGERANT PIPE DIMENSIONS INDICATE TOTAL SYSTEM COMBINED PIPING OF DOWNSTREAM MODULE TWINNI													

1, 2, 3, 4, 5, 6

- 1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67 DEG F (DB/WB), OUTDOOR OF 95
- 2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70 DEG F (DB), OUTDOOR OF 43 DEG F
- 3. SEE OUTDOOR UNIT SCHEDULE FOR OUTDOOR AMBIENT CONDITIONS, CONNECTED CAPACITY, AND OTHER 4. SEE SCHEMATIC PIPING/CONTROL DIAGRAM FOR INDICATION OF REQUIRED INDOOR UNIT REMOTE CONTROLLERS, CAPACITY INDICATED ON OUTDOOR UNIT SCHEDULE FOR ASSOCIATED SYSTEM. PARTIAL CORRECTED CAPACITY ASSUMES SUFFICIENT DIVERSITY EXISTS SUCH THAT THE CONNECTED CAPACITY DE-RATE DIES NOT APPLY.
- 5. IT IS THE DESIGNERS' RESPONSIBILITY TO ENSURE"DIAMOND SYSTEMBUILDER" IS SET IN THE APPROPRIATE 6. IT IS RECOMMENDED TO ALWAYS BASE HEATING CORRECTED CAPACITY ON FULL DEMAND.

208/230 0.30 30.1/21.6 MBH 80/67 F

#### REGISTERS, GRILLES, AND DIFFUSERS

DFCU-4 RM 212/212A/212B PEFY-P30NMAU-E3 28.1/4.44

UNLESS OTHERWISE NOTED, FURNISH AND INSTALL REGISTERS, GRILLES, AND DIFFUSERS AS MANUFACTURED BY 'KRUEGER' -- EQUALS BY 'TITUS' AND 'NAILOR'. ALL COLORS AND FINISHES BY ARCHITECT. SEE ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND CONSTRUCTION. SIZE AND THROW AS INDICATED ON DRAWINGS.

- **V**−CFM NECK SIZE L"xW"
- A MODEL SH, SQUARE NECK, STEEL LOUVERED FACE, FIXED DISCHARGE DIFFUSER, 24" X 24" PANEL SIZE, 4-WAY THROW AS STANDARD, OTHER PATTERNS AND CFM SHALL BE AS INDICATED ON DWGS. PROVIDE SQUARE-TO-ROUND ADAPTER. FURNISH WITH OPPOSED BLADE DAMPER WHERE INSTALLED IN SHEETROCK/PLASTER CEILING LOCATIONS.
- B MODEL S80 STEEL, RETURN REGISTER, 45° FIXED DEFLECTION, 3/4" BLADE SPACING BLADES PARALLEL TO THE LONG DIMENSION. FURNISH WITH OPPOSED BLADE DAMPER.

#### FINNED-TUBE RADIATION SCHEDULE

"AIREDALE" AS STANDARD (STERLING, RITTLING EQUALS.)

#### <u>FT-A</u>

AIREDALE TYPE S-18, 18" HIGH 14 ga. SLOPED TOP ENCLOSURE, COPPER-ALUMINUM ELEMENT, CATALOG DESIGNATION 1-1/4"C - 4-1/4"x 4-1/4"-42, ONE TIER ELEMENT, 1-1/4" COPPER TUBE WITH 4-1/4"x 4-1/4" ALUMINUM FINS (42 FINS PER FOOT). FURNISH WITH FULL BACK PLATES, END TRIMS, END ENCLOSURES, INSIDE & OUTSIDE ELBOWS, COLUMN ENCLOSURES, DAMPERS, TAMPER-PROOF OPERATOR ALL NECESSARY MOUNTING HARDWARE, HANGERS, AND SUPPORTS. MOUNTING HEIGHT SHALL BE 22" A.F.F., COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL CASEWORK. 1,220 BTU/HR PER FOOT @ 170° AVERAGE WATER TEMPERATURE. PERFORMANCE BASED ON WATER.

5. ADDED FIELD CHARGE LISTED IS IN ADDITION TO FACTORY CHARGE, THIS MUST BE UPDATED BASED UPON FINAL AS-BUILT PIPING LAYOUT.

6. INCLUDE LOW AMBIENT HOOD KIT WITH ASSOCIATED WIND BAFFLES FOR 100% LOW AMBIENT COOLING DOWN TO MINUS (-) 10° F.







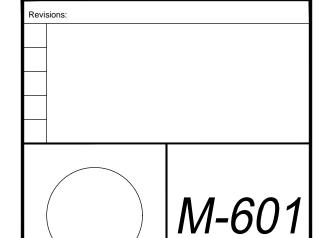
181 White Street, Danbury CT



100 Wells Street, Suite 2i, Hartford, CT 06103 Tel: 860.293.0093 / Fax: 860.293.0094

#### **MECHANICAL SCHEDULES**

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
AS NOTED	
Drawn By:	Checked By:
	•
DMR	ALO



#### **GENERAL**

- 1. WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.
- 2. IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK,
- 3. ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BUT REQUIRED TO RENDER THE WORK COMPLETE AND READY FOR OPERATION, SHALL BE PROVIDED WITHOUT ADDITIONAL
- 4. WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL
- 5. DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUB—CONTRACTOR DOCUMENTS. IT IS THE INTENT OF THESE DOCUMENTS TO INCLUDE THE PROVISION AND AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS BY THE CONTRACTOR. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, ADDITIONAL PIPING, VALVES AND EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.
- 6. PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACTS GENERAL CONDITIONS AND IN COORDINATION WITH ALL OTHER TRADES. ALL WORK SHALL BE DONE IN CONFORMANCE AND PROVISIONS OF ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND LAWS.
- ODES AND STANDARDS:

  2003 INTERNATIONAL BUILDING CODE w/ 2005 CONNECTICUT SUPPLEMENT
  & 2009 AMENDMENT TO THE 2005 SUPPLEMENT
- 2003 INTERNATIONAL MECHANICAL CODE 2003 INTERNATIONAL PLUMBING CODE

TESTED AND READY FOR OPERATION.

- 2003 INTERNATIONAL PLUMBING CODE 2005 NATIONAL ELECTRIC CODE (NFPA 70)
- 2002 NATIONAL ELECTRIC CODE (NFPA 70)
- 2002 installation OF SPRINKLER SYSTEMS (NFPA 13) 2005 CT STATE FIRE CODE WITH 2009 AMENDMENT
- 2009 INTERNATIONAL ENERGY CONSERVATION CODE ( EFFECTIVE 10/07/2011)
  IBC 2009 ICC/ANSI A117.1-2003 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
  CONNECTICUT GAS EQUIPMENT AND PIPING CODE
  NFPA 31 INSTALLATION OF OIL BURNING EQUIPMENT CONNECTICUT 2009 AMENDMENT
- 7. WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIALS, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
- 8. STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE.
- 9. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER AND CONTROL WIRING REQUIRED FOR ALL EQUIPMENT OPERATION NOT SPECIFICALLY PROVIDED BY OTHERS BUT REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE MOTOR STARTERS FOR INSTALLATION BY OTHERS. COORDINATE REQUIREMENTS.

#### ALTERATION WORK AND DEMOLITION

- 1. ALL EQUIPMENT, DUCTWORK, PIPING, CONTROL DEVICES ETC... TO BE REMOVED, SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, DUCTWORK, PIPING, CONTROL DEVICES, ETC... SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNERS APPROVAL.
- 2. UPON COMPLETION OF REMOVALS AND MODIFICATIONS, ALL DUCTWORK PIPING TO REMAIN SHALL BE PROPERLY PLUGGED, VALVED, CAPPED AND/OR BYPASSED SUCH THAT UPON COMPLETION OF WORK ALL SYSTEMS TO REMAIN, REMAIN OPERATIONAL.
- 3. NO DEAD ENDS SHALL BE LEFT ON ANY DUCTWORK PIPING SYSTEMS UPON COMPLETION OF WORK.
- 4. EXISTING EXPOSED PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED.
- 5. ALL SYSTEMS SHALL BE LEFT IN WORKING ORDER TO THE SATISFACTION OF THE OWNER UPON COMPLETION OF ALL NEW WORK.
- 6. ALL EXISTING EXPOSED, UNNECESSARY DUCTWORK AND PIPING NOT RELATE TO NEW WORK SHALL BE COMPLETELY REMOVED.
- 7. RE-ROUTE OR REMOVE ALL EXISTING DUCTWORK, PIPING AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS
- 8. ANY AND ALL MECHANICAL ITEMS ABANDONED OR REMOVED MUST BE DONE SO AS TO SATISFY CODE AND FACILITY FUNCTION. ALL DUCT/PIPE ETC. FEEDING ABANDONED OR REMOVED EQUIPMENT MUST BE REMOVED BACK TO POINT OF ORIGIN AND CAPPED UNLESS OTHERWISE NOTED. EXISTING FACILITY OR ADJACENT TENANT MEP FUNCTIONS SHALL NOT BE ALTERED

#### TESTING. ADJUSTING AND BALANCING

- 1. AFTER COMPLETION OF THE WORK, BUT BEFORE SUBSTANTIAL COMPLETION, TEST, ADJUST AND BALANCE ALL AIR AND WATER SYSTEMS IN ACCORDANCE WITH EITHER AABC OR NEBB STANDARDS.
- 2. TESTING AND BALANCING CONTRACTORS SHALL BE CERTIFIED BY EITHER AABC, NEBB OR TABB.
- 3. AIR HANDLING SYSTEMS SHALL BE BALANCED TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN FOR SUPPLY SYSTEMS AND PLUS OR MINUS 10 PERCENT FOR RETURN AND EXHAUST SYSTEMS.
- 4. AIR OUTLETS AND INLETS SHALL BE BALANCED TO WITHIN PLUS 10 PERCENT AND MINUS 5 PERCENT OF DESIGN TO SPACE. ADJUST OUTLETS AND INLETS IN SPACE TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN.
- 5. ADJUST HYDRONIC SYSTEMS TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN.
- 6. PERMANENTLY MARK SETTINGS OF VALVES, DAMPERS, AND OTHER ADJUSTMENT DEVICES ALLOWING SETTINGS TO BE RESTORED. SET AND LOCK MEMORY STOPS.
- 7. SUBMIT FINAL REPORT INDICATING DESIGN VERSUS FINAL PERFORMANCE; NOTABLE CHARACTERISTICS OF THE SYSTEM; DESCRIPTION OF SYSTEMS OPERATION SEQUENCE; TEST CONDITIONS; AND A LIST OF INSTRUMENTS USED. FINAL REPORT SHALL BE SUBMITTED PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT.

#### REGISTERS, GRILLES AND DIFFUSERS

- 1. REGISTERS, GRILLES AND DIFFUSERS SHALL BE AS SCHEDULED ON THE DRAWINGS. FINISH SHALL BE AS SELECTED BY THE
- 2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 3. CHECK LOCATIONS OF OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY AND LIGHTING ARRANGEMENT. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR LOCATIONS OF REGISTERS, GRILLS AND DIFFUSERS.
- 4. INSTALL DIFFUSERS TO DUCTWORK WITH AIR TIGHT CONNECTION.
- 5. PROVIDE BALANCING DAMPERS ON DUCT TAKE—OFFS TO DIFFUSERS, GRILLS AND REGISTERS, DESPITE WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, GRILLE OR REGISTER ASSEMBLY.

#### COORDINATION DRAWINGS

- 1. DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.
- A. SHEET METAL, PLUMBING AND FIRE PROTECTION SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER "REVIEWED" OR "FURNISHED AS DIRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS PRIOR TO THE SUBMISSION AND REVIEW OF SHEET METAL SHOP DRAWINGS, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHEET METAL SHOP STANDARDS. ANY SHEET METAL SHOP DRAWINGS SUBMITTED PRIOR TO THE SUBMISSION OF THE SHOP STANDARDS SHALL BE RETURNED "NOT REVIEWED".
- B. AFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE OTHERS TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THERE WORK:

  -MECHANICAL SHEET METAL
  -PLUMBING CONTRACTOR
  -ELECTRICAL WORK
  -MECHANICAL PIPING
- 2. AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWINGS AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.
- 3. THE ARCHITECT AND THE ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT TO BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
- 4. SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW FOR ACCEPTABILITY OF
- ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES SHALL BE REMOVED AND RE—INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.
- 6. EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.
- 7. THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.

#### AS BUILT DRAWINGS

- 1. PROVIDE A COMPLETE SET OF AS —BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS—BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTO—CAD VERSION AS REQUIRED BY THE OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.
- 2. PROVIDE "AS—BUILT DRAWINGS" INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. INDICATE THE FOLLOWING INSTALLED CONDITIONS:
- INCLUDE ALL CHANGES AND AN ACCURATE RECORD, ON REPRODUCTIONS OF THE CONTRACT DRAWINGS OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND THE WORK INSTALLED.
- 4. MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND WITH ITEMS REQUIRING MAINTENANCE LOCATED (I.E. TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC...) VALVE LOCATION DIAGRAMS, COMPLETE WITH VALVE TAG CHART.
- 5. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.
- 6. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
- 7. CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS
- 8. SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.
- 9. SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.

#### HANGERS AND SUPPORT

- 1. SEISMIC RESTRAINT: PROVIDE SEISMIC RESTRAINT AND EXPANSION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS IN ACCORDANCE WITH STATE AND FEDERAL BUILDING CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT INDICATING ALL NECESSARY COMPONENT CUTS, PLAN LOCATIONS AND CALCULATIONS FOR A COMPLETE SYSTEM.
- 2. PROVIDE ALL NECESSARY STRUCTURAL MEMBERS INCLUDING ADDITIONAL STRUCTURAL SUPPORT TO SUPPORT PIPING AND EQUIPMENT. HANGERS AND SUPPORTS SHALL BE OF AN APPROVED DESIGN NECESSARY TO SUPPORT DUCTWORK, PIPING EQUIPMENT AND TO KEEP IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGERS, BRACKETS, ETC... ARE SUPPORTED FROM CONCRETE CONSTRUCTION. DO NOT WEAKEN CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS, AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED. HANGERS IN CONTACT WITH COPPER OR BRASS PIPE SHALL BE DIELECTRIC, COMPATIBLE WITH COPPER AND BRASS ALLOY OR PROVIDED WITH FELT SLEEVE.
- 3. PROVIDE ADDITIONAL SUPPORT FOR DUCTWORK, PIPING AND EQUIPMENT WHEN DECK IS NOT CAPABLE OF SUPPORT.
- 4. BEAM CLAMPS HANGERS SUPPORTED FROM STEEL SHALL BE CENTER LOADING BEAM CLAMPS FOR HANGERS SUPPORTING PIPING 2 INCHES FOR 2-1/2 INCHES AND LARGER, I BEAM CLAMPS SHALL BE FORGED STEEL. "C" CLAMPS ARE NOT TO BE USED.
- 5. PROVIDE AND INSTALL EXPANSION COMPENSATION FOR ALL PIPING. SUBMIT PLANS, CALCULATIONS AND EQUIPMENT DATA.

#### **DUCTWORK**

- 1. DUCTWORK SHALL BE FABRICATED FROM HOT-DIPPED GALVANIZED STEEL SHEET CONFORMING TO ASTM A653, WITH G60 COATING.
- 2. CHEMICAL EXHAUST SYSTEMS DUCTWORK SHALL BE FABRICATED FROM STAINLESS STEEL SHEET CONFORMING TO ASTM A 666, 18 GAGE TYPE 304 WITH CONTINUOUSLY EXTERNAL WELDED JOINTS.
- 3. FABRICATE, SUPPORT, INSTALL AND SEAL IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE, AND AS INDICATED. PROVIDE DUCT MATERIAL, GAUGES, REINFORCING AND SEALING FOR OPERATING PRESSURES INDICATED.
- 4. INSULATED FLEXIBLE DUCTS SHALL BE FABRICATED FROM MULTIPLE LAYERS OF ALUMINUM LAMINATE SUPPORTED BY HELICALLY WOUND SPRING STEEL WIRE WITH FIBERGLASS INSULATION AND POLYETHYLENE VAPOR BARRIER. PRESSURE RATING SHALL BE 10 INCH W.G. POSITIVE AND 1.0 INCH W.G. NEGATIVE.
- 5. JOINT SEALERS AND SEALANTS SHALL BE NON-HARDENING, WATER, MILDEW AND MOLD RESISTANT. FLAME SPREAD OF 0, SMOKE DEVELOPED OF 0 WHEN TESTED IN ACCORDANCE WITH ASTM E84.
- 6. CONNECT TERMINAL UNITS TO SUPPLY DUCTS DIRECTLY OR WITH ONE FOOT MAXIMUM LENGTH OF FLEXIBLE DUCT. DO NOT USE FLEXIBLE DUCT TO CHANGE DIRECTION.
- 7. CONNECT DIFFUSERS OR LIGHT TROFFER BOOTS TO LOW PRESSURE DUCTS DIRECTLY OR WITH FIVE FEET MAXIMUM LENGTH OF FLEXIBLE DUCTS HELD IN PLACE WITH STRAP OR CLAMP.
- 8. PROVIDE VOLUME DAMPERS IN THE LOCATIONS SHOWN. RUSKIN MODEL MD25 OR MDRS25. EQUALS BY AIR LOUVERS & DAMPERS OR NAILOR INDUSTRIES.
- 9. PROVIDE FIRE DAMPER WHERE INDICATED. DAMPER TO BE EQUAL TO RUSKIN DIBD2 DYNAMIC DAMPER; UL555, NFPA 90A&B LISTED FOR 1.5 HOUR RATING. DAMPER SHALL BE RATED FOR DYNAMIC CLOSURE TO A MINIMUM 2375 FPM AND 4" W.G. STATIC PRESSURE. FURNISH WITH STEEL SLEEVE, RETAINING ANGLES AND 165°F FUSIBLE LINK.

#### DUCTWORK INSULATION

- 1. ALL SUPPLY, RETURN AND EXHAUST DUCTWORK IN THE COLD ATTIC SPACE THAT IS NOT INDICATED TO BE ACOUSTICALLY LINED SHALL BE INSULATED WITH R-5, MINIMUM 2 INCHES THICK FLEXIBLE FIBERGLASS DUCT INSULATION ASTM C533 WITH FOIL VAPOR BARRIER. EXTERIOR SUPPLY, RETURN OR EXHAUST DUCTWORK SHALL BE INSULATED WITH R-8, MINIMUM 3 INCHES THICK RIGID BOARD INSULATION, ASTM C612. VAPOR BARRIER SHALL BE MAINTAINED CONTINUOUS. INSULATION SHALL BE TAPED AND FASTENED SO AS TO PRESENT A NEAT AND FINISHED APPEARANCE.
- 2. EXTERIOR SUPPLY, RETURN OR EXHAUST DUCTWORK EXPOSED TO THE WEATHER SHALL BE COVERED WITH AN ALUMINUM JACKET, ASTM B 209 (ASTM B209M), 0.016 INCH SHEET, INSTALLED WITH DIE SHAPED FITTING COVERS AND 3/8" WIDE ALUMINUM METAL JACKET BANDS. INSTALL JACKET IN ACCORDANCE WITH ASTM B 209 AND THE INSULATION MANUFACTURER'S RECOMMENDATIONS.
- 3. ACOUSTIC DUCT LINER SHALL BE INSTALLED IN LIEU OF EXTERIOR INSULATION WHERE INDICATED. DUCT LINER SHALL BE 1" RIGID BOARD, ASTM C 1071, FUNGUS AND BACTERIA RESISTANT BY TESTING TO ASTM G21. INSTALL WITH WATER-PROOF, FIRE-RETARDANT ADHESIVE AND GALVANIZED STEEL, SELF-ADHESIVE PAD FASTENERS IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.
- 4. DUCTWORK INSULATION AND ACOUSTIC LINER SHALL BE BY JOHNS MANVILLE CORPORATION, KNAUF FIBERGLASS OR CERTAIN TEED CORPORATION.

#### HYDRONIC SYSTEMS PIPING:

- 1. HOT WATER PIPING SHALL BE TYPE L COPPER UP TO AND INCLUDING 2". PIPING 2-1/2" AND ABOVE SHALL BE WELDED SCHEDULE 40 STEEL PIPING. PIPING SHALL BE ASTM A53/A FOR STEEL PIPE, ASTM B88 FOR COPPER AND COMPLY WITH ASME B31.9. STEEL FITTINGS SHALL BE WELDED JOINTS; ASTM A 234/A 234M; WROUGHT STEEL. COPPER JOINTS SHALL BE SOLDER JOINTS: ASME B16.18 CAST BRASS/BRONZE OR ASME B16.22 SOLDER WROUGHT COPPER: SOLDER SHALL BE ASTM B32 LEAD-FREE, HB ALLOY (95-5 TIN-ANTIMONY) OR TIN AND SILVER. BRAZE JOINTS SHALL BE AWS A5.8/A5.8M BCUP COPPER/SILVER ALLOY.
- 2. ISOLATION VALVES SHALL BE FULL-PORT, BRONZE BODY UP TO 2"; IRON BODY OVER 2", 600 PSI RATED BY NIBCO, MILWAUKEE OR CONBRACO.
- 3. PIPE INSULATION SHALL BE RIGID FIBERGLASS WITH PVC FITTING COVERS, EQUAL TO JOHNS-MANVILLE, KNAUFF OR CERTAINTEED. MINIMUM INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH THE 2009 IECC OR AS OTHERWISE INDICATED.

#### HYDRONIC SYSTEMS SPECIALTIES:

- 1. PROVIDE UNIONS FOR PIPE 2 INCHES AND UNDER, FOR COPPER PIPING, 150 PSIG MALLEABLE IRON FOR FERROUS PIPING, BRONZE SOLDER JOINTS, THREADED OR VIC PRO—PRESS.
- 2. PROVIDE FLANGES FOR PIPE OVER 2 INCHES. FERROUS PIPING-150 PSIG FORGED STEEL, SLIP-ON. COPPER PIPING-BRONZE. GASKETS-1/16 INCH THICK NEOPRENE. USE GROOVED JOINT FLANGE ADAPTERS IN GROOVED PIPING SYSTEM, VICTAULIC STYLE 741.
- 3. MECHANICAL COUPLINGS: DIMENSIONS AND TESTING IN ACCORDANCE WITH AWWA C606, COMPLY WITH ASTM F1476. MATERIAL—MALLEABLE IRON OR DUCTILE IRON, GALVANIZED.
- 4. DIELECTRIC CONNECTIONS: UNION OR WATERWAY FITTING WITH WATER IMPERVIOUS ISOLATION BARRIER AND ONE GALVANIZED OR PLATED STEEL END AND ONE COPPER TUBE END, END TYPES TO MATCH PIPE JOINT TYPES USED.
- 5. THERMOMETERS: EQUAL TO WEKSLER; 9 INCH SCALE; CLEAR LEXAN WINDOW; 3/4" NPT BRASS STEM; 2% ACCURACY PER ASTM E77; CALIBRATION IN DEGREES F, NON-TOXIC LIQUID IN GLASS; CAST ALUMINUM CASE; 360 "ADJUSTABLE HORIZONTAL; 180" ADJUSTABLE VERTICAL; PROVIDE WITH BRONZE SEPARABLE SOCKET.
- 6 PRESSURE GAUGES: EQUAL TO WEKSLER; ASME B40.100 UL STEEL CASE; BRONZE BOURDON TUBE; ROTARY BRASS MOVEMENT; BRASS SOCKET; FRONT CALIBRATION ADJUSTMENT; BLACK SCALE w/ WHITE BACKGROUND; 4-1/2" DIAMETER SIZE; ONE PERCENT MID-SCALE ACCURACY; NPT CONNECTION.

#### DUCTWORK CLEANING AND SANITIZING

- 1. ALL DUCTWORK CLEANING AND SANITIZING SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE NACDA—ACR, ASSESSMENT, CLEANING AND RESTORATION OF HVAC SYSTEMS, 2006 EDITION.
- 2. PROTECT EQUIPMENT WHICH MAY BE HARMED BY EXCESSIVE DIRT WITH FILTERS, OR BYPASS DURING CLEANING. PROVIDE ACCESS IN EXISTING AND NEW DUCTWORK AS REQUIRED FOR CLEANING PURPOSES
- 3. CLEAN DUCT SYSTEMS WITH HIGH POWER VACUUM MACHINES.
  VACUUM DEVICES THAT EXHAUST AIR INSIDE BUILDING, INCLUDING
  HAND-HELD AND WET VACUUMS: EQUIPPED WITH HEPA FILTRATION
  WITH 99.97 PERCENT COLLECTION EFFICIENCY FOR MINIMUM 0.3
  MICRON SIZE PARTICLES AND DOP TEST NUMBER.
- 4. COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS.
- 5. USE CLEANING METHODS RECOMMENDED BY NADCA ACR. DO NOT USE METHODS PROHIBITED BY NADCA ACR, OR THAT WILL DAMAGE HVAC COMPONENTS OR OTHER WORK, OR THAT WILL SIGNIFICANTLY ALTER THE INTEGRITY OF THE SYSTEM.
- 6. REPAIR OPENINGS CUT IN THE VENTILATION SYSTEMS SO THAT THEY DO NOT SIGNIFICANTLY ALTER THE AIRFLOW OR ADVERSELY IMPACT THE FACILITY'S INDOOR AIR QUALITY. RESEAL OPENINGS IN ACCORDANCE WITH NADCA STANDARD 05.
- 7. SUBMIT EVIDENCE THAT ALL PORTIONS OF THE SYSTEMS REQUIRED TO BE CLEANED HAVE BEEN CLEANED SATISFACTORILY.
- 8. DISPOSE OF DEBRIS OFF-SITE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS.
- 9. SURFACE TREATMENT ANTI-MICROBIAL MATERIALS EPA REGISTERED SPECIFICALLY FOR USE ON NON-POROUS HVAC SYSTEM SURFACES. APPLY ANTI-MICROBIAL TREATMENTS AND COATINGS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS AND FPA REGISTRATION LISTING.

#### REFRIGERANT PIPING SYSTEM

- 1. REFRIGERANT PIPING:
- A. REFRIGERANT PIPING SHALL BE ACR TYPE WITH WROUGHT COPPER, SILVER BRAZED FITTINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND THE REQUIREMENTS OF THE CODES REFERENCED HEREIN.

#### 2. CONDENSATE DRAIN PIPING:

- A. ALL CONDENSATE DRAIN PIPING SHALL BE TYPE DWV COPPER WITH WROUGHT COPPER FITTINGS SOLDERED WITH 95-5 WIRE SOLDER. PITCH PIPING MINIMUM 1" PER 10 FT. OF RUN. PROVIDE CLEANOUTS AT CHANGES IN DIRECTION AND PROVIDE 4" DEEP TRAP AT AIR HANDLING EQUIPMENT.
- 3. PIPING INSULATION:
- A. ALL CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH JOHNS MANVILLE MICRO-LOK FIBER GLASS INSULATION FINISHED WITH AN ALL SERVICE JACKET. FITTINGS SHALL BE COVERED WITH JOHNS MANVILLE ZESTON 2000 PVC FITTING
- B. REFRIGERANT LIQUID AND VAPOR PIPING SHALL BE INSULATED WITH ARMAFLEX II, INSUL-TUBR, OR RUBATEX R-180-FS TUBING INSULATION. OUTDOOR SECTION OF INSULATION SHALL BE COATED WITH ULTRAVIOLET AND WEATHER RESISTANT PAINT
- C. INSULATION THICKNESS SHALL MEET THE REQUIREMENTS OF THE INTERNATIONAL ENERGY CONSERVATION CODE REFERENCED HEREIN AND THE MANUFACTURERS RECOMMENDATIONS.
- 4. PIPING INSTALLATION:
- A. INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE REFERENCED HERE IN, ASHRAE STANDARD 15; SAFETY CODE FOR MECHANICAL REFRIGERATION, CURRENT EDITION AND THE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
- B. ROUTE PIPING IN AN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE, AND MAINTAIN GRADIENT. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS. SLEEVE PIPING PASSING THROUGH PARTITIONS, WALLS AND FLOORS. SLOPE CONDENSATE DRAIN PIPING AS INDICATED HEREIN.







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### MECHANICAL SPECIFICATIONS

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
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Drawn By:	Checked By:
DMR	ALO



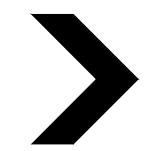
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#### GENERAL NOTES:

- 1. ALL CIRCUITS SHALL BE 2#12,1#12G. IN AN APPROVED RACEWAY SYSTEM. CONNECT TO 20A-1P CIRCUIT BREAKER IN PANEL UNLESS OTHERWISE INDICATED
- 2. ALL BRANCH CIRCUITS EXCEEDING 150' IN LENGTH SHALL BE 2#10,1#10G. IN AN APPROVED RACEWAY SYSTEM TO 20A-1P CIRCUIT BREAKER IN PANEL UNLESS OTHERWISE
- 3. ALL BRANCH POWER CIRCUITS SHALL BE WITH SEPARATE NEUTRALS. USE OF COMMON NEUTRALS WILL NOT BE ALLOWED.
- 4. FURNISH AND INSTALL REMOTE POWER SOURCE TYPE EMERGENCY LIGHTING BATTERY PACKS WITH TEST SWITCHES FOR CODE REQUIRED EMERGENCY LIGHTING PROVISION TO FIXTURE TYPE "OB" COMPONENTS SHALL BE INSTALLED ABOVE ACCESSIBLE CEILING, READILY ACCESSIBLE FOR MAINTENANCE, INSPECTION AND TESTING. MINIMUM 90 MINUTE OPERATION OF FIXTURE RATED WATTS. WIRING FROM BATTERY UNITS TO EACH LIGHTING FIXTURE SHALL BE 2#10 + GRND, IN 3/4" CONDUIT. REFER TO LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.
- 5. REFER TO PROJECT ASSOCIATED CONTRACT BID DOCUMENT DRAWINGS INCLUDING BUT NOT LIMITED TO REFLECTED CEILING PLANS, OPERATIONAL EQUIPMENT LAYOUT AND EQUIPMENT SCHEDULES FOR REQUIREMENTS AND ADDITIONAL INFORMATION.
- 6. FIELD VERIFY WITH MANUFACTURER'S PROVIDER EXACT ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS OF ALL OPERATIONAL EQUIPMENT PRIOR TO MAKING ELECTRICAL POWER CONNECTION. FURNISH AND INSTALL SAFETY DISCONNECT AS REQUIRED BY NEC.

#### LIGHTING FIXTURE NOTES:

- 1. WHERE INDICATED, PROVIDE FIXTURES WITH EMERGENCY BATTERY BALLAST TO OPERATE TWO (2) LAMPS FOR 1 1/2 HOURS UPON LOSS OF NORMAL POWER. WIRE EMERGENCY BATTÈRY BALLAST AND ÉXIT LIGHTS TO LINE SIDE OF AREA LIGHTING CIRCUIT TO SENSE LOSS OF NORMAL LIGHT CIRCUIT POWER AND FOR CONTINUOUS TRICKLE CHARGE.
- 2. SINGLE FACE, LED EXIT LIGHT. RED LETTERS ON BACKGROUND AS CALLED FOR. WIRE TO LINESIDE OF AREA LIGHT CIRCUIT FOR CONTINUOUS TRICKLE CHARGE
- 3. DOUBLE FACE, LED EXIT LIGHT. RED LETTERS ON BACKGROUND AS CALLED FOR. WIRE TO LINESIDE OF AREA LIGHT CIRCUIT FOR CONTINUOUS TRICKLE CHARGE. PROVIDE DIRECTIONAL CHEVRONS AS INDICATED ON PLAN.
- 4. DIRECTIONAL CHEVRONS SHALL CONFORM TO NFPA 5-10.4.1.2 AND SHALL BE IDENTIFIABLE AS A DIRECTIONAL INDICATOR AT A MINIMUM OF 40 FT. UNDER ALL SPACE CONDITIONS. REFER TO DETAIL.
- 5. ALL FLUORESCENT FIXTURES TO BE PROVIDED WITH ELECTRONIC LAMPS AND BALLASTS. BALLASTS TO BE RATED <10% TOTAL HARMONIC DISTORTION (THD).



#### EXIT SIGN DIRECTIONAL INDICATOR

- 6. ALL FLUORESCENT LAMPS TO BE COLOR TEMPERATURE 3500°K.
- 7. PROVIDE ERICO FASTENING PRODUCTS (CADDY) CAT. No. 515 OR 515A LIGHT FIXTURE SUPPORT CLIPS ON ALL RECESSED FLUORESCÉNT LIGHT FIXTURES. PROVIDE MINIMUM FOUR (4) PER FIXTURE.
- 8. <u>SEISMIC RESTRAINTS:</u>
  IN ADDITION TO THE REQUIREMENTS OF IBC 2003 SECTION 1621 AND THE NEC SECTION 410-16(c), ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH SUPPORT WIRES AT A MINIMUM OF FOUR (4) PER FIXTURE AND LOCATED NOT MORE THAN SIX (6") INCHES FROM EACH CORNER, EXTENDED AND ATTACHED TO THE BUILDING STRUCTURE. HANGER WIRES SHALL BE GALVANIZED CARBON STEEL, ASTM A641, SOFT TEMPER, PRE-STRETCHED WITH A YIELD STRESS LOAD OF AT LEAST THREE (3) TIMES DESIGN LOAD BUT NOT LESS THAN 12 GAUGE (0.106"). FOR ROUND FIXTURES OR FIXTURES SMALLER THAN THE CEILING GRID, PROVIDE A MINIMUM OF FOUR (4) WIRES PER FIXTURE AND LOCATE AT EACH CORNER OF THE CEILING GRID IN WHICH THE FIXTURE IS TO BE LOCATED. ADDITIONALLY, WHERE FIXTURES OF SIZES LESS THAN THE CEILING GRID ARE INDICATED TO BE CENTERED IN THE ACOUSTICAL PANEL, SUCH FIXTURES SHALL BE SUPPORTED WITH A MINIMUM OF TWO (2) 3/4" METAL CHANNELS SPANNING AND SECURED TO THE CEILING TEES.
- 9. WIRE ALL EMERGENCY AND EXIT LIGHT FIXTURES TO LINE SIDE OF AREA LIGHTING CIRCUIT TO SENSE LOSS OF NORMAL LIGHT CIRCUIT POWER AND FOR CONTINUOUS TRICKLE CHARGE.

#### **POWER NOTES:**

- 1. ALL RECEPTACLES LOCATED WITHIN 6'-0" OF A WATER SOURCE SHALL BE GFCI TYPE.
- 2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED SLEEVES AND SEALS FOR CONDUITS PENETRATING EXTERIOR WALLS AND FLOOR SLABS.
- 3. ALL WIRING SHALL BE IN CONDUIT, UNLESS OTHERWISE INDICATED.
- 4. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL LOCATIONS OF MECHANICAL EQUIPMENT WITH DIV. 15 PRIOR TO ROUGHING OR INSTALLING OUTLETS.
- 5. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER, ALL LOCATIONS OF EQUIPMENT BEING FURNISHED BY OWNER PRIOR TO ROUGHING OR INSTALLING OUTLETS.
- 6. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATIONS OF DEVICES PRIOR TO ROUGHING OR INSTALLATION OF OUTLETS.
- 7. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF DUCT SMOKE DETECTORS WITH DIV. 15. DUCT SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR, INSTALLED BY DIV. 15.
- 8. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT.
- 9. REFER TO DRAWING E103 FOR ELECTRICAL DETAILS AND SCHEDULES.
- 10. ALL SINGLE POLE HOMERUNS SHALL BE 2#12, 1#12G., 3/4"C TO 20A-1P CIRCUIT BREAKER IN PANEL DESIGNATED UNLESS ÖTHERWISE NOTED.
- 11. ALL TWO POLE HOMERUNS SHALL BE 2#12, 1#12G., 3/4"C TO 20A-2P CIRCUIT BREAKER IN PANEL DESIGNATED UNLESS OTHERWISE NOTED.
- 12. ALL THREE POLE HOMERUNS SHALL BE 3#12, 1#12G., 3/4"C TO 20A-3P CIRCUIT BREAKER IN PANEL DESIGNATED UNLESS ÖTHERWISE NOTED.
- 13. ALL CONDUITS SHALL BE RUN CONCEALED IN NEW WALL CONSTRUCTION.
- 14. ALL RECEPTACLES, FIRE ALARM DEVICES LOCATED AT BUILDING EXTERIOR SHALL BE WEATHERPROOF RATED.
- 15. CONDUITS AND/OR WIRING SHALL NOT PENETRATE STAIR ENCLOSURES UNLESS SPECIFICALLY SERVING EQUIPMENT OR DEVICES LOCATED WITHIN STAIR ENCLOSURE.

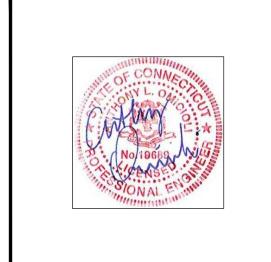
SYMBOL	DESCRIPTION
31MDOL	CEILING MOUNTED LIGHT FIXTURE — SUBLETTER INDICATES TYPE
$\sim$	RECESSED LIGHT FIXTURE — SUBLETTER INDICATES TYPE
	2' x 4' RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE — SUBLETTER INDICATES TYPE
	CEILING MOUNTED LIGHT FIXTURE — SUB-LETTER INDICATES TYPE
₽	REMOTE SINGLE HEAD EMERGENCY LIGHT
4	WALL MOUNTED 2-HEADED EMERGENCY LIGHT FIXTURE -SUBLETTER INDICATES TYPE
<b>∑</b>	SINGLE FACE EXIT SIGN WITH BATTERY - WALL/CEILING MOUNTED
$\overline{\mathbb{N}}$	TELEVISION COAX CABLE OUTLET
OS	CEILING MOUNTED LOW VOLTAGE OCCUPANCY SENSOR
S	SINGLE POLE TOGGLE SWITCH — MOUNT AT 48" A.F.F.
S <sub>3</sub>	THREE WAY TOGGLE SWITCH — MOUNT AT 48" A.F.F.
	DIMMER SWITCH — LUTRON NOVA T SERIES OR EQUAL. VERIFY COMPATIBILITY WITH RESPECTIVE LIGHT FIXTURI
S <sub>DM</sub>	SINGLE POLE OCCUPANCY SWITCH - MOUNT AT 48" A.F.F. WATTSTOPPER DW-200 OR EQUAL
S <sub>oc</sub> ⊕	GROUNDED DUPLEX RECEPTACLE - MOUNT AT 18" A.F.F. U.N.O.
—————————————————————————————————————	GROUNDED DUPLEX RECEPTACLE — MOUNT AT 48" A.F.F.
—————————————————————————————————————	GROUNDED DUPLEX RECEPTACLE — MOUNT AT COUNTER HEIGHT
——⊖GFI	GROUNDED DUPLEX RECEPTACLE — GFI TYPE — MOUNT AT 18" A.F.F. U.N.O.— SEE NOTE #1 BELOW
₩P	GROUNDED DUPLEX RECEPTACLE — WEATHER PROOF — MOUNT AT 18" A.F.F. U.N.O.
₩	SPECIAL PURPOSE RECEPTACLE — MATCH NEMA CONFIGURATION OF EQUIPMENT SERVED — MOUNT AT 18" A.F.F. U.N.
<u> </u>	GROUNDED DOUBLE DUPLEX RECEPTACLE — MOUNT AT 18" A.F.F. U.N.O.
—— <del>"</del> c	GROUNDED DOUBLE DUPLEX RECEPTACLE — MOUNT AT COUNTER HEIGHT
<del>+ + + + + + + + + + + + + + + + + + + </del>	GROUNDED DOUBLE SINGLE RECEPTACLE - MOUNT AT 18" A.F.F. U.N.O.
<b>B</b>	GROUNDED DOUBLE DUPLEX RECEPTACLE - MOUNT FLUSH WITH CONCRETE FLOOR
4	TELE/COMMUNICATION OUTLET - MOUNT FLUSH WITH CONCRETE FLOOR
J	JUNCTION BOX
b	TELEPHONE/DATA OUTLET WITH BACKBOX, COVER PLATE AND 3/4" EMPTY CONDUIT TO CEILING SPACE - MOUNT AT 18" A.F.F.
Ò	MOTOR
ㅁ	NON-FUSED DISCONNECT SWITCH
Δ <sub>1</sub>	FUSED DISCONNECT SWITCH
	SURFACE MOUNTED ELECTRIC PANEL - 120/208V-3ø-4W
TC	TIMECLOCK
E\(\)	FIRE ALARM HORN STROBE
<u> </u>	FIRE ALARM STROBE
RTS X	FIRE ALARM REMOTE TEST SWITCH AND TROUBLE ANNUNCIATOR
<u>\$</u>	SMOKE DUCT DETECTOR
Α	AMPERE
A.F.F.	ABOVE FINISHED FLOOR
C/B	CIRCUIT BREAKER
CIR	CIRCUIT
CU	CONDENSING UNIT
DWCP	DOMESTIC WATER CIRCULATING PUMP
EV	EVAPORATOR UNIT
ER	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
HT	HEAT TRACE
HVAC	HEATING VENTILATING AIR CONDITIONING
LTG	LIGHTING
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
МН	MOUNTING HEIGHT
MLO	MAIN LUG ONLY
NL	NEW LOCATION OF EXISTING
NR	NEW TO REPLACE EXISTING
PE	PRIMARY ELECTRIC SERVICE
RE	REMOVE EXISTING
RL	RELOCATE EXISTING
RPS	REMOTE POWER SUPPLY
RR	RELOCATE EXISTING
RTU	ROOFTOP UNIT
SE	SECONDARY ELECTRIC SERVICE
T	TELEPHONE SERVICE
TP	TRAP PRIMER
TX	TRANSFORMER
U.N.O.	UNLESS NOTED OTHERWISE
WH	WATER HEATER
WP	WEATHER PROOF
	BRANCH CIRCUIT POWER WIRING
	BRANCH CIRCUIT SWITCHING CONTROL WIRING
	BRANCH CIRCUIT FEEDER HOMERUN

#### ELECTRICAL LEGEND NOTES:

3. ALL SYMBOLS MAY NOT BE USED.

RECEPTACLES LOCATED WITHIN 5' OF A WATER SOURCE, LOCATED OUTSIDE AND WHERE REQUIRED BY CODE SHALL BE PROVIDED WITH A GFCI TYPE RECEPTACLE WHETHER INDICATED OR NOT. ADDITIONALLY, THOSE EXTERIOR RECEPTACLES SHALL BE PROVIDED WITH LOCKABLE COVERS RATED "WEATHER PROOF WHILE IN USE" WITH LOCKS THAT ARE ALL KEYED ALIKE. 2. ALL BRANCH CIRCUITS TO BE PROVIDED WITH INDIVIDUAL DEDICATED NEUTRAL.

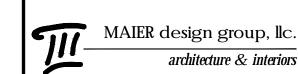
MULTI-CIRCUIT FEEDERS UTILIZING COMMON NEUTRALS WILL NOT BE ACCEPTED.







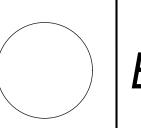
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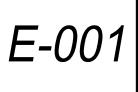


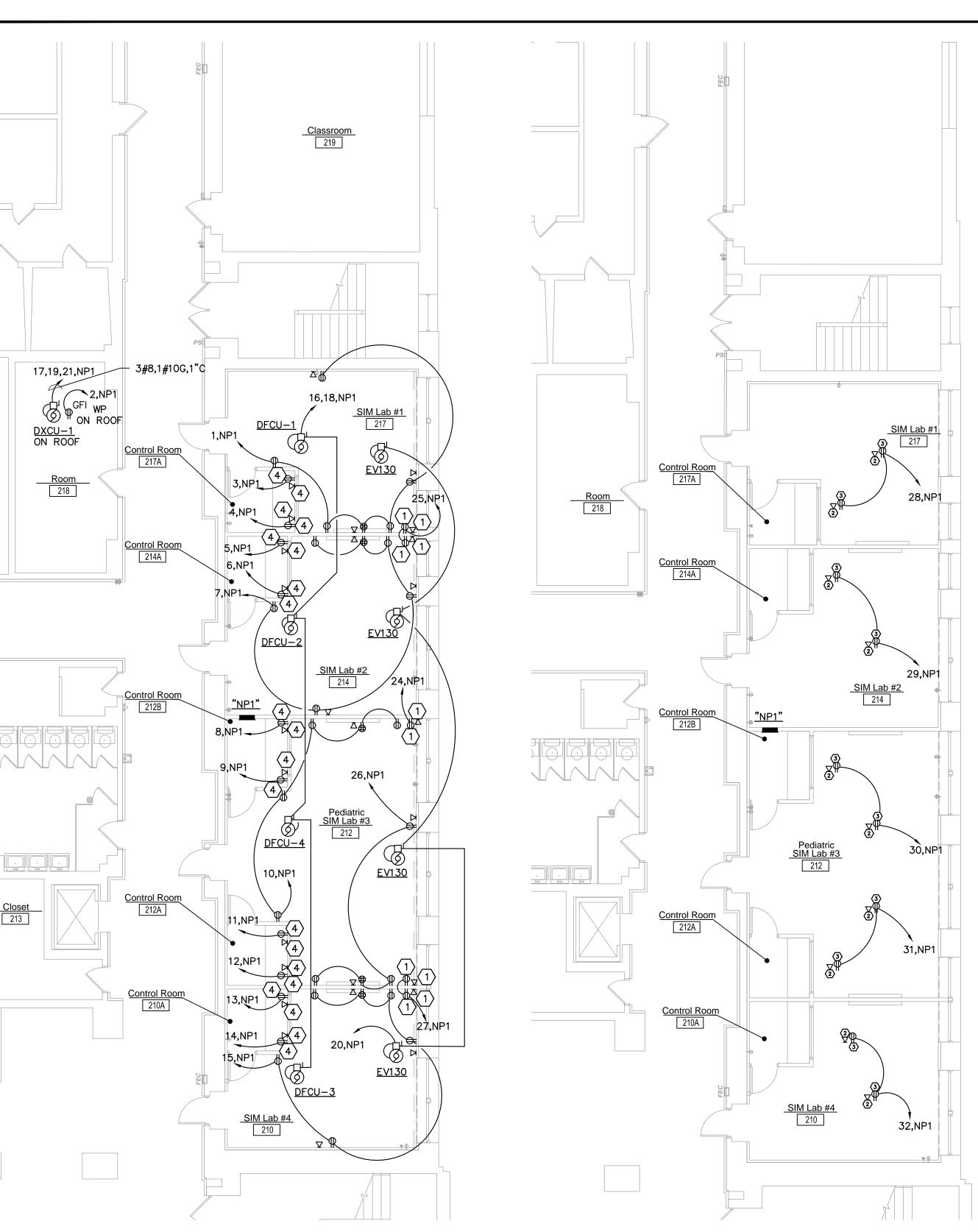
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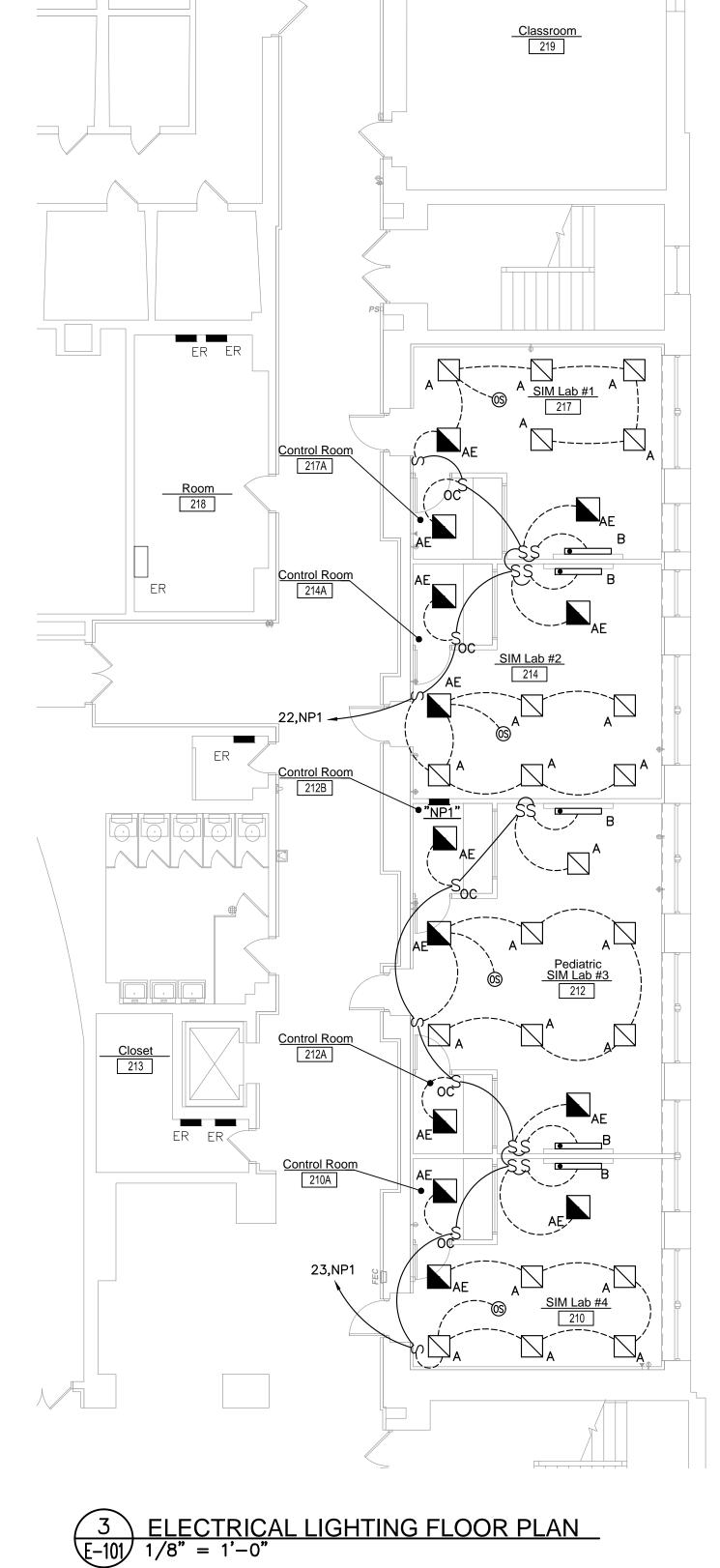
#### **ELECTRICAL** LEGEND, SYMBOLS, **NOTES**

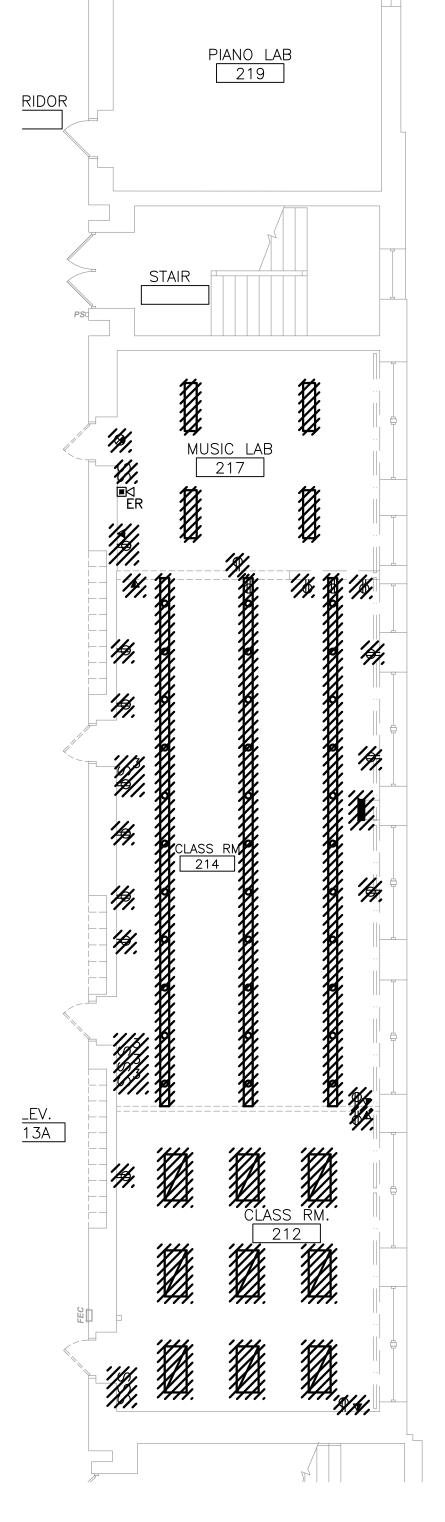
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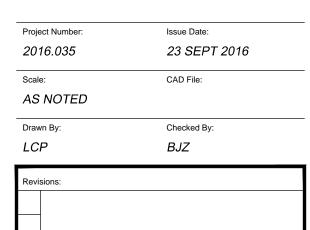












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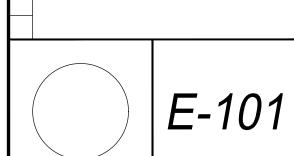
STATE UNIVERSITY

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architecture & interiors



POWER PLANS KEY NOTES:

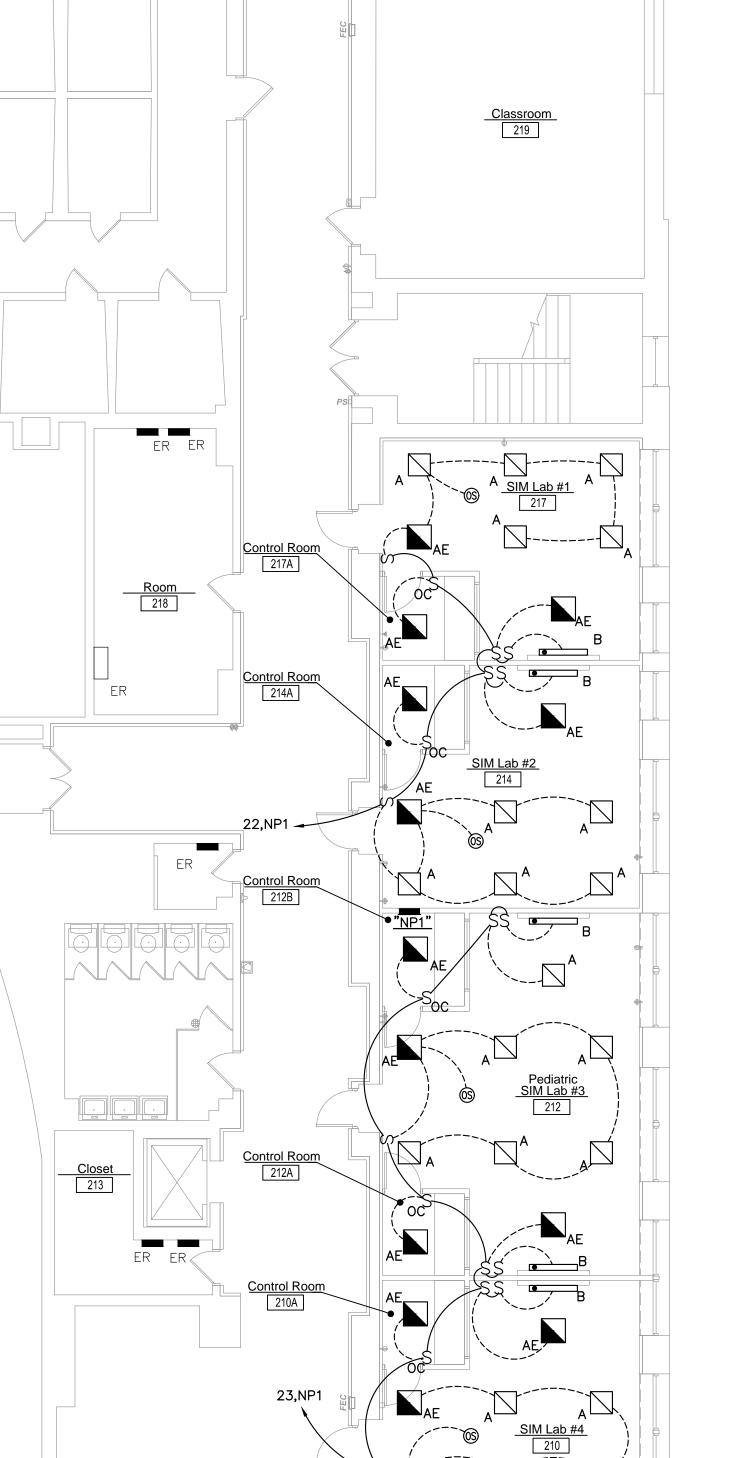
2 ELECTRICAL CEILING MOUNTED POWER FLOOR PLAN [E-101] 1/8" = 1'-0"

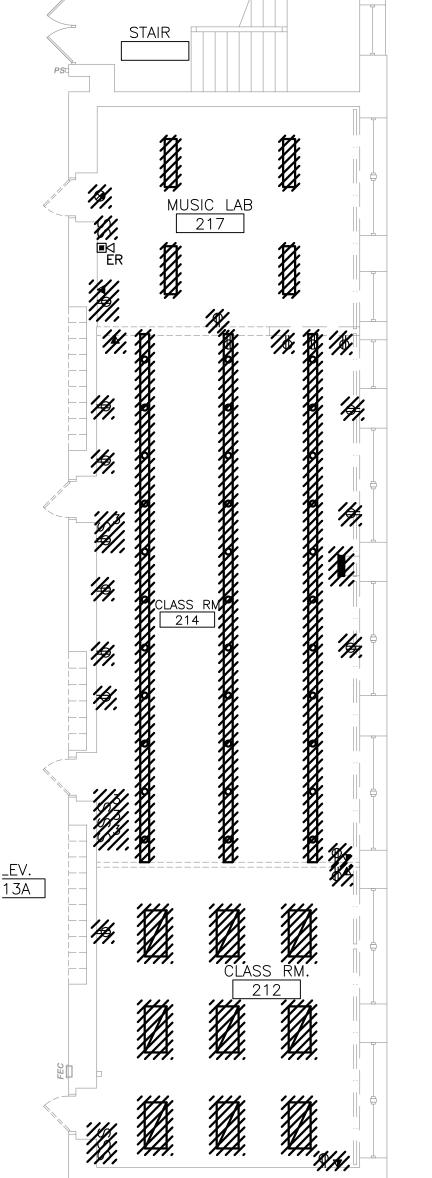
- 1 INSTALL POWER AND DATA OUTS 84" ABOVE FINISHED FLOOR
- MOUNT DATA OUTLET ABOVE THE FINISHED CEILING. COORDINATE EXACT REQUIREMENTS WITH THE IT VENDOR.
- MOUNT POWER RECEPTACLE FLUSH WITH FINISHED CEILING. COORDINATE EXACT LOCATION WITH THE IT VENDOR.
- MOUNT BELOW COUNTER. COORDINATE EXACT LOCATION WITH THE ARCHITECT AND THE IT VENDOR

- 1 ELECTRICAL POWER FLOOR PLAN E-101 1/8" = 1'-0"
- **GENERAL NOTES:**

TYPE "THHN" CONDUCTORS.

- WIRING CONCEALED IN WALLS AND ABOVE ACCESSIBLE CEILINGS CAN BE "MC" TYPE CABLE. ALL CABLES SHALL BE NEATLY RUN AND SECURED TO BUILDING STRUCTURE. 2. ALL HOME-RUNS FROM PANELBOARD TO FIRST JUNCTION SHALL BE CONDUIT WITH
- 3. PROVIDE (2) 1 1/2" EMPTY CONDUITS WITH PULL STRINGS FROM THE NEW FLUSH MOUNTED PANELBOARD AND TERMINATE ABOVE ACCESSIBLE CEILING IN (2) 12"X12"X6" SCREW COVER JUNCTIONS BOXES (1-CONDUIT IN EACH JUNCTION BOX). THE JUNCTION BOX SHALL HAVE 1/2", 3/4", 1" AND 1 1/4" KNOCKOUTS ON EACH SIDE FOR FUTURE
- 4. RECEPTACLES AND DATA OUTLETS IN ALL CONTROL ROOMS SHALL BE MOUNTED BELOW THE COUNTER. THE ARCHITECT WILL PROVIDE GROMMETS IN THE COUNTER TOP.
- 5. ALL LIGHT FIXTURED SHALL BE FURNISHED BY THE OWNER. THE ELECTRICAL CONTRACTOR SHALL ACCEPT DELIVERY, INSTALL AND TEST ALL LIGHT FIXTURES.

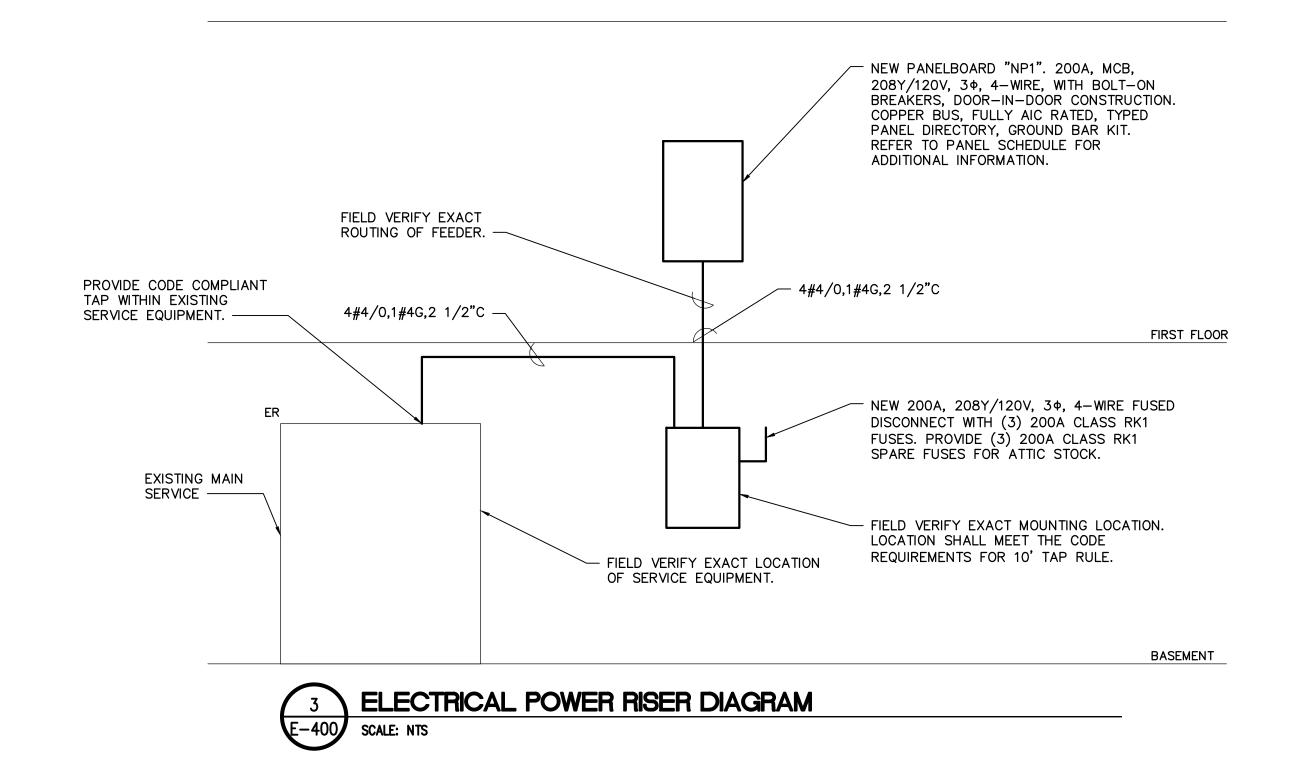




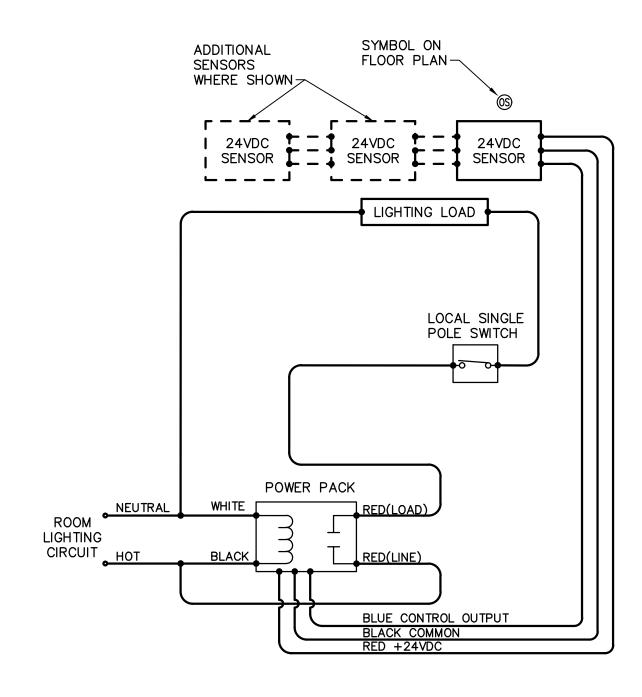
4 ELECTRICAL DEMOLITION FLOOR PLAN E-101 1/8" = 1'-0"

	WESTERN CONNECTICUT SIM LAB LIGHT FIXTURE SCHEDULE										
SYMBOL	MANUFACTURER	MODEL NUMBER	VOLTS	LAMPS	INPUT WATTS	MOUNTING	NOTES				
Α	BY OWNER	BY OWNER	120	LED	41	RECESSED	2'X2' TROFFER, 0-10V DIMMING DRIVER				
AE	BY OWNER	BY OWNER	120	LED	41	RECESSED	2'X2' TROFFER, 0-10V DIMMING DRIVER AND, EMERGENCY BALLAST				
В	BY OWNER	BY OWNER	120	LED	102	SURFACE	1'X4' WALL MOUNTED PATIENT ROOM LIGHT				

			Panel:	NP1								Locat	ion: CONTROL RO	<b>OM 212</b>	Α		
			Amperage / Mains:	200	Α	МСВ					r	Mount	ing:Flush				
		Vo	oltage, Phase, Wire:	208/1	20V	3Ø; 4	W; C	<b>.</b>			Co	omme	nts:				
			AIC:	22k													
CKT.		BREAKER		LTG	REC	M ISC		PHASE		M ISC	REC	LT G			BREAKER	CKT.	
#	AMP	POLES	LOAD DESCRIPTION	kVA	kVA	kVA	Α	В	С	kVA	kVA	kVA	LOAD DESCRIPTION	AMP	POLES		
1	20	1	RECEPTACLES 217		1.3	<u> </u>	1				0.2		RECEPTACLES ROOF	20	1	2	
3	20	1	RECEPTACLES 217A		0.2			0			0.2		RECEPTACLES 217A	20	1	4	
5	20	1	RECEPTACLES 214A		0.2				0		0.2		RECEPTACLES 214A	20	1	6	
7	20	1	RECEPTACLES 214		1.3		1				0.2		RECEPTACLES 218B	20	1	8	
9	20	1	RECEPTACLES 212B		0.2			1			1.1		RECEPTACLES 212	20	1	10	
11	20	1	RECEPTACLES 212A		0.2				0		0.2		RECEPTACLES 212A	20	1	12	
13	20	1	RECEPTA CLES 210A		0.2		0				0.2		RECEPTACLES 210A	20	1	14	
15	20	1	RECEPTACLES 210A		1.3			1		0.1			DECLIA 0.0.4			16	
17						2.9			3	0.1			DFCU-1,2,3,4	20	2	18	
19	35	3	DXCU-1			2.9	4			0.9			ERV-1,2,3,4	20	1	20	
21	1					2.9		4				1.1	LIGHTS	20	1	22	
23	20	1	LIGHTS	1.3					1		0.2		RECEPT 212	20	1	24	
25	20	1	RECEPT 214, 217		0.4		1				0.9		RECEPT 212	20	1	26	
27	20	1	RECEPT 210		0.4			1			0.4		RECEPT CEILING 217	20	1	28	
29	20	1	CEILING RECEPT 214		0.4				1		0.4		CEILING RECEPT 212	20	1	30	
31	20	1	CEILING RECEPT 212		0.4		1				0.4		CEILING RECEPT 210	20	1	32	
33	20	1	SPARE					0					SPARE	20	1	34	
35	20	1	SPARE						0				SPARE	20	1	36	
37	20	1	SPARE				0						SPARE	20	1	38	
39	20	1	SPARE					0					SPARE	20	1	40	
41	20	1	SPARE						0				SPARE	20	1	42	
			Connected (kVA):	1.3	6.1	8.6	9.0	7.7	5.9	1.0	4.3	1.1					
			Demand * (kVA):	2.4	10.2	7.7							* De	mand Fa	actor:		
														Lighting	j loads:	100%	
		Total 0	Connected Load (kVA):	22	2.5	Tota	al Con	necte	d Lo	ad (A):	62	2.5	Receptacle loads,	10kVA d	or less:	100%	
		Total	Demand Load * (kVA):	0.4	Tot	tal De	mand	* Lo	ad (A):	56	6.5	Receptacle load	Receptacle loads, over 10kVA:				
		nnected	.5	1259	% of T	otal D	ema	nd (A):	70	0.6	Miscel	llaneous	loads:	80%			
		demand	load per $\emptyset$ = (total load/3):	6	.8												





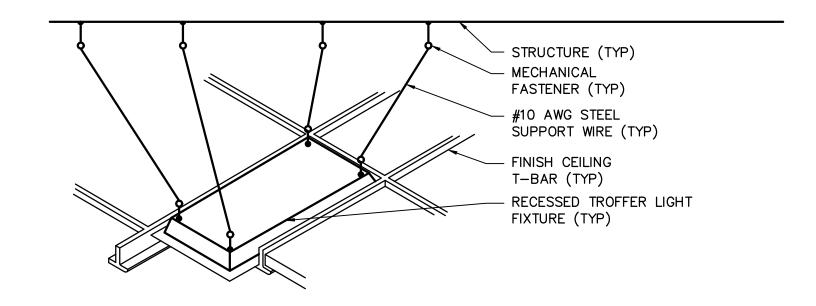


- 1. NO MORE THAN THREE SENSORS TO ONE POWER PACK 2. DASHED LINES INDICATE OPTIONAL POSIBILITIES
- TYPICAL SPECIFICATIONS:
- CEILING MOUNTED OCCUPANCY SENSORS WATTSTOPPER DT—355 SERIES LOW VOLTAGE, DUAL TECHNOLOGY CEILING SENSOR, OR APPROVED EQUAL
- 2. POWER PACK WATTSTOPPER BZ50RC UNIVERSAL VOLTAGE POWER PACK, OR APPROVED EQUAL.

  3. SLAVE RELAY PACK WATTSTOPPER S120/277/347E—P, OR EQUAL.



## ELECTRICAL ROOM OCCUPANCY SENSOR WIRING SCHEMATIC SCALE: NTS

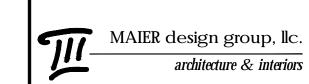








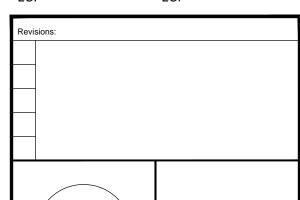
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#### ELECTRICAL DETAILS, RISER AND SCHEDULES.

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Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
AS NOTED	
Drawn By:	Checked By:
LCP	LCP





- 27.6. ALL PANELBOARDS SHALL BE DEAD-FRONT SAFETY TYPE AND UL LISTED.
- 27.7. BRANCH CIRCUIT PANELBOARDS FOR 208Y/120 VOLT SERVICES SHALL BE SIMILAR TO CUTLER HAMMER POW-R-LINE TYPE WITH 22,000 AMPERE MINIMUM INTERRUPTING CAPACITY CIRCUIT BREAKERS. REFER TO PANELBOARD SCHEDULES FOR SPECIFIC RATING AND BRANCH CIRCUIT BREAKER REQUIREMENTS.

27.8. CABINETS SHALL BE DESIGNED TO PROVIDE WIRING GUTTERS IN ACCORDANCE WITH NATIONAL ELECTRICAL

- CODE ARTICLE 408.55. 27.9. EACH PANELBOARD, AS A COMPLETE UNIT SHALL HAVE A SHORT CIRCUIT RATING. PANELBOARDS SHALL BE MARKED WITH THEIR MAXIMUM SHORT CIRCUIT RATING AT THE SUPPLY VOLTAGE AND SHALL BE UL
- LISTED.

  27.10. SPACES SHALL BE PROVIDED WITH ALL REQUIRED BUSSING. SUPPORTS. CONNECTORS. ETC. NECESSAI
- 27.10. SPACES SHALL BE PROVIDED WITH ALL REQUIRED BUSSING, SUPPORTS, CONNECTORS, ETC. NECESSARY FOR FUTURE INSTALLATION OF CIRCUIT BREAKERS.
- 27.11. PANELBOARDS SHALL BE LISTED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE UL LABEL PANELBOARDS SHALL BE AS INDICATED ABOVE BY CUTLER HAMMER, SQUARE D, GENERAL ELECTRIC, SIEMENS OF APPROVED EQUAL.
- 27.12. "SERIES RATED" EQUIPMENT AND ALUMINUM BUSSING IS NOT ACCEPTABLE.

  27.13. ALL PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED NAMEPLATE ON THE DOOR INDICATING THE PANELBOARD DESIGNATION, VOLTAGE, RATING OF MAIN CIRCUIT BREAKER OR MAIN LUGS AND SOURCE OF SUPPLY. ENGRAVED PLATE SHALL BE AS CALLED FOR IN THESE SPECIFICATIONS.
- 27.14. ALL PANELBOARDS SHALL BE PROVIDED WITH A TYPED (HAND WRITTEN IS NOT ALLOWED) CIRCUIT DIRECTORY INDICATING THE LOAD FED BY EACH CIRCUIT BREAKER AND ITS LOCATION.
- 27.15. ALL PANELBOARDS SHALL BE PROVIDED WITH FULL SIZE EQUIPMENT GROUND AND NEUTRAL BUSSES ON EACH SIDE OF THE ENCLOSURE SO AS TO PROVIDE SEPARATE EQUIPMENT GROUND AND NEUTRAL TERMINATION FOR EACH BRANCH CIRCUIT.
- 27.16. FLUSH MOUNTED PANELBOARDS SHALL BE PROVIDED WITH FIVE (5) EMPTY 1" CONDUITS INSTALLED FROM PANELBOARD AND TERMINATED ABOVE ACCESSIBLE CEILINGS.

#### 28. FIRE ALARM SYSTEM:

- 28.1. THE EXISTING FIRE ALARM CONTROL PANEL SHALL REMAIN.
  28.2. PROVIDE A NEW NOTIFICATION CIRCUIT EXTENDER PANEL PER THE MANUFACTURERS RECOMMENDATIONS. PROVIDE NEW CONTROL, INDICATING, NOTIFICATION AND MONITORING DEVICES COMPATIBLE WITH THE EXISTING SYSTEM. ALL DEVICES AND INSTALLATIONS SHALL COMPLY WITH AMERICANS WITH DISABILITIES ACT (ADA) GUIDELINES WHERE APPLICABLE.
- 28.3. THE SEQUENCE OF OPERATION IS PART OF THE EXISTING FIRE ALARM SYSTEM ALREADY IN PLACE. THE FOLLOWING IS FOR REFERENCE AND SHOULD BE FOLLOWED WHEN ADDING DEVICES TO THE EXISTING FIRE ALARM SYSTEM. COORDINATE WITH THE MANUFACTURER FOR COMPLIANCE WITH THE FOLLOWING SEQUENCE OF OPERATION WHEN ADDING DEVICES OR MODIFYING THE EXISTING FIRE ALARM SYSTEM IN ANY MANNER. THE OPERATION OF A MANUAL STATION OR ACTIVATION OF ANY AUTOMATIC ALARM INITIATING DEVICE (SYSTEM SMOKE, HEAT, WATER—FLOW) SHALL AUTOMATICALLY:
- 28.3.1. INITIATE THE TRANSMISSION OF THE ALARM TO THE MUNICIPAL FIRE STATION OR APPROVED CENTRAL STATION VIA A LOCAL ENERGY MASTER BOX, MULTI—ZONE MASTER BOX, RADIO MASTER BOX, OR DIGITAL ALARM COMMUNICATOR/TRANSMITTER (DACT).
- 28.3.2. SOUND A CODE 3 TEMPORAL EVACUATION SIGNAL OVER ALL AUDIO CIRCUITS. EXCEPT IN DESIGNATED AREAS OF ASSEMBLY. IN DESIGNED AREAS OF ASSEMBLY (SOUND A PRE—RECORDED VOICE MESSAGE(S) LOCATED AT THE FACP OR REMOTE LOCATION(S) IN ACCORDANCE WITH THE LOCAL REQUIREMENTS.
- 28.3.3. FLASH ALL VISUAL SIGNALS THROUGHOUT THE BUILDING IN A SYNCHRONIZED MANNER.
  28.3.4. FLASH AN ALARM LED AND SOUND AN AUDIBLE SIGNAL AT THE FACP. UPON ACKNOWLEDGEMENT THE ALARM LED SHALL LIGHT STEADILY AND THE AUDIBLE SHALL SILENCE. SUBSEQUENT ALARMS SHALL
- RE-INITIATE THIS SEQUENCE.

  28.3.5. UPON ACTIVATION BY AN ELEVATOR LOBBY SMOKE DETECTOR OR OTHER DESIGNED RECALL DEVICES, RECALL ALL ELEVATORS THAT SERVE THE FLOOR OF THE INITIALIZATION TO THE MAIN EGRESS LEVEL.

IF THE ALARM INITIATES ON THE MAIN EGRESS LEVEL, RETURN THE ELEVATOR TO THE ALTERNATE

- FLOOR AS DIRECTED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

  28.3.6. VISUALLY INDICATE THE ALARM INITIATING DEVICE TYPE AND LOCATION VIA THE LCD DISPLAY LOCATED AT THE FACP (AND AT ANY REMOTE ANNUNCIATORS) AND (ILLUMINATE THE APPROPRIATE ALARM ZONE LED AT THE REMOTE ANNUNCIATORS).
- 28.3.7. AUTOMATICALLY SHUT DOWN OR CONTROL HVAC EQUIPMENT TO INITIATED SMOKE CONTROL FUNCTIONS AS REQUIRED. MANUAL OVERRIDE CONTROLS AND PROGRAMMABLE RELAY INTERFACE SHALL SERVE AS
- AN INTERFACE TO THE BUILDING AUTOMATION SYSTEM. 28.3.8. OPERATE PRIORITIZED OUTPUTS TO RELEASE ALL MAGNETICALLY HELD SMOKE DOORS AND
- MAGNETICALLY LOCKED DOORS THROUGHOUT THE BUILDING. 28.3.9. ACTIVATE THE EXTERIOR WEATHERPROOF BEACON.

#### 28.4. PROGRAMMING:

- 28.4.0.1. THE SYSTEM SHALL BE PROGRAMMED TO INCLUDE THE NEW DEVICES BEING ADDED TO THE SYSTEM AS REQUIRED PER THE CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
- 28.4.1.1. BATTERIES SHALL HAVE SUFFICIENT CAPACITY TO POWER THE FIRE ALARM SYSTEM FOR NOT LESS THAN SIXTY HOURS PLUS 5 MINUTES OF ALARM UPON A NORMAL AC POWER FAILURE.
- 28.5. INSTALLATION:
  28.5.1. INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC, NFPA 72, LOCAL AND STATE CODES AS SHOWN ON THE DRAWINGS AND AS RECOMMENDED BY THE MAJOR EQUIPMENT MANUFACTURER.
- 28.5.2. ALL FIRE DETECTION AND ALARM SYSTEM DEVICES SHALL BE FLUSH MOUNTED WHEN LOCATED IN FINISHED AREAS AND MAY BE SURFACE MOUNTED WHEN LOCATED IN UNFINISHED AREAS.
- 28.5.3. CONDUCTORS SHALL BE MINIMUM #12 AWG GAUGE COPPER TYPE THHN/THWN. CONDUCTOR SIZES SHALL BE INCREASED AS REQUIRED TO MAINTAIN VOLTAGE TO A MINIMUM OF 3%. ALL AC AND DC PORTIONS OF THE SYSTEM SHALL BE INSTALLED IN SEPARATE RACEWAYS.

#### 28.6. TES 28.6.1.

- 28.6.1. PROVIDE THE SERVICE OF A COMPETENT FACTORY TRAINED ENGINEER OR TECHNICIAN AUTHORIZED BY THE MANUFACTURER OF THE FIRE ALARM EQUIPMENT TO TECHNICALLY SUPERVISE AND PARTICIPATE DURING ALL OF THE ADJUSTMENTS AND TESTS FOR THE SYSTEM. ALL TESTING SHALL BE IN ACCORDANCE WITH NFPA 72, CHAPTER 7 AND THE STATE FIRE CODE.
- 28.6.2. THE FINAL TEST SHALL BE OBSERVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

#### FIRE STOPPING NOTES:

PROJECT CONDITION.

- 1. FIRE STOPPING SHALL BE PROVIDED BY THIS ELECTRICAL CONTRACTOR FOR ALL FLOOR, CEILING AND FIRE/SMOKE RATED WALL CONDUIT, SLEEVES AND CABLES AS REQUIRED BY
- 2. THE CONTRACTOR SHALL PROVIDE A FIRE STOP SYSTEM IN ACCORDANCE WITH STATE AND LOCAL CODES AND COMPRISES OF THE FOLLOWING:
- 2.1. THE SYSTEM SHALL CONSIST OF A WATER-BASED SEALANT AND SUITABLE DAMMING MATERIALS, WHERE REQUIRED, AND SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
- 2.2. THE SEALANT SHALL BE TWO-STEP INTUMESCENT AND CAPABLE OF EXPANDING UP TO 8-TIMES ITS ORIGINAL VOLUME.
- 2.3. THE SEALANT SHALL CONTAIN NO ASBESTOS, NO FIBERGLASS, AND NO SOLVENTS
- NOR CORROSIVE MINERAL SALTS OF ANY KIND.

  2.4. THE SEALANT SHALL FORM A SURFACE CAPABLE OF BEING SANDED AND PAINTED TO
- MATCH SURROUNDING SURFACES AND SHALL BE IMPERVIOUS TO WATER WHEN DRY.

  2.5. THE FIRE STOP SYSTEM SHALL BE TESTED TO THE TIME/TEMPERATURE REQUIREMENTS
  OF ASTME 119 AND SHALL BE UL 1479 (ASTME 814) AND CLASSIFIED FOR UP TO 3
- 2.6. THE FIRE STOP SYSTEM SHALL BE SPECSEAL SEALANT AS MANUFACTURED BY
- SPECIFIED TECHNOLOGIES, INC. OR APPROVED EQUAL.

  2.7. SPECIAL CARE SHALL BE TAKEN WITH ELECTRICAL SYSTEMS NOT TO COMPROMISE ANY OF THE BUILDING FORE PARTITIONS, FLOORS, WALLS OR MEMBRANES. PROVIDE ALL FIRE STOPPING REQUIREMENTS TO COMPLY WITH THE STATE AND LOCAL BUILDING CODE, THE ELECTRICAL CODE AND THE UL LISTING OF EACH ASSEMBLY. COORDINATE LOCATIONS AND TYPES OF RATED MEMBRANES WITH THE ARCHITECT.

#### **ELECTRICAL SPECIFICATIONS:**

- 1. FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED. REFER TO THE TENANT'S LEASE FOR CONSTRUCTION RULES & REGULATIONS, AND TENANT DESIGN CRITERIA MANUAL FOR SPECIFIC REQUIREMENTS. THE TENANT'S LEASE AGREEMENT INFORMATION SHALL SUPERCEDE THESE SPECIFICATION WHERE A CONFLICT OCCURS BETWEEN THE TWO.
- 2. ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS PROJECT.
- 3. ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES, WITH STATE ADOPTED AMENDMENTS.
- 4. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- 5. MATERIALS AND WORKMANSHIP SHALL BE IN THE BEST OF THEIR RESPECTIVE KIND AND IN FULL ACCORDANCE WITH THE MOST MODERN ELECTRICAL CONSTRUCTION STANDARDS. ALL MATERIALS SHALL BE NEW AND FREE OF ANY DEFECTS
- 6. THE ELECTRICAL CONTRACTOR SHALL CLEAN AT THE END OF EACH DAY. ALL AREAS WORKED IN, EMPTY BOXES, RUBBISH AND OTHER CONSTRUCTION MATERIALS OF NO USE SHALL BE REMOVED FROM THE BUILDING.
- 7. ALL WORK SEQUENCES SHALL BE COORDINATED WITH THE ARCHITECT AND SHALL BE COORDINATED WITH THE LANDLORD, OTHER BUILDING TRADES AND THE ARCHITECTS BUILDING SCHEDULE.
- 8. ALL BRANCH CIRCUITS RATED AT 120 VOLTS, 20 AMPERES EXCEEDING 75 FEET SHALL BE MINIMUM #10 AWG.
- 9. ALL EQUIPMENT AND INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATED OF FINAL ACCEPTANCE.
- 10. FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION AS NEEDED.
- 11. THE ELECTRICAL CONTRACTOR (EC) SHALL INSPECT THE SITE. PRIOR TO SUBMITTING THEIR BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK SHALL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE SCOPE OF WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE EC FROM HIS OBLIGATION TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATION AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- 12. THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL SCOPE OF WORK, LAYOUT AND QUALITY OF WORKMANSHIP. THEY ARE NOT INTENDED FOR THE PURPOSE OF EXECUTION OF THE WORK, BUT THE CONTRACTOR SHALL UNDERSTAND THAT SUCH DETAILS ARE PART OF THE WORK.
- 13. THE ELECTRICAL CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE AND DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY THIS WORK AND SHALL PROVIDE ALL SLEEVES, INSERTS, AND HANGERS REQUIRED.
- 14. BRANCH CIRCUITS ADDED TO ANY EXISTING PANELBOARDS SHALL INCLUDE THE CIRCUIT BREAKER DIRECTORY TO BE UPDATED. IF NO DIRECTORY EXISTS THAN ONE SHALL BE PROVIDED INDICATING THE EXISTING AND NEW CIRCUITS. CIRCUIT TRACERS SHALL BE CAPABLE OF TRACING LIVE CIRCUITS SO AS TO MINIMIZE DISTURBING ADJACENT SPACES.
- 15. WIRE AND CABLE FOR ALL BRANCH CIRCUITS SHALL BE TYPE THHN/THWM, INSULATION RATED FOR 600 VOLTS, RATED AT 75°C MINIMUM AND UL LISTED FOR BUILDING WIRE USE. WIRE SHALL BE A MINI,UM OF #12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. ALL WIRING SHALL BE CONCEALED AND INSTALLED IN RACEWAY. RACEWAYS SHALL BE EMT WITH STEEL SET SCREW FITTINGS. METAL—CLAD CABLE TYPE MC MAY BE USED IN AREAS APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- 16. LIGHTING FIXTURES SHALL BE SUPPORTED INDEPENDENTLY FROM THE STRUCTURE OF THE BUILDING. THE CEILING SHALL NOT BE THE SOLE SUPPORT FOR THE LIGHTING FIXTURES. ALL LIGHTING FIXTURES SHALL BE PROVIDED WITH LAMPS INSTALLED. ALL BALLASTS SHALL BE HIGH POWER FACTOR, CLASS "A" SOUND RATED WITH FUSING OR THERMAL PROTECTION. NEW LAMPS SHALL HAVE THE SAME TEMPERATURE AS EXISTING LAMPS IN THE SAME AREA.
- 17. OUTLET BOXES SHALL BE GALVANIZED STEEL, OF THE TYPE REQUIRED FOR THE PARTICULAR APPLICATION AND SIZED TO ACCOMMODATE THE NUMBER OF CONDUCTORS TO BE INSTALLED PER CODE.
- 18. SWITCHES SHALL BE EQUAL TO HUBBELL #1221 FOR 20 AMPERE, 1—POLE AND #1223 FOR 20 AMPERE, 3—POLE. RECEPTACLES SHALL BE EQUAL TO HUBBELL #5352 AND GF5352 FOR GFCI TYPE. USE "ISOLATED GROUND" RECEPTACLES IN AREAS AS INDICATED ON THE PLANS. ALL DEVICES SHALL BE PROVIDED WITH MATCHING FACE PLATES. COLOR OF DEVICES AND PLATES SHALL BE SELECTED BY THE ARCHITECT PRIOR TO ORDERING ANY MATERIAL.
- 19. FIRE ALARM SYSTEM WIRING SHALL BE CONCEALED AND INSTALLED IN RACEWAY. RACEWAYS SHALL BE EMT WITH STEEL SET SCREW FITTINGS WITH INSULATED THROAT. FIRE ALARM METAL—CLAD CABLE TYPE MC MAY BE USED IN AREAS WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION. THE MINIMUM WIRE SIZE FOR FORE ALARM WIRING SHALL BE #12 AWG. ALL SPLICES SHALL BE MADE ON SCREW TYPE TERMINAL STRIPS. WIRENUTS SHALL NOT BE USED. T—TAPPING OF FIRE ALARM WIRING SHALL NOT BE ALLOWED.
- 20. RED PAINTED TERMINAL CABINETS AN BOXES WITH LOCKABLE COVERS SHALL BE PROVIDED AT ALL JUNCTION POINTS FOR FIRE ALARM SYSTEM WIRING.
- 21. ADDITIONAL JUNCTION BOXES BEYOND THOSE SHOWN ON THE DRAWINGS SHALL BE PROVIDED AS NECESSARY FOR ALL ELECTRICAL INSTALLATIONS.
- 22. ALL CUTTING, PATCHING AND FIRE STOPPING FOR ALL ELECTRICAL INSTALLATIONS SHALL BE HE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- 23. PROVIDE CONDUIT SLEEVES FILLED WITH AN APPROVED FORE RESISTANT MATERIAL WHERE FORE RATED WALLS, FLOORS OF CEILINGS ARE PENETRATED. APPROVED WATERTIGHT CONDUIT SLEEVES SHALL BE PROVIDED WHERE WALLS ARE PENETRATED EITHER ENTERING OR LEAVING THE BUILDING.
- 24. RECEPTACLES, LIGHT FIXTURES, AND POWER ITEMS BRANCH CIRCUIT WIRING MAY NOT BE SHOWN BUT SHALL BE PROVIDED AS REQUIRED. MINIMUM WIRING SHALL BE 2#12PLUS 1#12 GROUND IN 3/4" CONDUIT. NO MORE THAN THREE PHASES MAY BE COMBINED IN A SINGLE HOMERUN AND EACH PHASE SHALL BE PROVIDED WITH AN INDIVIDUAL NEUTRAL.
- 25. ALL CONDUITS SHALL CONTAIN A GREEN SAFETY GROUND WIRE. BOND ALL PANELS, CABINETS, ENCLOSURES, CONDUITS, ETC... AS REQUIRED PER CODE.
- 26. ALL SUPPORTS AND ANCHORS SHALL BE DESIGNED AND INSTALLED PER REQUIREMENTS FOR THE SEISMIC CLASSIFICATIONS AS OUTLINED IN THE APPLICABLE BUILDING CODE. SITE LOCATION AND PREVAILING ORIENTATION SHALL BE TAKEN INTO ACCOUNT IN THE DESIGN.

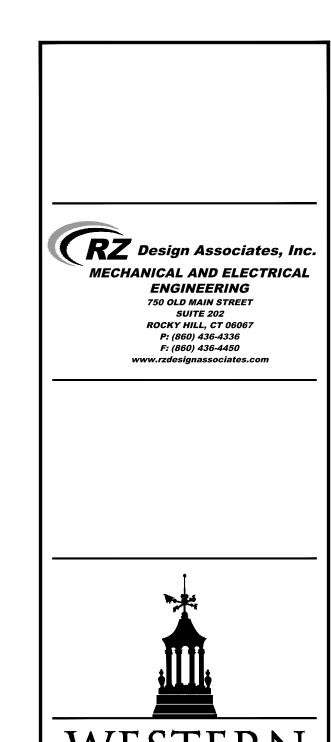
#### 27. PANELBOARDS:

- 27.1. PANELBOARDS SHALL BE PROVIDED AT LOCATIONS INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH THE PANEL SCHEDULES SHOWN ON THE DRAWINGS'
- 27.2. PANELBOARDS SHALL BE CIRCUIT BREAKER TYPE INSTALLED IN CODE GAUGE SHEET STEEL CABINETS. SURFACE OR FLUSH MOUNTED AS INDICATED IN THE CONTRACT DOCUMENTS. PROVIDE NEATLY TYPED DIRECTORY CARDS IN EACH PANELBOARD.
- 27.3. BUSSING SHALL BE OF COPPER CAPACITIES AS INDICATED AND SIZED FOR SUCH CAPACITIES IN ACCORDANCE WITH UNDERWRITERS LABORATORY STANDARDS. UNLESS OTHERWISE NOTED, FULL SIZE NEUTRAL BARS SHALL BE INCLUDED. BUS BAR TAPS FOR PANELBOARDS WITH SINGLE POLE BRANCHES SHALL BE ARRANGED FOR SEQUENCE PHASING OF THE BRANCH CIRCUIT DEVICES. BUSSING SHALL BE BRACES THROUGHOUT TO CONFORM TO INDUSTRY STANDARD PRACTICE GOVERNING SHORT CIRCUIT STRESS
- WITHIN PANELBOARDS. PHASE BUSSING SHALL BE FULL HEIGHT WITHOUT REDUCTION.

  27.4. THE BRANCH CIRCUIT BREAKERS SHALL BE MOLDED CASE, BOLT—ON TYPE, THERMAL—MAGNETIC TRIP, SINGLE, TWO OR THREE POLES SHOWN ON THE CONTRACT DOCUMENTS. ALL MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP. WHERE BREAKERS OF LARGER CAPACITY ARE REQUIRED, THEY SHALL HAVE CIRCUIT CHARACTERISTICS AS SHOWN ON THE DRAWINGS AND SHALL BE RATED FOR SWITCHING DUTY WHERE REQUIRED. PROVIDE HANDLE LOCKS FOR EMERGENCY LIGHTING CIRCUITS, FIRE ALARM, SECURITY, OR OTHER SIMILAR FUNCTIONS.
- 27.5. PANELBOARDS SHALL HAVE GROUND BUS IN ADDITION TO NEUTRAL BUS GROUNDED TO THE BACK BOX WITH SUFFICIENT SCREWS AND OR LUGS TO ACCOMMODATE BRANCH CIRCUITS AS WELL AS FEEDER
- GROUND CONDUCTORS.

  27.6. ALL PANELBOARDS SHALL BE DEAD—FRONT SAFETY TYPE AND UL LISTED.





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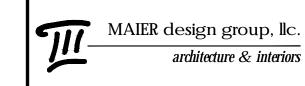
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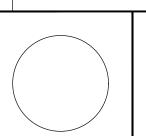
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## ELECTRICAL SPECIFICATIONS

Project Number:	Issue Date:
2016.035	23 SEPT 2016
Scale:	CAD File:
AS NOTED	
Drawn By:	Checked By:
LCP	LCP
Revisions:	



E-600