

## BUILDING DEPARTMENT NOTES

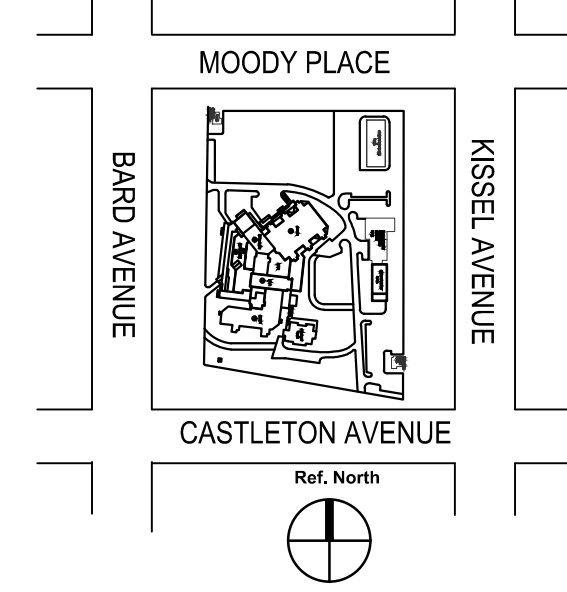
<ol style="list-style-type: none"><li>1. UPON COMPLETION OF VENTILATION SYSTEM, A TEST SHALL BE CONDUCTED UNDER THE PRESENCE AND DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT QUALIFIED TO CONDUCT SUCH TESTS. THE TESTS SHALL SHOW COMPLIANCE WITH THE CODE REQUIREMENTS FOR VENTILATION AND PROPER FUNCTION OF ALL OPERATING DEVICES, BEFORE THE SYSTEM IS APPROVED.</li><li>2. THE LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO CONDUCTS THE TESTS SHALL FILE THE CERTIFICATE TO WHETHER THE SYSTEM COMPLIES WITH APPLICABLE LAWS. THE TEST AND REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE SUPERINTENDENT.</li><li>3. A STATEMENT SHALL BE FILED BY THE OWNER THAT THE SYSTEM OF VENTILATION WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THIS BUILDING AS ORDERED IN THE APPLICABLE SECTION OF THE CODE.</li><li>4. NEW YORK CITY MECHANICAL CODE CHAPTER 4 SECTION 401 SHALL GOVERN THE VENTILATION OF SPACES WITHIN A BUILDING INTENDED TO BE OCCUPIED.</li><li>5. MECHANICAL VENTILATION BY A METHOD OF SUPPLY AIR AND RETURN OR EXHAUST AIR SHALL BE PROVIDED AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 4, SECTION MC 403. THE AMOUNT OF SUPPLY AIR SHALL BE APPROXIMATELY EQUAL TO THE AMOUNT OF RETURN AND EXHAUST AIR. THE SYSTEM SHALL NOT BE PROHIBITED FROM PRODUCING NEGATIVE OR POSITIVE PRESSURE. THE SYSTEM TO CONVEY VENTILATION AIR SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NEW YORK CITY MECHANICAL CODE CHAPTER 6.</li><li>6. MECHANICAL VENTILATION SYSTEMS SHALL BE PROVIDED WITH MANUAL OR AUTOMATIC CONTROLS AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 4 SECTION MC 405.</li><li>7. THE DESIGN, CONSTRUCTION AND INSTALLATION OF MECHANICAL EXHAUST SYSTEMS, INCLUDING DUCT, STOCK AND REFUSE CONVEYOR SYSTEMS, EXHAUST SYSTEMS SERVING COMMERCIAL COOKING APPLIANCES AND ENERGY RECOVERY VENTILATION SYSTEMS SHALL BE AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 5 SECTION MC 501.</li><li>8. MECHANICAL AND PASSIVE SMOKE CONTROL SYSTEMS THAT ARE REQUIRED BY THE NEW YORK CITY MECHANICAL CODE SHALL BE INSTALLED IN ACCORDANCE WITH 2022 NEW YORK CITY MECHANICAL CODE SECTION MC 513.2 SPECIAL INSPECTION AND TEST REQUIREMENTS SHALL BE IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE CODE SECTION BC 909.3.</li><li>9. DUCT SYSTEMS USED FOR THE MOVEMENT OF AIR IN AIR-CONDITIONING, HEATING, VENTILATING AND EXHAUST SYSTEMS SHALL CONFORM TO THE PROVISIONS OF NEW YORK CITY MECHANICAL CODE CHAPTER 6, SECTION MC 601.</li><li>10. THE INSTALLATION AND CONSTRUCTION OF DUCTWORK SHALL BE AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 6, SECTION 603.</li><li>11. PROTECTION OF DUCT PENETRATIONS AND AIR TRANSFER OPENINGS IN ASSEMBLIES REQUIRED TO BE PROTECTED SHALL BE AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 6, SECTION MC 607. FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS AND CEILING RADIATION DAMPERS SHALL BE PROVIDED AT THE LOCATIONS PRESCRIBED IN SECTION S607.5, THROUGH 607.6. WHERE AN ASSEMBLY IS REQUIRED TO HAVE BOTH FIRE DAMPERS AND SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS OR A FIRE DAMPER AND A SMOKE DAMPER SHALL BE REQUIRED.</li><li>12. DUCT AND AIR TRANSFER OPENINGS THAT PENETRATE FIRE RATED PARTITIONS SHALL COMPLY WITH ALL REQUIREMENTS LISTED UNDER THE BUILDING CODE SECTION BC 716 AS APPLICABLE TO SYSTEM DESIGN.</li><li>13. ALL FIRE DAMPERS ARE TO BE OF TYPE APPROVED BY THE BOARD OF FIRE UNDERWRITERS. WHERE ENTERING OR LEAVING SHAFTS, FIRE DAMPERS ARE TO BE EQUIVALENT TO 1-1/2 FIRE WALL RATING.</li><li>14. VENTILATION RULES OF DEPARTMENT OF BUILDINGS ADOPTED NOVEMBER 7, 2022, TO BE COMPLIED WITH.</li></ol>
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## INSTALLATION OF NEW SERVICES

1. CONTRACTOR TO COORDINATE THE INSTALLATION OF NEW PIPING AND DUCTWORK WITH ALL EXISTING CONDITIONS. ALL REQUIRED BUILDING SYSTEM SHUTDOWNS AND RELOCATIONS SHALL BE MINIMIZED AND COORDINATED WITH THE FACILITIES PERSONNEL.
2. COORDINATE ALL WORK WITH HOSPITAL MANAGEMENT CONSTRUCTION REQUIREMENTS.
3. ALL EXISTING HVAC SYSTEMS, PIPING, DUCTWORK, AND CONTROL WIRING SHALL BE TRACED BEFORE ANY REMOVAL. COORDINATE WITH THE HOSPITAL ENGINEER ON REMOVAL AND RELOCATION OF THE EXISTING SYSTEMS. SUBMIT SURVEY DRAWING IDENTIFYING UNUSED SYSTEMS AND THEIR DEMOLITION.

## SCOPE OF WORK

1. CONTRACTOR IS TO DISCONNECT FROM THE EXISTING BASE BUILDING SUPPLY AIR AND RETURN AIR DUCTWORK PER THE DESIGN DRAWINGS AND DEMOLISH REMAINING DUCTWORK SERVING EP LAB AND EQUIPMENT ROOM. DEMOLISH ALL ASSOCIATED APPURTENANCES INCLUDING REHEAT COILS, HOT WATER PIPING, THERMOSTATS, ETC.
2. CONTRACTOR IS TO DEMOLISH THE EXISTING SUPPLEMENTAL AIR HANDLING UNIT LOCATED IN THE EXISTING MECHANICAL ROOM SERVING THE CATH LAB AND RADIOLOGY SUITE AND ALL ASSOCIATED APPURTENANCES INCLUDING REFRIGERANT PIPING, DRAIN, CONTROLS, THERMOSTATS, POWER, AND SUPPORTS.
3. CONTRACTOR IS TO DEMOLISH THE EXISTING SOILED UTILITY EXHAUST FAN.
4. CONTRACTOR IS TO DEMOLISH ANY REMAINING SUPPLY, RETURN, AND EXHAUST AIR DUCTWORK NOT ALREADY MENTIONED AS INDICATED ON THE DEMOLITION DESIGN DRAWINGS AND ALL ASSOCIATED APPURTENANCES INCLUDING REHEAT COIL, HOT WATER PIPING, HUMIDIFIERS, FILTER RACKS, ETC.
5. CONTRACTOR IS TO INSTALL NEW AIR HANDLING UNIT ON THE ROOF. FURNISH AND INSTALL ALL ASSOCIATED APPURTENANCES INCLUDING SUPPLY AIR AND RETURN AIR DUCTWORK, CHILLED WATER, STEAM, AND DRAIN PIPING, CONTROLS, ETC. STRUCTURAL IS TO PROVIDE DUNNAGE FOR AHU SUPPORT.
6. CONTRACTOR IS TO INSTALL NEW AIR CONDITIONING UNIT IN FIRST FLOOR EQUIPMENT ROOM AS INDICATED PER DESIGN DRAWINGS AND ALL ASSOCIATED APPURTENANCES INCLUDING DRAIN PAN, REFRIGERANT PIPING, ETC.
7. CONTRACTOR IS TO INSTALL NEW HOT WATER SUPPLY AND RETURN PIPING TO SERVE NEW VAV AND CAV UNITS PER DESIGN DRAWINGS.



1 PLOT PLAN  
SCALE: NTS

## DEMOLITION NOTES

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1. GENERAL
  - A. THIS CONTRACTOR SHALL VISIT THE SITE AND ADJOINING AREAS AND EXAMINE THE EXISTING CONDITIONS TO BECOME FAMILIAR WITH THEM AND TO DETERMINE THE DIFFICULTIES WHICH WILL AFFECT THE EXECUTION OF THE WORK OF THIS CONTRACT. THIS CONTRACTOR SHALL PERFORM THIS PRIOR TO THE SUBMISSION OF HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
  - B. THE DEMOLITION WORK SHALL INCLUDE, PROVIDING ALL MATERIALS, ALL NECESSARY EXTENSIONS, CONNECTIONS, CUTTING, REPAIRING, ADAPTING AND OTHER MECHANICAL WORK REQUIRED, TOGETHER WITH ANY REQUIRED TEMPORARY CONNECTIONS TO MAINTAIN SERVICE PENDING THE COMPLETION OF THE PERMANENT WORK. NOTES AND GRAPHIC REPRESENTATION SHALL NOT LIMIT THE EXTENT OF DEMOLITION REQUIRED. EXTENT OF DEMOLITION WORK SHALL BE COORDINATED WITH THE ARCHITECT AND BUILDING MANAGEMENT.
  - C. REFER TO ARCHITECTS PLANS FOR AREA OF WORK.
2. SCOPE OF WORK
  - A. EXISTING WORK INTERFERING WITH NEW.
    - 1) ALL EXISTING WORK REQUIRED TO REMAIN BUT INTERFERING WITH PROPOSED NEW MECHANICAL (AS WELL AS ELECTRICAL AND GENERAL CONSTRUCTION WORK) SHALL BE RELOCATED AND RECONNECTED USING MATERIALS CONFORMING TO STANDARDS OF THIS CONTRACT.
  - B. REMOVAL OF MECHANICAL EQUIPMENT DUCTWORK AND PIPING.
    - 1) REMOVE ALL EXISTING DUCTWORK, HANGERS AND ACCESSORIES.
    - 2) REMOVE ALL PIPING, VALVING AND HANGERS ASSOCIATED WITH PIPING TO BE REMOVED BACK TO MAINS. IDENTIFY ALL PIPING BY SERVICE TYPE AND CAP AT MAINS.
  - C. REMOVAL OF DUCTWORK AND ACCESSORIES
    - 1) CONTRACTOR TO CONTACT BUILDING MANAGEMENT AND TENANT REGARDING DUCTWORK REMOVAL SCOPE OF WORK TO ENSURE THAT OTHER TENANTS THAT ARE TO STAY OPERATIONAL ARE NOT AFFECTED BY REMOVALS OF THE BASE BUILDING DUCTWORK.
    - 2) ALL EXISTING BUILDING FIRE DAMPERS, FIRE/SMOKE DAMPERS, DUCT MOUNTED SMOKE DETECTORS AT SUPPLY AND RETURN AIR SHAFTS TO REMAIN.
  - D. CONTRACTOR TO REPLACE/ PATCH WALLS AND FLOORS TO MATCH EXISTING.
  - E. PROVIDE ADDITIONAL SUPPORT FOR ALL EXISTING DUCTS AND PIPING TO REMAIN WHICH ARE AFFECTED BY DEMOLITION OF EXISTING CEILING AND PARTITIONS.
  - F. EQUIPMENT REQUIRED TO BE TURNED OVER TO THE OWNER SHALL BE PLACED IN A MUTUALLY ACCEPTABLE LOCATION. ALL MATERIALS AND EQUIPMENT REMOVED AS A RESULT OF DEMOLITION SHALL BE TAKEN FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS.
  - G. CONTRACTOR SHALL IDENTIFY ALL EXISTING WORK TO REMAIN BY ACCEPTABLE IDENTIFICATION MEANS TO CONFIRM PROPER SCOPE PRIOR TO COMMENCEMENT OF DEMOLITION.

## SITE NOTES

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- A. SITE VISIT BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVER. SITE VISIT IS PARTICULARLY IMPORTANT BECAUSE THIS IS RENOVATION WORK.
- B. SURVEY EXISTING CONDITIONS AND PREPARATORY WORK BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT. VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR CONTRACTS BY OWNER. REPORT CONDITIONS THAT MIGHT AFFECT WORK ADVERSELY IN WRITING THROUGH CONTRACTOR TO ARCHITECT. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.
- C. ALL EXISTING MECHANICAL SYSTEMS THAT ARE TO REMAIN SHALL BE SHOWN ON 3/8"=1'-0" M/E COORDINATION DRAWING. NO EXTRAS TO CONTRACTOR SHALL BE ALLOWED FOR MISSED CONDITIONS NOT OBSERVED OR LACK OF COORDINATIONS BETWEEN TRADES. SEE NOTE 'A' AND 'B'.
- D. PROVIDE 4 WEEK NOTICE TO HOSPITAL FACILITY PERSONNEL FOR ANY SHUT-DOWN OF SERVICES.
- E. THE CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING SYSTEMS THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS CONDITIONS.
- F. CARE SHALL BE TAKEN DURING THE INSTALLATION OF THE NEW WORK, AS NOT TO DAMAGE OR INTERRUPT THE EXISTING BUILDING SYSTEMS AND SERVICES INSTALLED. DAMAGE TO EXISTING SYSTEMS AND EQUIPMENT CAUSED BY THIS CONTRACTOR DURING THE INSTALLATION OF HIS WORK SHALL BE REPAIRED AND/ OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
- G. ANY DEMOLITION SHALL BE COORDINATED WITH OWNER, ARCHITECT, C.M./G.C., AND ENGINEER.
- H. THE CONTRACTOR SHALL INSPECT ALL EXISTING-TO-REMAIN EQUIPMENT AND DUCTWORK WITHIN THE SCOPE AREA. ALL DEFICIENCIES FOUND (INCLUDING DUCT LEAKAGE) SHALL BE REPAIRED, IF REPAIRS ARE NOT POSSIBLE, REPORTED TO THE ARCHITECT/ENGINEER.
- I. PATCH ALL EXISTING, DAMAGED DUCT AND PIPE INSULATION TO PROVIDE COMPLETE COVERAGE AND AN INTACT VAPOR BARRIER.

## HVAC GENERAL NOTES

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL HVAC DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. COORDINATE WORK OF THIS SECTION WITH THAT OF OTHER SECTIONS.
4. ALL HVAC SUBCONTRACTORS SHALL RECEIVE AND REVIEW FULL HVAC DRAWING SET.
5. SHEETMETAL FITTINGS SHOWN ARE TO BE PROVIDED. NO SUBSTITUTES SHALL BE ALLOWED WITHOUT PRIOR CONSENT FROM ARCHITECT/ENGINEER.
6. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
7. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
8. SUPPORT ALL EQUIPMENT, PIPING, AND DUCTWORK FROM BLDG STRUCTURE TO PROVIDE A VIBRATION FREE INSTALLATION. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ALL WEIGHTS AND METHODS OF SUPPORT.
9. INSULATE PIPING AND DUCTWORK AS SPECIFIED: PERFORM TESTS SPECIFIED BEFORE INSULATING.
10. PROVIDE HANGERS, CLAMPS, OFFSETS, AS NECESSARY TO PREVENT STRESS ON PIPING.
11. PROVIDE VENTS AT HIGH POINTS AND DRAIN VALVES AT LOW POINTS IN PIPING SYSTEMS.
12. PITCH PIPING 1 INCH IN 20 FEET MINIMUM IN DIRECTION OF FLOW TO ALLOW FOR DRAINING. PITCH STEAM PIPING 1 INCH IN 4 FEET.
13. FURNISH AND INSTALL ALL WIRING, CONDUIT, TRANSFORMERS, AND OTHER COMPONENTS REQUIRED FOR OPERATION OF HVAC CONTROLS INCLUDING LINE AND LOW VOLTAGE SYSTEMS.
14. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH NEC AND HVAC AND ELECTRICAL SPECIFICATIONS.
15. INTERNAL AIR FLOW DIMENSIONS ARE SHOWN FOR DUCTS.
16. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE.
17. FURNISH ELECTRONIC "AS-BUILT" DRAWINGS CONSISTING OF A COMPLETE SET OF PLANS INDICATING IN A NEAT AND ACCURATE MANNER, A COMPLETE RECORD OF ALL CHANGES TO THE ORIGINAL DESIGN OF THE WORK.
18. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE INSTALLATION AND ANY PORTIONS OF THE WORK WHICH DEVELOP DEFECTS DURING THAT TIME SHALL BE REPLACED OR REPAIRED IN A MANNER SATISFACTORY TO THE OWNER. ALL MANUFACTURER'S WARRANTIES FOR EQUIPMENT EXTENDING BEYOND THE GUARANTEE PERIOD SHALL BE TURNED OVER TO THE OWNER.
19. FLEXIBLE DUCTWORK IS NOT TO BE USED ON THIS PROJECT.
20. THE NEW HVAC EQUIPMENT SHALL BE CONNECTED TO THE EXISTING HOSPITAL'S ALBIREO BMS. PROVIDE NEW CONTROL PANEL. (CONTROLS VENDOR CONTACT INFORMATION: MARK KESTLER, MKESTLER@ALBIREOENERGY.COM)
21. COORDINATE ALL REQUIRED HVAC BUILDING SHUTDOWNS WITH HOSPITAL MANAGEMENT IN ADVANCE.
22. NO ACOUSTICAL LINING SHALL BE INSTALLED ON THIS PROJECT.
23. THIS CONTRACTOR IS RESPONSIBLE FOR STEAM DELEGATED DESIGN. REFER TO NOTES ON THE FLOOR PLANS, SPECIFICATIONS, AND FLOW DIAGRAM.
24. THE NEW ULTRASUITE CLEAN CEILING SYSTEM SHALL BE PROVIDED BY CM AND INSTALLED BY MECHANICAL CONTRACTOR. THE SYSTEMS SHALL BE EQUIPPED WITH LAMINAR FLOW DIFFUSERS, HEPA FILTERS, LIGHTING, ETC. REFER TO THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

HVAC CODE COMPLIANCE
2022 NEW YORK CITY BUILDING CODE
2022 NEW YORK CITY MECHANICAL CODE
2020 NYC ENERGY CONSERVATION CODE
ASHRAE 90.1, 2016 EDITION, ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS
ASHRAE 62.1, 2016 EDITION, VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY
NFPA 90A, 2018 EDITION, STANDARD FOR THE INSTALLATION OF AIR CONDITIONING & VENTILATION SYSTEMS
NFPA 101, 2018 EDITION, LIFE SAFETY CODE
FGI 2018, GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS

TR-1 SPECIAL INSPECTION ITEMS	
•	MECHANICAL SYSTEMS (BC 1704.16)
•	FIRE-RESISTANT PENETRATIONS AND JOINTS (BC 1704.27)
•	POST-INSTALLED ANCHORS (BB# 2014-018, 2014-019) (BC1704.32)
•	ENERGY CODE COMPLIANCE INSPECTIONS (TR-8) (BC 110.3.5)
•	FINAL INSPECTIONS (28-116.2.4.2) (BC 110.5) (DIRECTIVE 14 OF 1975, & 1 RCNY 101-10)

SPECIAL INSPECTIONS NOTE	
<p>POST INSTALLED ANCHOR INSPECTION TO BE PERFORMED DURING ACTUAL INSTALLATION. IF NOT PERFORMED DURING THE INSTALLATION, THE INSTALLING CONTRACTOR IS RESPONSIBLE (ON HIS OWN EXPENSE) TO ENGAGE THE LICENSED STRUCTURAL ENGINEER WHO WILL ESTABLISH THE TEST LOAD CRITERIA. THE SPECIAL INSPECTOR IS TO ESTABLISH THE AMOUNT OF TEST POINTS. THE SPECIAL INSPECTOR IS TO BE PRESENT ON THE SITE DURING TESTING AND SIGN-OFF IF SATISFIED.</p>	

TR-8 PROGRESS INSPECTION ITEMS	
•	HVAC AND SERVICE WATER HEATING CONTROLS (IB4), (IB4)
•	HVAC INSULATION AND SEALING (IB5), (IB5)
•	DUCT LEAKAGE TESTING (IB6), (IB6)

	DRAWING NO.	DRAWING TITLE
1	M-001.00	MECHANICAL LEGENDS, NOTES, AND ABBREVIATIONS
2	M-002.00	MECHANICAL SYMBOLS
3	M-101.00	MECHANICAL FIRST FLOOR DUCTWORK DEMOLITION PLAN
4	M-102.00	MECHANICAL FIRST FLOOR PIPING DEMOLITION PLAN
5	M-201.00	MECHANICAL FIRST FLOOR – OVERALL NEW WORK PART PLAN
6	M-202.00	MECHANICAL FIRST FLOOR – PHASE 1 NEW WORK PART PLAN
7	M-203.00	MECHANICAL FIRST FLOOR – PHASE 2 NEW WORK PART PLAN
8	M-204.00	MECHANICAL FIRST FLOOR – PHASE 3 NEW WORK PART PLAN
9	M-205.00	MECHANICAL 2ND AND 3RD FLOOR NEW WORK PART PLANS
10	M-206.00	MECHANICAL ROOF NEW WORK PLAN
11	M-301.00	MECHANICAL SUB-BASEMENT AND BASEMENT PIPING NEW WORK PART PLANS
12	M-302.00	MECHANICAL FIRST FLOOR NEW WORK PIPING PLAN
13	M-401.00	MECHANICAL PRE-PURCHASE AHU SKETCH AND SCHEDULE
14	M-402.00	MECHANICAL SCHEDULES (1 OF 2)
15	M-403.00	MECHANICAL SCHEDULES (2 OF 2)
16	M-501.00	MECHANICAL DETAILS (1 OF 8)
17	M-502.00	MECHANICAL DETAILS (2 OF 8)
18	M-503.00	MECHANICAL DETAILS (3 OF 8)
19	M-504.00	MECHANICAL DETAILS (4 OF 8)
20	M-505.00	MECHANICAL DETAILS (5 OF 8)
21	M-506.00	MECHANICAL DETAILS (6 OF 8)
22	M-507.00	MECHANICAL DETAILS (7 OF 8)
23	M-508.00	MECHANICAL DETAILS (8 OF 8)
24	M-601.00	MECHANICAL RISER DIAGRAMS
25	M-702.00	MECHANICAL FIRST FLOOR – PRESSURIZATION DIAGRAM
26	M-801.00	MECHANICAL CONTROLS (1 OF 2)
27	M-802.00	MECHANICAL CONTROLS (2 OF 2)
28	EN-001.00	ENERGY CODE COMPLIANCE

TOTAL COOLING CAPACITY: 755,700 BTU

TOTAL HEATING CAPACITY: 684,900 BTU

PHASING NOTE:  
THIS PROJECT WILL BE CONSTRUCTED IN 3  
PHASES. REFER TO THE ARCHITECTURAL  
PHASING PLAN FOR MORE INFORMATION.

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

**SCHUNKIEWITZ**

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# Lilker

3	05/23/2023	Issued for 100% CD's
2	04/28/2023	Issued for 50% CD's
1	03/31/2023	DD Review Set
no.	date	description

RICHMOND UNIVERSITY  
MEDICAL CENTER

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

MECHANICAL LEGENDS  
NOTES AND  
ABBREVIATIONS

Drawn By: <b>SPK</b>	Date: <b>05/23/2023</b>
Checked By: <b>JM</b>	Scale: <b>AS NOTED</b>

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CONSTRUCTION DOCUMENTS

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- ① CONTRACTOR IS TO DEMOLISH EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED APPURTENANCES INCLUDING DUCTWORK, PIPING, CONTROLS, SUPPORTS, ETC.
- ② EXISTING OUTSIDE AIR INTAKE LOUVER IS TO BE DEMOLISHED. EXTERIOR WALL IS TO BE PATCHED AND INSULATED. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ③ CONTRACTOR IS DEMOLISH THE HOT WATER REHEAT COILS, DUCT MOUNTED FILTERS, AND CEILING MOUNTED HUMIDIFIER AND DUCT MOUNTED DISPERSION TUBES ASSOCIATED WITH THE EXISTING CATH LAB DUCTWORK.
- ④ THE DUCTWORK ASSOCIATED WITH THE CATH LAB TO BE DEMOLISHED IN PHASE 1.
- ⑤ CONTRACTOR IS TO DEMOLISH THE EXISTING WALL HUNG SPLIT AIR CONDITIONING UNIT IN THE EXISTING EP LAB EQUIPMENT ROOM. CONTRACTOR IS TO DEMOLISH ALL ASSOCIATED APPURTENANCES INCLUDING PIPING, SUPPORTS, CONTROLS, ETC. CONTRACTOR IS TO TRACE THE REFRIGERANT PIPES AND CONFIRM THE LOCATION OF THE ASSOCIATED CONDENSING UNIT. IF THE CONDENSING UNIT ONLY SERVES THIS ACU THEN IT IS TO BE DEMOLISHED.
- ⑥ CONTRACTOR IS TO PROTECT THE EXISTING FLOOR MOUNTED SPLIT AIR CONDITIONING UNIT IN THE CATH LAB EQUIPMENT ROOM DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR IS TO PROTECT ALL ASSOCIATED APPURTENANCES INCLUDING PIPING, SUPPORTS, CONTROLS, ETC.
- ⑦ CONTRACTOR IS TO PROTECT THE EXISTING AIR HANDLING UNIT IN THE SPELLMAN BUILDING DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR IS TO PROTECT ALL ASSOCIATED APPURTENANCES INCLUDING PIPING, SUPPORTS, CONTROLS, ETC.
- ⑧ DUCTWORK NOTED IS EXISTING TO REMAIN AND IS TO BE PROTECTED DURING CONSTRUCTION. DUCTS ARE TO BE CAPPED AIRTIGHT TO MINIMIZE THE DUST AND DEBRIS ENTERING THE DUCTS.
- ⑨ DISCONNECT DUCTWORK AS NOTED AND CAP MAIN AIRTIGHT.
- ⑩ DEMOLISH DUCTWORK BACK TO MAIN OR TAKE-OFF OUTSIDE OF OUR SCOPE OF WORK AND CAP AIRTIGHT.
- ⑪ EXISTING EXHAUST LOUVER IS TO BE DEMOLISHED. EXTERIOR WALL IS TO BE PATCHED AND INSULATED. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ⑫ AS AN ADD ALTERNATE: CONTRACTOR IS TO DEMOLISH THE EXISTING CORRIDOR SUPPLY AIR DIFFUSER IF CONTRACTOR REPLACED CORRIDOR CEILING.

- ① PERFORM TRAVERSE AIR FLOW READINGS AND STATIC PRESSURE READINGS. BALANCER TO PROVIDE DUCT SIZE, CFM, PRESSURE, AND VELOCITY AT LOCATION. THE LOCATION OF READINGS SHALL BE COORDINATED WITH FACILITIES PRIOR TO TAKING OF READINGS. IF TAKING A TRAVERSE READING WHERE INDICATED IS NOT FEASIBLE, THE BALANCER SHALL TAKE THE READING TO THE NEAREST AVAILABLE LOCATION BEFORE ANY BRANCH-OFFS.
- ② PERFORM AIR FLOW READINGS AT NOTED AIR DEVICES. THE LOCATION OF READINGS SHALL BE COORDINATED WITH FACILITIES PRIOR TO THE TAKING OF THE READINGS. PROVIDE PRESSURE DROP AT EACH AIR DEVICE.
- ③ PROFILE THE EXISTING AHU, PROVIDE SA, RA, OA1, AND SPILL AIRFLOWS, AIR TEMPERATURE, AND DUCT SIZES. PROVIDE STATIC PRESSURE DROP THRU EACH SECTION OF THE UNIT. PROVIDE INFORMATION ON COOLING AND HEATING COILS AND POSITION OF THE M.D.'S. PROVIDE TOTAL AND EXTERNAL STATIC PRESSURE ON THE UNIT. EVALUATE THE CONDITION OF THE UNIT AND THE COMPONENTS FOR LIFE EXPECTANCY AND OPERATION. PROVIDE FAN AMPS AND HZ. IDENTIFY FILTER EFFICIENCY OR PROVIDE MERV RATING. PROVIDE FAN CURVES ON FANS.

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# MECHANICAL FIRST FLOOR DUCTWORK DEMOLITION PLAN

Drawn By: <b>SPK</b>	Date: <b>05/23/2023</b>
Checked By: <b>JM</b>	Scale: <b>AS NOTED</b>

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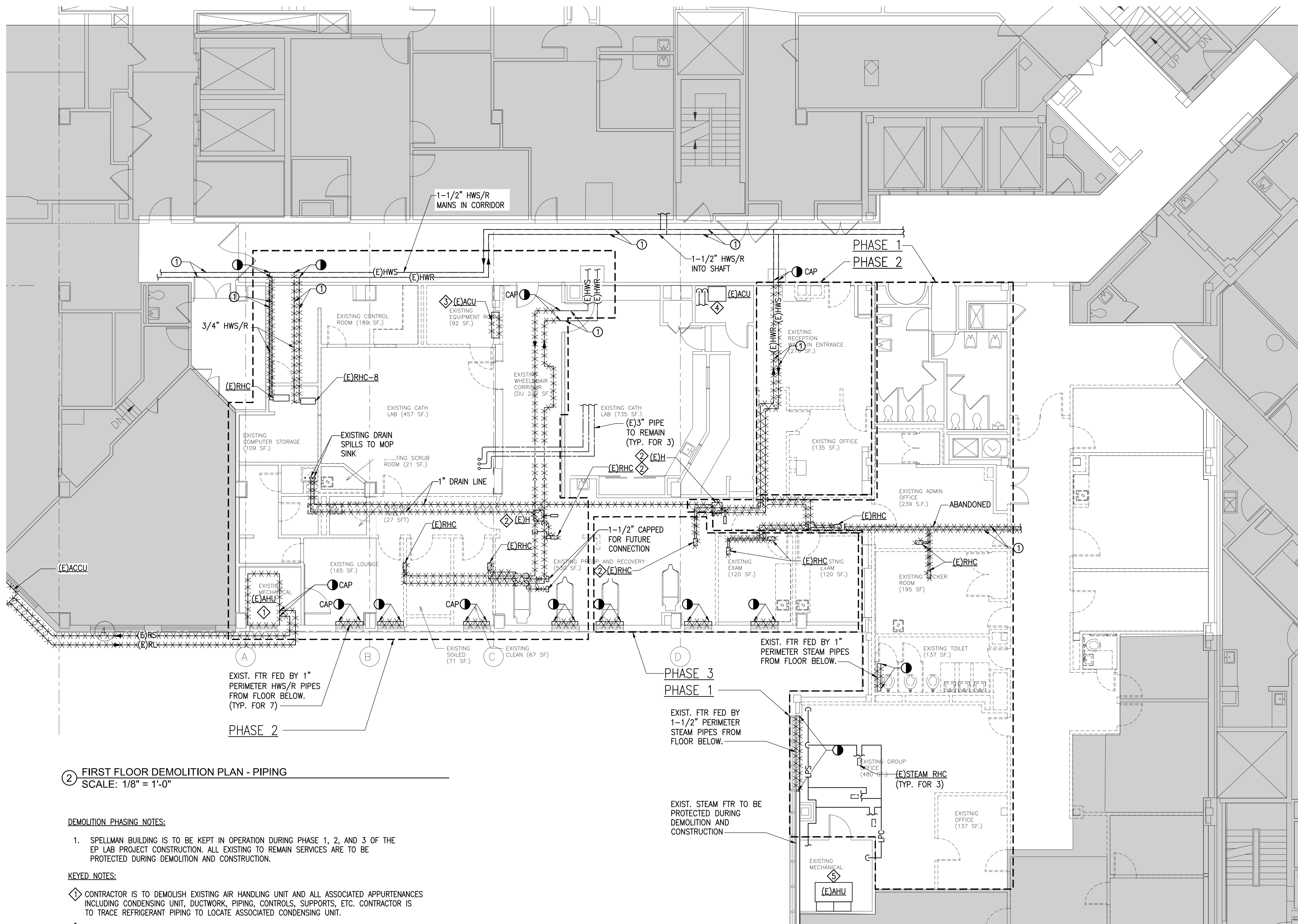
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DEMOLITION PHASING NOTES:

1. SPELLMAN BUILDING IS TO BE KEPT IN OPERATION DURING PHASE 1, 2, AND 3 OF THE EP LAB PROJECT CONSTRUCTION. ALL EXISTING TO REMAIN SERVICES ARE TO BE PROTECTED DURING DEMOLITION AND CONSTRUCTION.

KEYED NOTES:

- ① CONTRACTOR IS TO DEMOLISH EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED APPURTENANCES INCLUDING CONDENSING UNIT, DUCTWORK, PIPING, CONTROLS, SUPPORTS, ETC. CONTRACTOR IS TO TRACE REFRIGERANT PIPING TO LOCATE ASSOCIATED CONDENSING UNIT.
- ② CONTRACTOR IS DEMOLISH THE HOT WATER REHEAT COILS, CEILING MOUNTED ELECTRIC STEAM GENERATOR, STEAM PIPING AND DRAIN PIPING, ASSOCIATED DUCT MOUNTED DISPERSION TUBES, AND DUCT MOUNTED HEPA FILTERS ASSOCIATED WITH THE EXISTING CATH LAB DUCTWORK.
- ③ CONTRACTOR IS TO DEMOLISH THE EXISTING WALL HUNG SPLIT AIR CONDITIONING UNIT IN THE EXISTING EP LAB EQUIPMENT ROOM. CONTRACTOR IS TO DEMOLISH ALL ASSOCIATED APPURTENANCES INCLUDING PIPING, SUPPORTS, CONTROLS, ETC. CONTRACTOR IS TO TRACE THE REFRIGERANT PIPES AND CONFIRM THE LOCATION OF THE ASSOCIATED CONDENSING UNIT. IF THE CONDENSING UNIT ONLY SERVES THIS ACU THEN IT IS TO BE DEMOLISHED.
- ④ CONTRACTOR IS TO PROTECT THE EXISTING FLOOR MOUNTED SPLIT AIR CONDITIONING UNIT IN THE CATH LAB EQUIPMENT ROOM DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR IS TO PROTECT ALL ASSOCIATED APPURTENANCES INCLUDING PIPING, SUPPORTS, CONTROLS, ETC.
- ⑤ CONTRACTOR IS TO PROTECT THE EXISTING AIR HANDLING UNIT IN THE SPELLMAN BUILDING MER DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR IS TO PROTECT ALL ASSOCIATED APPURTENANCES INCLUDING PIPING, SUPPORTS, CONTROLS, ETC.

PRE-CONSTRUCTION AIR READINGS KEYED NOTES:

- ① PROVIDE ULTRASONIC FLOW READINGS ON HWS & HWR. PROVIDE PIPE SIZE, GPM, PRESSURE DROP, WATER TEMPERATURES. VALVES SHALL BE FULL OPEN.

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RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name &amp; Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

Drawing Title:  
MECHANICAL FIRST  
FLOOR PIPING  
DEMOLITION PLAN

Drawn By: <b>SPK</b>	Date: <b>05/23/2023</b>
Checked By: <b>JM</b>	Scale: <b>AS NOTED</b>

Issued To, For:

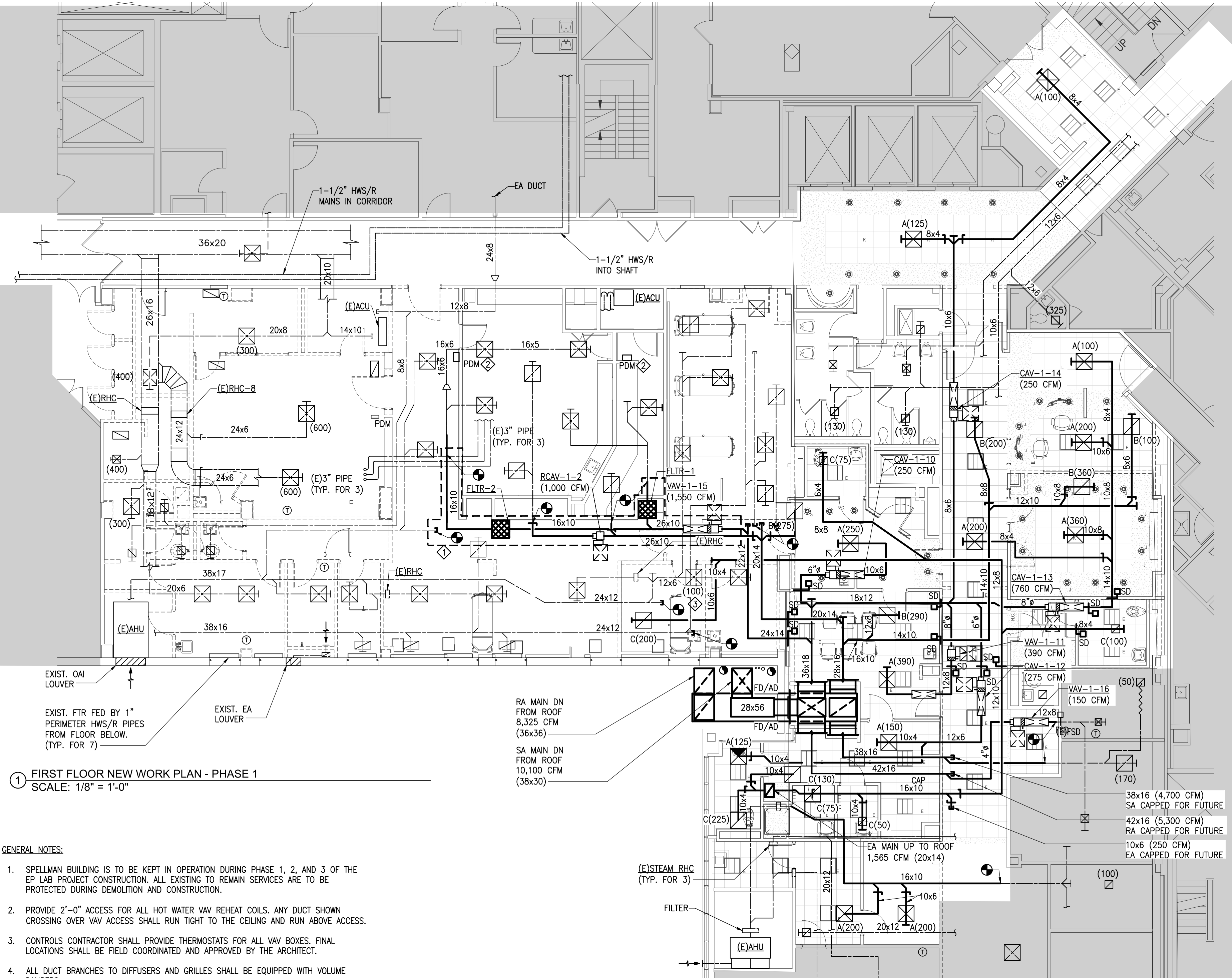
CONSTRUCTION DOCUMENTS

File No.: R2000

Drawing No.:  
M-102.00







① FIRST FLOOR NEW WORK PLAN - PHASE 1  
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. SPELLMAN BUILDING IS TO BE KEPT IN OPERATION DURING PHASE 1, 2, AND 3 OF THE EP LAB PROJECT CONSTRUCTION. ALL EXISTING TO REMAIN SERVICES ARE TO BE PROTECTED DURING DEMOLITION AND CONSTRUCTION.
2. PROVIDE 2'-0" ACCESS FOR ALL HOT WATER VAV REHEAT COILS. ANY DUCT SHOWN CROSSING OVER VAV ACCESS SHALL RUN TIGHT TO THE CEILING AND RUN ABOVE ACCESS.
3. CONTROLS CONTRACTOR SHALL PROVIDE THERMOSTATS FOR ALL VAV BOXES. FINAL LOCATIONS SHALL BE FIELD COORDINATED AND APPROVED BY THE ARCHITECT.
4. ALL DUCT BRANCHES TO DIFFUSERS AND GRILLES SHALL BE EQUIPPED WITH VOLUME DAMPERS

KEYED NOTES:

- ① ALL WORK NOTED IS TO BE PERFORMED AFTER HOURS AND ON OVER-TIME.
- ② CONTRACTOR TO INSTALL NEW PRESSURE DIFFERENTIAL MONITOR IN EXISTING CATH LAB.
- ③ CONTRACTOR TO BALANCE EXISTING SUPPLY DIFFUSER TO 100 CFM.

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Client Name:

RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

MECHANICAL FIRST  
FLOOR - PHASE 1  
NEW WORK PART PLAN

Drawn By:

SPK

05/23/2023

Checked By:

JM

AS NOTED

Issued To, For:

CONSTRUCTION DOCUMENTS

File No.: R2000

Drawing No.:

M-202.00

06 OF 28



1 FIRST FLOOR NEW WORK PLAN - PHASE 2  
SCALE: 1/8" = 1'-0"

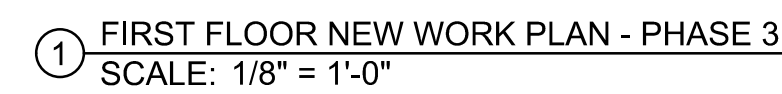
GENERAL NOTES:

- SPELLMAN BUILDING IS TO BE KEPT IN OPERATION DURING PHASE 1, 2, AND 3 OF THE EP LAB PROJECT CONSTRUCTION. ALL EXISTING TO REMAIN SERVICES ARE TO BE PROTECTED DURING DEMOLITION AND CONSTRUCTION.
- PROVIDE 2'-0" ACCESS FOR ALL HOT WATER VAV REHEAT COILS. ANY DUCT SHOWN CROSSING OVER VAV ACCESS SHALL RUN TIGHT TO THE CEILING AND RUN ABOVE ACCESS.
- CONTROLS CONTRACTOR SHALL PROVIDE THERMOSTATS FOR ALL VAV BOXES. FINAL LOCATIONS SHALL BE FIELD COORDINATED AND APPROVED BY THE ARCHITECT.
- ALL DUCT BRANCHES TO DIFFUSERS AND GRILLES SHALL BE EQUIPPED WITH VOLUME DAMPERS

KEYED NOTES:

- FURNISH AND INSTALL LOW RETURN, 925 CFM. INSTALL 16x12 RETURN AIR DUCT IN NEW DUCT CHASE DOWN TO LOW RETURN. PROVIDE 12x20 GRILLE AT 18" AFF
- MECHANICAL CONTRACTOR IS TO PROVIDE DUCTWORK TO CONNECT THIRD DIFFUSER. REFER TO SEPARATE ULTRASUITE PACKAGE FROM PRICE FOR ADDITIONAL INFORMATION.
- THE NEW CLEAN CEILING SYSTEM SHALL BE PROVIDED BY CM AND INSTALLED BY THIS CONTRACTOR. THE SYSTEM SHALL BE EQUIPPED WITH LAMINAR FLOW DIFFUSERS, HEPA FILTERS, LIGHTING, ETC. REFER TO THE ARCHITECTURAL DRAWINGS FOR DETAILS.

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GENERAL NOTES:

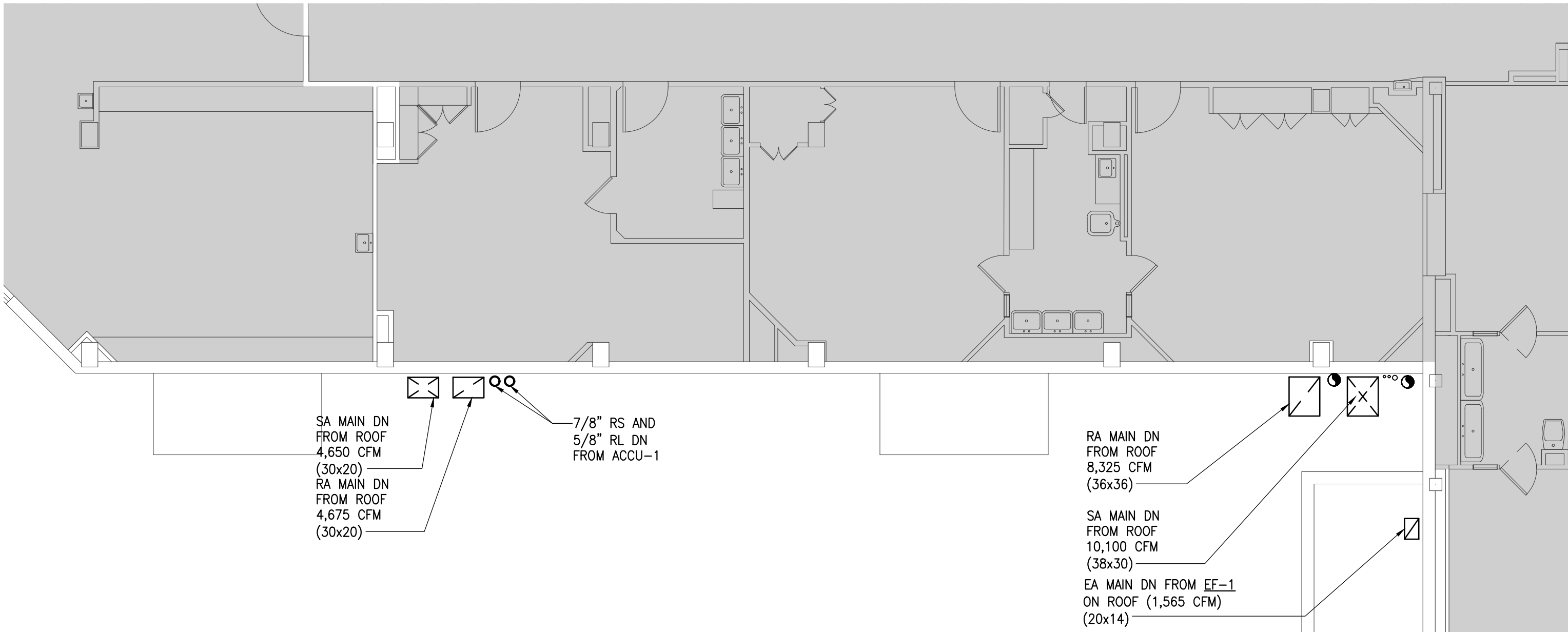
1. SPELLMAN BUILDING IS TO BE KEPT IN OPERATION DURING PHASE 1, 2, AND 3 OF THE EP LAB PROJECT CONSTRUCTION, ALL EXISTING TO REMAIN SERVICES ARE TO BE PROTECTED DURING DEMOLITION AND CONSTRUCTION.
2. PROVIDE 2'-0" ACCESS FOR ALL HOT WATER VA REHEAT COILS. ANY DUCT SHOWN CROSSING OVER VA ACCESS SHALL RUN TIGHT TO THE CEILING AND RUN ABOVE ACCESS.
3. CONTROLS CONTRACTOR SHALL PROVIDE THERMOSTATS FOR ALL VA BOXES. FINAL LOCATIONS SHALL BE FIELD COORDINATED AND APPROVED BY THE ARCHITECT.
4. ALL DUCT BRANCHES TO DIFFUSERS AND GRILLES SHALL BE EQUIPPED WITH VOLUME DAMPERS

KEYED NOTES:

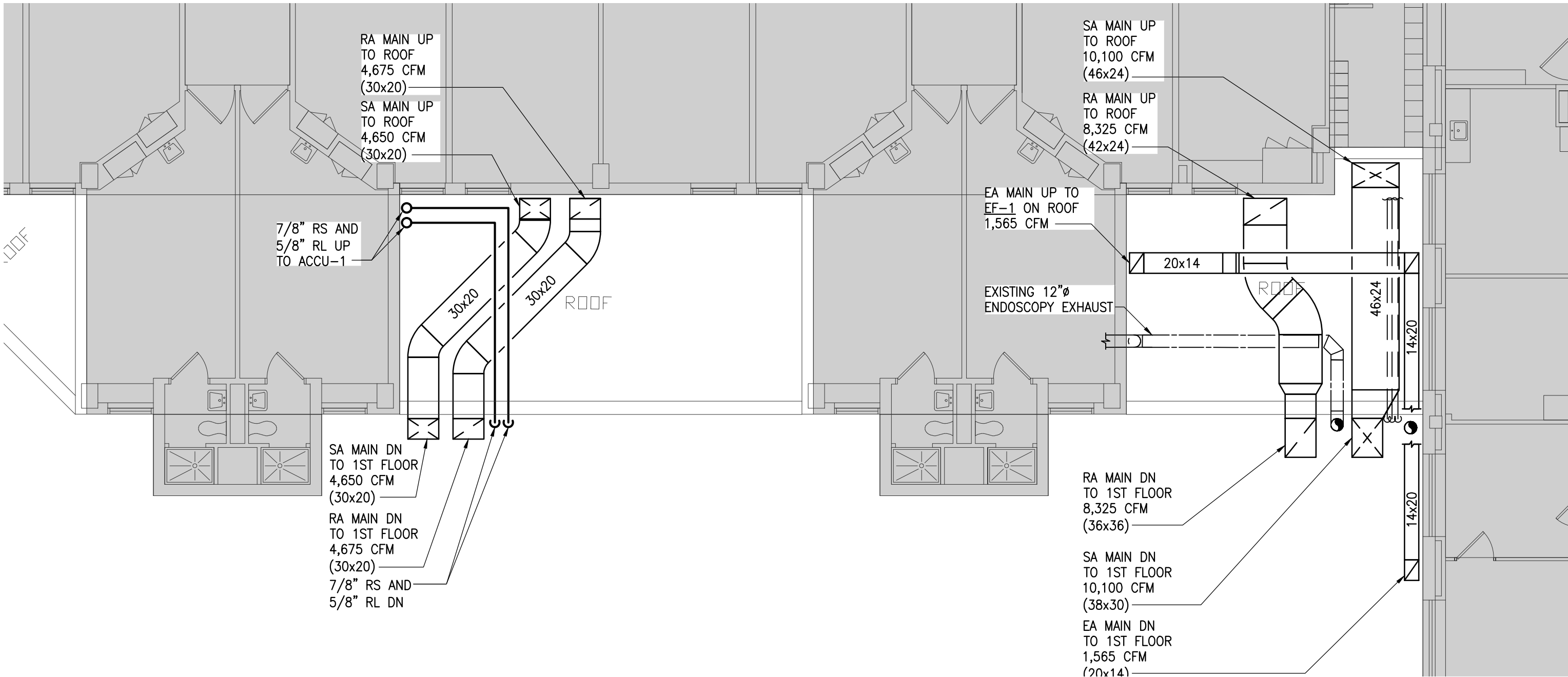
- ① REBALANCE EXISTING AIR HANDLING UNIT AFTER PRE-CONSTRUCTION READINGS AND DEMOLITION ARE COMPLETE.
- ② REBALANCE BRANCH TO AIRFLOW MEASURED DURING THE PRE-CONSTRUCTION READINGS.
- ③ FURNISH AND INSTALL LOW RETURN, 925 CFM. INSTALL 16x12 RETURN AIR DUCT IN NEW DUCT CHASE DOWN TO LOW RETURN. PROVIDE 12x20 GRILLE AT 18" AFF
- ④ MECHANICAL CONTRACTOR IS TO PROVIDE DUCTWORK TO CONNECT THIRD DIFFUSER. REFER TO SEPARATE ULTRASUITE PACKAGE FROM PRICE FOR ADDITIONAL INFORMATION.
- ⑤ THE NEW CLEAN CEILING SYSTEM SHALL BE PROVIDED BY CM AND INSTALLED BY THIS CONTRACTOR. THE SYSTEM SHALL BE EQUIPPED WITH LAMINAR FLOW DIFFUSERS, HEPA FILTERS, LIGHTING, ETC. REFER TO THE ARCHITECTURAL DRAWINGS FOR DETAILS.
- ⑥ CONTRACTOR TO INSTALL NEW ROUTED 16x10 SUPPLY AIR DUCT AND RECONNECT TO EXISTING SYSTEM AS NOTED.
- ⑦ AS AN ADD ALTERNATE: CONTRACTOR IS TO DEMOLISH THE EXISTING CORRIDOR SUPPLY AIR DIFFUSER IF CONTRACTOR REPLACED CORRIDOR CEILING.

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① SECOND FLOOR NEW WORK PLAN  
SCALE: 1/8" = 1'-0"



① THIRD FLOOR NEW WORK PLAN  
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. ALL NEW DUCTWORK AND PIPE ASSOCIATED WITH NEW AHU-1 TO BE INSTALLED 24" ABOVE FINISHED ROOF SO THAT ROOF IS STILL ACCESSIBLE FOR PATCHING AND MAINTENANCE.
2. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NEW YORK CITY BUILDING CODES AND BUILDING RULES AND REGULATIONS.
3. REFER TO MECHANICAL SPECIFICATIONS, SCHEDULES AND DETAILS. PROVIDE PIPING SHOP DRAWINGS FOR REVIEW PRIOR TO STARTING WORK.
4. PROVIDE DIELECTRIC FITTINGS BETWEEN PIPING CONNECTIONS OF DISSIMILAR METALS.
5. PIPING ROUTED ABOVE ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH DRIP SHIELDS.
6. INSTALL, SUPPORT, PRESSURE TEST, INSULATE ALL PIPING IN ACCORDANCE WITH MECHANICAL SPECIFICATIONS.
7. SEE PIPING CONNECTION DETAILS FOR CONNECTION REQUIREMENTS TO ALL EQUIPMENT.

SCHUNKEWITZ

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no.	date	description

Client Name:

RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

MECHANICAL 2ND AND 3RD  
FLOOR  
NEW WORK PART PLANS

Drawn By:	Date:
SPK	05/23/2023
Checked By:	Scale:
JM	

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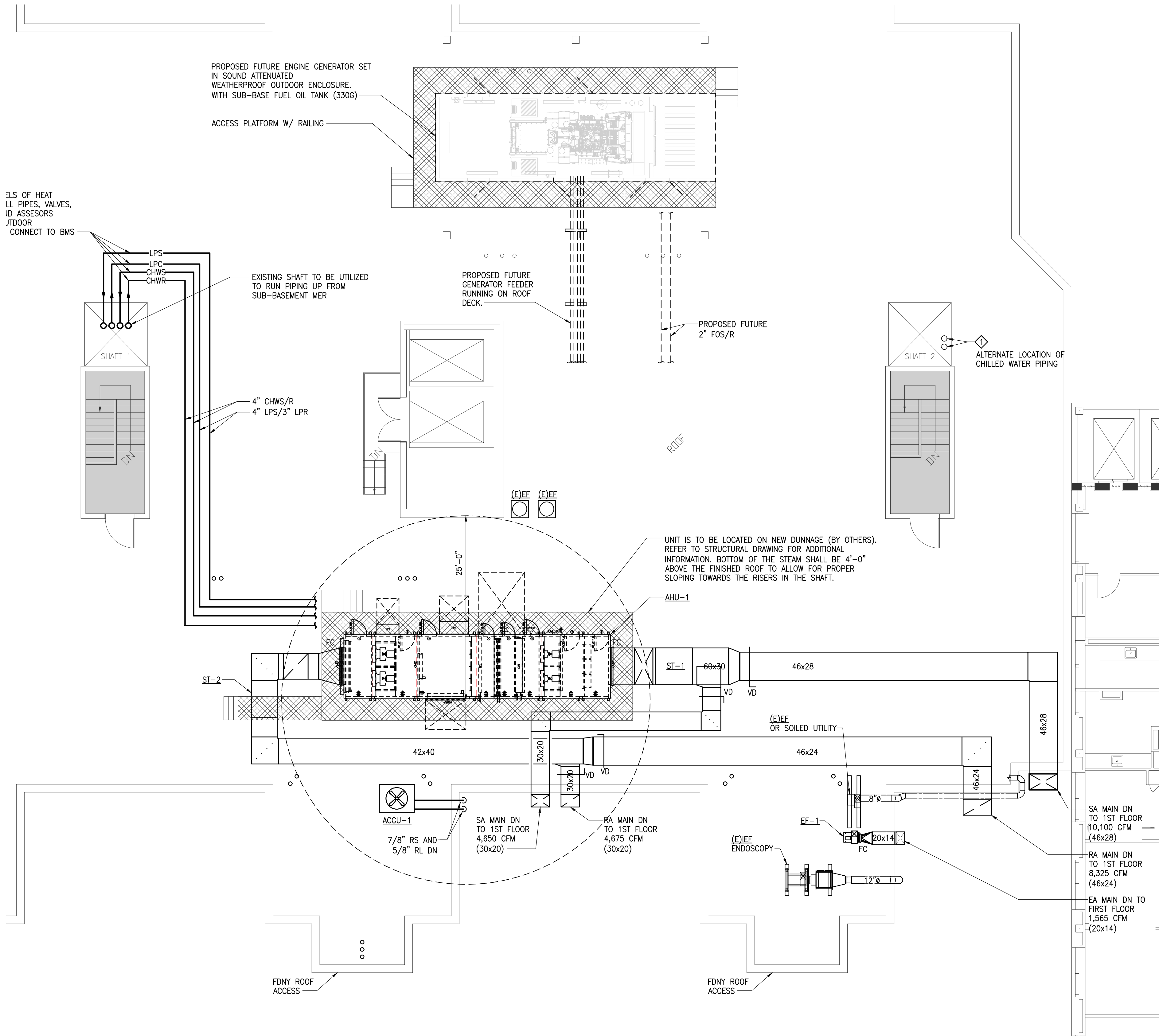
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GENERAL NOTES:

- CONTRACTOR TO RELOCATE ALL EXHAUST VENTS WITHIN A 25'-0" RADIUS FROM THE NEW AIR HANDLING UNIT'S OUTSIDE AIR INTAKE. REFER TO PLUMBING DRAWINGS FOR FULL SCOPE.
- ALL NEW DUCTWORK AND PIPE ASSOCIATED WITH NEW AHU-1 TO BE INSTALLED A MINIMUM OF 24" ABOVE FINISHED ROOF SO THAT ROOF IS STILL ACCESSIBLE FOR PATCHING AND MAINTENANCE.
- PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NEW YORK CITY BUILDING CODES AND BUILDING RULES AND REGULATIONS.
- REFER TO MECHANICAL SPECIFICATIONS, SCHEDULES AND DETAILS. PROVIDE PIPING SHOP DRAWINGS FOR REVIEW PRIOR TO STARTING WORK.
- PROVIDE DIELECTRIC FITTINGS BETWEEN PIPING CONNECTIONS OF DISSIMILAR METALS.
- PIPING ROUTED ABOVE ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH DRIP SHIELDS.
- INSTALL, SUPPORT, PRESSURE TEST, INSULATE ALL PIPING IN ACCORDANCE WITH MECHANICAL SPECIFICATIONS.
- SEE PIPING CONNECTION DETAILS FOR CONNECTION REQUIREMENTS TO ALL EQUIPMENT.
- PROVIDE EXPANSION LOOPS FOR ALL STRAIGHT PIPING RUNS GREATER THAN 50' IN LENGTH.
- STEAM DESIGN AND INSTALLATION IS BY THIS CONTRACTOR. DELEGATED DESIGN IS RESPONSIBILITY OF THIS CONTRACTOR. CONTRACTOR IS TO ENGAGE LICENSED ENGINEER, WHO WILL PROVIDE DESIGN, SUPPORT, EXPANSION JOINTS LOCATIONS, SPECIFICATIONS, CONDENSATE PIPING LAYOUT, LOCATION OF THE TRAPS, ETC. THE DESIGN IS TO BE SIGNED AND SEALED.

KEYED NOTES:

- ◆ CONTRACTOR TO CONFIRM IF EXISTING UN-USED PIPES LOCATED IN SHAFT #2 ARE 4" INTERNAL DIAMETER. IF EXISTING PIPES ARE 4" IN DIAMETER THE CONTRACTOR IS TO USE THEM FOR CHWS/R TO AHU-1 FROM SUB-BASEMENT TO ROOF INSTEAD OF INSTALLING NEW CHWS/R PIPES IN SHAFT #1. PROVIDE DEDUCT PRICE IF ABLE TO USE EXISTING PIPES INSTALLED IN SHAFT #2.

① ROOF FLOOR NEW WORK PLAN - OPTION 1  
SCALE: 1/8" = 1'-0"

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Client Name:

**RICHMOND UNIVERSITY  
MEDICAL CENTER**

Project Name & Location:

**BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY**

Drawing Title:

**MECHANICAL ROOF  
NEW WORK PLAN**

Drawn By:	Date:
SPK	05/23/2023
Checked By:	Scale:
JM	

Issued To: For:  
**CONSTRUCTION DOCUMENTS**

File No.: R2000

Drawing No.:

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Consultants:

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10. *Journal of the American Medical Association*, 2000; 283: 2689-2694.



1. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NEW YORK CITY BUILDING CODES AND BUILDING RULES AND REGULATIONS.
2. REFER TO MECHANICAL SPECIFICATIONS, SCHEDULES AND DETAILS. PROVIDE PIPING SHOP DRAWINGS FOR REVIEW PRIOR TO STARTING WORK AND IDENTIFY ELEVATIONS, SLOPES, LOCATION OF EXPANSION JOINTS, DRIP LEGS, TRAPS, SUPPORT, ETC.
3. PROVIDE DIELECTRIC FITTINGS BETWEEN PIPING CONNECTIONS OF DISSIMILAR METALS.
4. PIPING ROUTED ABOVE ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH DRIP SHIELDS.
5. INSTALL, SOUTPORT, PRESSURE TEST, INSULATE ALL PIPING IN ACCORDANCE WITH MECHANICAL SPECIFICATIONS.
6. SEE PIPING CONNECTION DETAILS FOR CONNECTION REQUIREMENTS TO ALL EQUIPMENT.
7. PROVIDE EXPANSION LOOPS FOR ALL STRAIGHT PIPING RUNS GREATER THAN 50' IN LENGTH.
8. STEAM DESIGN AND INSTALLATION IS BY THIS CONTRACTOR. DELEGATED DESIGN IS RESPONSIBILITY OF THIS CONTRACTOR. CONTRACTOR IS TO ENGAGE LICENSED ENGINEER WHO WILL PROVIDE DESIGN FOR SUPPORT, EXPANSION JOINTS LOCATIONS, SPECIFICATIONS, CONDENSATE PIPING LAYOUT, LOCATION OF THE TRAPS, ETC. THE DESIGN IS TO BE SIGNED AND SEALED.



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1	03/31/2023	DD Review Set
no.	date	description

Client Name:

RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name &amp; Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

MECHANICAL  
SUB-BASEMENT AND BASEMENT  
PIPING NEW WORK PART PLANS

Drawn By: <b>SPK</b>	Date: <b>05/23/2023</b>
Checked By: <b>JM</b>	Scale:

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File No.: R2000

Drawing No.:

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Client Name:

**RICHMOND UNIVERSITY  
MEDICAL CENTER**

Project Name & Location:

**BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY**

Drawing Title:

**MECHANICAL  
FIRST FLOOR NEW WORK  
PIPING PLANS**

Drawn By:	Date:
SPK	05/23/2023
Checked By:	Scale:
JM	

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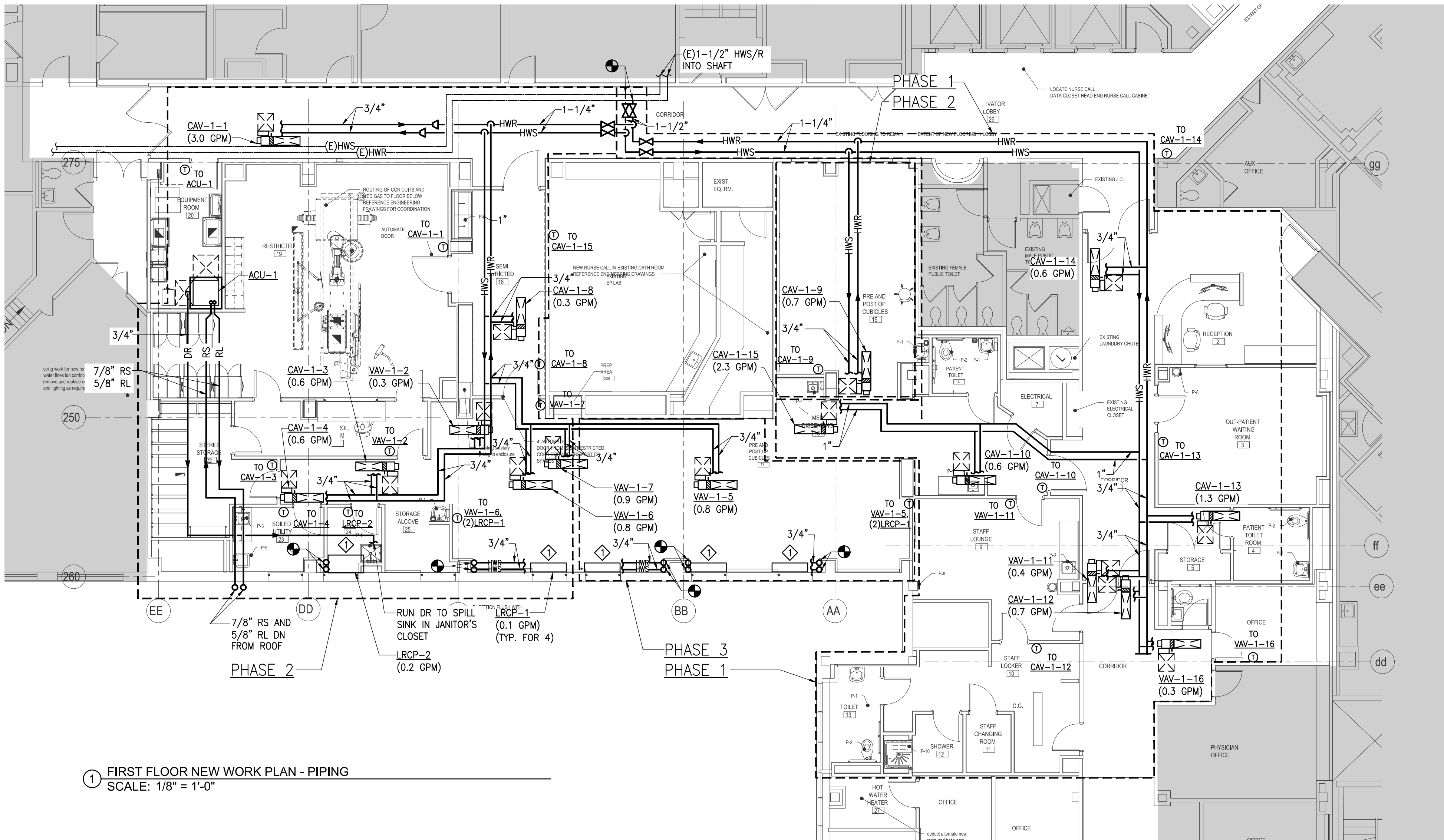
**CONSTRUCTION DOCUMENTS**

File No.: R2000

Drawing No.:

**M-302.00**

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① FIRST FLOOR NEW WORK PLAN - PIPING  
SCALE: 1/8" = 1'-0"

KEYED NOTES:

- ① CONTRACTOR IS TO CONNECT NEW RADIANT CEILING PANELS WITH 3/4" PIPING TO THE EXISTING PERIMETER REHEAT SYSTEM FROM BELOW IN COLUMNS OR IN ARCHITECT PROVIDED CHASES

GENERAL NOTES:

1. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NEW YORK CITY BUILDING CODES AND BUILDING RULES AND REGULATIONS.
2. REFER TO MECHANICAL SPECIFICATIONS, SCHEDULES AND DETAILS. PROVIDE PIPING SHOP DRAWINGS FOR REVIEW PRIOR TO STARTING WORK.
3. PROVIDE DIELECTRIC FITTINGS BETWEEN PIPING CONNECTIONS OF DISSIMILAR METALS.
4. PIPING ROUTED ABOVE ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH DRIP SHIELDS.
5. INSTALL, SUPPORT, PRESSURE TEST, INSULATE ALL PIPING IN ACCORDANCE WITH MECHANICAL SPECIFICATIONS.
6. SEE PIPING CONNECTION DETAILS FOR CONNECTION REQUIREMENTS TO ALL EQUIPMENT.
7. PROVIDE EXPANSION LOOPS FOR ALL STRAIGHT PIPING RUNS GREATER THAN 50' IN LENGTH.
8. EACH HWS/R BRANCH IS TO BE PROVIDED WITH SHUT-OFF VALVES.

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OUTDOOR AIR HANDLING UNIT SCHEDULE

BASIS OF DESIGN:TEMTROL

					SUPPLY FAN DATA--DIRECT DRIVE, ODP																RETURN FAN DATA--DIRECT DRIVE, ODP										STEAM HUMIDIFIER						
UNIT No.	LOCATION	SERVICE	MFR	UNIT SIZE	TOTAL CFM	OA CFM	DESIGN					EFF.	FAN QTY.	FAN TYPE	ARRAY	MOTOR DATA					TOTAL CFM	DESIGN				EFF.	FAN QUANTITY	FAN TYPE	ARRAY	MOTOR DATA					AIRFLOW CFM	LBS/HR	
							S.P. (IN H2O) EXT.	TOTAL	RPM	BHP (TOTAL)	BHP (OPERATING)					CONTROL	MHP (EACH/TOTAL)	VOLTS	PHASE	HZ		S.P. (IN H2O) EXT.	TOTAL	RPM	BHP (TOTAL)					BHP (OPERATING)	CONTROL	MHP (EACH/TOTAL)	VOLTS	PHASE			HZ
AHU-1	ROOF	1ST FLOOR SPELLMAN AND SETON BUILDING	TEMTROL	CUSTOM	14,750	3,690	4	6.27	3,056	30	22.5	89.5	4	SUPPLY FAN	2x2	VFD	7.5/30	460	3	60	12,750	2.5	3.36	1,716	15	10.11	91.7	2	RETURN FAN	1x2	VFD	7.5/15	460	3	60	14,750	338.2

OUTDOOR AIR HANDLING UNIT SCHEDULE (CONTINUED)

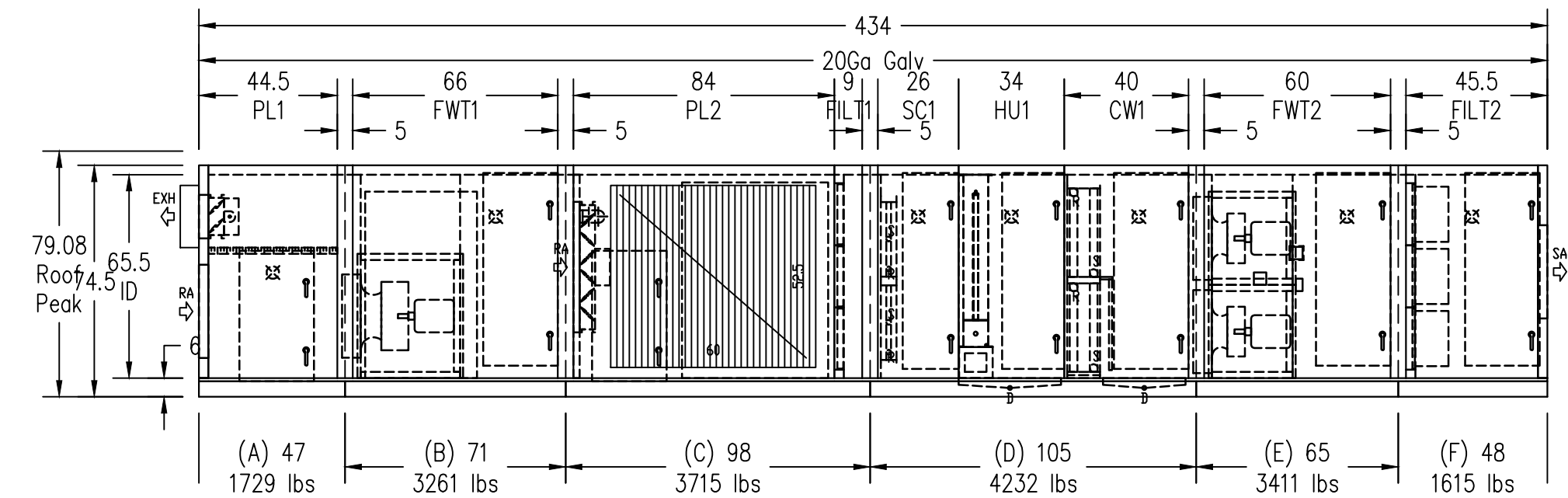
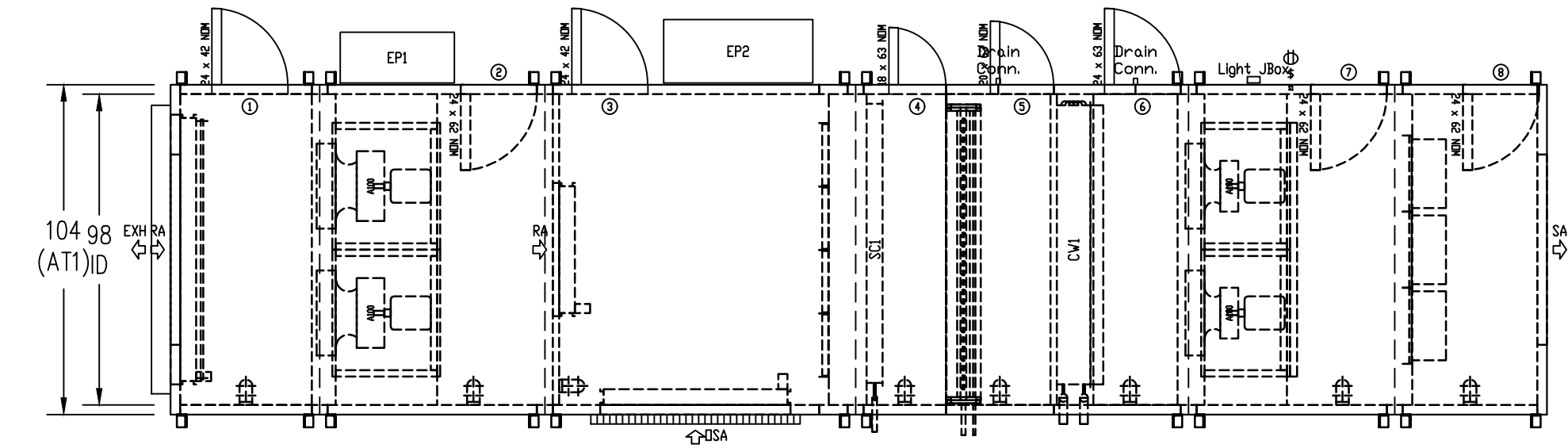
BASIS OF DESIGN:TEMTROL

UNIT No.	CHILLED WATER COOLING COIL																PREHEAT COIL DATA										PREFILTERS/ FILTER					FINAL FILTERS					PHYSICAL DATA		ELECTRICAL DATA													
	CAPACITY, MBH SENS. TOTAL		AIR							FLUID				MIN. ROWS	FINS PER FT	COIL QTY.	MIN. NET FACE AREA (SQ. FT.)	COIL QTY.	CAPACITY MBH	AIR				STEAM		MIN. ROWS	FINS PER FT	MIN. NET FACE AREA (SQ. FT.)	TYPE	% EFF	ARRGT.	FACE AREA SQ. FT.	FACE VELOCITY FPM	P.D. INIT/FINAL (IN. H <sub>2</sub> O)	FACE AREA SQ. FT.	% EFF	FACE VELOCITY FPM	P.D. INIT/FINAL (IN. H <sub>2</sub> O)	ARRGT.	CABINET DIM. (LxWxH)	UNIT WEIGHT LBS.	V/PH/Hz	FLA	MCA	MOP	MODEL						
			P.D. (IN H <sub>2</sub> O)	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	FV FPM	FLOW (GPM)	EWI (°F)	LDI (°F)	VEL (FT/S)	PD (ft.H <sub>2</sub> O)							FV FPM	P.D. (IN. H <sub>2</sub> O)	EAT (°F)	LAT (°F)	ENT. PRESS. (PSIG)	COND.FLOW (LBS/HR)																						DESIGN PRESS. (PSIG)					
																																				PERFECT PLEAT SC	MERV 8	(12)20x20	33.3	442.50	—	30	MERV 16	491.67	—	(9)20x24	434x104x79.08	17,964	460/3/60	55.6	87.2	100.0
AHU-1	471.1	676.4	0.65	81.0	67.0	51.3	51.2	423.45	134.7	45	55	3.93	8.96	6	120	2	34.83	2	684.9	502.84	0.10	56.0	97.7	5	712.7	5	1	72	29.33																							

- NOTES:
- UNIT MANUFACTURER SHALL PROVIDE DISCONNECT SWITCH (PER FAN) & LOCATE IT OUTSIDE OF AIR STREAM WITHIN THE VESTIBULE.
  - UNIT MANUFACTURER SHALL FURNISH AND INSTALL ALL MOTORIZED DAMPERS (OA, SPILL, MIX). BMS CONTRACTOR SHALL PROVIDE DAMPER ACTUATORS AND WIRE ALL DAMPERS.
  - UNITS SHALL BE FACTORY TESTED FOR VIBRATION, NOISE AND LEAKAGE. REPORT SHALL BE PROVIDED TO ENGINEER AND CLIENT PRIOR TO SHIPPING.
  - UNIT MANUFACTURER SHALL SUPERVISE ON SITE ASSEMBLY OF UNIT. UNIT MANUFACTURER REPRESENTATIVE SHALL PERFORM ON-SITE FAN OPERATION, CONTROL AND LEAK TESTING.
  - PROVIDE LIGHT SWITCH RECEPTACLES, MARINE TYPE LIGHT FIXTURE IN EACH SECTION WITH 120/1/60, 20A DEDICATED CIRCUIT.
  - SINGLE POWER POINT OF CONNECTION, TRANSFORMER, UL LISTED.
  - CONTRACTOR TO PROVIDE 120/1/60, 20A CIRCUIT FOR SERVICE OUTLET.
  - BMS CONTRACTOR TO PROVIDE CONTROLLER, VARIABLE FLOW, AIR SIDE ECONOMIZER CYCLE WITH BMS INTEGRATION.
  - BMS CONTRACTOR IS TO PROVIDE PRESSURE SENSOR TO BE INSTALLED ON 2/3 OF SUPPLY DUCT RUN.
  - EACH FAN SHALL BE PROVIDED WITH A PIEZO RING FOR AIRFLOW MEASURING.
  - CONTROL DEVICES (DAMPER, VALVES) SHOULD BE BY BMS MANUFACTURER, FIELD INSTALLED (BACNET CAPABLE).
  - ROOF MOUNTED UNIT AHU-1 SHALL BE INSTALLED ON NEW STRUCTURAL DUNNAGE.
  - PROVIDE STORMPROOF LOUVERS.
  - COOLING COIL SECTION AND ASSOCIATED CONDENSATE PAN TO BE STAINLESS STEEL CONSTRUCTION.
  - CONTRACTOR IS TO PROVIDE TRAP FOR CONDENSATE DRAIN.
  - (G) VFDs PROVIDED BY UNIT MANUFACTURER. VFD ENCLOSURES LOCATED OUTSIDE OF UNIT TO BE IN NEMA 3R WEATHERPROOF OUTDOOR ENCLOSURE.
  - PARALLEL BLADE DAMPERS ARE TO BE PROVIDED FOR THE EXHAUST DAMPER. OPPOSED BLADE DAMPERS ARE TO BE PROVIDED FOR OUTSIDE AIR AND RETURN AIR. VFD SHALL BE PROVIDED WITH BACNET COMMUNICATION CARDS FOR INTEGRATION WITH BUILDING BMS.
  - PROVIDE BACKDRAFT ISOLATION DAMPER FOR EACH FAN MODULE.
  - ALL COIL PULLS AND AIR HANDLER ACCESS DOORS SHALL BE FROM THE FAR SIDE OPPOSITE THE COIL CONNECTIONS. A SIDE PANEL WILL BE REMOVED TO PROVIDE ACCESS TO THE STEAM COIL, CHILLED WATER COIL, AND HUMIDIFIER AS NEEDED WHEN THEY NEED TO BE SERVICED. THE PANEL WILL BE UN-CAULKED AND UNSCREWED TO PROVIDE ACCESS.
  - UNIT SHALL HAVE FIRE ALARM CONTACT.

AHU SECTION DESCRIPTION

MODULE	LENGTH	WEIGHT
RETURN PLENUM - ACCESS SECTION	47"	2786 lbs
RETURN FAN SECTION	71"	4458 lbs
ECONOMIZER AND PRE-FILTER (MERV 8) SECTION	98"	4536 lbs
STEAM COIL, HUMIDIFIER, AND CHILLED WATER COIL SECTION	105"	5797 lbs
SUPPLY FAN SECTION	65"	5101 lbs
FINAL FILTER (MERV 16) AND DISCHARGE SECTION	48"	2661 lbs



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Client Name:

RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

MECHANICAL  
PRE-PURCHASE AHU  
SKETCH AND SCHEDULE

Drawn By:	Date:
SPK	05/23/2023
Checked By:	Scale:
JM	AS NOTED

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File No.: R2000

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VARIABLE AIR VOLUME CONTROL BOX SCHEDULE																							
SYMBOL	SIZE		AIRFLOW (CFM)		SOUND LEVELS		STATIC PRESSURE			HEATING COIL								MANUFACTURER AND MODEL	ATTENUATOR DATA (PRICE)			REMARKS	
							INLET Ps (IN W.G.)	DOWN Ps (IN W.G.)	MIN Ps (IN W.G.)	AIR			WATER			CAP (MBH)	APd						NO. ROWS
	INLET	OUTLET	MAX	MIN	Rad	Dis				CFM	(DEG F)	(DEG F)	(DEG F)	(DEG F)	GPM								
CAV-1-1	14	20x17.5	2150	2150	22	22	1	0.25	0.37	2,150	55	85	180	132	3.0	70	0.33	2	DESV	RM36/4B	20x17.5	36	INTERLOCKED WITH RCAV-1-1
VAV-1-2	6	12x8	350	140	22	24	1	0.25	0.18	140	55	85.2	180	149	0.3	4.6	0.08	1	DESV	RM36/1B	12x8	36	
CAV-1-3	6	12x8	325	325	20	22	1	0.25	0.23	325	55	88	180	141	0.6	11.6	0.14	2	DESV	RM36/1B	12x8	36	
CAV-1-4	8	12x10	250	250	13	27	1	0.25	0.04	250	55	85	180	150	0.6	8.1	0.03	1	DESV	RM36/1B	12x10	36	
VAV-1-5	8	12x10	475	285	19	27	1	0.25	0.09	285	55	85	180	156	0.8	9.3	0.08	1	DESV	RM36/1B	12x10	36	
VAV-1-6	8	12x10	475	285	19	27	1	0.25	0.09	285	55	85	180	156	0.8	9.3	0.08	1	DESV	RM36/1B	12x10	36	
CAV-1-7	8	12x10	600	600	20	27	1	0.25	0.25	600	55	85	180	134	0.9	19.5	0.23	2	DESV	RM36/1B	12x10	36	
CAV-1-8	4	12x8	150	150	22	32	1	0.25	0.06	150	55	85	180	150	0.3	4.9	0.02	1	DESV	RL36/1B	12x8	36	
CAV-1-9	8	12x10	500	500	19	27	1	0.25	0.18	500	55	85	180	131	0.7	16.3	0.17	2	DESV	RM36/1B	12x10	36	
CAV-1-10	8	12x10	250	250	13	27	1	0.25	0.04	250	55	85	180	150	0.6	8.1	0.03	1	DESV	RM36/1B	12x10	36	
VAV-1-11	8	12x10	390	195	18	25	1	0.25	0.07	195	55	85	180	143	0.4	6.4	0.06	1	DESV	RM36/1B	12x10	36	
CAV-1-12	8	12x8	275	275	14	27	1	0.25	0.04	275	55	85	180	154	0.7	9	0.03	1	DESV	RL36/1B	12x8	36	
CAV-1-13	8	12x10	760	760	23	25	1	0.25	0.36	760	55	85	180	140	1.3	24.7	0.34	2	DESV	RM36/1B	12x10	36	
CAV-1-14	8	12x10	250	250	13	27	1	0.25	0.04	250	55	85	180	150	0.6	8.1	0.03	1	DESV	RM36/1B	12x10	36	
CAV-1-15	12	16x15	1,550	1,550	23	27	1	0.25	0.36	1,550	55	85	180	136	2.3	50.5	0.35	2	DESV	RM36/2B	16x15	36	INTERLOCKED WITH RCAV-1-2
VAV-1-16	4	12x8	150	75	22	32	1	0.25	0.06	75	55	85	180	150	0.3	4.9	0.02	1	DESV	RL36/1B	12x8	36	
RCAV-1-1	14	20x17.5	1,850	1,850	25	24	1	0.25	0.04	0	-	-	-	-	-	-	-	-	DEXV	RL36/1B	20x17.5	36	INTERLOCKED WITH CAV-1-1
RCAV-1-2	12	16x15	1,000	1,000	24	27	1	0.25	0.01	0	-	-	-	-	-	-	-	-	DEXV	RL36/1B	16x15	36	INTERLOCKED WITH CAV-1-15
CONNECTED LOAD			8,900												14.2								
FUTURE LOAD			4,500																				

- NOTES:
- BOXES SHALL HAVE A SINGLE FACTORY-INSTALLED ROUND INTAKE.
  - BOXES SHALL BE EQUIPPED WITH BMS MANUFACTURED DDC CONTROLLER.
  - BOXES SHALL INCLUDE ALL COMPONENTS FOR COMPLETE INSTALLATION AND OPERATION.
  - ALL HOT WATER CONTROL VALVES SHALL BE 2-WAY BY BMS MANUFACTURER.
  - ALL VAV BOXES SHALL BE INTERNALLY ACOUSTICALLY INSULATED, HOSPITAL GRADE.
  - ATTENUATORS SHALL BE HOSPITAL-GRADE FILM LINER, VIBAR FILM OR APPROVED EQUAL.
  - ATTENUATOR INLET & OUTLET SHALL BE SUITABLE FOR FIELD DUCTMATE CONNECTION BY CONTRACTOR.
  - ATC MANUFACTURER SHALL SHIP DDC CONTROLLERS TO TITUS FACTORY. TITUS SHALL INSTALL AND DELIVER BOXES IN ONE PIECE.
  - CONTROLS CONTRACTOR TO PROVIDE 120V/24V TRANSFORMER FOR EVERY VAV AND CAV BOX. ELECTRICAL CONTRACTOR IS TO PROVIDE 120V POWER.

SPLIT AIR COOLED AIR CONDITIONING SYSTEM SCHEDULE																														BASIS OF DESIGN: LIEBERT-VERTIV							
UNIT NO.	LOCATION	SERVICE	CONDENSER													EVAPORATOR																		SCOPE	MODEL	REMARKS	
			MODEL	CFM	COMPRESSOR		REFRIG.	DIMENSIONS, IN. L X W X H	WEIGHT, LBS	ELECTRIC DATA						MODEL	EDB/EWB (°F)	LDB/LWB (°F)	COOLING (MBH)		FAN			COIL		DIMENSIONS, IN. L X W X H	WEIGHT LBS	ELECTRIC DATA									
					TYPE	COP				QTY	POWER	COMP KW	SYS KW	FLA	WSA				OPD	TOTAL	SENSIBLE	CFM	MOTOR KW	MOTOR RPM	FPM			FACE AREA SQ. FT.	FPI	ROWS	POWER	FLA	WSA				OPD
ACU-1/ACCU-1	LEVEL 1/ROOF	EP LAB EQUIPMENT ROOM	MCM040E1	5,904	DIGITAL	2.14	1	R410A	57-3'16"x48"x39-5/8"	231	460/360	7.17	9.30	1.4	1.8	15	RTPX0209UEVAPX1	72.0/60.1	54/51.8	79.3	67.8	3,500	1.29	-	350	10.01	12	4	34.5"x30.25"x77.5"	670	208/360	52.7	59.7	80	2.14	PDX 023	UP-FLOW/FLOOR MOUNTED

- NOTES:
- PROVIDE DRAIN PAN WITH INTERNALLY INSTALLED CONDENSATE PUMP, LEAK DETECTOR, TIED TO BMS, IN DRAIN PAN.
  - CONDENSATE DISCHARGE PIPE SHALL BE INTERNALLY PIPED UP BY UNIT MANUFACTURER TO BE TERMINATED ON THE TOP OF THE UNIT.
  - 24 V BMS CONNECTION BY CONTROLS CONTRACTOR. MANUFACTURER SHALL PROVIDE BACNET INTERFACE AND INTEGRAL MICROPROCESSOR.
  - PROVIDE MERV 8 FILTER, AIR FLOW SENSOR, EC MOTOR, 6" FLOOR STAND, 2 EXTRA FILTERS BY MANUFACTURER.
  - PROVIDE DISCONNECT FOR CONDENSER BY MANUFACTURER. PROVIDE DISCONNECT FOR EVAPORATOR BY MANUFACTURER.
  - BMS SHALL MONITOR HIGH TEMPERATURE, LOW TEMPERATURE, EC FAN FAULT, FILTER CHANGE, LOSS OF AIRFLOW, LOSS OF POWER, COMPRESSOR OVERLOAD, HIGH HEAD PRESSURE, LOW SUCTION PRESSURE.
  - UNIT SHALL HAVE TOP DISCHARGE AND FRONT RETURN. UNIT SHALL HAVE UPFLOW DISCHARGE GRILLE PROVIDED BY THE MANUFACTURER.
  - REFRIGERANT PIPING SHALL BE INSTALLED THROUGH TOP OF UNIT. REFER TO MANUFACTURER'S INSTRUCTIONS FOR PIPING ROUTING AND ACCESSORIES. R410A
  - COPELAND DIGITAL COMPRESSOR (MODEL ZPD83KCE-60HZ)
  - MANUFACTURER SHALL PROVIDE HIGH TEMPERATURE SENSOR, REMOTE TEMP SENSOR, LOW VOLTAGE TERMINAL PACKAGE.
  - PROVIDE 1 YEAR WARRANTY FOR COMPRESSOR AND 5 YEARS FOR LABOR.
  - CONDENSING UNIT SHALL HAVE A CRANK CASE HEATER AND LOW AMBIENT KIT FOR OPERATION DOWN TO 0°F.
  - EVAPORATOR SHALL HAVE FREEZE PROTECTION
  - ENGAGE MANUFACTURER'S FIELD SERVICE TECHNICIAN TO PROVIDE WARRANTY START-UP SUPERVISION AND ASSIST IN PROGRAMMING OF UNIT(S) CONTROLS AND ANCILLARY PANELS SUPPLIED BY THEM.
  - PROVIDE ELECTRIC HUMIDIFIER, 7.7 KW, 4.8 LBS.

FAN SCHEDULE											BASIS OF DESIGN: GREENHECK			
FAN NO.	DESCRIPTION	LOCATION	AREA SERVED	PERFORMANCE DATA					MOTOR		STARTER	MODEL	REMARKS	
				TYPE	CFM	EXT. SP (IN. WG)	FAN RPM	BHP	HP	VOLTAGE/PHASE				
EF-1	TOILET EXHAUST	3RD FLOOR ROOF	1ST FLOOR - MAIN BUILDING	UTILITY SET	1,565	1.5	1,408	0.53	1	460/3	ECM	USF-15	SEE NOTES	

- NOTES:
- PROVIDE WITH A FACTORY MOUNTED DISCONNECT SWITCH.
  - PROVIDE WITH PERMATECTOR COATING.
  - PROVIDE NEMA PREMIUM EFFICIENT MOTOR AND NEMA 3R OUTDOOR ENCLOSURE.
  - PROVIDE WITH SPRING VIBRATION ISOLATORS.
  - ALL FANS SHALL BE DIRECT DRIVE.
  - FANS WITH EC MOTORS SHALL HAVE 0-10 VDC, CONNECTED TO BMS FOR MONITORING BY CONTROLS CONTRACTOR.
  - PROVIDE SMOKE DETECTOR FOR ALL FANS OVER 2,000 CFM. FANS SHALL BE CONNECTED TO FA SYSTEMS.
  - PROVIDE FLEXIBLE CONNECTIONS ON ALL EXHAUST FANS.
  - PROVIDE FIELD INSTALLED BACKDRAFT DAMPER WITH ALL EXHAUST FANS.

AIR HANDLER SOUND ATTENUATOR SCHEDULE													BASIS OF DESIGN: PRICE				
SOUND TRAP No.	SYSTEM No.	SOUND CRITERIA BASED ON FACE VELOCITY OF 2000 FPM CENTER FREQUENCY-HZ								PERFORMANCE DATA			CONSTRUCTION DATA			MODEL	REMARKS
		63	125	250	500	1000	2000	4000	8000	CFM	MAX. VEL. (FPM)	MAX. P.D. (IN. W.G.)	HEIGHT (IN)	WIDTH (IN)	LENGTH (IN)		
ST-1	AHU-1	6	8	11	17	16	16	11	8	14,750	1,180	0.13	30	60	60	RLT60/8B	SUPPLY
ST-2	AHU-1	7	9	13	19	19	17	11	8	12,750	1,133	0.13	40	42	60	RLT60/8B	RETURN

- NOTES:
- PROVIDE HOSPITAL-GRADE FILM LINER, VIBAR FILM OR APPROVED EQUAL.
  - PROVIDE ACOUSTIC GRADE GLASS FIBER MEDIA FILL.
  - PROVIDE MINIMUM 18 GA GALVANIZED CASING AND MIN 22 GA GALVANIZED PERFORATED LINER
  - SOUND ATTENUATORS ARE SHIPPED IN SECTIONS AND FIELD ASSEMBLED.
  - PROVIDE FLANGED END CONNECTIONS

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1	03/31/2023	DD Review Set
no.	date	description

Client Name:

RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

MECHANICAL SCHEDULES  
(1 OF 2)

Drawn By:	Date:
SPK	05/23/2023
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JM	AS NOTED

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CONSTRUCTION DOCUMENTS

File No.: R2000

Drawing No.:

M-402.00

14 OF 28

DOH VENTILATION TABLE													
2018 FGI VENTILATION REQUIREMENTS													
ROOM	AREA (SQ.FT)	# OF PEOPLE	FGI OCCUPANCY CLASSIFICATION	FGI REQUIRED OUTDOOR AIR ACH	FGI REQUIRED SUPPLY ACH	FGI OA RATES	FGI TOTAL CFM RATES	ASHRAE 62.1 REQUIRED OA RATES	DESIGN OA CFM	DESIGN SUPPLY CFM	DESIGN RETURN AIR CFM	DESIGN EXHAUST CFM	FGI REQ. PRESSURIZATION
EP LAB	762	2	PROCEDURE ROOM	4	20	5	21	56	538	2,150	1,950	0	POSITIVE
CATH LAB	450	2	PROCEDURE ROOM	4	20	5	20	37	300	1,200	1,000	0	POSITIVE
CLEAN/STERILE SUPPLY	172	0	CLEAN	2	4	2	9	10	50	200	100	0	POSITIVE
SOILED WORK ROOM	72	0	SOILED	2	10	4	26	4	38	150	0	250	NEGATIVE
JANITORS CLOSET	42	0	JANITOR	0	10	0	13	0	0	0	0	75	NEGATIVE
HALLWAY	106	0	RECOVERY	2	6	2	9	6	31	125	50	0	0
SEMI-RESTRICTED CORRIDOR	199	0	CORRIDOR	0	2	1	6	12	38	150	100	0	0
PRE-OP/RECOVERY - NURSE STATION	484	3	RECOVERY	2	6	2	11	44	150	600	725	0	0
PRE-OP/RECOVERY - BAYS	467	12	RECOVERY	2	6	4	15	88	238	950	855	0	0
RECOVERY ROOMS	376	7	RECOVERY	2	6	2	10	58	125	500	500	0	0
PATIENT TOILET	42	0	TOILET	0	10	0	13	0	0	0	0	75	NEGATIVE
ELEVATOR LOBBY	721	0	CORRIDOR	0	2	1	3	43	63	250	0	0	0
PUBLIC TOILET	63	0	TOILET	0	10	0	10	0	0	0	0	85	NEGATIVE
HALLWAY 3	156	0	CORRIDOR	0	2	3	12	9	63	250	175	0	0
TOILET 221	68	0	TOILET	0	10	3	25	0	31	125	225	95	NEGATIVE
SHOWER 191	53	0	TOILET	0	10	0	11	0	0	0	0	75	NEGATIVE

FILTER BANK SCHEDULE										BASIS OF DESIGN: FILTRATION GROUP					
TAG	FILTER								HOUSING						
	AIRFLOW (CFM)	TYPE	MODEL	EFFICIENCY	SIZE (NOMINAL)	VELOCITY (FPM)	PRESSURE DROP "W.G. (CLEAN)	PRESSURE DROP "W.G. (DIRTY)	QUANTITY	AIRFLOW (CFM)	MODEL	CONFIGURATION (H x W)	DIMENSIONS (H x W x D)	QUANTITY	REMARKS
FLTR-1	650	HIGH CAP GASKET SEAL HEPA	M5SERIES	99.99%@0.3	24"x24"x12"	163	0.41	0.8	1	650	AEROSTAR HEPA BOLT HOUSING	1Hx1W	27-1/4"x26-1/4"x26-1/4"	1	SEE NOTES
FLTR-2	900	HIGH CAP GASKET SEAL HEPA	M5SERIES	99.99%@0.3	24"x24"x12"	225	0.57	1.14	1	900	AEROSTAR HEPA BOLT HOUSING	1Hx1W	27-1/4"x26-1/4"x26-1/4"	1	SEE NOTES

NOTES:

1. HOUSING SHALL BE FULLY FACTORY INSULATED
2. 14GA GALVANIZED STEEL CONSTRUCTION WITH UPSTREAM/DOWNSTREAM DRILLED FLANGES HOUSING IS OPERATIONAL UP TO +/- 5" W.G.
3. HOUSING SHALL BE OPTIONAL BOTTOM ACCESS.
4. STATIC PRESSURE PORTS WITH FACTORY MOUNTED MAGNAHELIC GAGE 2000 SERIES
5. TEST PORTS UPSTREAM AND DOWNSTREAM OF HEPA FILTER
6. THE BOLT SEAL LOCKING MECHANISM SHALL SECURE A LEAK FREE SEAL BETWEEN THE FILTERS AND HOUSING BY AN EVENLY DISTRIBUTED PRESSURE OF 20 FOOT POUNDS PER FILTER
7. THE BOLT SEAL MECHANISM SHALL BE ON THE UPSTREAM SIDE OF THE HEPA FILTERS, PROTECTING IT FROM CONTAMINANTS

HEPA FILTER HOUSING (PROVIDED BY OTHERS) - REFERENCE ONLY											BASIS OF DESIGN: PRICE		
TAG	SERVICE	LOCATION	CFM	FACE VELOCITY (FPM)	CONST.	FILTER MODEL	FILTER SIZES (IN.)	INITIAL PRESSURE DROP (IN. WATER)	FINAL PRESSURE DROP (IN. WATER)	HEPA FILTER EFF. (@3 MICRONS)	HOUSING DIMENSIONS (IN.)	HOUSING MODEL	REMARKS
FHF-1-1	EP LAB	1ST FL	2,150	28	GALV. ALUMINUM	HEPA	CUSTOM REFER TO DWGS	0.21	0.42	99.99 %	254-3/4"x135-5/16"x10"	ULTRASUITE - CUSTOM	

**NOTES:**

1. ROOM ACCESSIBLE HEPA FILTER HOUSINGS SHALL BE CUSTOM AS MANUFACTURED BY PRICE
2. UNIT SHALL BE A FACTORY-ASSEMBLED AIR-TIGHT HOUSING.
3. REFER TO SEPARATE PRICE PACKAGE FOR INSTALLATION INFORMATION
4. REFER TO ARCHITECTURAL SET FOR CLEAN CEILING, LAMINAR FLOW DIFFUSERS, AND HEPA FILTERS
5. PROVIDE MAGNEHELIC GAUGE ACROSS FILTERS FOR PRESSURE DROP READINGS, SUPPLIED LOOSE.

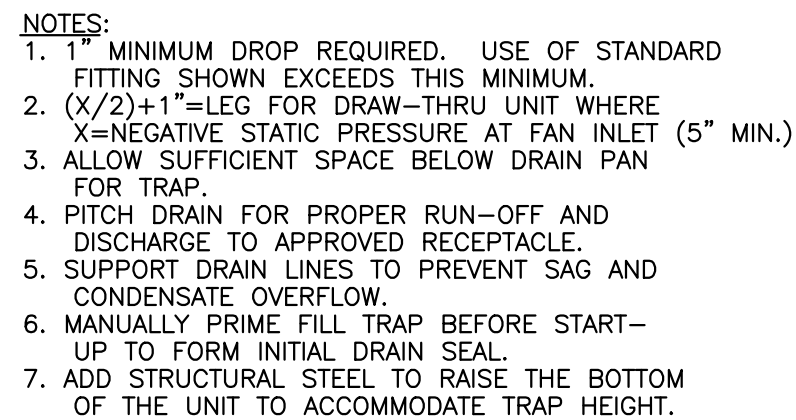
AIR OUTLETS SCHEDULE						BASIS OF DESIGN: TITUS			
TAG No.	FUNCTION	NECK SIZE	FACE SIZE	MAX. CFM	MAX Pd.	THROW(FT)	MAX NC	MODEL	REMARKS
A	SUPPLY	6"Ø	12x12	100	0.08	3	10	OMNI	
	SUPPLY	8"Ø	12x12	175	0.1	3	10	OMNI	
	SUPPLY	6"Ø	24x24	100	0.02	2	10	OMNI	
	SUPPLY	8"Ø	24x24	250	0.06	5	13	OMNI	
	SUPPLY	10"Ø	24x24	350	0.07	7	12	OMNI	
	SUPPLY	12"Ø	24x24	450	0.08	8	10	OMNI	
	SUPPLY	14"Ø	24x24	550	0.08	9	10	OMNI	
	SUPPLY	15"Ø	24x24	650	0.10	10	11	OMNI	
B	RETURN & EXHAUST	10x10	24x24	0-100	--	--	--	350 RL	
	RETURN & EXHAUST	22x22	24x24	101-850	--	--	--	350 RL	
	RETURN & EXHAUST	22x10	24x12	0-150	--	--	--	350 RL	
C	TOILET/JC EXHAUST	10x10	12x12	0-150	--	--	--	350 RL	

NOTES:

- DIFFUSERS SHALL BE SIMILAR TO TITUS MODEL "OMINI" WITH 24x24 PANEL SUITABLE FOR NARROW TEE CEILING.
- DIFFUSERS TO BE SUPPLIED WITH OPPOSED BLADE DAMPERS AND EQUALIZING GRID, 2-WAY & 3-WAY THROW (WHEN SHOWN ON THE PLAN).
- COORDINATE CEILING DIFFUSERS' BORDER STYLE WITH LATEST ARCHITECTURAL REFLECTED CEILING LAYOUT TO ENSURE CORRECT MOUNTING COMPATIBILITY.
- SUPPLY FRAME TO MATCH CEILING CONSTRUCTION.
- THE DIFFUSER NECK SHALL HAVE A MINIMUM OF 1 1/8" DEPTH FOR DUCT CONNECTION. DIFFUSER BRANCH SIZE SHALL BE WIDEN FOR NECK CONNECTION.
- FOR ALL 2-WAY DIFFUSERS INSTALL 90° Baffles AS REQUIRED AND INCREASE THE NECK BY ONE SIZE. FOR ALL 2-WAY DIFFUSERS INSTALL 270 90° Baffles AS REQUIRED AND INCREASE THE NECK BY TWO SIZES.
- AIR OUTLETS TO BE STEEL, STD WHITE FINISH.

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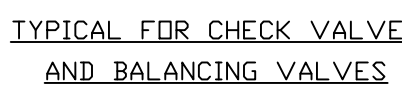


ENCLOSED IN FIBERGLASS BOARD

REMOVABLE CASE

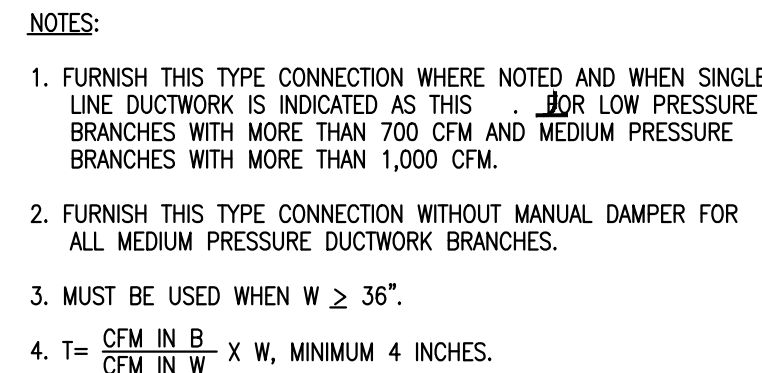
TYPICAL FOR ALL VALVES

TYPICAL FOR ALL VALVES



TYPICAL FOR CHECK VALVE  
AND BALANCING VALVES

- NOTES:
1. INSULATION TO BE USED ON STEAM, CONDENSATE RETURN, CHILLED WATER AND CW MAKEUP PIPING. REFER TO INSULATION SPEC FOR ADDITIONAL INSULATION FINISH ON EXPOSED FITTINGS.
  2. SEAL WATERTIGHT, ALL EXPOSED FIBERGLASS AND WHERE TWO OR MORE PIECES OF INSULATION MEET ON NON-HEATING SYSTEMS, INSULATION SHALL BE PER SPECIFICATION DENSITY (EXCEPT AT HANGERS) AND THE SAME THICKNESS AS THE ADJOINING PIPE INSULATION.



- NOTES:**
1. FURNISH THIS TYPE CONNECTION WHERE NOTED AND WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS. **FOR** LOW PRESSURE BRANCHES WITH MORE THAN 700 CFM AND MEDIUM PRESSURE BRANCHES WITH MORE THAN 1,000 CFM.
  2. FURNISH THIS TYPE CONNECTION WITHOUT MANUAL DAMPER FOR ALL MEDIUM PRESSURE DUCTWORK BRANCHES.
  3. MUST BE USED WHEN  $W \geq 36"$ .
  4.  $T = \frac{CFM \text{ IN } B}{CFM \text{ IN } W} \times W$ , MINIMUM 4 INCHES.

Diagram illustrating the assembly of a manual vent for a floor drain. The assembly includes:

- 1/4" COPPER TUBING TO SPILL OVER NEAREST FLOOR DRAIN OR AS NOTED ON DRAWINGS**: A horizontal pipe section at the top.
- 1/2" FLOAT TYPE**: A float valve assembly connected to the tubing.
- 1/2" GATE VALVE**: A valve located below the float type assembly.
- FOR VENTS ON PIPING 4" AND LARGER, PROVIDE AUXILIARY 1/2" MANUAL VENT RUN TO FLOOR DRAIN, OR AS NOTED ON DRAWINGS**: A note indicating the requirement for an auxiliary vent on larger piping.
- 1/2" GATE VALVE**: A second valve located further down the vertical pipe.
- BUSH DN TO 1/2"**: A bushing used to connect the vertical pipe to the system piping.
- SYSTEM PIPING**: The main vertical pipe system.

MANUAL AIR VENTS AT ALL COIL HIGH POINTS

AIRFLOW

STRAINER WITH BLOW DOWN VALVE

"A" HWS

"A" HWR

BALANCING VALVE

MODULATING CONTROL VALVE

HWR HEADER SAME SIZE AS "A"

3/4" DRAIN VALVE WITH HOSE BIBB (TYP.)

RUNOUTS SHALL BE SAME SIZE AS COIL CONNECTIONS

LUBRICATED PLUG VALVE (TYP.)

THERMOMETER (TYP.)

HWS HEADER SAME SIZE AS "A"

DRAIN VALVES AT LOW POINTS OF ALL COIL HEADERS, SAME SIZE AS COIL OUTLET SIZES BUT NOT LESS THAN 3/8"

PRESSURE GAUGE WITH NEEDLE VALVE COCK (TYP.)

- NOTES:**
1. LOCATE PIPE UNIONS AND ARRANGE PIPING TO FACILITATE COIL REMOVAL.
  2. FOR SIZES "A" SEE PLANS AND FLOW DIAGRAMS.
  3. ON LINES 2" AND SMALLER, LOCATE THERMOMETER WELL IN PIPE ELBOW.
  4. PROVIDE DRAIN AND SHUT-OFF ON RETURN PIPING FOR COIL BACK FLUSHING
  5. WHERE COIL CONNECTIONS ARE IN THE SAME VERTICAL PLANE, PROVIDE COIL VENT AND DRAIN-DOWN CONNECTIONS

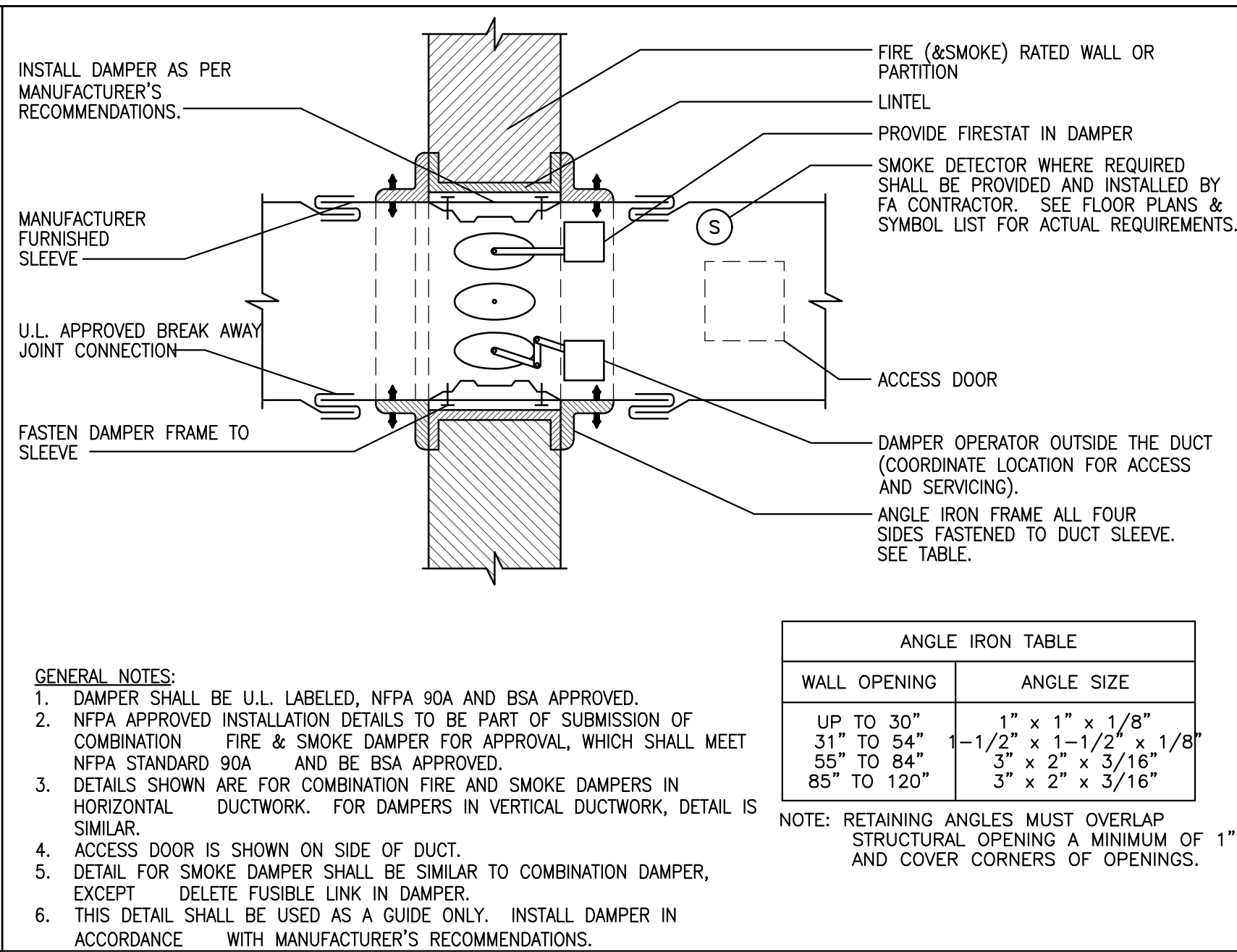
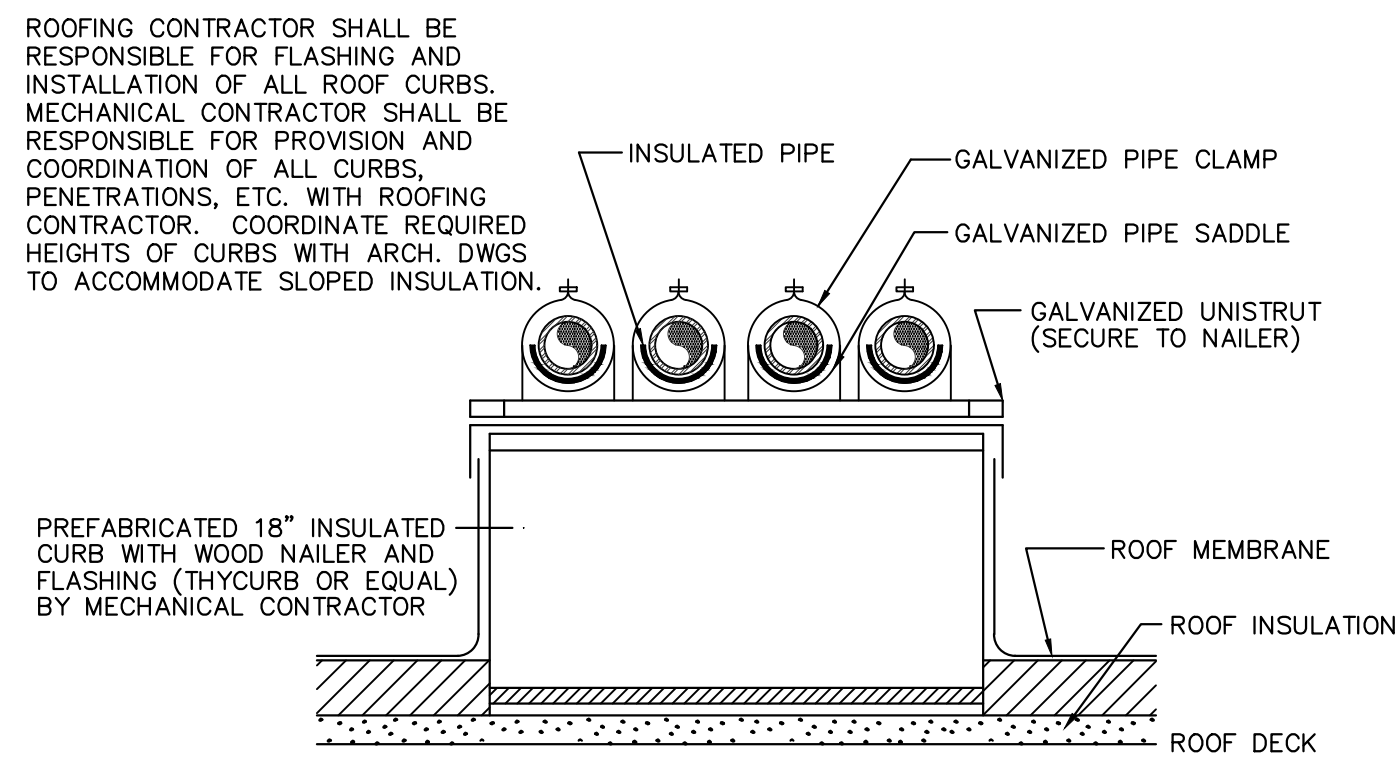
- NOTES:**
1. FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS FOR LOW PRESSURE BRANCHES WITH LESS THAN 700 CFM.
  2. NOT TO BE USED AS A SUBSTITUTE FOR AN ELBOW.
  3. VOLUME DAMPER IN BRANCH RUN-OUT TO BE USED FOR BALANCING. VOLUME DAMPER IN NECK OF AIR OUTLET/INLET TO BE USED FOR FINAL ADJUSTMENT ONLY.

Diagram illustrating a control valve assembly. The assembly consists of two valve bodies connected by a spool piece. The top valve body is labeled "CU X MALE UNION OR FLANGED FITTING (TYP)". The bottom valve body is labeled "CONTROL VALVE BODY". The spool piece is labeled "SPOOL PIECE". The diagram shows the internal flow paths and the connection points for the valve bodies.

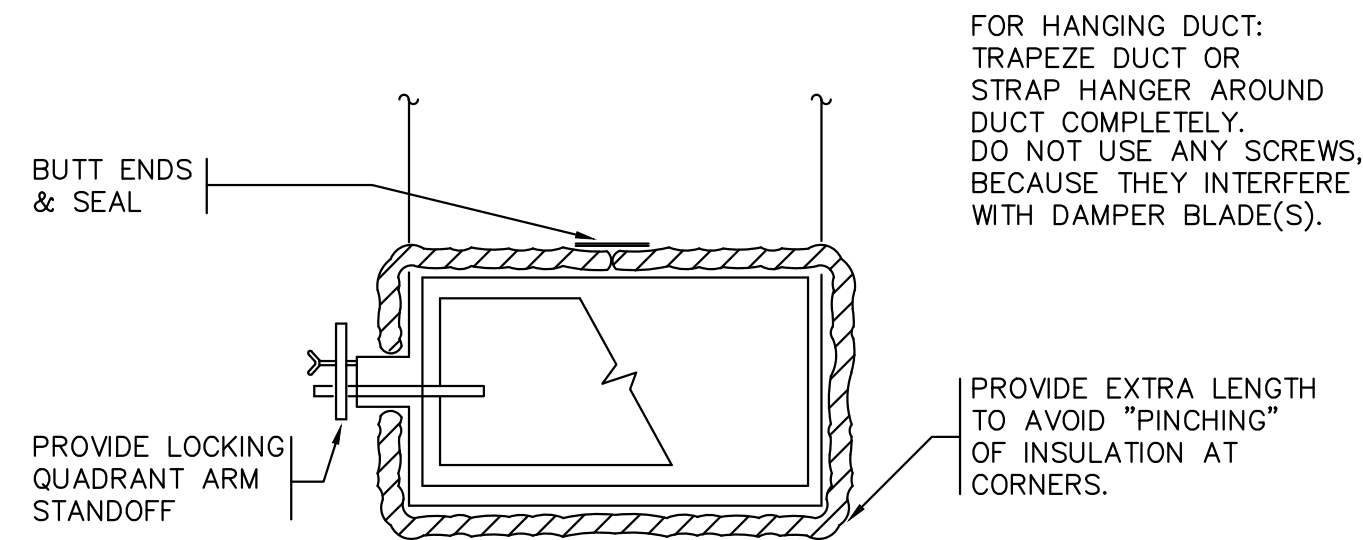
- | NOTES:                                                                                                                                                                                                                                                                                                        | VALVE BODY |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1. PIPING SHALL INITIALLY BE INSTALLED WITH SPOOL PIECES IN PLACE OF CONTROL VALVES.                                                                                                                                                                                                                          |            |
| 2. WHERE EQUIPMENT HAS BEEN SUPPLIED WITH A FACTORY-INSTALLED CONTROL VALVE, IT SHALL BE REMOVED & A SPOOL PIECE INSERTED IN ITS PLACE. PLACE THE CONTROL VALVE IN A CLEAR PLASTIC BAG, AFFIX A TEMPORARY TAG SHOWING THE EQUIPMENT OR ROOM NUMBER & SECURE IT TO THE PIECE OF EQUIPMENT OR PIPING IT SERVES. |            |
| 3. FLUSH & TREAT HYDRONIC SYSTEM AS SPECIFIED.                                                                                                                                                                                                                                                                |            |
| 4. AFTER CLEANED PIPE SYSTEM HAS BEEN APPROVED BY OWNER & ARCHITECT/ENGINEER, SPOOL PIECES SHALL BE REMOVED & CONTROL VALVES INSTALLED.                                                                                                                                                                       |            |
| 5. ALL CONTROL VALVES MUST BE INSTALLED PRIOR TO SYSTEM BALANCING.                                                                                                                                                                                                                                            |            |
| 6. TWO-WAY VALVE IS SHOWN. THREE-WAY VALVES SHALL BE SIMILAR.                                                                                                                                                                                                                                                 |            |

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COMBINATION FIRE AND SMOKE DAMPER  
WITH FUSIBLE LINK

## ROOF PIPING SUPPORT



## TYPICAL DUCT INSULATION AND SUPPORTS NEAR VOLUME DAMPERS

ANGLE IRON TABLE	
WALL OPENING	ANGLE SIZE
UP TO 30"	$1\frac{1}{2}" \times 1" \times \frac{1}{8}"$
31" TO 54"	$1\frac{1}{2}" \times 1\frac{1}{2}" \times \frac{1}{8}"$
55" TO 84"	$3" \times 2" \times \frac{3}{16}"$
85" TO 120"	$3" \times 2" \times \frac{3}{16}"$

GENERAL NOTES:	
1. DAMPER SHALL BE U.L. LABELED, NFPA 90A AND BSA APPROVED.	
2. DAMPER INSTALLED INSTALLATION DETAILS TO BE PART OF SUBMISSION OF COMBINATION FIRE & SMOKE DAMPER FOR APPROVAL, WHICH SHALL MEET NFPA STANDARD 90A AND BE BSA APPROVED.	
3. HORIZONTAL AIRWAYS ARE FOR COMBINATION FIRE AND SMOKE DAMPERS IN SIMILAR DUCTWORK. FOR DAMPERS IN VERTICAL DUCTWORK, DETAIL IS DETAIL.	
4. ACCESS DOOR IS SHOWN ON SIDE OF DUCT.	
5. DETAIL FOR SMOKE DAMPER SHALL BE SIMILAR TO COMBINATION DAMPER, EXCEPT DELTIE FUSIBLE LINK IN DAMPER.	
6. THIS DETAIL SHALL BE USED AS A GUIDE ONLY. INSTALL DAMPER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.	

NOTE: RETAINING ANGLES MUST OVERLAP  
STRUCTURAL OPENING A MINIMUM OF 1"  
AND COVER CORNERS OF OPENINGS.

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MEDICAL CENTER

Project Name &amp; Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title

## MECHANICAL DETAILS

(2 OF 8)

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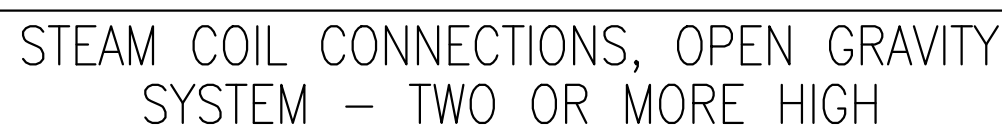
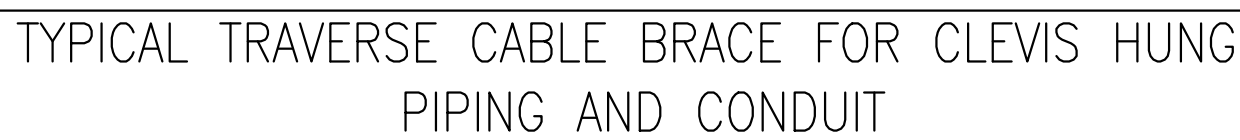
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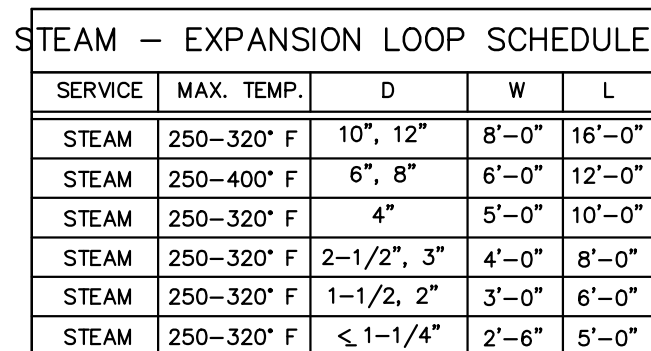
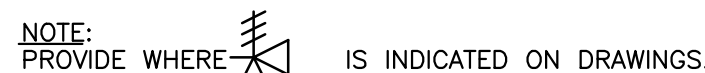
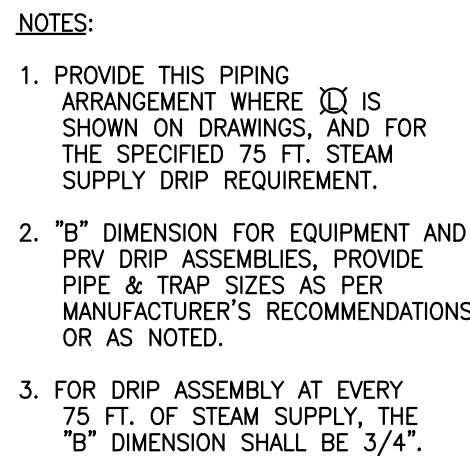
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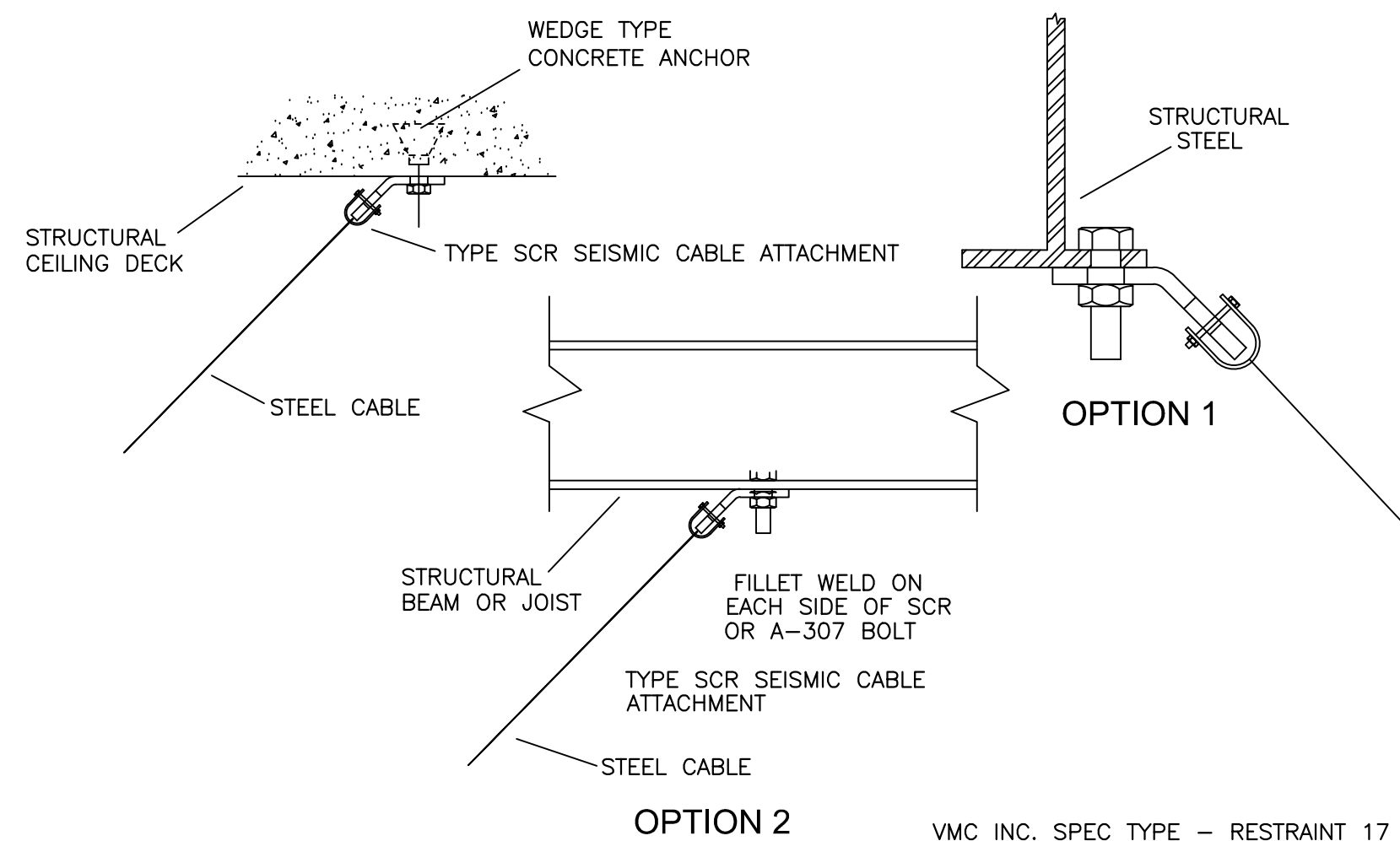
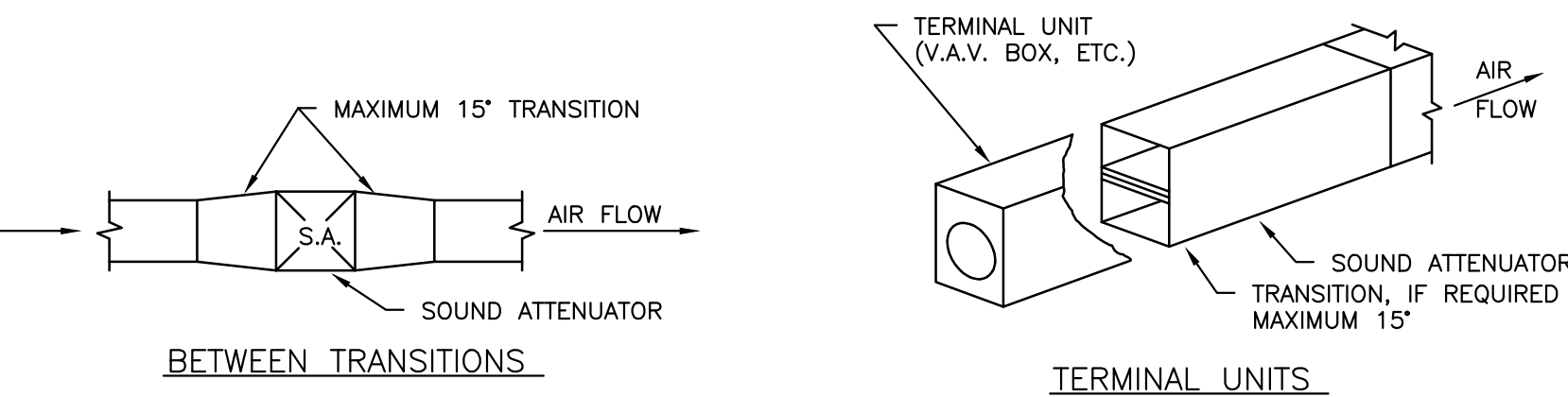
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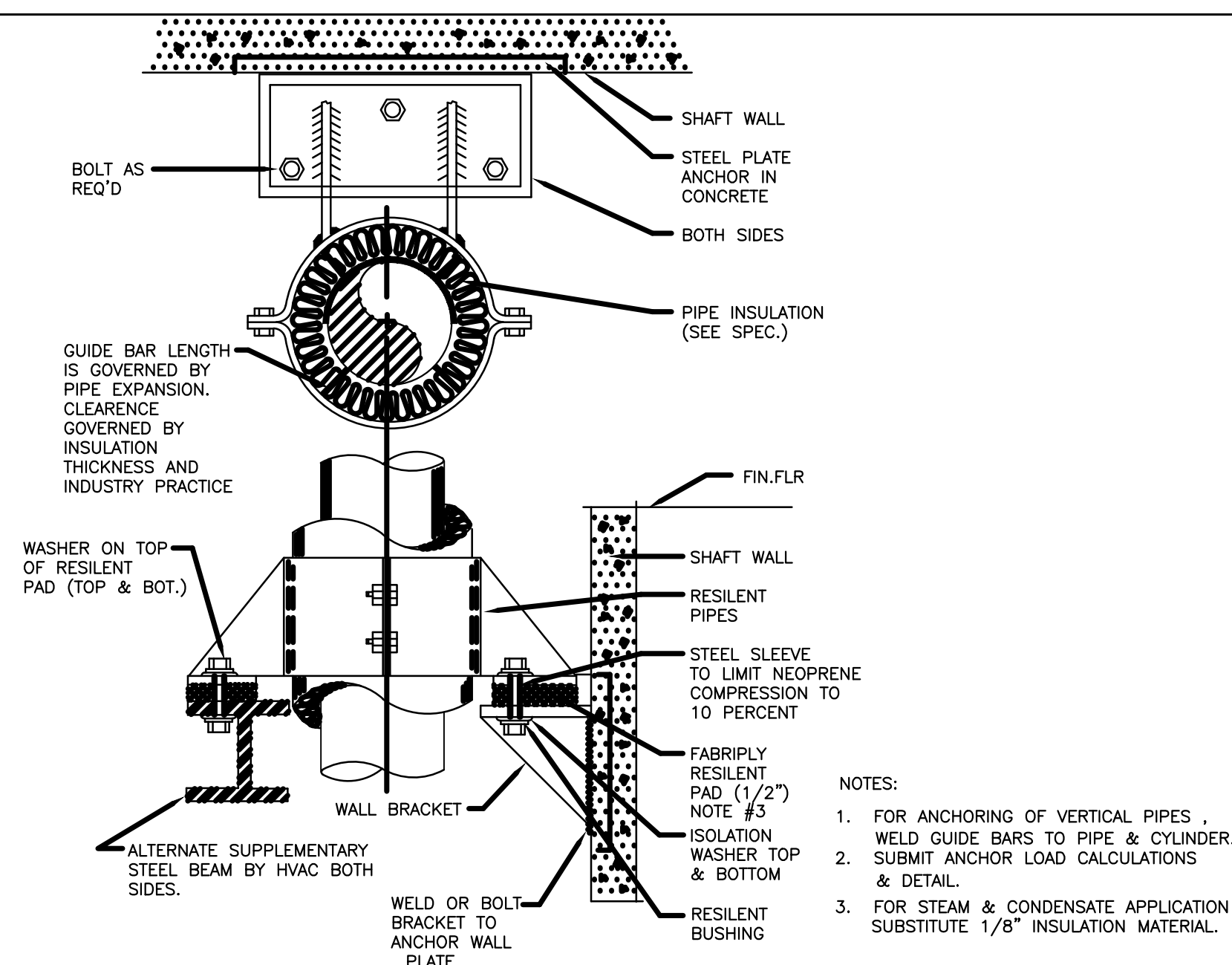




- NOTES:**
1. DIMENSION "A" SHALL BE 10'-0"  $\pm$  1'-0" FROM ELBOWS.
  2. SEE SPECIFICATIONS FOR PIPING MATERIALS AND METHODS.
  3. EXPANSION LOOP SCHEDULE IS BASED ON A MAXIMUM DISTANCE OF 100 FT BETWEEN PIPE ANCHORS FOR STEEL AND COPPER PIPING.
  4. EXPANSION LOOP MUST BE BASED ON DELEGATED DESIGN.

STEAM SAFETY  
VALVE DRAIN

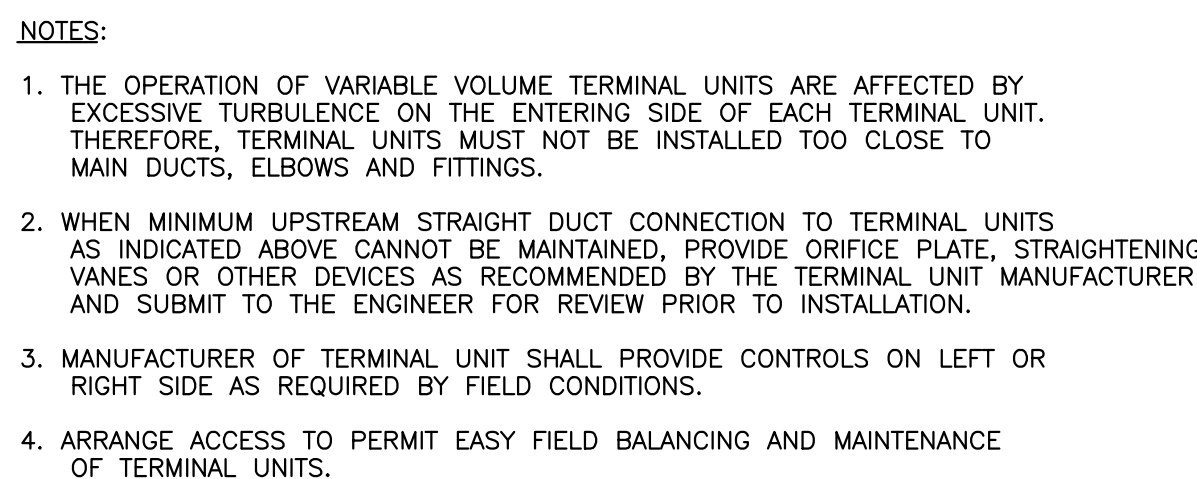
## EXPANSION LOOP AND SCHEDULE



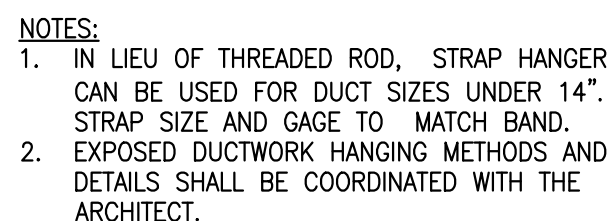
## SOUND ATTENUATOR INSTALLATION DETAILS

### TYPICAL CABLE OR UNISTRUT ATTACHMENTS TO STRUCTURE

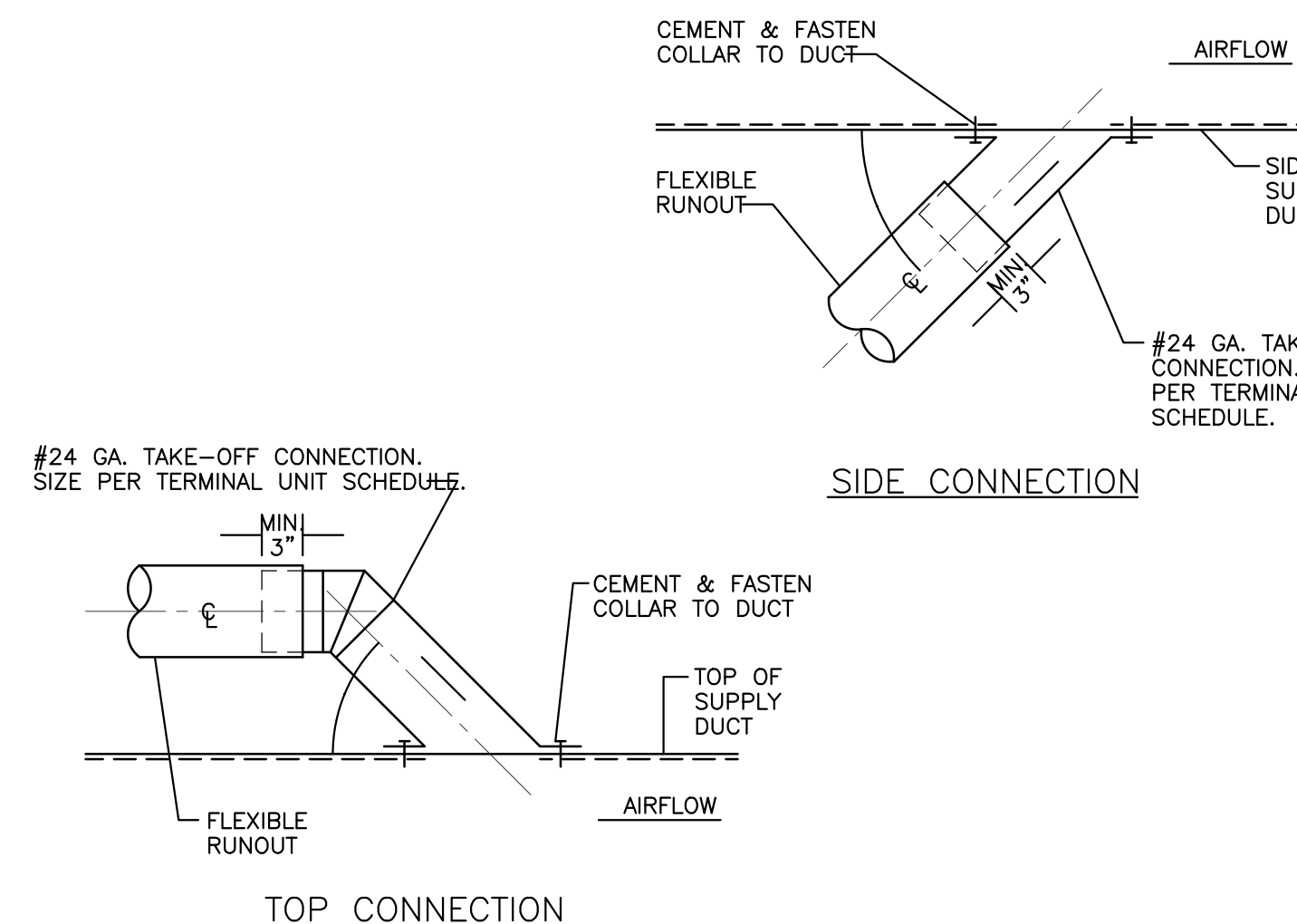
VERTICAL RISER GUIDE & ANCHOR (4"0 & ABOVE)



## TERMINAL UNIT INSTALLATION



ROUND DUCT SUPPORT – UP TO 18"



## TYPICAL MEDIUM PRESSURE RUNOUT DUCT CONNECTIONS

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BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

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(4 OF 8)

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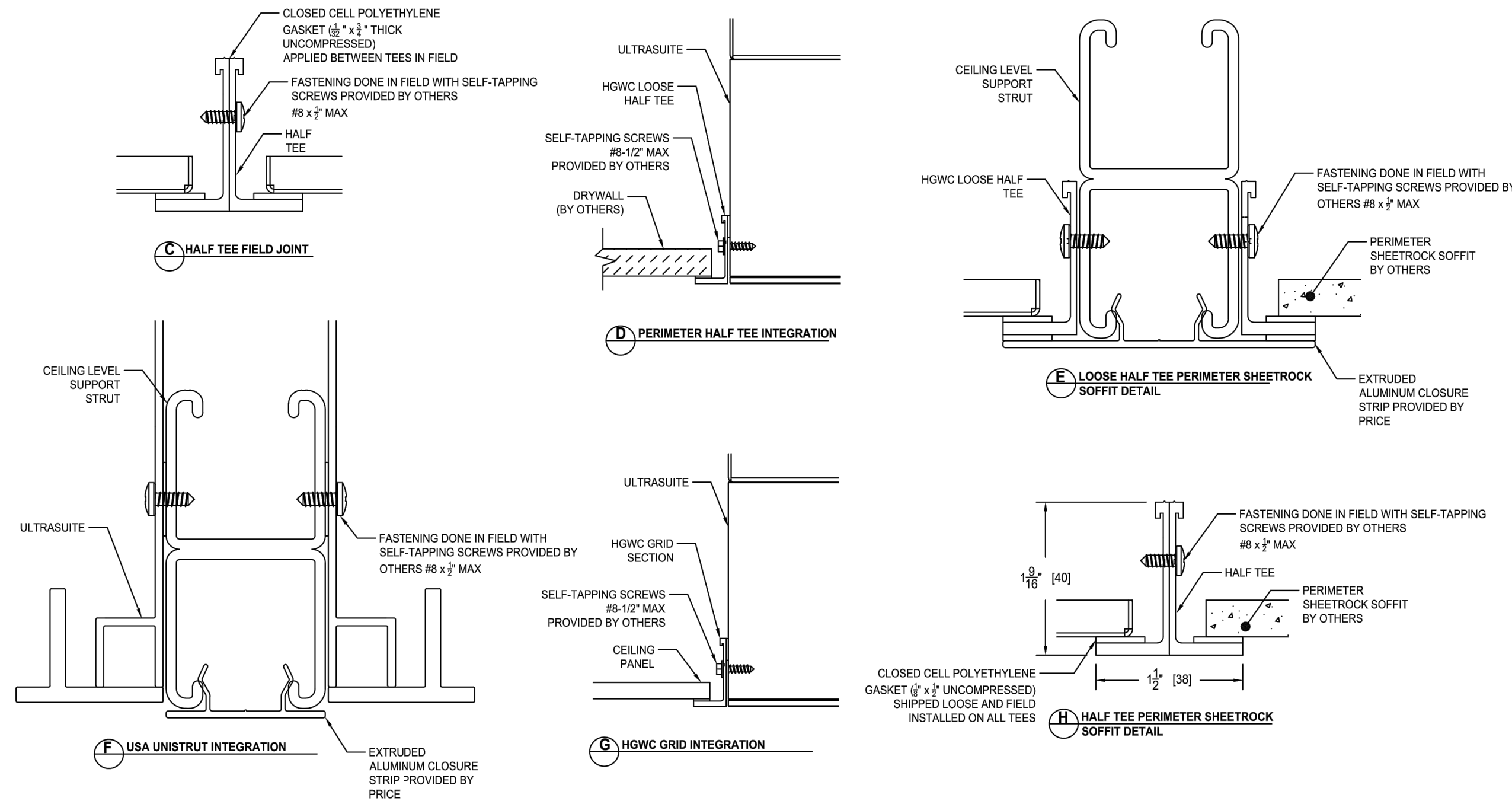






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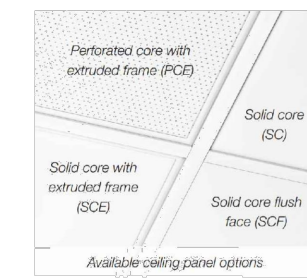
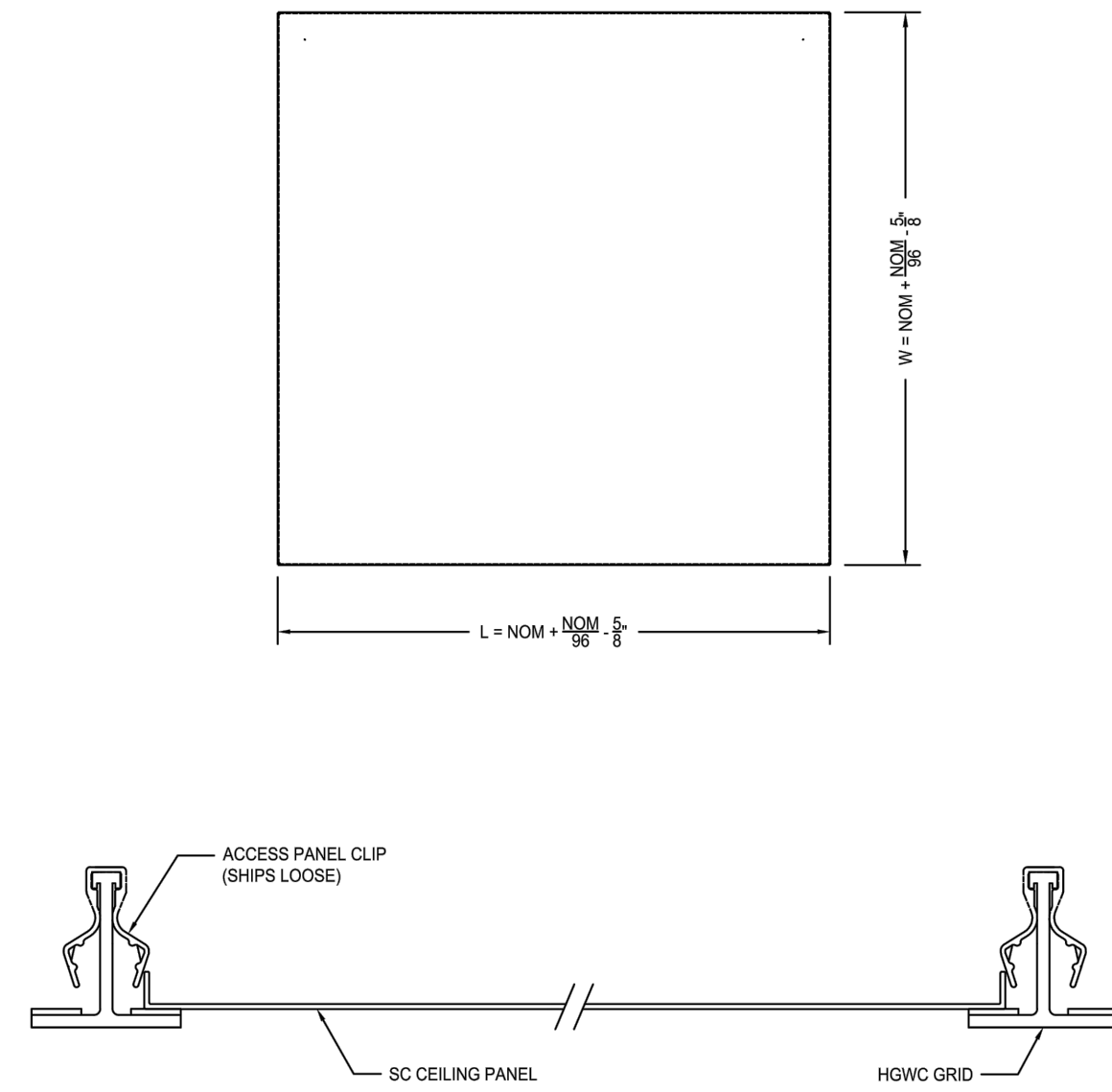
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HOSPITAL GRADE WELDED CEILING SYSTEM CEILING PANELS  
HGWC INTEGRATION DETAILS



price | CRITICAL ENVIRONMENTS

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SC - SOLID CORE

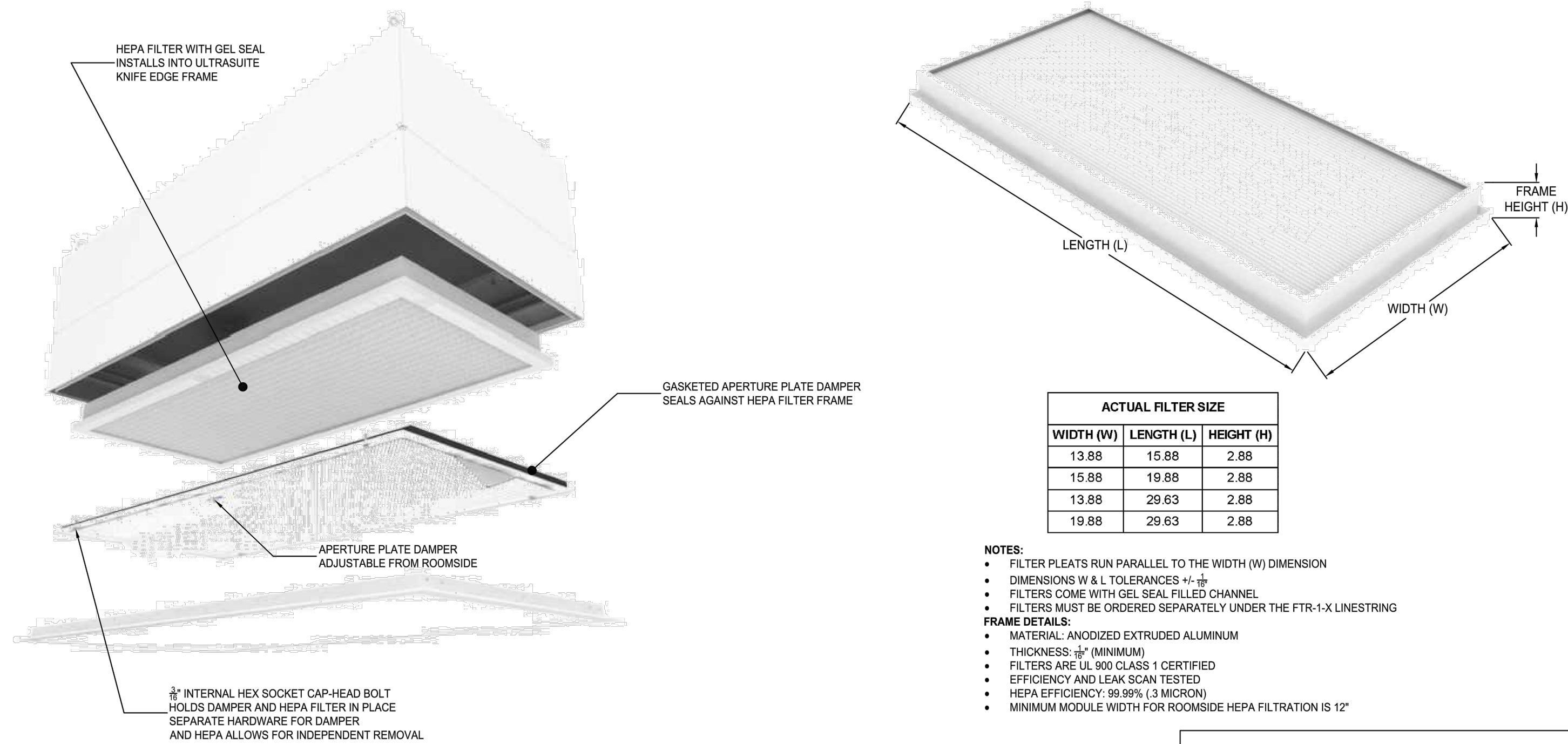


PANEL MATERIAL / FINISH:  
• SC PANEL - .080" ALUMINUM / B12 STANDARD WHITE  
CEILING TYPE:  
• HGWC - 1 1/2" HOSPITAL GRADE WELDED CEILING SYSTEM

PRICE ULTRASUITE – HOSPITAL GRADE WELDED CEILING HANGING SYSTEM

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ULTRASUITE<sup>®</sup>  
OPERATING ROOM DIFFUSER SYSTEM WITH INTEGRATED LED LIGHTING  
ROOMSIDE HEPA FILTRATION

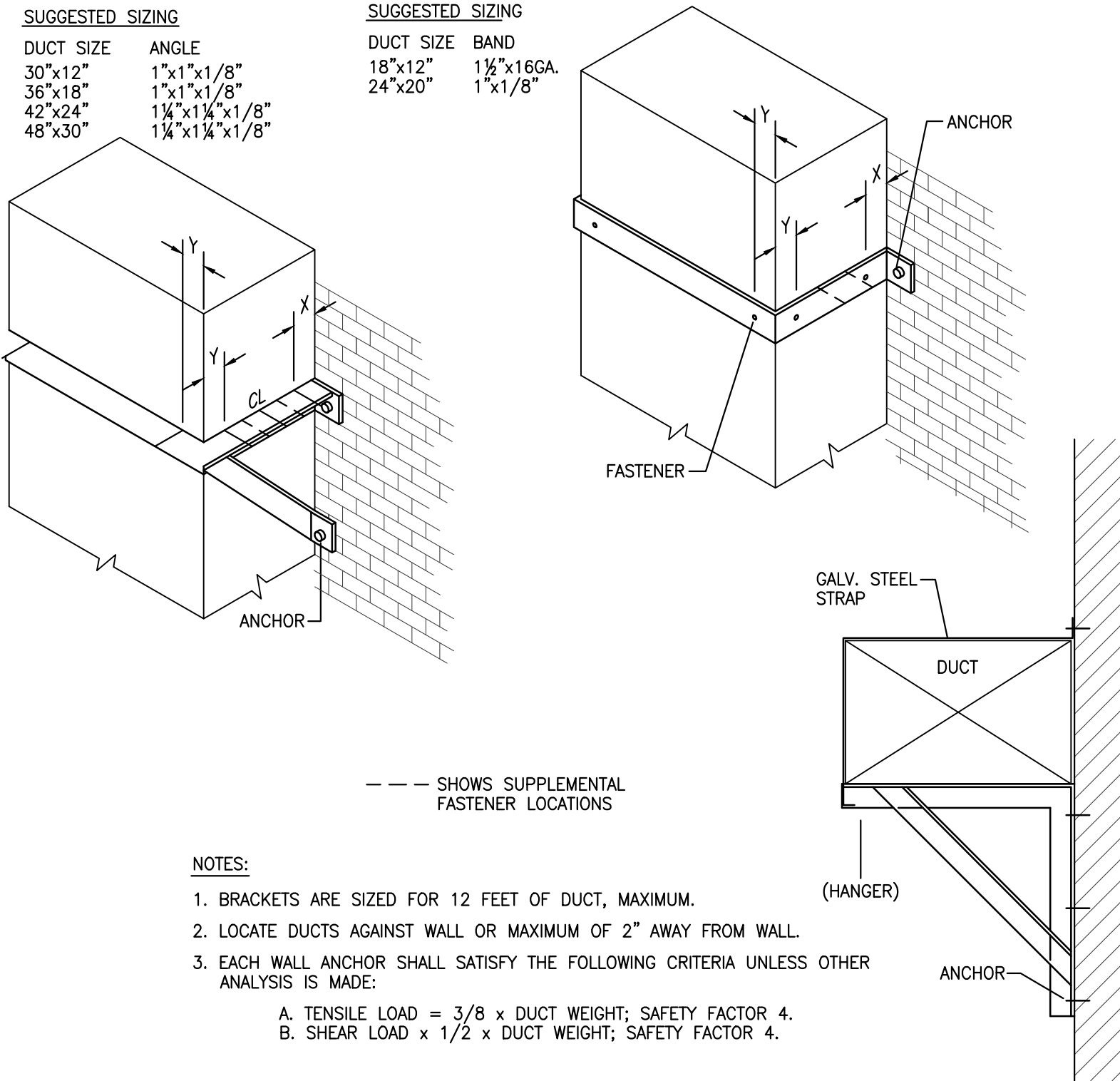


price | CRITICAL ENVIRONMENTS

VISIT PRICE INDUSTRIES WEBSITE FOR FILTER QUICK START GUIDE  
https://www.priceindustries.com/content/uploads/assets/literature/manuals/section%20oftr-room-side-replaceable-filter-rsr-quick-start-guide.pdf  
NOTE:  
JL 1598 DOES NOT HAVE PROVISIONS FOR HEPA FILTERS MOUNTED WITHIN FIXTURE. USA COMPLIES WITH UL 1598 WITH HEPA FILTERS ORDERED SEPERATELY ON FTR-1-X LINESTRING.

PRICE ULTRASUITE – OPERATING ROOM LED DIFFUSER

PRICE ULTRASUITE – HOSPITAL GRADE WELDED CEILING PANEL



DUCT SUPPORT – WALL MOUNTED

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355 BARD AVENUE  
STATEN ISLAND NY

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(7 OF 8)**

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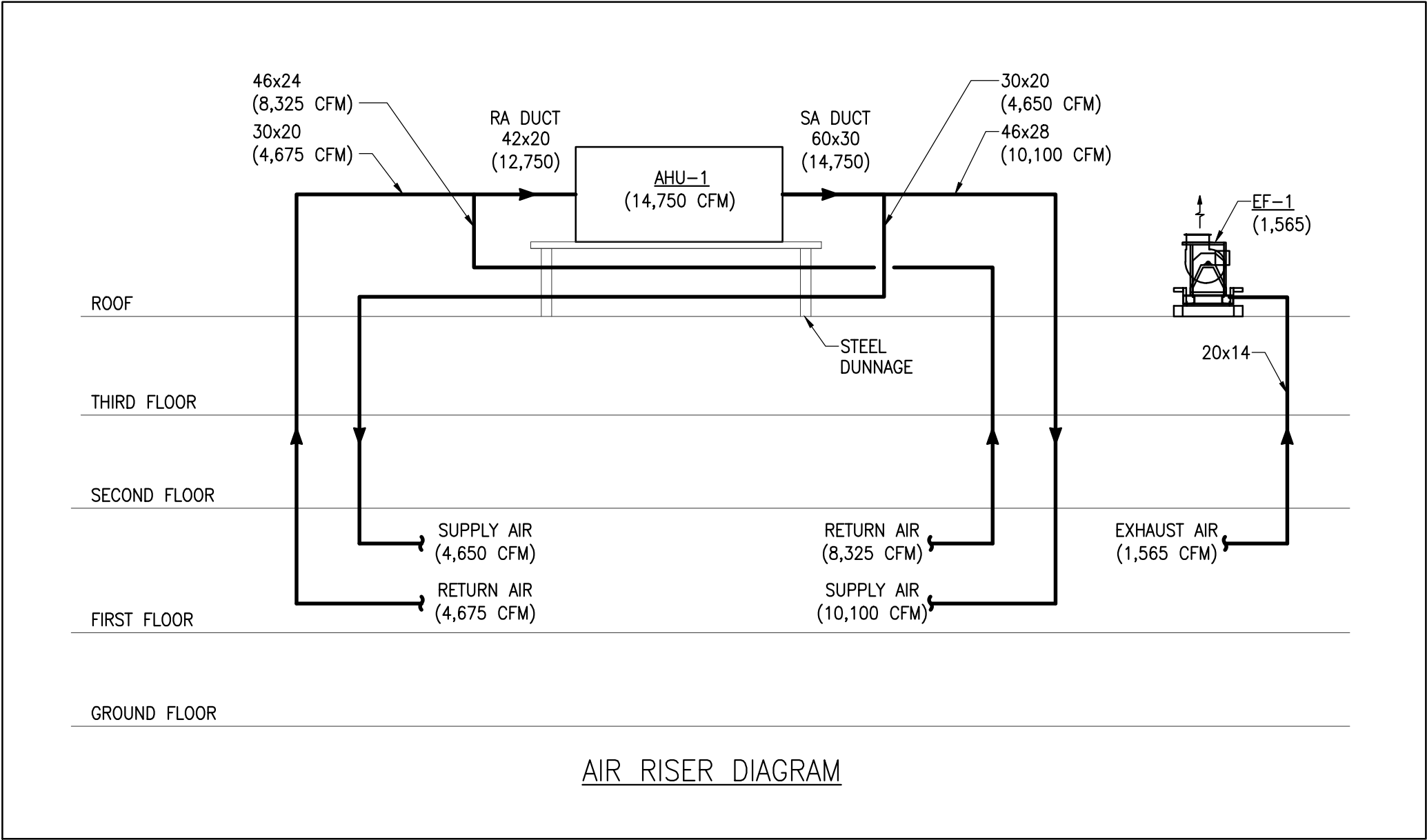
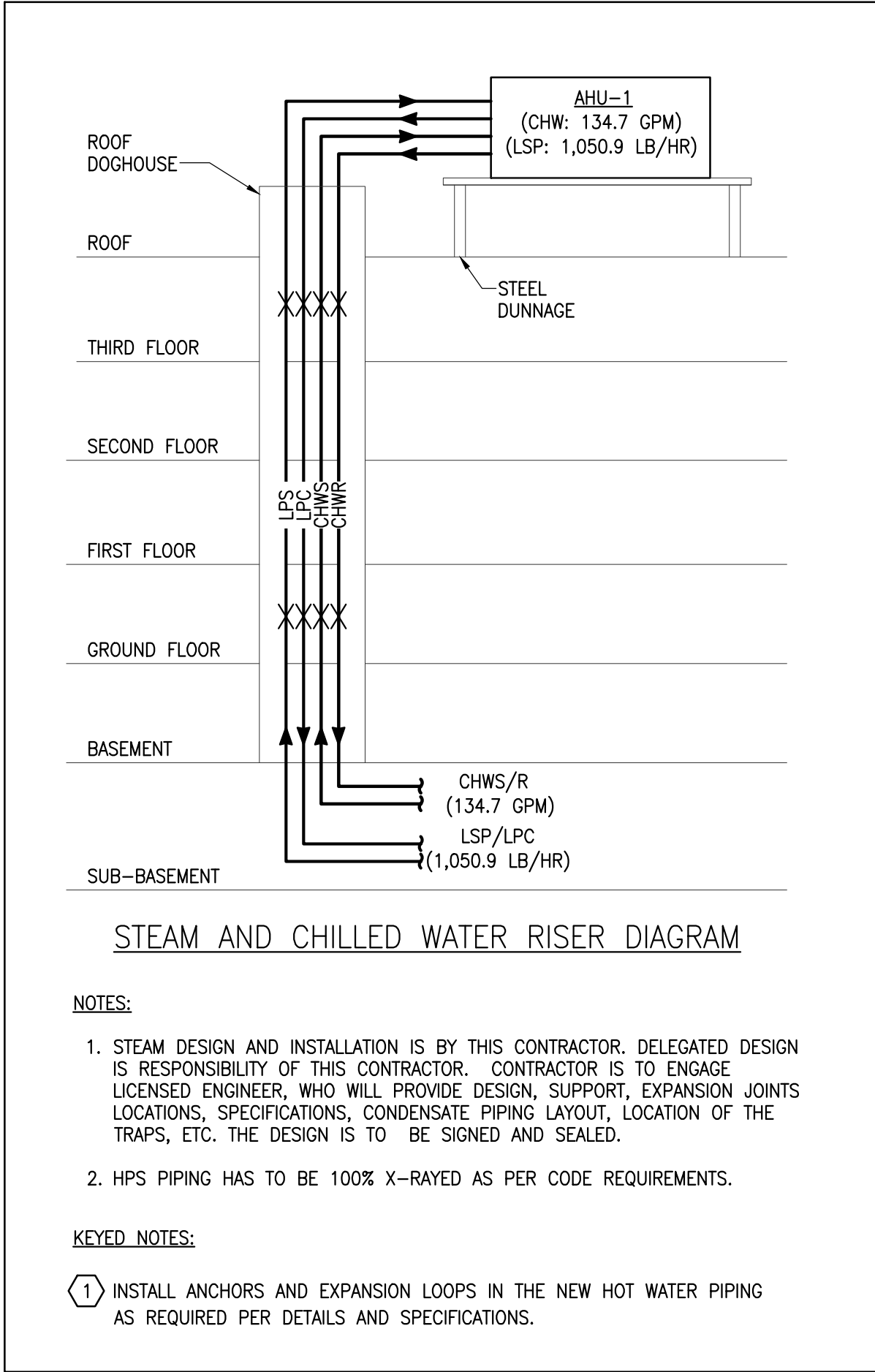
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355 BARD AVENUE  
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MECHANICAL  
RISER DIAGRAMS

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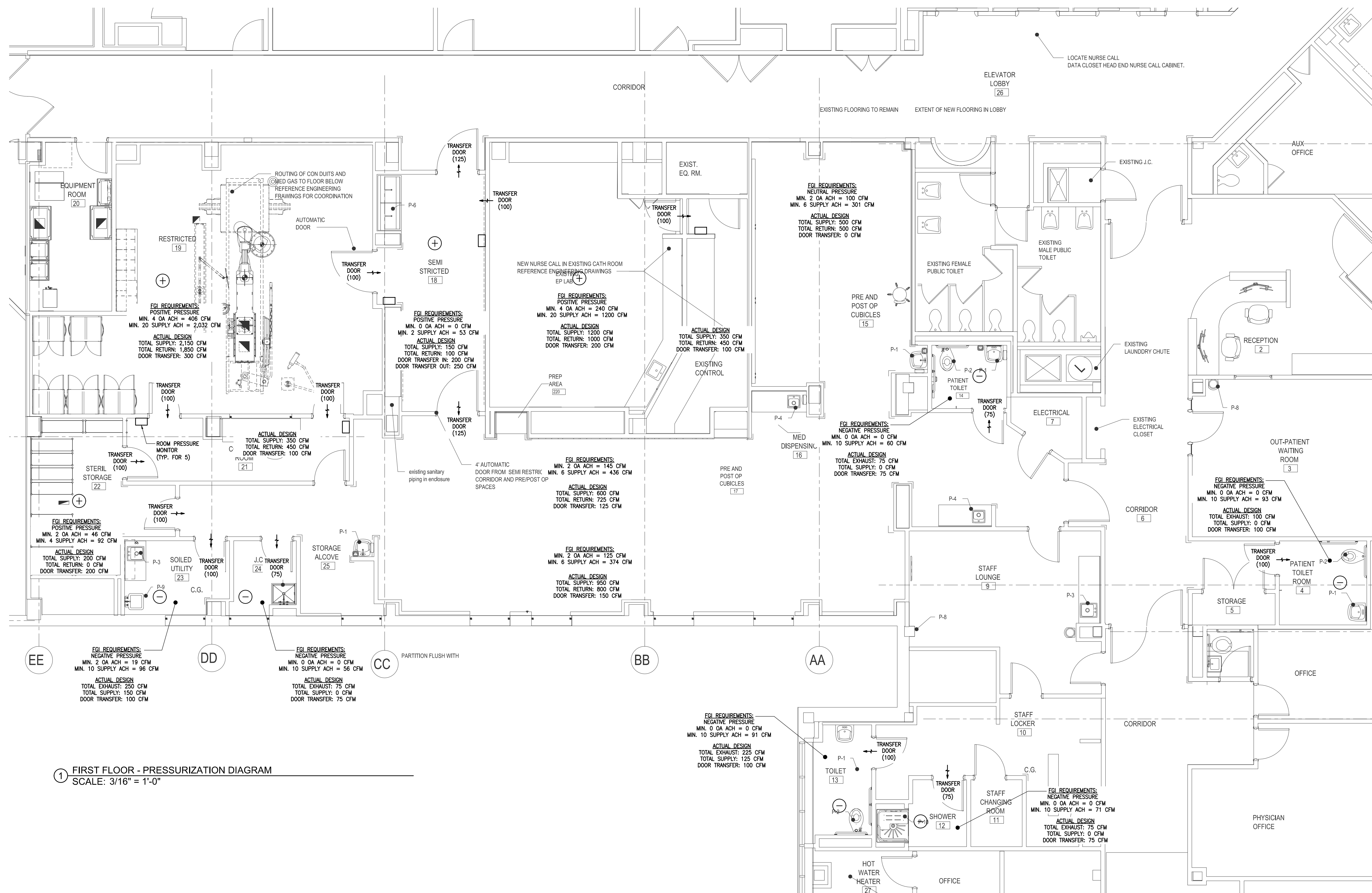
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① FIRST FLOOR - PRESSURIZATION DIAGRAM  
SCALE: 3/16" = 1'-0"

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STATEN ISLAND NY

Drawing Title

MECHANICAL FIRST FLOOR -  
PRESSURIZATION DIAGRAM

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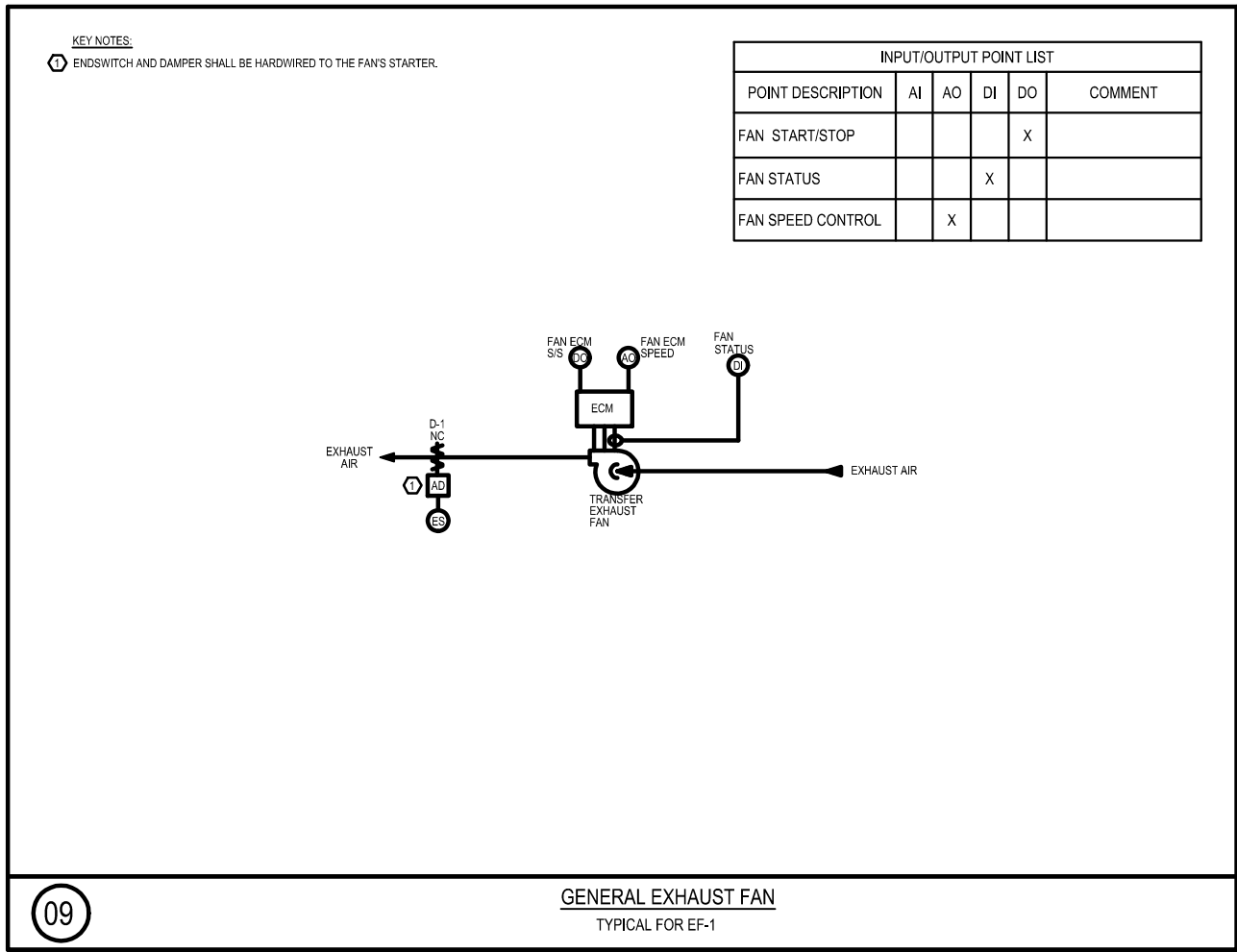
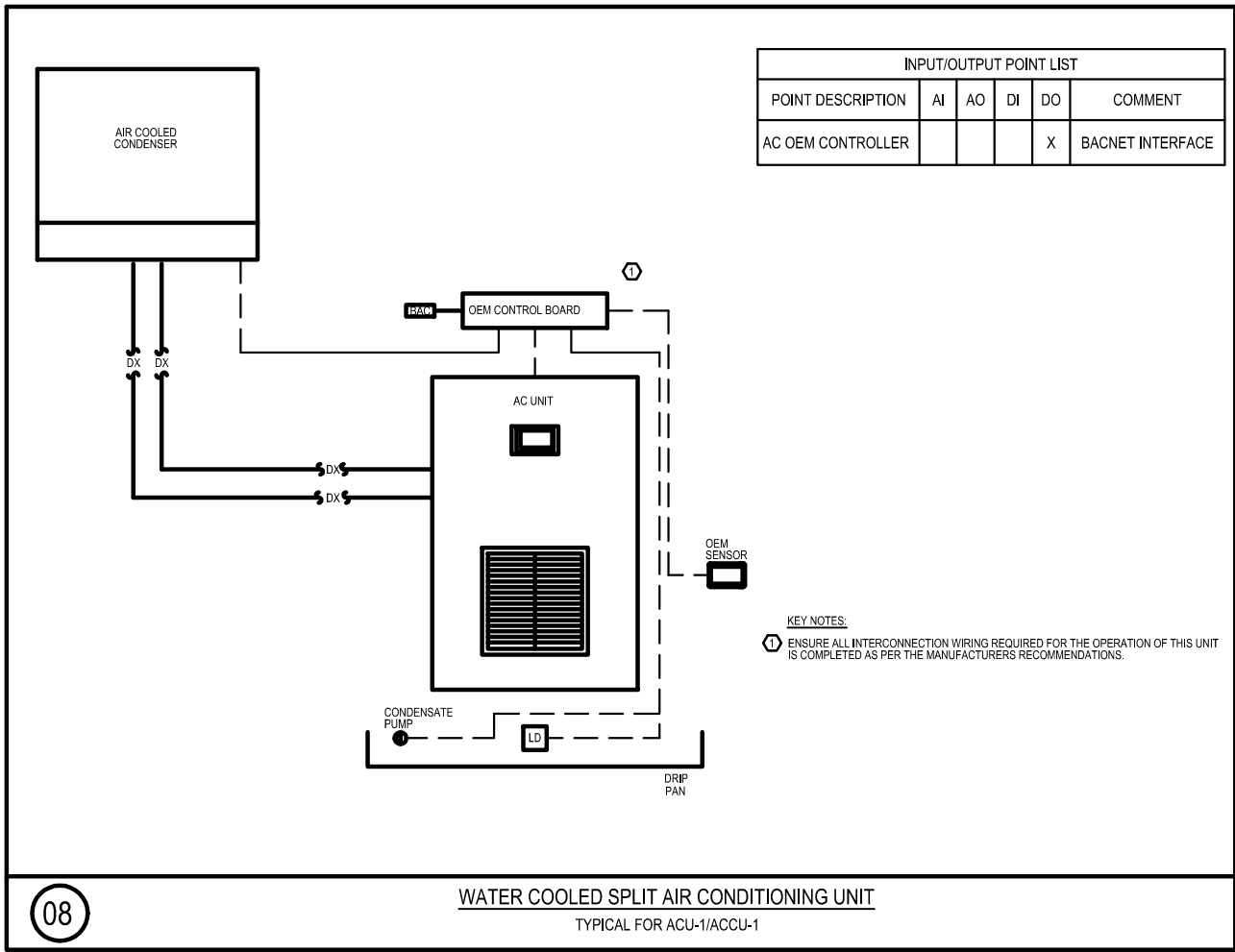
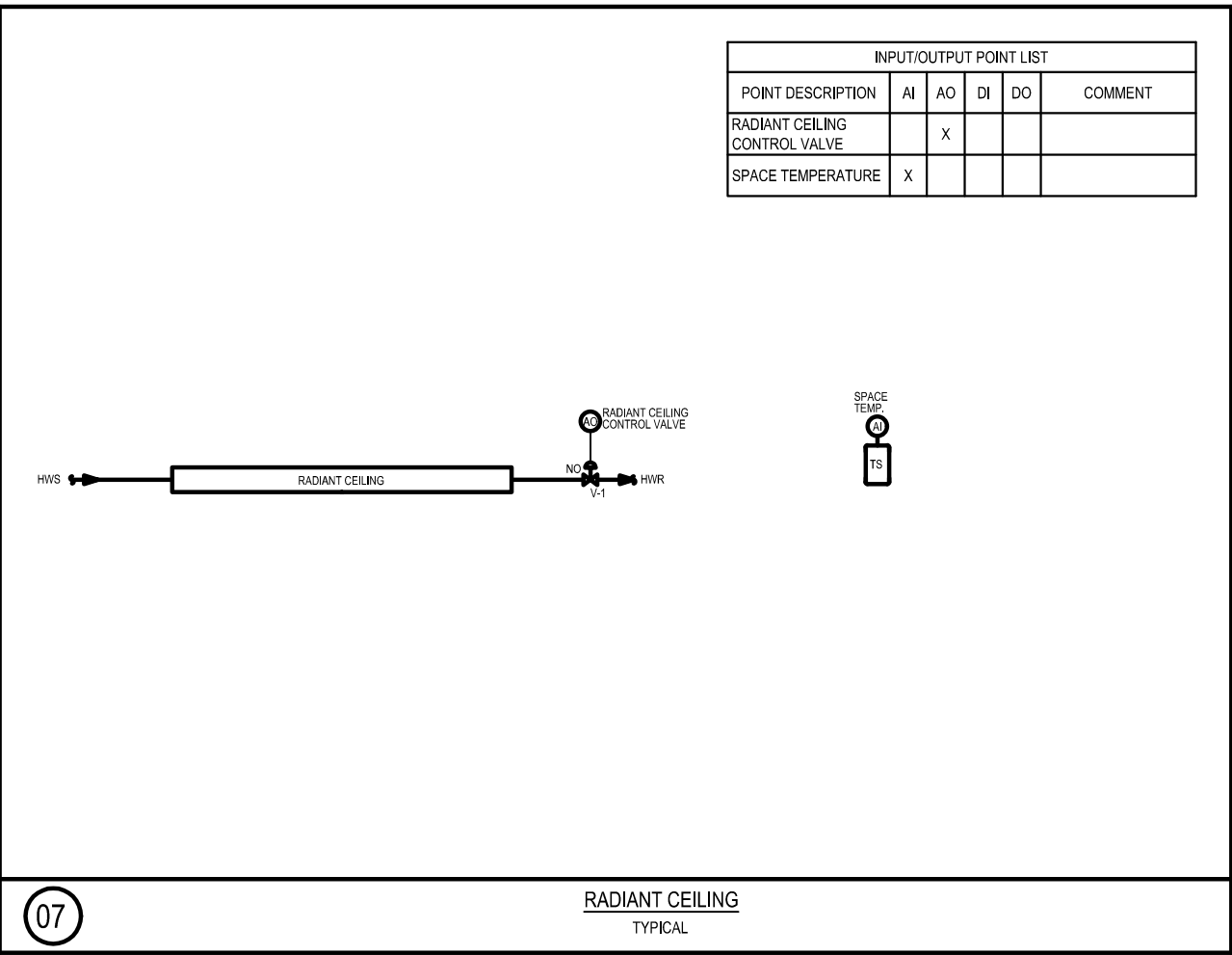
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MECHANICAL CONTROLS  
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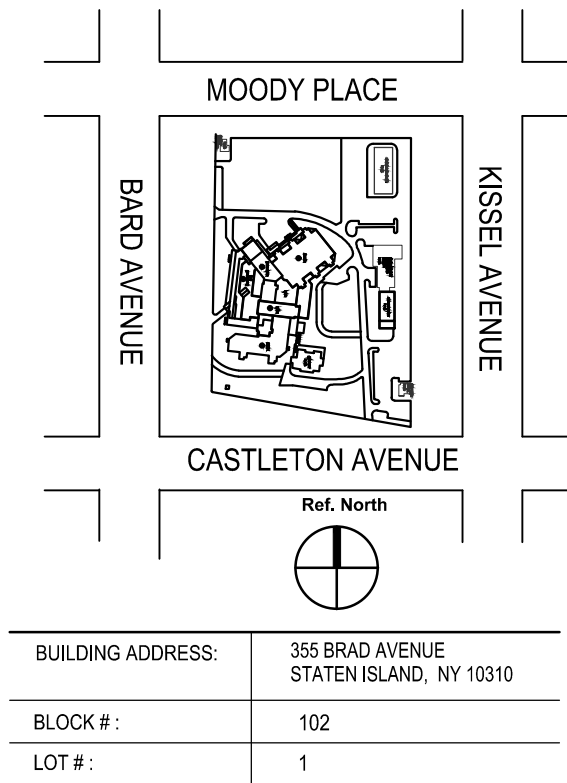
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2020 NYCECC Commercial HVAC Tabular Analysis					
NYCECC Citation	Provision	Design/Action	Code Provisions Value (2020)	Proposed Design Value	Suggesting Recommendation
C403.1.1	<b>Calculation of heating and cooling loads (Mandatory)</b>	Load calculations for HVAC systems	Sample text: Determined in accordance with ANSI/ASHRAE/ACCA Standard 183 HVAC Systems and Equipment Handbook	Design loads are determined in accordance with the procedures described in the ANSI/ASHRAE/ACCA Standard 183.	Signed and sealed statement from Engineer certifying compliance with Energy Code
C403.2.1	<b>Zone isolation required (Mandatory)</b>	Zone isolation	HVAC systems serving zones that are over 25,000 ft <sup>2</sup> in floor area or that span more than one floor and are designed to operate or be occupied nonsimultaneously shall be controlled independently and divided into isolation areas where each area has isolation devices and controls configured to automatically shut off the supply of conditioned and outdoor air to and exhaust air from the isolation area.	The area of work is less than 25,000 ft <sup>2</sup> and our equipment only serves (1) floor.	See mechanical plans, M-201.00.
C403.2.2	<b>Ventilation (Mandatory)</b>	Ventilation cfm and Outdoor air control	Where mechanical ventilation is provided, systems shall be capable of reducing outdoor air to the minimum requirements from Chapter 4 of the NYC MC	Motorized dampers shall have ability to operate at minimum required ventilation rates, per requirements - list minimum CFM per space type	See mechanical schedule, M-401.00, mechanical control sequences, drawing M-801.00.
C403.3.1	<b>Equipment sizing (Mandatory)</b>	HVAC systems sizing based on load calculations	Heating and cooling equipment shall not exceed calculated loads	Specified equipment sized within load calculation limits	Signed and sealed statement from Engineer certifying compliance with Energy Code
Table C403.3.2(1)	<b>Minimum efficiency requirements: electrically operated unitary air conditioners and condensing units</b>	Split System 80,000 btu air cooled AC unit, ACU-1 and condensing unit ACCU-1	Net Sensible Cooling Capacity: for units greater or equal to 65,000 btu and less than 240,000  Minimum SCOP: 2.10 Down-Flow/1.99 Up-Flow	SCOP: 2.14 Up-Flow	Split System air cooled air conditioning system schedule, drawing M-402.00.
C403.4.1	<b>Thermostatic controls (Mandatory)</b>	Thermostats/humidistats for mechanical zones	Minimum one thermostat/humidistat required per zone	One thermostat is provided for each zone	Sample text: Thermostats shown on mechanical plans, M-302.00.
C403.4.1.3	<b>Set point overlap restriction (Mandatory)</b>	Heat pump, split unit thermostats	Zone thermostat operation shall have minimum 5 °F dead band between heating and cooling	Each thermostat will be programmed as required	See mechanical control sequences in the mechanical book specification.
C403.4.2	<b>Off-hour controls (Mandatory)</b>	All zones	All zone thermostat shall be operated via thermostatic setback controls operated via an automatic time clock or a programmable control system	Each thermostat will be programmable to meet requirements	See mechanical control sequences in the mechanical book specification.
C403.4.2.1	<b>Thermostatic setback (Mandatory)</b>	All zones	Controls shall have ability to setback temperatures down to 55 °F (13°C), or up to 85 °F	Each thermostat will be programmable to meet requirements	See mechanical control sequences in the mechanical book specification.

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C403.7.7	<b>Shutoff dampers (Mandatory)</b>	Outdoor air intake, exhaust openings, stairway and shaft vents	Each outdoor supply air and exhaust air ducts shall be provided with motorized dampers to shut off or open as required by this section. Class 1 motorized damper with a maximum air leakage rate of 4cfm/ft <sup>2</sup> of damper surface area at 1.0 inch water gauge.	Class 1 motorized damper with a maximum air leakage rate of 4cfm/ft <sup>2</sup> of damper surface area at 1.0 inch water gauge	See mechanical schedule, M-401.00, mechanical control sequences in mechanical book specification.
C403.8.1, TABLES C403.8.1(1) & C403.8.1(2)	<b>Allowable Fan Horsepower (Mandatory)</b>	AHU-1 Supply Fan, AHU-1 Return Fans	Total system fan hp shall not exceed limits in Table C403.8.1(1)	AHU-1 Supply Fan, Total Fan power = 7.5 bhp  AHU-1 Return Fans Total Fan power = 7.5 bhp	Mechanical schedules drawing M-401.00
C403.8.2	<b>Motor nameplate horsepower (Mandatory)</b>	Exhaust Fans, EF-1  AHU-1 Supply Fan, AHU-1 Return Fans	Motor selection does not except 1.5xbhp for fans less than 6bhp  Motor selection does not except 1.3xbhp for fans greater than 6bhp	Fan hp < hp hp = 1.5 * 0.53 bhp  Fan hp < hp hp = 1.3 * 5.6 bhp	See mechanical Schedules drawing M-401 and M-402
C403.8.3	<b>Fan Efficiency (Mandatory)</b>	AHU-1 Supply Fan, AHU-1 Return Fans	Minimum FEG = 67	Minimum FEG = 67	See mechanical Schedules drawing M-401.00
C403.8.4	<b>Fractional hp fan motors (Mandatory)</b>	Fractional hp fan motors  Exhaust Fans, EF-1	Motor fans 1/12 hp to 1 hp shall be electronically commutated motors or have a minimum efficiency of 70% and must have the means to adjust motor speed for either balancing or remote control. The use of belt-driven fans to sheave adjustments for airflow balancing instead of varying motor speed are permitted.	Motor fan 1 hp and efficiency 70%	See mechanical Schedules drawing M-402.00
C403.8.5.1	<b>Fan Airflow control</b>	Fan controls for AHU-1	Supply fans controlled by variable speed drives and configured to requirements in C403.8.5.1.	Variable speed fan controls provided per requirements	See mechanical Schedules drawing M-401.00
C403.11.1	<b>Duct and plenum insulation and sealing (Mandatory)</b>	All ductwork	Supply and return ducts and plenums in shall have a minimum of R-6 where located in unconditioned spaces and R-8 minimum where located outside the building. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by a minimum of R-8.	Unconditioned spaces: R-6 Conditioned spaces: None, exterior wall insulated >R-8	See mechanical book specification.

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C403.4.2.2	<b>Automatic setback and shutdown (Mandatory)</b>	All zones	Controls shall be capable of automatically starting and stopping the systems for seven different daily schedules per week, capable of having settings saved in memory for 10 hours during a loss of power, and a manual system "on" override for up to two hours, or an occupancy sensor	Each thermostat will be programmable to meet requirements	See mechanical control sequences in the mechanical book specification.
C403.4.2.2	<b>Automatic start (Mandatory)</b>	All zones	Controls shall be provided for each HVAC system and automatically adjusting the daily start time of the HVAC in order to bring each space to the desired temperature.	Each thermostat will be programmable to meet requirements	See mechanical control sequences in the mechanical book specification.
C403.4.3.2	<b>Two-pipe Changeover System</b>	Two Pipe Changeover	Dead band for change-over is a minimum of 15 degrees F based on O.A., minimum operation in one mode for 4 hours before changeover, heating and cooling supply temperature no more than 30 degrees F apart at change-over point.	Dead band controls as per requirements	See mechanical schedule, M-401, mechanical control sequences in mechanical book specification.
C403.5.3	<b>Air economizers</b>	Air economizers, AHU-1	Air economizers shall be configured to provide up to 100% of design supply air quantity as outdoor air for cooling. Economizer controls/dampers configured to sequence dampers with the cooling equipment. Fixed dry-bulb control, high limit shutoff when outdoor air Temp > 65. Systems capable of relieving excess outdoor air during economizer operation.	Air economizer system controls, As per requirements	See mechanical schedule, M-401, mechanical control sequences, in mechanical book specification.
C403.6.1	<b>Variable air volume and multiple-zone systems</b>	VAV system	VAV system with multiple zone, primary air to each zone shall be reduced to a minimum requirements before reheating, recooling, or mixing takes place.	Control sequences provided as required	See mechanical schedule, M-401.00, mechanical control sequences in mechanical book specification.
C403.7.3	<b>Ventilation air heating control (Mandatory)</b>	AHU-1	Units that provide ventilation air and operate in conjunction with heating/cooling systems shall not warm supply air to greater than 60F when majority of zones require cooling.	Control sequences provided as required	See mechanical schedule, M-401.00, mechanical control sequences in mechanical book specification.

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C403.11.2	<b>Duct Construction (Mandatory)</b>	Ductwork	Shall be constructed and erected in accordance with the NYCMC	Ductwork must be constructed and erected in accordance with the NYCMC	See mechanical book specification.
C403.11.2.1	<b>Low-Pressure Duct Systems (Mandatory)</b>	Low Pressure Ductwork	All low pressure ducts, operating at 2" of W.G. or less shall be properly sealed with approved methods	All low pressure ducts properly sealed as per requirements	See mechanical book specification.
C403.11.2.2	<b>Medium-Pressure Duct Systems (Mandatory)</b>	Medium Pressure Ductwork	Ducts operating between 2" and 3" W.G. shall be insulated and sealed per C403.11.1 and must be clearly indicated on the construction documents in accordance with NYCMC	All medium pressure ducts sealed as per requirements and insulated to R-6	See mechanical book specification.
C403.11.2.3	<b>High Pressure Duct Systems (Mandatory)</b>	High Pressure Ductwork	Ducts operating in excess of 3" W.G. shall be insulated and sealed per C403.11.1 and leak tested per code requirements with a rate of air leakage (CL) less than or equal to 4.0	All high pressure ducts sealed as per requirements and insulated to R-8. All ducts leak tested to < 4.0, per Equation 4-8	See mechanical book specification.
TABLE C403.11.3	<b>Minimum Piping Insulation Thickness</b>	Steam piping and condensate: Chilled Water Piping Hot Water Piping Refrigerant insulation Drain Insulation:	Steam: 201F - 250F, 1-1/2" - <4" dia. = 2.5" Chilled Water: 1-1/2" - <4" dia. = 1" Hot water piping: 100F - 200F, <2" dia. = 2" Drain: <40F, 1" dia. = 1" Refrigerant insulation: <40F, < 1" diameter = 0.5 inches	Steam: 201F - 250F, 1-1/2" - <4" dia. = 2.5" Chilled Water: 1-1/2" - <4" dia. = 1" Hot water piping: 100F - 200F, <2" dia. = 2" Drain: <40F, 1" dia. = 1" Refrigerant insulation: <40F, < 1" diameter = 1 inches	See mechanical book specification.
C403.11.3.1	<b>Protection of piping insulation (Mandatory)</b>	Piping located outdoors	All piping insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance and wind. Adhesive tape is not permitted.	All outdoor piping insulation is protected from damage.	See mechanical book specification.
C403.12.2	<b>Freeze protection system controls</b>	Heat tracing of outdoor piping	Freeze protection systems shall include automatic controls that shut off the systems when outdoor air temperatures are above 40°F or when the conditions of the protected fluid will prevent freezing	Heat tracing of outdoor piping shall include automatic controls that shut off the systems when outdoor temperatures are above 40°F or when the conditions of the protected fluid will prevent freezing	See mechanical plans, M-206.00. See mechanical book specification.



FLOOD HAZARD AREA NOTE:

THIS PROPERTY IS NOT IN A SPECIAL FLOOD HAZARD AREA (SFHA).

NYC ENERGY CODE COMPLIANCE

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 NEW YORK CITY ENERGY CONSERVATION CODE.

1 PLOT PLAN

SCALE: NTS

TR-1 SPECIAL INSPECTION ITEMS
<ul style="list-style-type: none"><li>MECHANICAL SYSTEMS (BC 1704.16)</li><li>FIRE-RESISTANT PENETRATIONS AND JOINTS (BC 1704.27)</li><li>POST-INSTALLED ANCHORS (BB# 2014-018, 2014-019) (BC1704.32)</li><li>ENERGY CODE COMPLIANCE INSPECTIONS (TR-8) (BC 110.3.5)</li><li>FINAL INSPECTIONS (28-116.2.4.2) (BC 110.5) (DIRECTIVE 14 OF 1975, &amp; 1 RCNY 101-10)</li></ul>

SPECIAL INSPECTIONS NOTE
POST INSTALLED ANCHOR INSPECTION TO BE PERFORMED DURING ACTUAL INSTALLATION. IF NOT PERFORMED DURING THE INSTALLATION, THE INSTALLING CONTRACTOR IS RESPONSIBLE (ON HIS OWN EXPENSE) TO ENGAGE THE LICENSED STRUCTURAL ENGINEER WHO WILL ESTABLISH THE TEST LOAD CRITERIA. THE SPECIAL INSPECTOR IS TO ESTABLISH THE AMOUNT OF TEST POINTS. THE SPECIAL INSPECTOR IS TO BE PRESENT ON THE SITE DURING TESTING AND SIGN-OFF IF SATISFIED.

TR-8 PROGRESS INSPECTION ITEMS
<ul style="list-style-type: none"><li>HVAC AND SERVICE WATER HEATING CONTROLS (IB4), (IIB4)</li><li>HVAC INSULATION AND SEALING (IB5), (IIB5)</li><li>DUCT LEAKAGE TESTING (IB6), (IIB6)</li></ul>

## PROJECT CAPACITY SUMMARY

TOTAL COOLING CAPACITY: 755,700 BTU

TOTAL HEATING CAPACITY: 684,900 BTU

SCHUNKKEWITZ

ARCHITECTURE

INTERIORS

PROJECT MANAGEMENT

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Seal & Signature

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**Lilker**

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2	04/28/2023	Issued for 50% CD's
1	03/31/2023	DD Review Set
no.	date	description

Client Name:

RICHMOND UNIVERSITY  
MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB  
355 BARD AVENUE  
STATEN ISLAND NY

Drawing Title:

ENERGY CODE  
COMPLIANCE

Drawn By:	Date:
SPK	05/23/2023
Checked By:	Scale:
JM	AS NOTED

Issued To, For:

CONSTRUCTION DOCUMENTS

File No.: R2000

Drawing No.:

EN-001.00

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THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.