



**EXP Services Inc.**  
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## Mechanical

### Addendum No. M-04

Reference: Added Scope and clarification

Issue Date: November 18, 2024

Project: UHN TWH – SEM & Corridor (EXP Project Number MRK-23004289-A0)

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This addendum shall form an integral part of the Bid Documents for the above project and shall be read in conjunction therewith. This addendum shall, however, take precedence over all requirements of the previously issued Drawings and Specifications with which it may prove to be at variance, unless otherwise clarified by the Consultant.

This addendum must be signed by the Bidder in the appropriate space and must be attached to the back of the Bid Form for submission at the time of bidding. Bids not including this addendum signed as requested may be rejected as informal.

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### Revisions / Clarifications

The following changes and clarifications shall be considered when submitting your bid.

#### **1.1. MECHANICAL DRAWINGS**

##### **1.1.1. M-003 – SEPARATE PRICE PLAN**

- .1 Updated the arch backgrounds.

##### **1.1.2. M-100B – BASEMENT & LEVEL 1 - DEMO -MECHANICAL**

- .1 Updated the general notes and drawing keynotes.

##### **1.1.3. M-111 – UNDERGROUND FLOOR PLAN – NEW WORK - PLUMBING**

- .1 Removed water main option 2 piping and water meter.
- .2 Updated water and fire main tie-in connections to be within the crawl space.
- .3 Keynote 16 and 17 revised to show water and fire main options 1 and 2.
- .4 Keynote 18 added to clarify main service connections.

- .5 Steam pipe routing revised, tentative location for new PRV provided.
- .6 Updated pipe sleeve note to include for core drilling.
- .7 Incoming water and fire main photo and photo reference added.
- .8 Steam tie-in photo removed.
- .9 Notes added for pipe routing coordination.

**1.1.4. M-313 – LEVEL PH & RF FLOOR PLAN - NEW WORK - HVAC**

- .1 Added steam line in penthouse

**1.1.5. M-401 – LEVEL 1 FLOOR PLAN – DEMO – FIRE PROTECTION**

- .1 Added a tag for the surface mounted siamese connection sprinkler and standpipe.

**1.1.6. M-411B – LEVEL 1 FLOOR PLAN – CORRIDOR – NEW WORK – FIRE PROTECTION**

- .1 Removed window sprinkler coverage.
- .2 Added option 2 routing with new zone control valve cabinet.

**1.1.7. M-602 – HYDRONIC & PIPING SCHEMATIC DIAGRAMS**

- .1 Updated the piping size to match the floor plan

**1.1.8. M-701 – MECHANICAL SCHEDULES #1**

- .1 Updated the AHU and fan coil unit schedules.

**1.1.9. M-702 – MECHANICAL SCHEDULES #1**

- .1 Updated the heat exchanger and hydronic pump schedules.

**1.2. MECHANICAL SPECIFICATIONS (Added sections)**

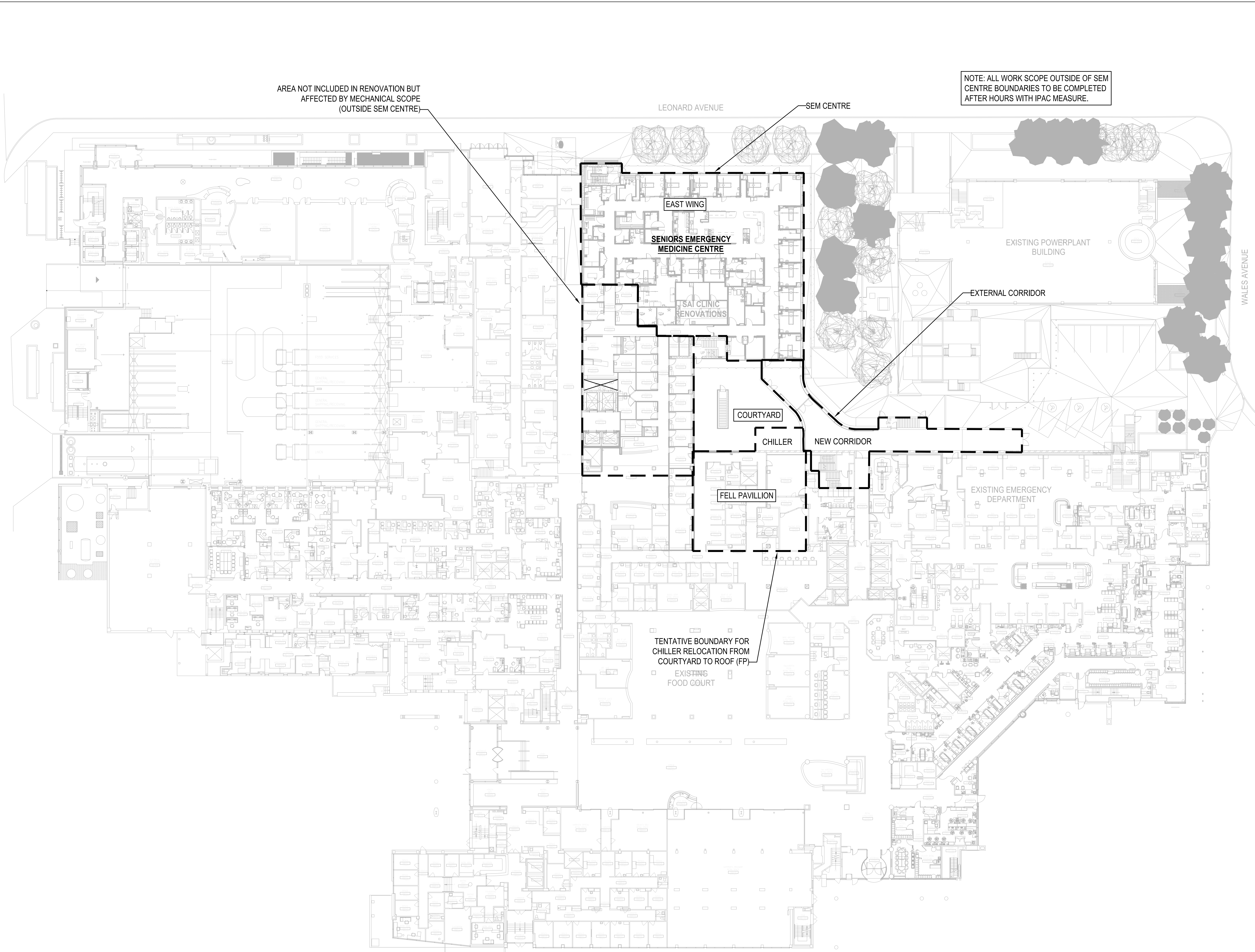
- 1.2.1. Section 20 05 15: Seismic Control and Restraint
- 1.2.2. Section 21 11 00: Fire Suppression Water-Service Piping
- 1.2.3. Section 21 20 00: Fire-Extinguishers
- 1.2.4. Section 23 01 31: Air Duct Cleaning for HVAC Systems
- 1.2.5. Section 23 05 01: Use of HVAC Systems During Construction
- 1.2.6. Section 23 21 14: Pre-Insulated Heat Transfer Piping
- 1.2.7. Section 23 82 39: Motorized Heaters

**1.3. MECHANICAL SPECIFICATIONS (Revised sections)**

- 1.3.1. Section 22 40 00: Plumbing Fixtures and Fittings for Healthcare Facilities
- 1.3.2. Section 23 21 13: Hydronic piping and valves
- 1.3.3. Section 25 05 05: Integrated Automation Instruments and Control Elements

----- **END OF MECHANICAL ADDENDUM No. M-04** -----





AREA NOT INCLUDED IN RENOVATION BUT  
AFFECTED BY MECHANICAL SCOPE  
(OUTSIDE SEM CENTRE)

LEONARD AVENUE

SEM CENTRE

NOTE: ALL WORK SCOPE OUTSIDE OF SEM  
CENTRE BOUNDARIES TO BE COMPLETED  
AFTER HOURS WITH IPAC MEASURE.

EXISTING POWERPLANT  
BUILDING

EXTERNAL CORRIDOR

WALES AVENUE

COURTYARD

CHILLER

NEW CORRIDOR

FELL PAVILLION

EXISTING EMERGENCY  
DEPARTMENT

TENTATIVE BOUNDARY FOR  
CHILLER RELOCATION FROM  
COURTYARD TO ROOF (FP)

EXISTING  
FOOD COURT

10	Issued for Addendum M-04	2024.11.18
9	Issued for Addendum M-03	2024.11.12
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2	Issued for 100 DD	2024.05.10
1	Issued for Design Development Progress	2024.04.05
NO	DESIGN INTENT	DATE

PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
399 Bathurst Street Toronto, ON M5T 2S8

TITLE:  
KEYPLAN

LEGEND - SEPERATE PRICE

- PATIENT TRANSFER
- FELL REMEDIATION WATERPROOFING
- BAI TOUCHDOWN DAY AREA
- BELOW GRADE CRAWL SPACE
- COURTYARD LANDSCAPING, RESTORATION & ENHANCEMENT
- SENIORS EMERGENCY MEDICINE CENTRE & CORRIDOR & HALLS

CLIENT:

UHN University Health Network  
Toronto Western Hospital  
399 Bathurst Street  
Toronto, ON M5T 2S8  
www.uhn.ca

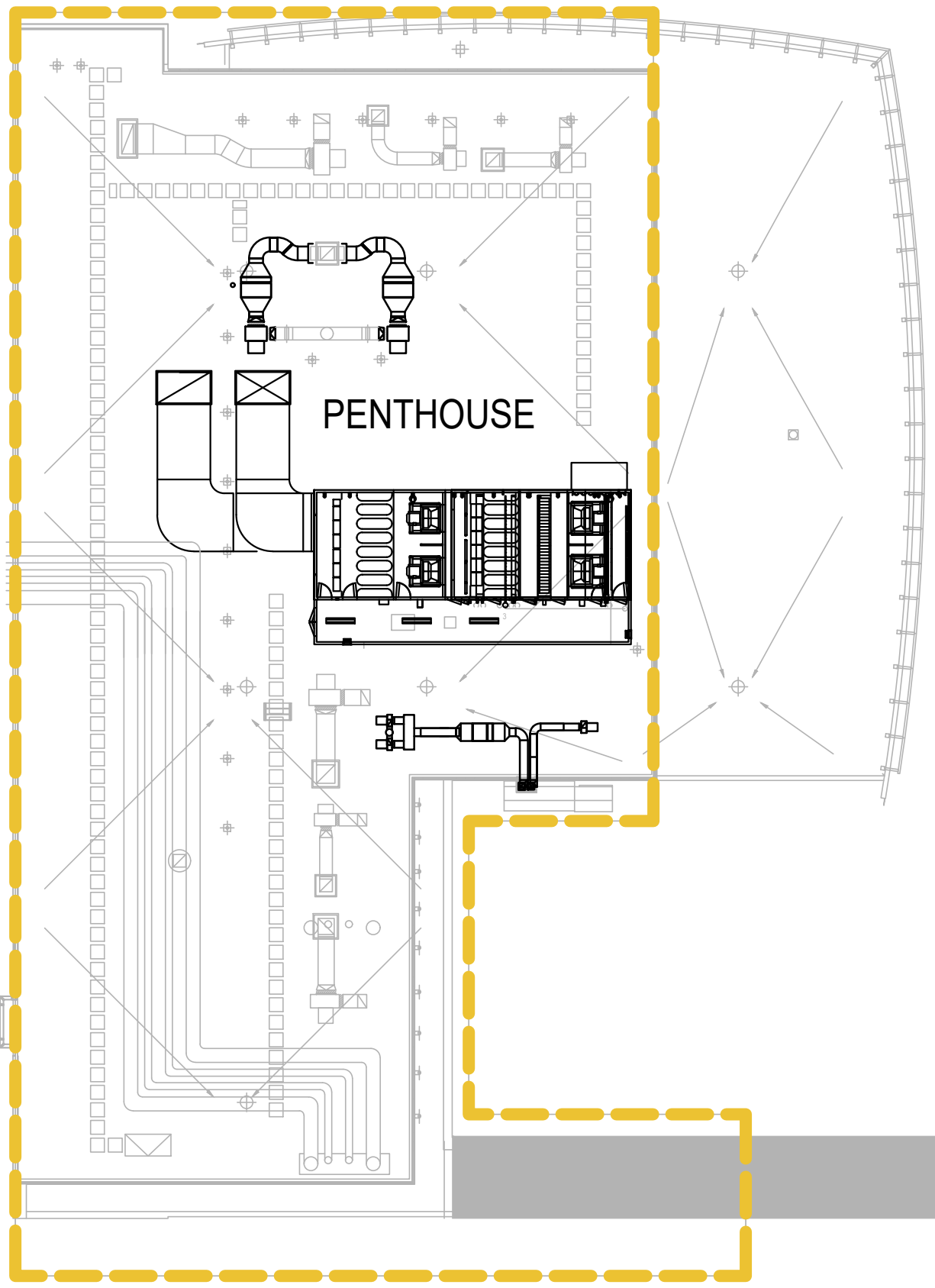
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416-538-0763  
www.cumulusarch.com

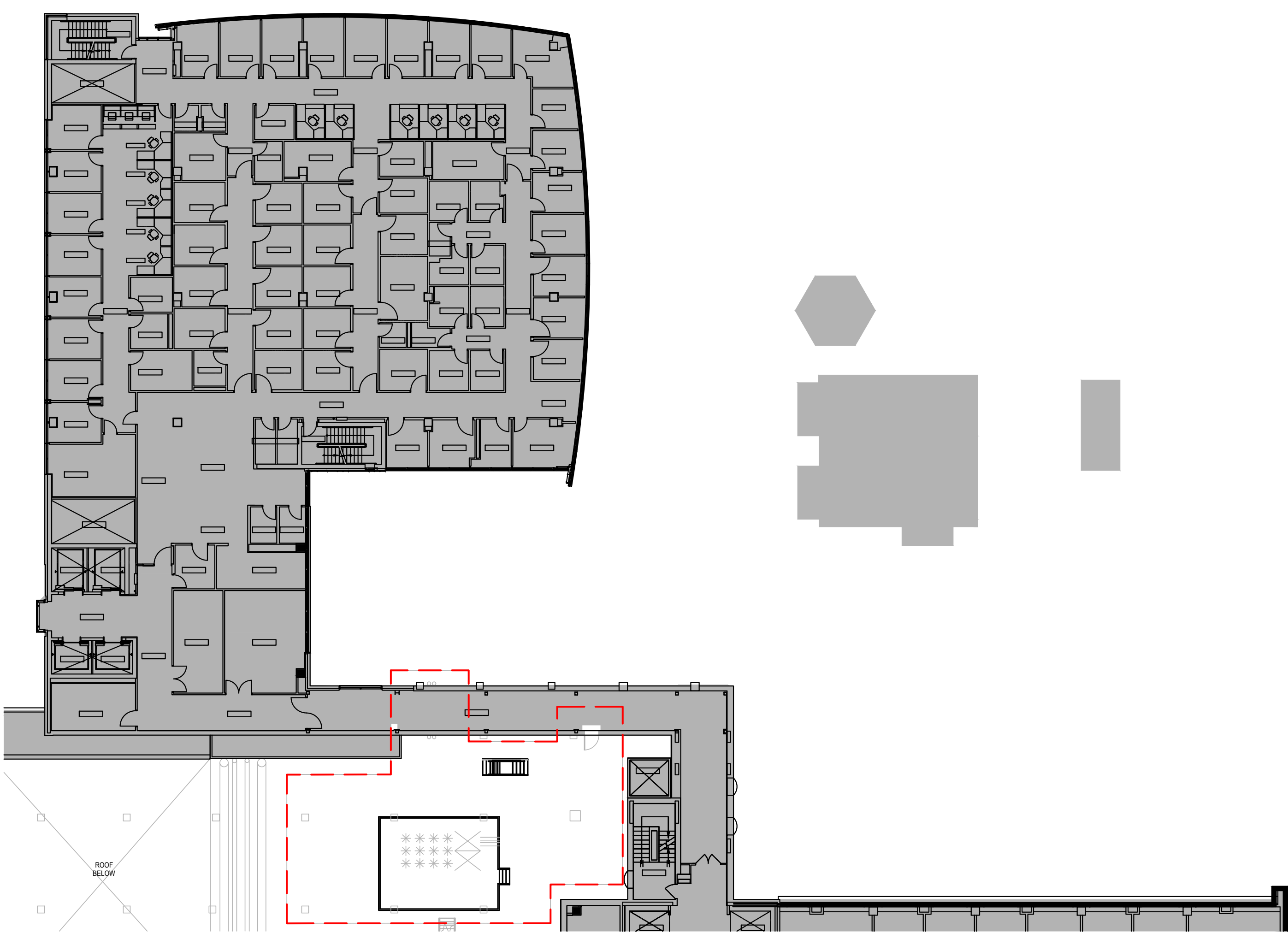
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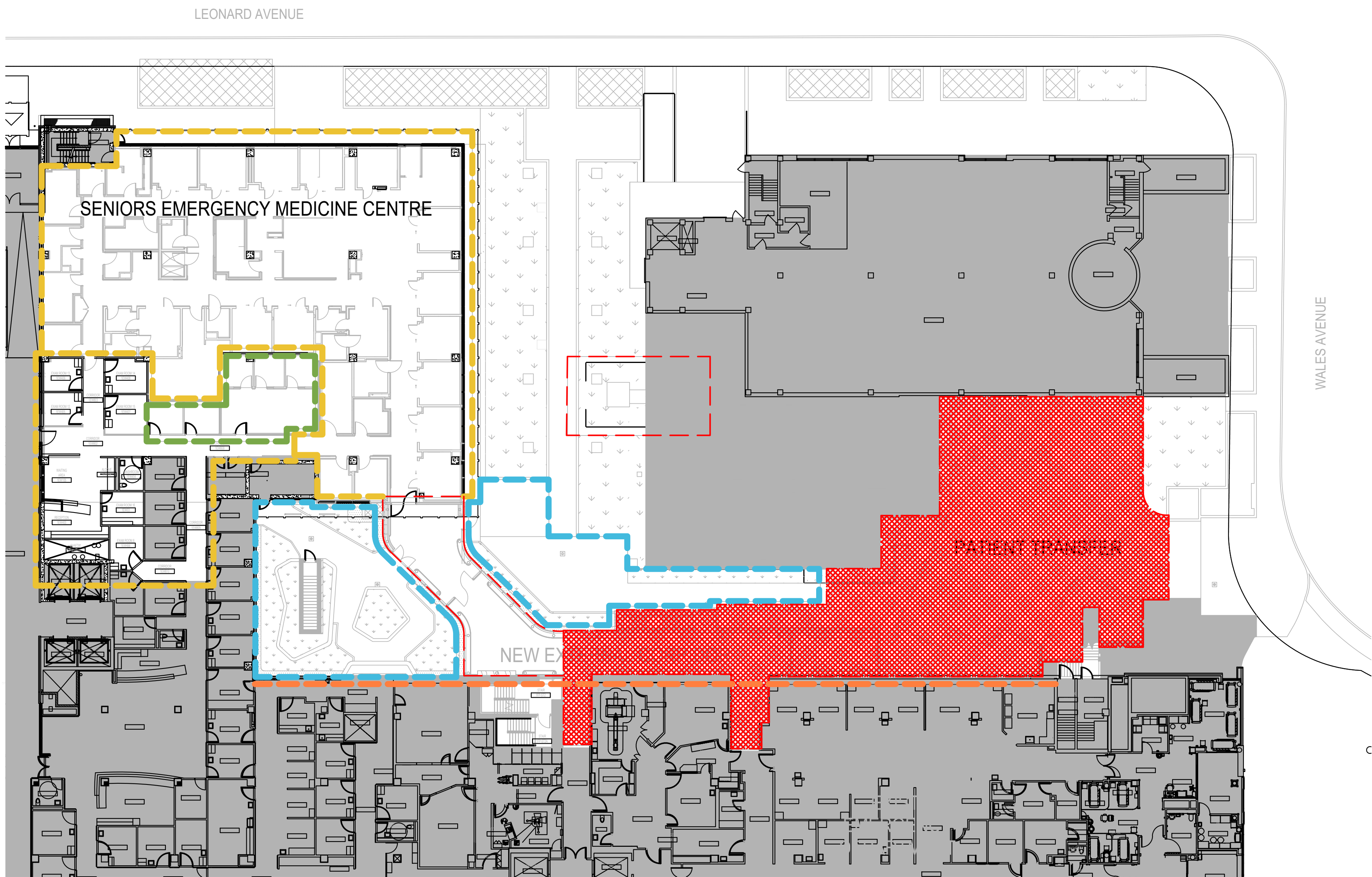
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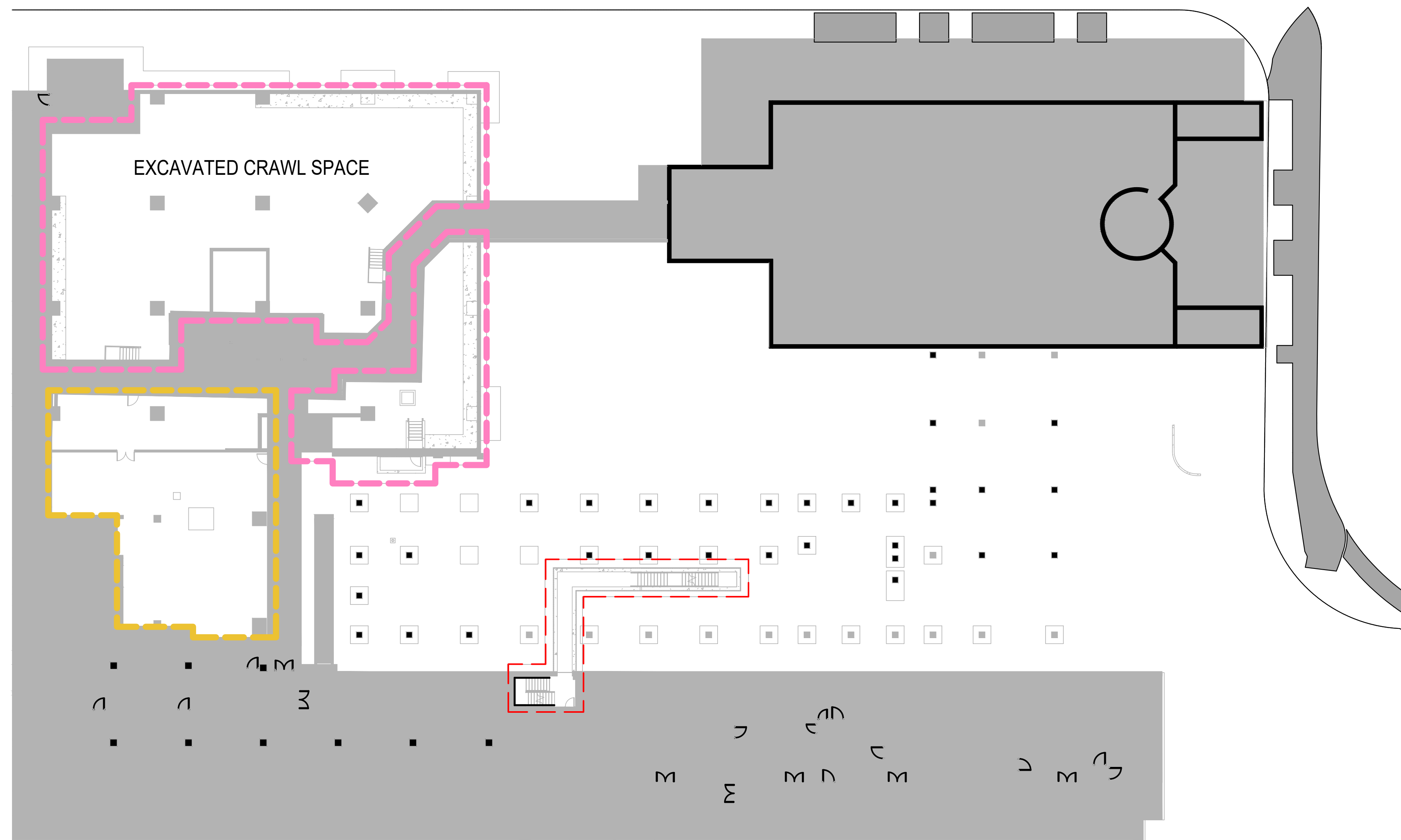
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1 : 250



③ Separate Price - Level 8  
1 : 250



② Separate Price - Level 1  
1 : 250

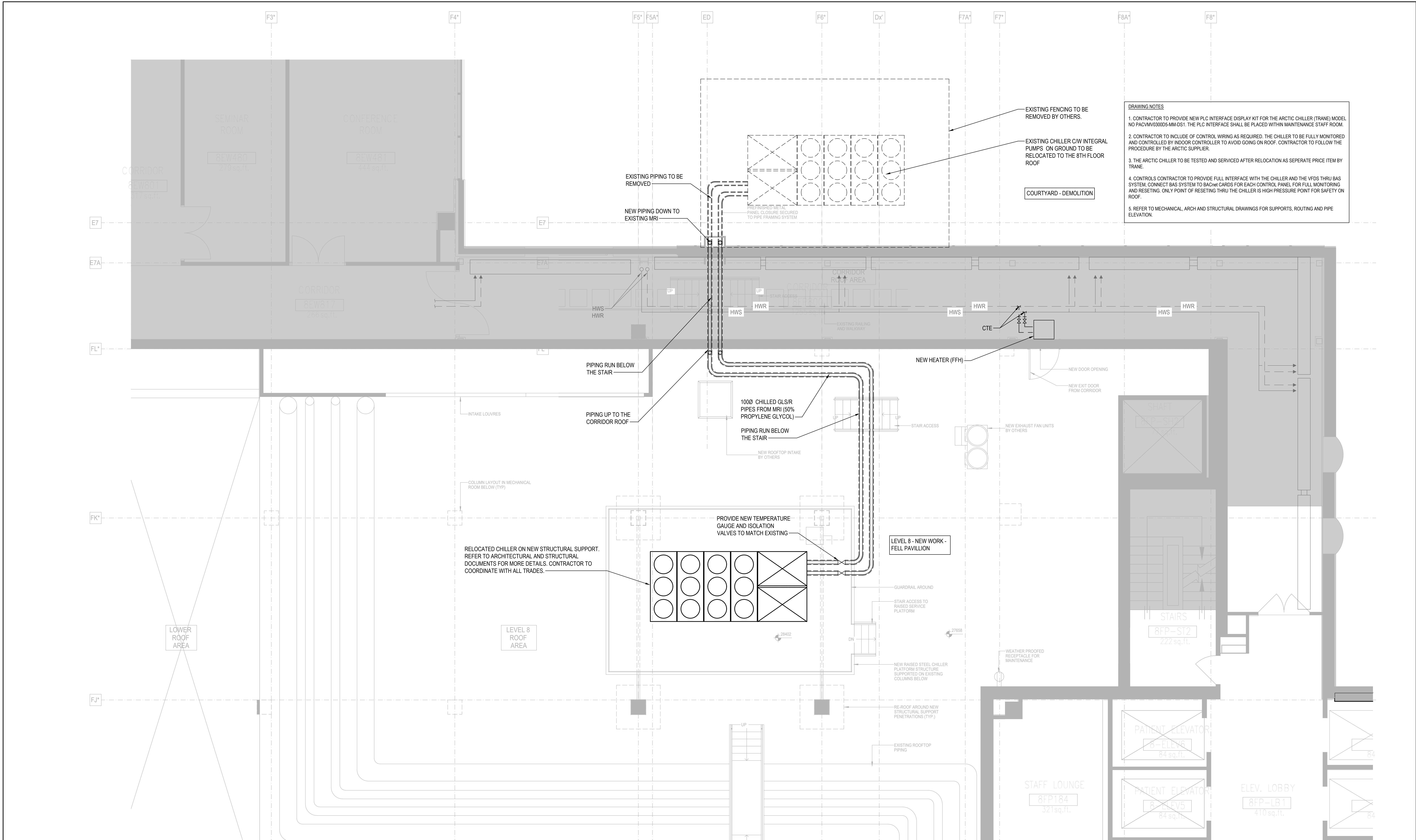


① Separate Price - Basement Plan  
1 : 250

NOTE: SEPRATE SCOPE IDENTIFICATION DRAWINGS PREPARED BY ARCH.

NO.	REVISION	DESCRIPTION	DATE
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Toronto Western Hospital			
399 Bathurst Street Toronto, ON, M5T 2S8			
TITLE:			
SEPARATE PRICE PLAN			
PROJECT NO:			
MRK-23004289			
DRAWING NO:			
M-003			
CHECKED:			
S.S.			

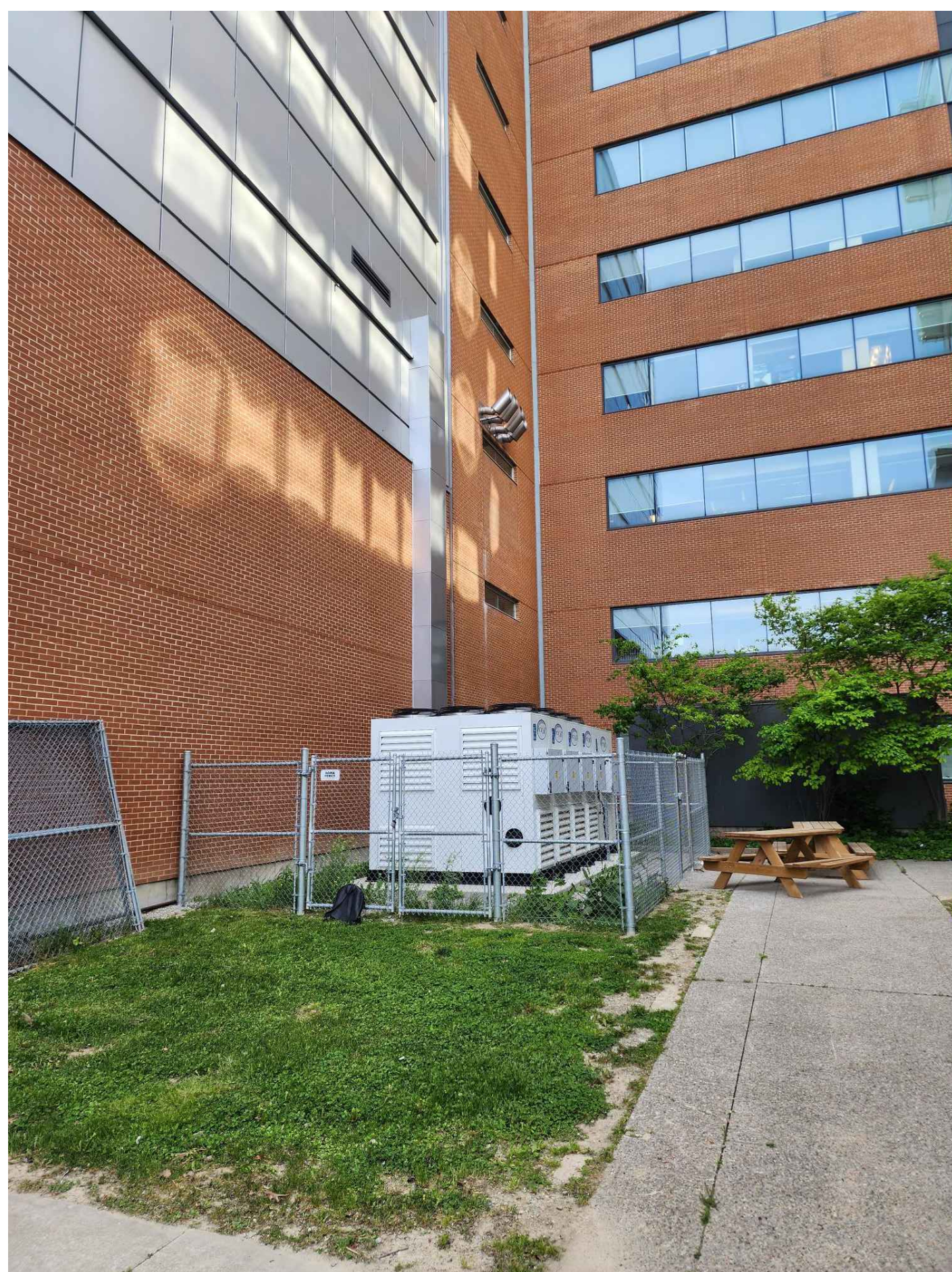




1 LEVEL 8 FLOOR PLAN - NEW WORK  
1:50



EXISTING CHILLER



EXISTING CHILLER



EXISTING CHILLER ISOLATION VALVES



EXISTING CHILLER TEMPERATURE GAUGE

- GENERAL NOTES**
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, MINISTRY OF THE ENVIRONMENT, MINISTRY OF LABOUR, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION WHICH ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SPECIFICATION.
  - THE EXISTING SERVICES SHOWN ON THIS DRAWING ARE FOR INFORMATION. THIS INFORMATION MUST NOT BE ASSUMED TO BE COMPLETE OR UP-TO-DATE. THE MECHANICAL SHALL CARRY OUT A FULL SURVEY OF ALL EXISTING SERVICES AND EQUIPMENT SIZE BEFORE THE COMMENCEMENT OF ANY WORK.
  - CONTRACTOR TO IDENTIFY ALL SERVICES PRIOR TO DEMOLITION.
  - PROVIDE ALL CUTTING AND PATCHING. REFER TO SPECIFICATIONS.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING FOR ANY REQUIRED SHUT-DOWN WITH FACILITY. CONTRACTOR SHALL INCLUDE FOR AND DETERMINE THE BEST METHOD TO MINIMIZE SERVICE INTERRUPTION AND IMPACT ON FACILITY OPERATION, INCLUDING FOR AFTER-HOUR WORK AS REQUIRED.
  - THE NEW PIPING AND ASSOCIATED WORK SHALL BE PERFORMED BEFORE THE CHILLER CAN BE MOVED AND SWITCH OVER TO NEW SYSTEM.
  - CONTRACTOR IN INCLUDE CONTROLS SCOPE FOR EXTENSION OF CONTROLS FOR THE CHILLER WITH BASE BUILDING CONTRACTOR.
  - CONTRACTOR IN INCLUDE FOR EXTENSION OF CONTROLS FROM THE CHILLER SUPPLIER (TRANE).

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Toronto Western Hospital  
399 Bathurst Street, Toronto, ON, M5T 2S8

TITLE:  
CHILLER RELOCATION -  
DEMOLITION AND NEW WORK -  
MECHANICAL

PROJECT NO:  
MRK-23004289  
CHECKED:  
S.S.

DRAWING NO:  
M-100A

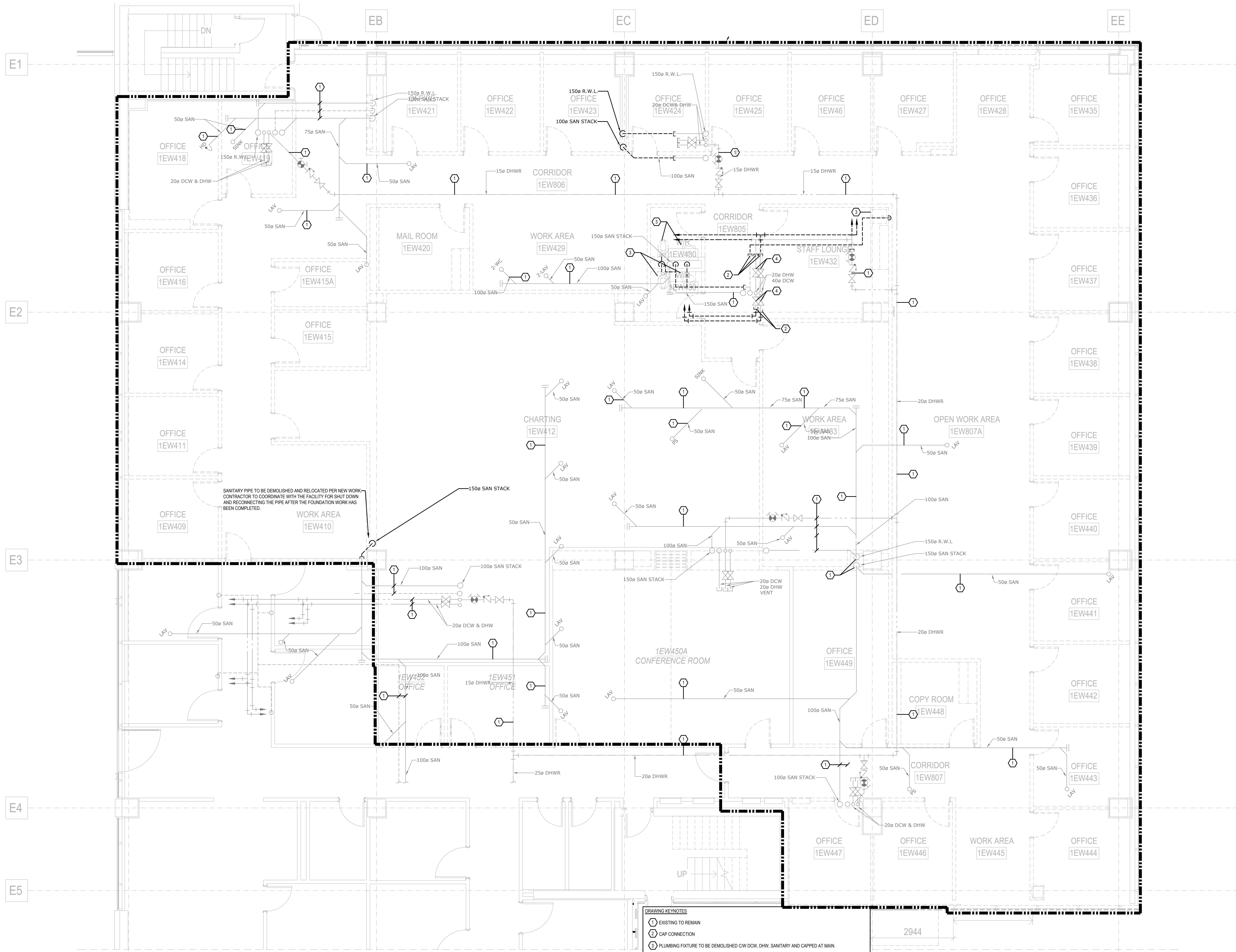


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DRAWING NO:

M-100B





- DRAWING KEYNOTES**
- EXISTING TO REMAIN
  - CAP CONNECTION
  - PLUMBING FIXTURE TO BE DEMOLISHED C/W DCW, DHW, SANITARY AND CAPPED AT MAIN.
  - ASSUME ALL EXISTING VALVES NOT HOLDING AND INCLUDE FOR PIPE FREEZING AND NEW VALVES.

- GENERAL NOTES**
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, MINISTRY OF THE ENVIRONMENT, MINISTRY OF LABOUR, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION WHICH ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SPECIFICATION.
  - THE EXISTING SERVICES SHOWN ON THIS DRAWING HAVE BEEN TAKEN FROM THE ORIGINAL CONSTRUCTION DRAWINGS. THIS INFORMATION MUST NOT BE ASSUMED TO BE COMPLETE OR UP-TO-DATE. THE MECHANICAL SHALL CARRY OUT A FULL SURVEY OF ALL EXISTING SERVICES AND STRUCTURE TO CONFIRM THE SIZE AND LOCATION OF THESE SERVICES BEFORE THE COMMENCEMENT OF ANY WORK.
  - CONTRACTOR TO IDENTIFY ALL SERVICES PRIOR TO DEMOLITION.
  - CONTRACTOR TO FIELD VERIFY ALL PIPE CONNECTION LOCATIONS AND ROUTING WITH BUILDING SERVICES PRIOR TO COMMENCEMENT OF WORK. NOT ALL PIPING AND DUCTWORK SHOWN FOR CLARITY.
  - FOR DUST CONTROL, CAP EXISTING DUCTS IN THE CONSTRUCTION AREA. CONNECTION TO EXISTING AIR DUCTS TO BE DONE AFTER COMPLETION OF ALL DUST PRODUCING TASKS.
  - PROVIDE ALL CUTTING AND PATCHING. REFER TO SPECIFICATIONS.
  - REMOVE ALL REDUNDANT PIPES, CONDUITS, INCLUDING LOOSE WIRES AND DUCTWORK. CAP AT MAIN.
  - PROVIDE CORING OF FLOOR SLAB SCAN OR X-RAY SLAB BEFORE CORING TO INVESTIGATE EXISTING REBAR LOCATION (TOP & BOTTOM). CUTTING EXISTING REBARS IN THE SLAB IS NOT PERMITTED.
  - THE DRAWINGS AND SPECIFICATIONS ARE PROVIDING THE MINIMUM PERFORMANCE REQUIREMENTS. FIRE PROTECTION SYSTEM SHALL BE PREPARED, COMPLETE, STAMPED, SIGNED, AND APPROVED BY A LICENSED FIRE PROTECTION CONTRACTOR.
  - IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE CURRENT FLOW TEST INFORMATION PRIOR TO PREPARATION OF DRAWINGS AND HYDRAULIC CALCULATIONS.
  - PROVIDE GUARDS ON ALL UPRIGHT SPRINKLERS SUBJECT TO DAMAGE, AND ON SPRINKLER HEADS IN STORAGE ROOMS, ELECTRICAL ROOMS, IT ROOMS.
  - REFER TO ARCHITECTURAL CODE COMPLIANCE PLANS FOR ALL FIRE RATED WALL PARTITIONS. PROVIDE "FIRE WRAP" TO ALL VERTICAL AND HORIZONTAL STANDPIPE THAT IS "NOT" ENCLOSED IN 2HR RATED ASSEMBLY AS PER NFPA REQUIREMENTS.
  - CONTRACTOR TO PROVIDE FIRE WATCH AS REQUIRED TO MAINTAIN FIRE SAFETY OF THE CONSTRUCTION SITE SCOPE AREA.
  - COORDINATE WITH BUILDING SUPERVISOR FOR APPROVAL TO SWITCH OFF VALVES FEEDING THE AREA PRIOR TO DEMOLISHING WORK.
  - DRAIN THE FIRE PIPE LINE PRIOR TO COMMENCING WORK. COORDINATE ON SITE.
  - REMOVE OBSOLETE SPRINKLER HEADS AND REPLACE THEM WITH PENDANT SPRINKLERS.
  - RE-ROUTE THE EXISTING PIPES TO SUIT NEW LOCATION. ADD NEW PIPES WHERE NECESSARY. CAP ANY UNUSED PIPES.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING FOR ANY REQUIRED SHUT-DOWN WITH FACILITY. CONTRACTOR SHALL INCLUDE FOR AND DETERMINE THE BEST METHOD TO MINIMIZE SERVICE INTERRUPTION AND IMPACT ON FACILITY OPERATION, INCLUDING USE OF HOT TAP/TEMPORARY FREEZING AND AFTER-HOUR WORK AS REQUIRED.
  - CONTRACTOR SHALL PROVIDE FIRE STOPPING ON ALL NEW PIPING AND CONDUIT PENETRATIONS THROUGH A FIRE-RATED WALL OR FLOOR AND ANY HOLES THAT RESULT FROM REMOVAL OF EXISTING SERVICES THROUGH A FIRE-RATED WALL OR FLOOR. FIRE STOPPING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
  - CONTRACTOR SHALL CUT BACK AND CAP ALL INACTIVE/DECOMMISSIONED PIPING BRANCHES TO THE NEAREST ACTIVE MAIN ON THIS FLOOR/BELOW SLAB. REPAIR/FILL FLOOR SLAB PENETRATIONS AND MAKE GOOD. REMOVE ALL REDUNDANT PIPES, CONDUITS INCLUDING LOOSE WIRES AND DUCTWORK COMPLETE. CAP AT MAIN.
  - RELOCATE OR REROUTE EXISTING MECHANICAL EQUIPMENT AS REQUIRED TO ACCOMMODATE NEW WORK.

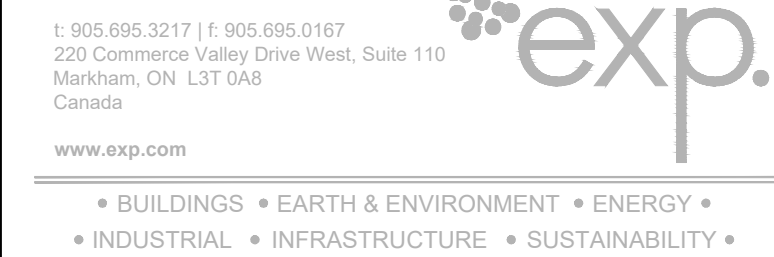
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ARCHITECT:



CONSULTANT:



PROJECT:  
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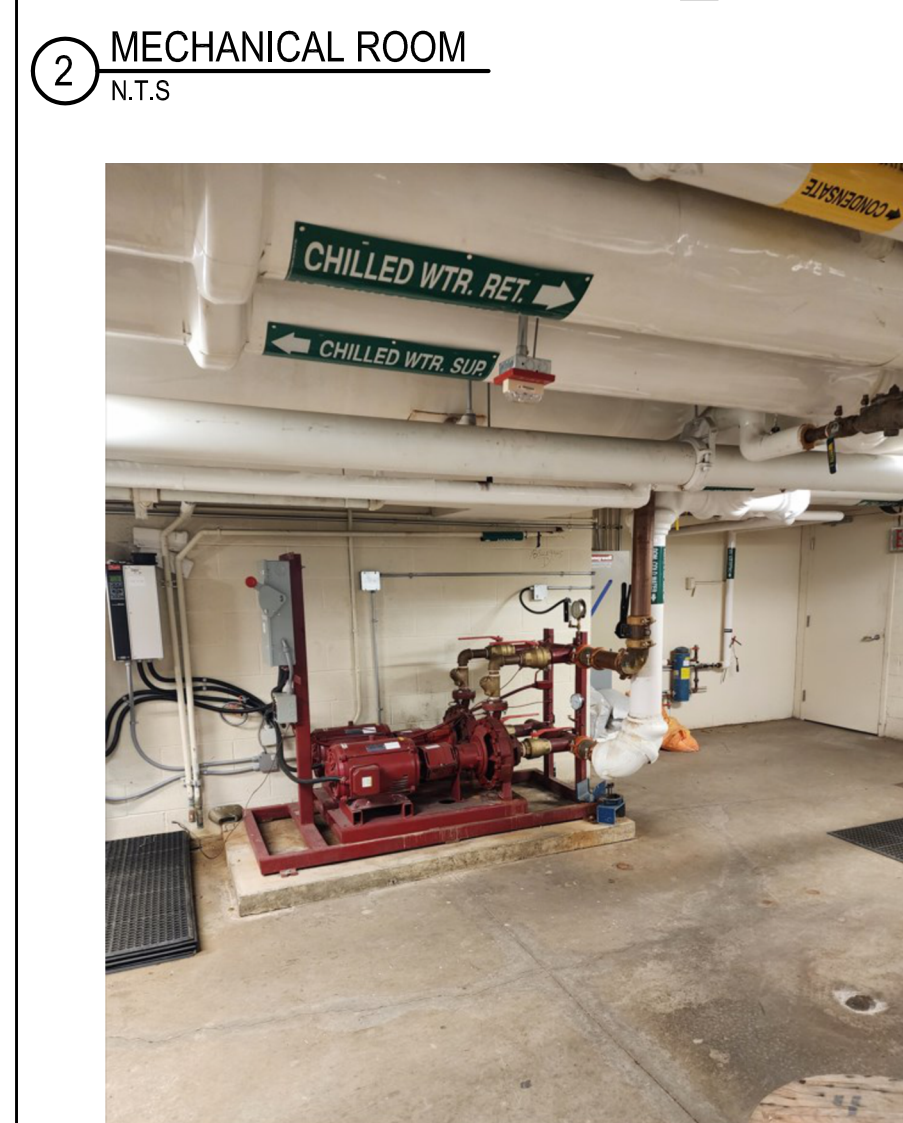
TITLE:  
LEVEL 1 FLOOR PLAN - DEMO - PLUMBING

PROJECT NO:  
MRK-23004289  
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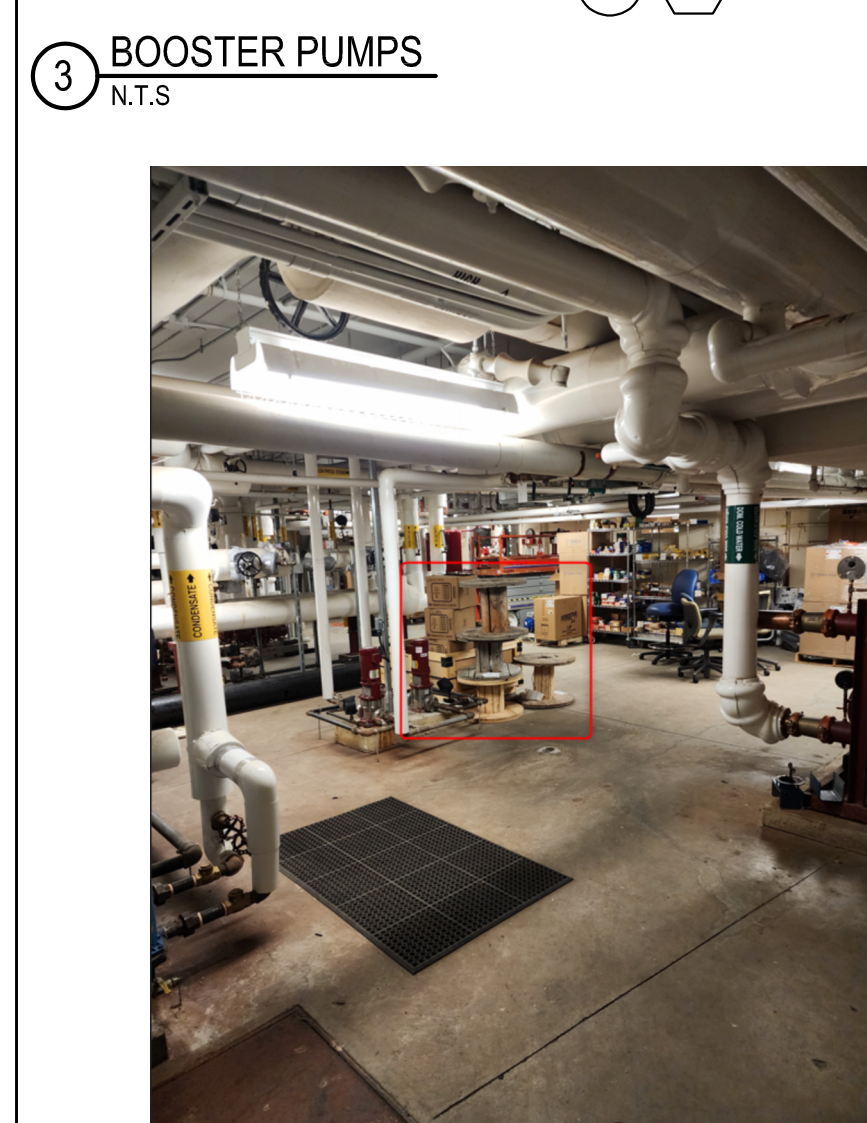
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PICTURE REFERENCE 1 (2)

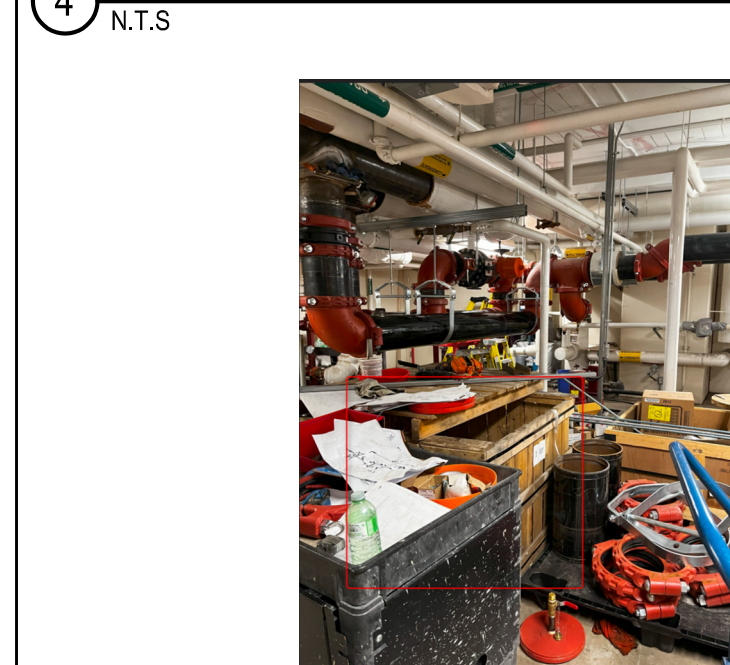


PICTURE REFERENCE 2 (2)



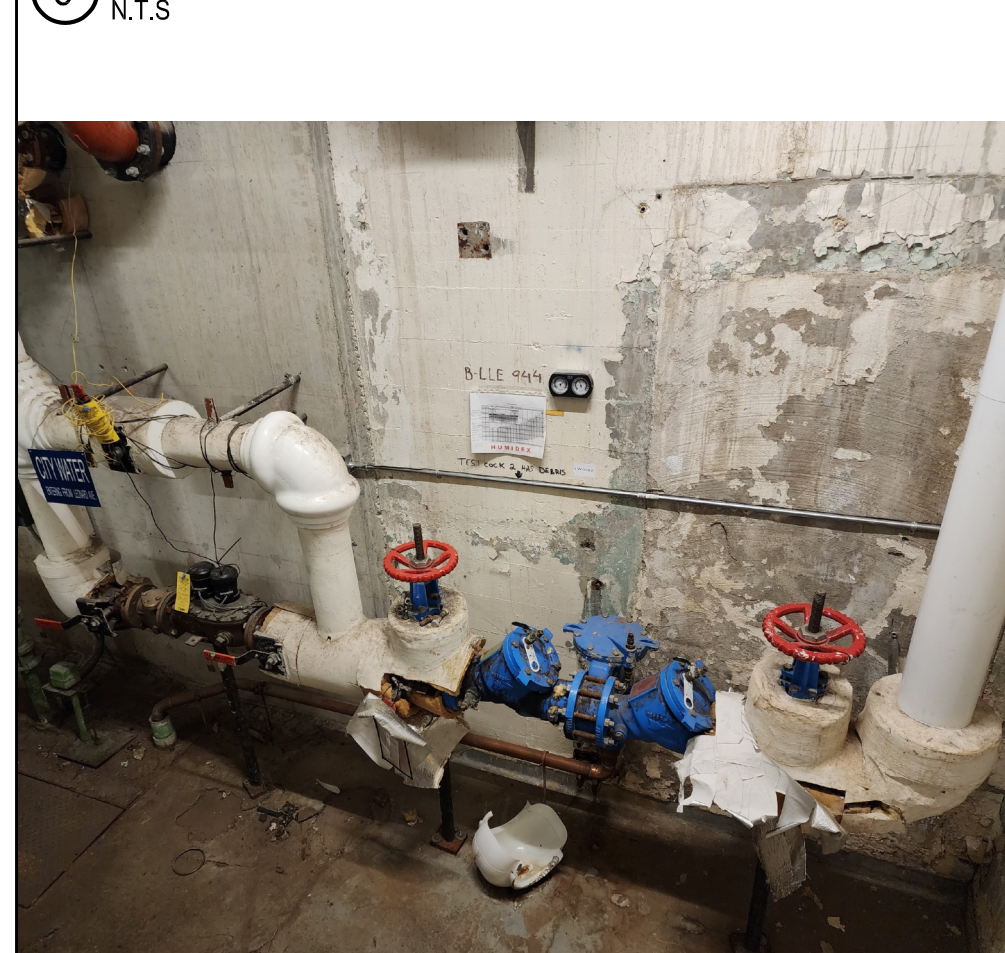
PICTURE REFERENCE 3 (2)

4 NEW PROPOSED DOMESTIC HOT WATER HEATER LOCATION



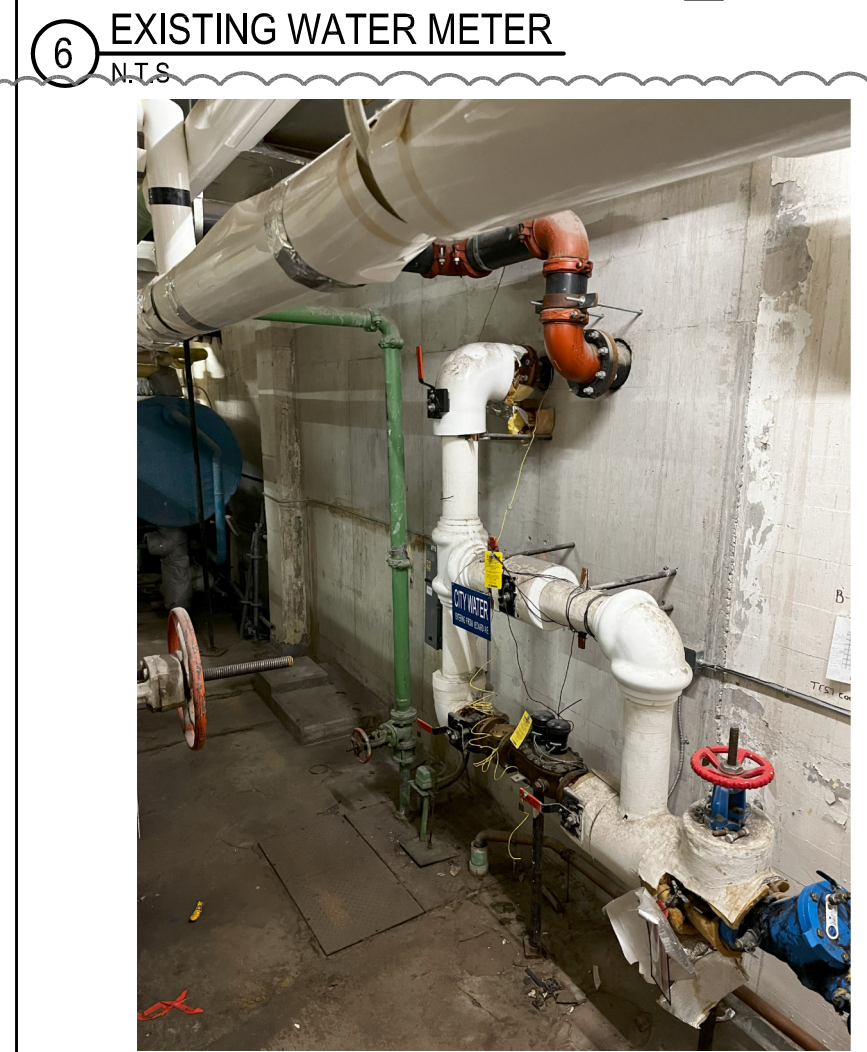
PICTURE REFERENCE 4 (2)

5 NEW PROPOSED DOMESTIC HOT WATER HEATER LOCATION



PICTURE REFERENCE 5 (2)

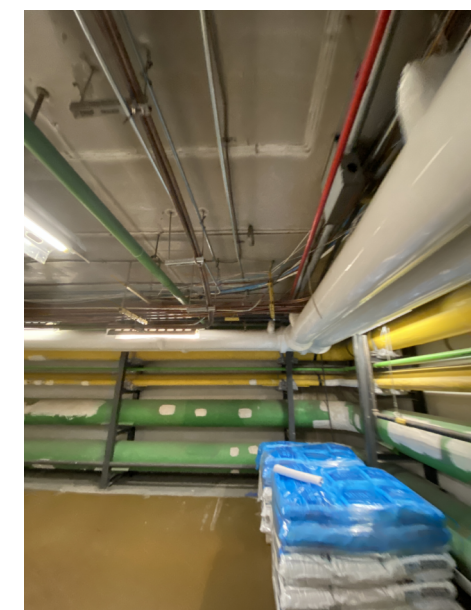
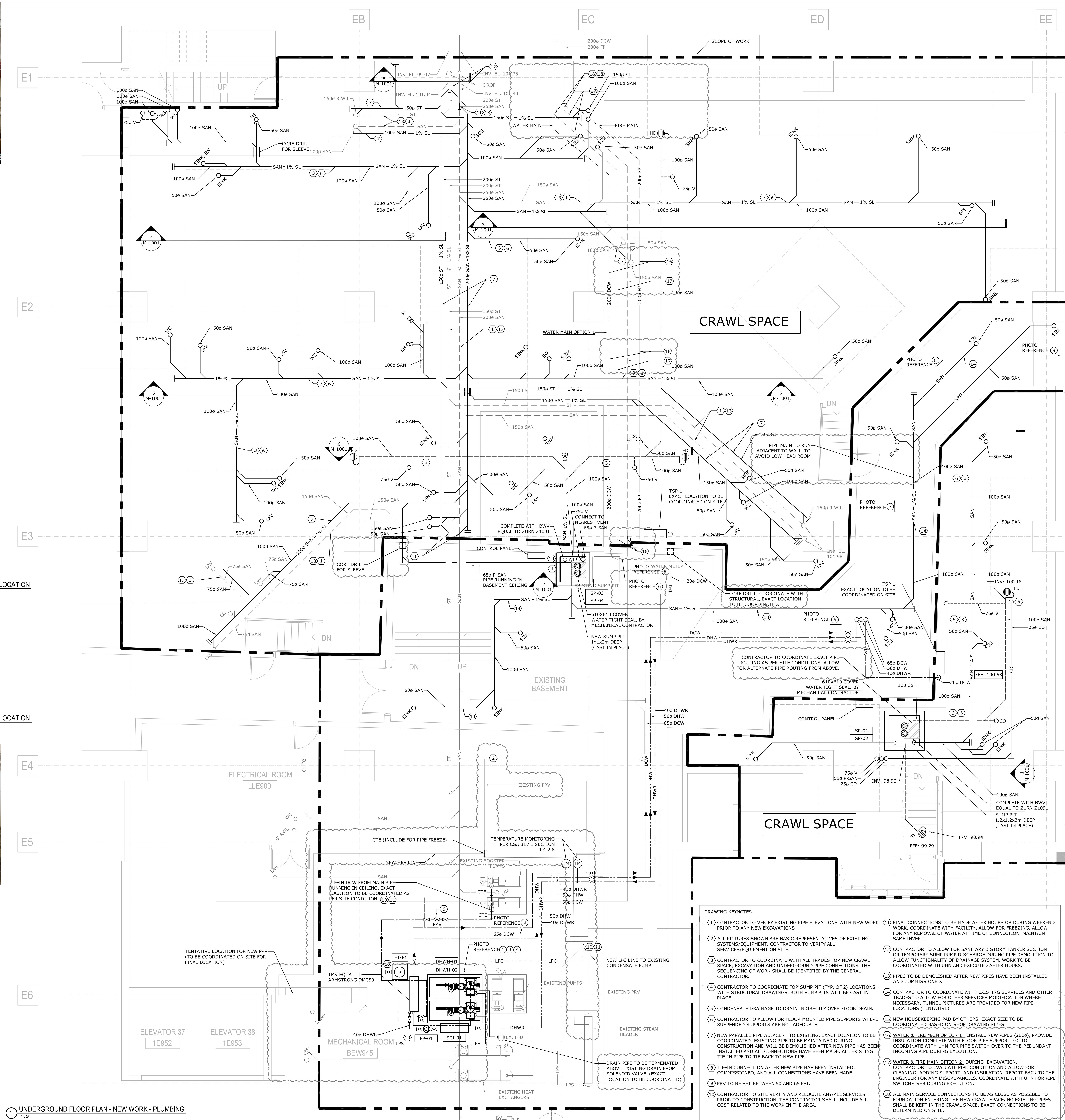
6 EXISTING WATER METER



PICTURE REFERENCE 6 (2)

7 INCOMING WATER AND FIRE MAIN

N.T.S.



PICTURE REFERENCE 6 (2)

8 CORRIDOR

N.T.S.



PICTURE REFERENCE 7 (2)

9 CORRIDOR

N.T.S.



PICTURE REFERENCE 8 (2)

10 CORRIDOR

N.T.S.



PICTURE REFERENCE 9 (2)

11 CORRIDOR

N.T.S.

- DRAWING KEYNOTES
- CONTRACTOR TO VERIFY EXISTING PIPE ELEVATIONS WITH NEW WORK PRIOR TO ANY NEW EXCAVATIONS
  - ALL PICTURES SHOWN ARE BASIC REPRESENTATIVES OF EXISTING SYSTEMS/EQUIPMENT. CONTRACTOR TO VERIFY ALL SERVICES/EQUIPMENT ON SITE.
  - CONTRACTOR TO COORDINATE WITH ALL TRADES FOR NEW CRAWL SPACE. EXCAVATION AND UNDERGROUND PIPE CONNECTIONS, THE SEQUENCING OF WORK SHALL BE IDENTIFIED BY THE GENERAL CONTRACTOR.
  - CONTRACTOR TO COORDINATE FOR SUMP PIT (TYP. OF 2) LOCATIONS WITH STRUCTURAL DRAWINGS. BOTH SUMP PITS WILL BE CAST IN PLACE.
  - CONDENSATE DRAINAGE TO DRAIN INDIRECTLY OVER FLOOR DRAIN.
  - CONTRACTOR TO ALLOW FOR FLOOR MOUNTED PIPE SUPPORTS WHERE SUSPENDED SUPPORTS ARE NOT ADEQUATE.
  - NEW PARALLEL PIPE ADJACENT TO EXISTING. EXACT LOCATION TO BE COORDINATED. EXISTING PIPE TO BE MAINTAINED DURING CONSTRUCTION AND WILL BE DEMOLISHED AFTER NEW PIPE HAS BEEN INSTALLED AND ALL CONNECTIONS HAVE BEEN MADE. ALL EXISTING TIE-IN PIPE TO TIE BACK TO NEW PIPE.
  - TIE-IN CONNECTION AFTER NEW PIPE HAS BEEN INSTALLED, COMMISSIONED, AND ALL CONNECTIONS HAVE BEEN MADE.
  - PRV TO BE SET BETWEEN 50 AND 65 PSI.
  - CONTRACTOR TO SITE VERIFY AND RELOCATE ANY/ALL SERVICES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INCLUDE ALL COST RELATED TO THE WORK IN THE AREA.
  - FINAL CONNECTIONS TO BE MADE AFTER HOURS OR DURING WEEKEND WORK. COORDINATE WITH FACILITY. ALLOW FOR FREEZING. ALLOW FOR ANY REMOVAL OF WATER AT TIME OF CONNECTION. MAINTAIN SAME INVERT.
  - CONTRACTOR TO ALLOW FOR SANITARY & STORM TANKER SUCTION OR TEMPORARY SUMP PUMP DISCHARGE DURING PIPE DEMOLITION TO ALLOW FUNCTIONALITY OF DRAINAGE SYSTEM. WORK TO BE COORDINATED WITH UHN AND EXECUTED AFTER HOURS.
  - PIPES TO BE DEMOLISHED AFTER NEW PIPES HAVE BEEN INSTALLED AND COMMISSIONED.
  - CONTRACTOR TO COORDINATE WITH EXISTING SERVICES AND OTHER TRADES TO ALLOW FOR OTHER SERVICES MODIFICATION WHERE NECESSARY. TUNNEL PICTURES ARE PROVIDED FOR NEW PIPE LOCATIONS (TENTATIVE).
  - NEW HOUSEKEEPING PAD BY OTHERS. EXACT SIZE TO BE COORDINATED BASED ON SHOP DRAWING SIZES.
  - WATER & FIRE MAIN OPTION 1. INSTALL NEW PIPES (2000). PROVIDE INSULATION COMPLETE WITH FLOOR PIPE SUPPORT. GC TO COORDINATE WITH UHN FOR FLOOR SWITCH OVER TO THE REDUNDANT INCOMING PIPE DURING EXECUTION.
  - WATER & FIRE MAIN OPTION 2. DURING EXCAVATION, CONTRACTOR TO EVALUATE PIPE CONDITION AND ALLOW FOR CLEANING, ADDING SUPPORT, AND INSULATION. REPORT BACK TO THE ENGINEER FOR ANY DISCREPANCIES. COORDINATE WITH UHN FOR PIPE SWITCH-OVER DURING EXECUTION.
  - ALL MAIN SERVICE CONNECTIONS TO BE AS CLOSE AS POSSIBLE TO FOUNDATION ENTERING THE NEW CRAWL SPACE. NO EXISTING PIPES SHALL BE KEPT IN THE CRAWL SPACE. EXACT CONNECTIONS TO BE DETERMINED ON SITE.

1 UNDERGROUND FLOOR PLAN - NEW WORK - PLUMBING

1:50

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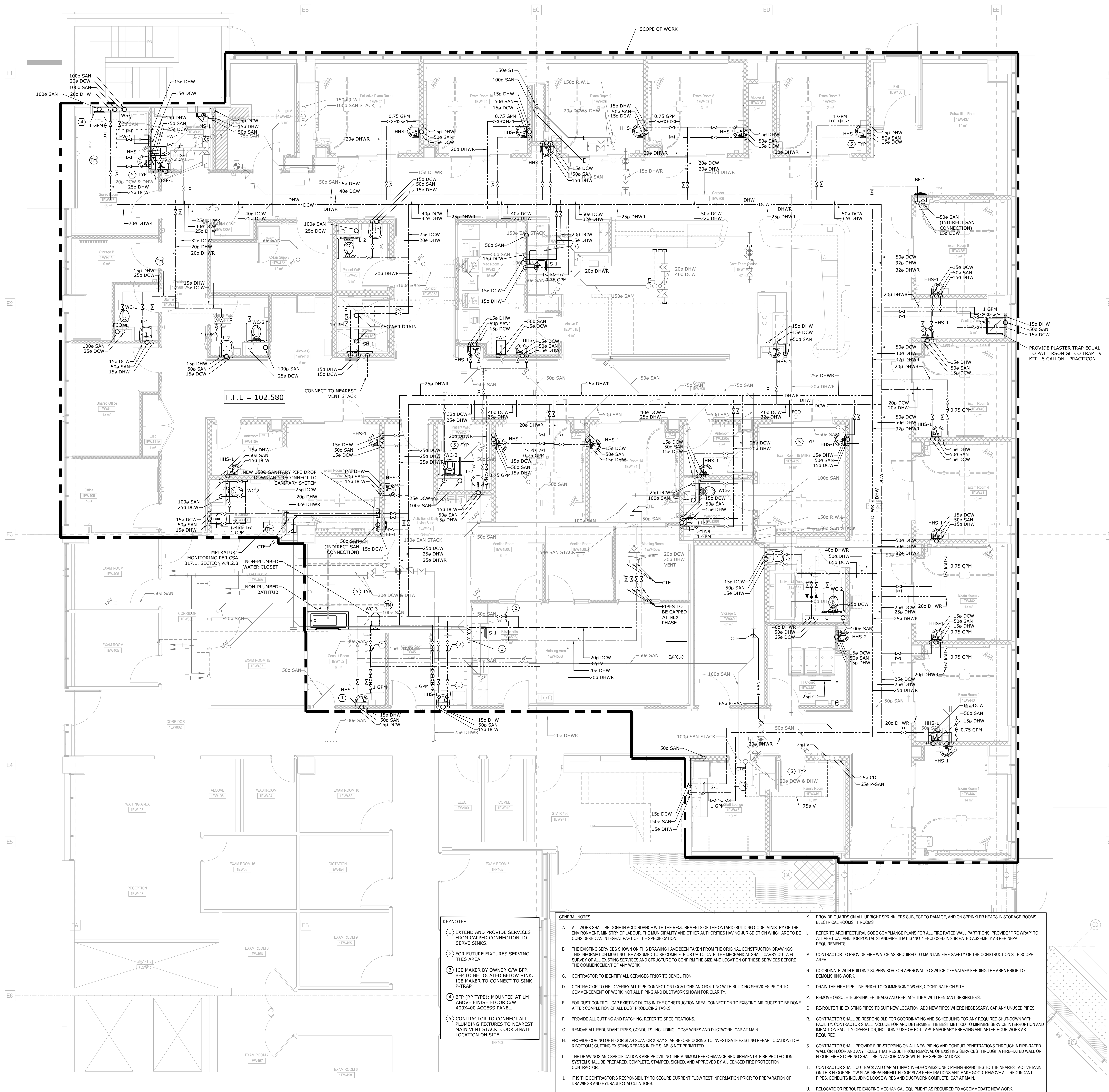
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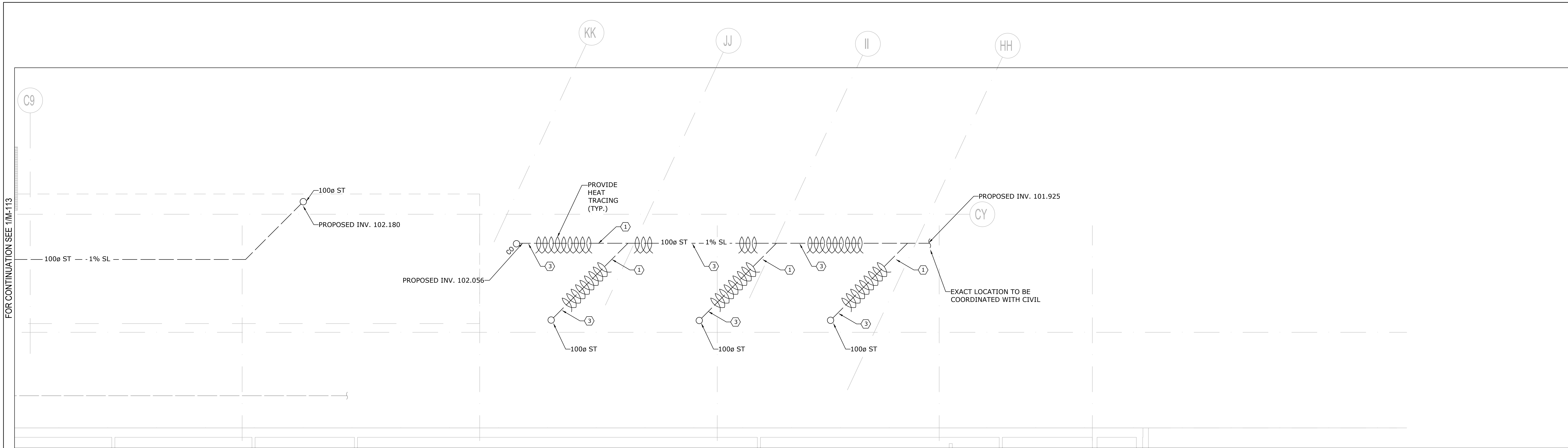
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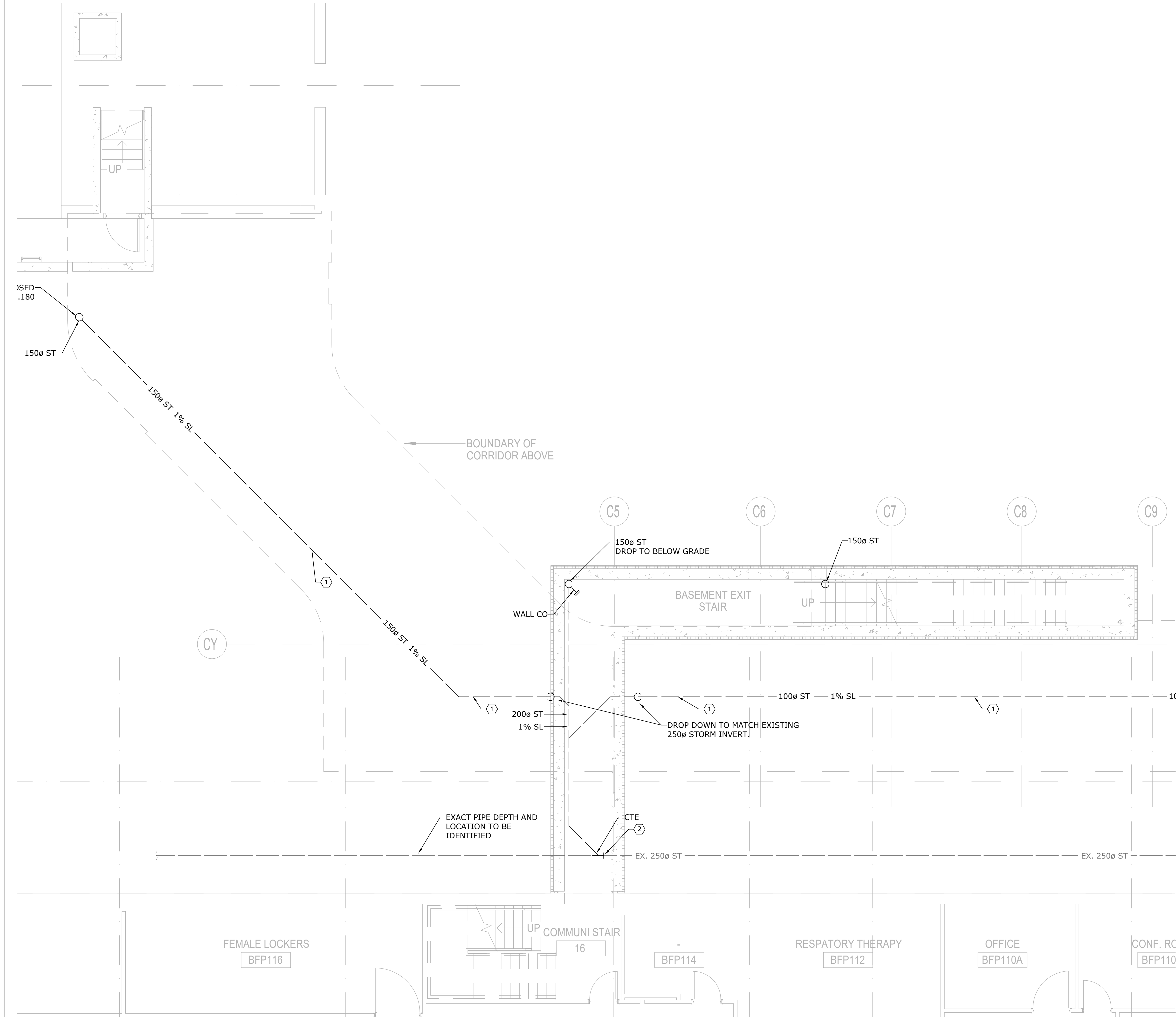
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2 BELOW GRADE FLOOR PLAN - PATIENT TRANSFER - NEW WORK - PLUMBING  
1:50



1 BELOW GRADE FLOOR PLAN - CORRIDOR - NEW WORK - PLUMBING  
1:50

- KEYNOTES
- 1 CONTRACTOR TO ALLOW FOR UNDERGROUND SERVICES COORDINATION WITH OTHER TRADES.
  - 2 CONTRACTOR TO COORDINATE TIE-IN CONNECTION AND ALLOW FOR PUMPED DISCHARGE AS REQUIRED. COORDINATE WITH UHN.
  - 3 PROVIDE 50MM RIGID INSULATION AROUND CAST-IRON PIPE.

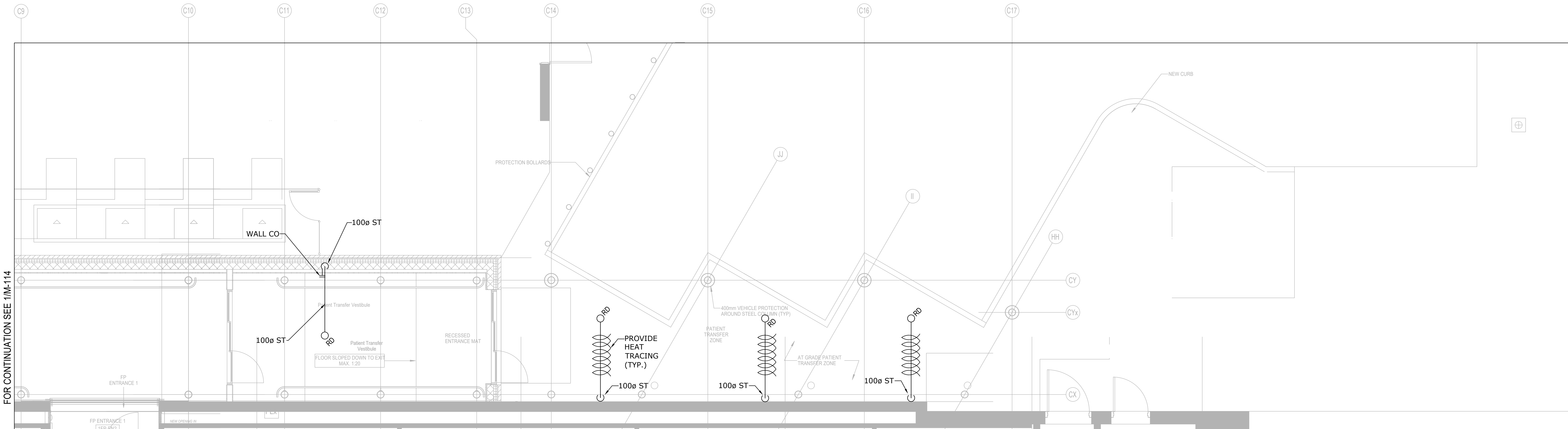
- GENERAL NOTES
- A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, MINISTRY OF THE ENVIRONMENT, MINISTRY OF LABOUR, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION WHICH ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SPECIFICATION.
  - B. THE EXISTING SERVICES SHOWN ON THIS DRAWING HAVE BEEN TAKEN FROM THE ORIGINAL CONSTRUCTION DRAWINGS. THIS INFORMATION MUST NOT BE ASSUMED TO BE COMPLETE OR UP-TO-DATE. THE MECHANICAL SHALL CARRY OUT A FULL SURVEY OF ALL EXISTING SERVICES AND STRUCTURE TO CONFIRM THE SIZE AND LOCATION OF THESE SERVICES BEFORE THE COMMENCEMENT OF ANY WORK.
  - C. CONTRACTOR TO IDENTIFY ALL SERVICES PRIOR TO DEMOLITION.
  - D. CONTRACTOR TO FIELD VERIFY ALL PIPE CONNECTION LOCATIONS AND ROUTING WITH BUILDING SERVICES PRIOR TO COMMENCEMENT OF WORK. NOT ALL PIPING AND DUCTWORK SHOWN FOR CLARITY.
  - E. FOR DUST CONTROL, CAP EXISTING DUCTS IN THE CONSTRUCTION AREA. CONNECTION TO EXISTING AIR DUCTS TO BE DONE AFTER COMPLETION OF ALL DUST PRODUCING TASKS.
  - F. PROVIDE ALL CUTTING AND PATCHING. REFER TO SPECIFICATIONS.
  - G. REMOVE ALL REDUNDANT PIPES, CONDUITS, INCLUDING LOOSE WIRES AND DUCTWORK. CAP AT MAIN.
  - H. PROVIDE CORING OF FLOOR SLAB SCAN OR X-RAY SLAB BEFORE CORING TO INVESTIGATE EXISTING REBAR LOCATION (TOP & BOTTOM). CUTTING EXISTING REBARS IN THE SLAB IS NOT PERMITTED.
  - I. THE DRAWINGS AND SPECIFICATIONS ARE PROVIDING THE MINIMUM PERFORMANCE REQUIREMENTS. FIRE PROTECTION SYSTEM SHALL BE PREPARED, COMPLETE, STAMPED, SIGNED, AND APPROVED BY A LICENSED FIRE PROTECTION CONTRACTOR.
  - J. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE CURRENT FLOW TEST INFORMATION PRIOR TO PREPARATION OF DRAWINGS AND HYDRAULIC CALCULATIONS.
  - K. PROVIDE GUARDS ON ALL UPRIGHT SPRINKLERS SUBJECT TO DAMAGE, AND ON SPRINKLER HEADS IN STORAGE ROOMS, ELECTRICAL ROOMS, IT ROOMS.
  - L. REFER TO ARCHITECTURAL CODE COMPLIANCE PLANS FOR ALL FIRE RATED WALL PARTITIONS. PROVIDE "FIRE WRAP" TO ALL VERTICAL AND HORIZONTAL STANDPIPE THAT IS "NOT" ENCLOSED IN 2HR RATED ASSEMBLY AS PER NFPA REQUIREMENTS.
  - M. CONTRACTOR TO PROVIDE FIRE WATCH AS REQUIRED TO MAINTAIN FIRE SAFETY OF THE CONSTRUCTION SITE SCOPE AREA.
  - N. COORDINATE WITH BUILDING SUPERVISOR FOR APPROVAL TO SWITCH OFF VALVES FEEDING THE AREA PRIOR TO DEMOLISHING WORK.
  - O. DRAIN THE FIRE PIPE LINE PRIOR TO COMMENCING WORK. COORDINATE ON SITE.
  - P. REMOVE OBSOLETE SPRINKLER HEADS AND REPLACE THEM WITH PENDANT SPRINKLERS.
  - Q. RE-ROUTE THE EXISTING PIPES TO SUIT NEW LOCATION. ADD NEW PIPES WHERE NECESSARY. CAP ANY UNUSED PIPES.
  - R. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING FOR ANY REQUIRED SHUT DOWN WITH FACILITY. CONTRACTOR SHALL INCLUDE FOR AND DETERMINE THE BEST METHOD TO MINIMIZE SERVICE INTERRUPTION AND IMPACT ON FACILITY OPERATION, INCLUDING USE OF HOT TAP/TEMPORARY FREEZING AND AFTER-HOUR WORK AS REQUIRED.
  - S. CONTRACTOR SHALL PROVIDE FIRE STOPPING ON ALL NEW PIPING AND CONDUIT PENETRATIONS THROUGH A FIRE-RATED WALL OR FLOOR AND ANY HOLES THAT RESULT FROM REMOVAL OF EXISTING SERVICES THROUGH A FIRE-RATED WALL OR FLOOR. FIRE STOPPING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
  - T. CONTRACTOR SHALL CUT BACK AND CAP ALL INACTIVE/DECOMMISSIONED PIPING BRANCHES TO THE NEAREST ACTIVE MAIN ON THIS FLOOR/BELOW SLAB. REPAIR/FILL FLOOR SLAB PENETRATIONS AND MAKE GOOD. REMOVE ALL REDUNDANT PIPES, CONDUITS INCLUDING LOOSE WIRES AND DUCTWORK COMPLETE. CAP AT MAIN.
  - U. RELOCATE OR REROUTE EXISTING MECHANICAL EQUIPMENT AS REQUIRED TO ACCOMMODATE NEW WORK.

CLIENT:  
**UHN** University Health Network  
Toronto Western Hospital  
399 Bathurst Street  
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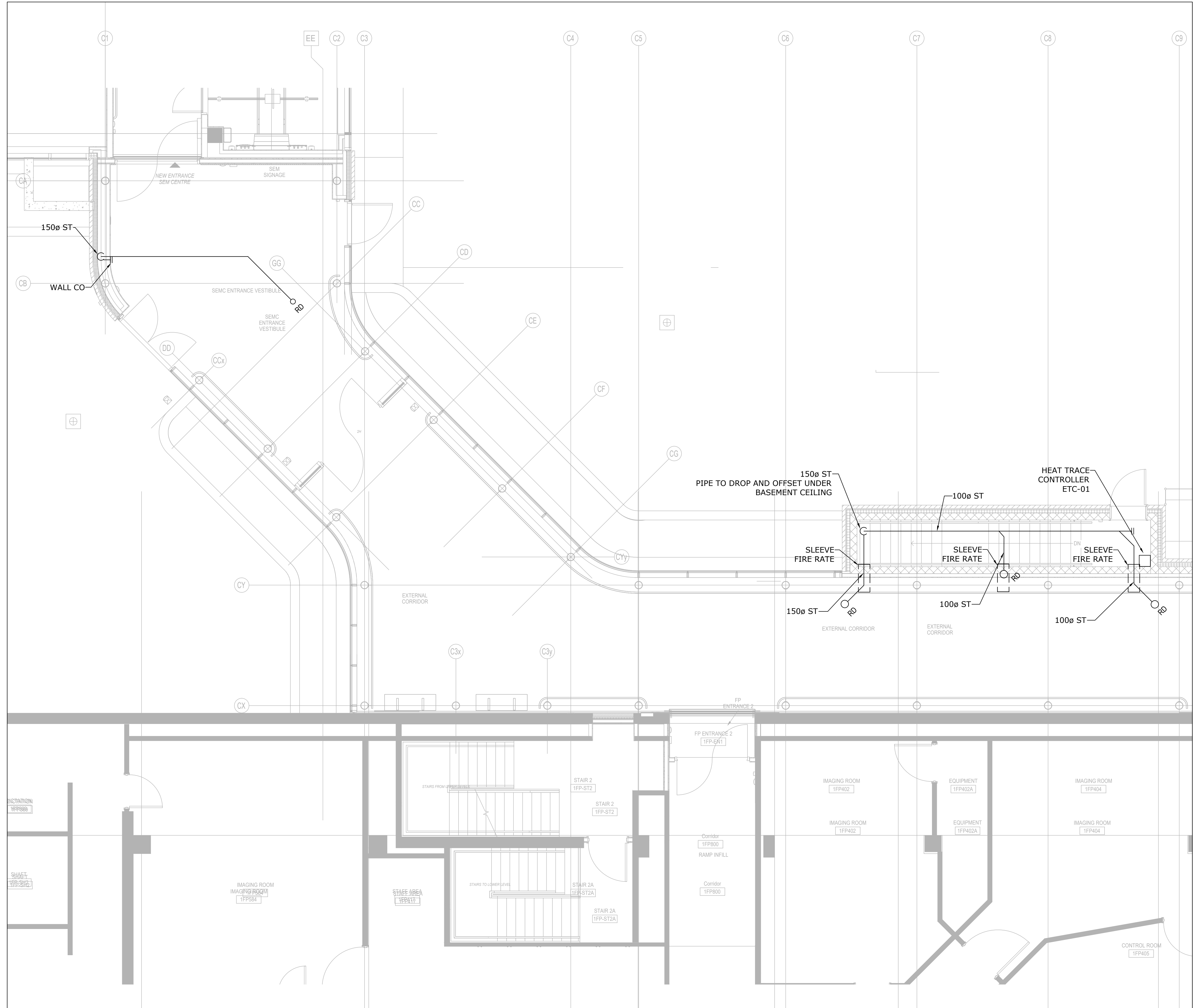
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1	Issued for Design Development Progress	2024.04.05
NO	DESCRIPTION	DATE
SHEET REVISION		
PROJECT: Seniors Emergency Medicine Centre (SEMC) & External Corridor Toronto Western Hospital 399 Bathurst Street, Toronto, ON, M5T 2S8		
TITLE: BELOW GRADE FLOOR PLAN - CORRIDOR - NEW WORK - PLUMBING		
PROJECT NO: MRK-23004289 CHECKED: S.S.	DRAWING NO: <b>M-113</b>	



2 LEVEL 1 FLOOR PLAN - PATIENT TRANSFER - NEW WORK - PLUMBING  
1:50



1 LEVEL 1 FLOOR PLAN - CORRIDOR - NEW WORK - PLUMBING  
1:50

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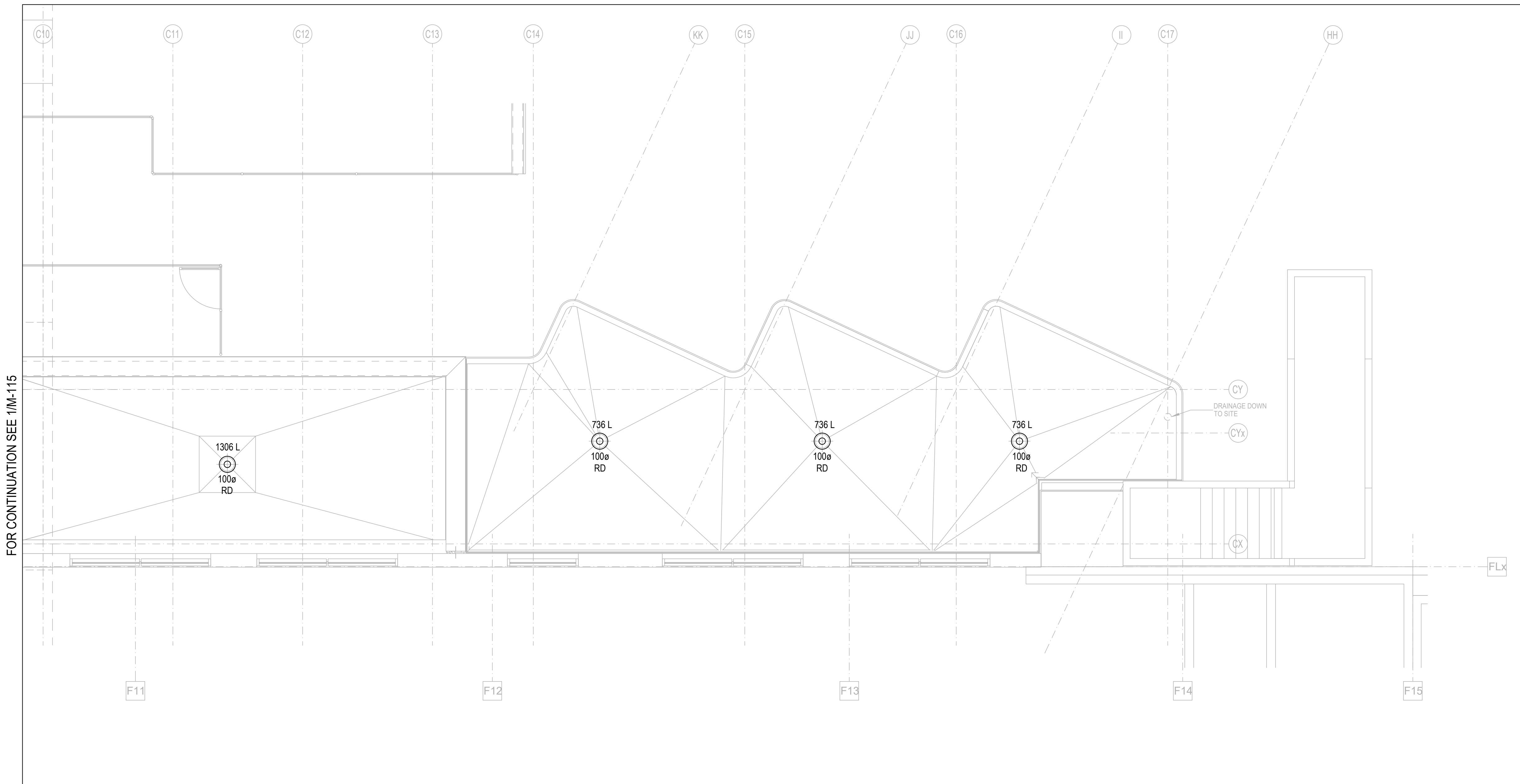
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PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
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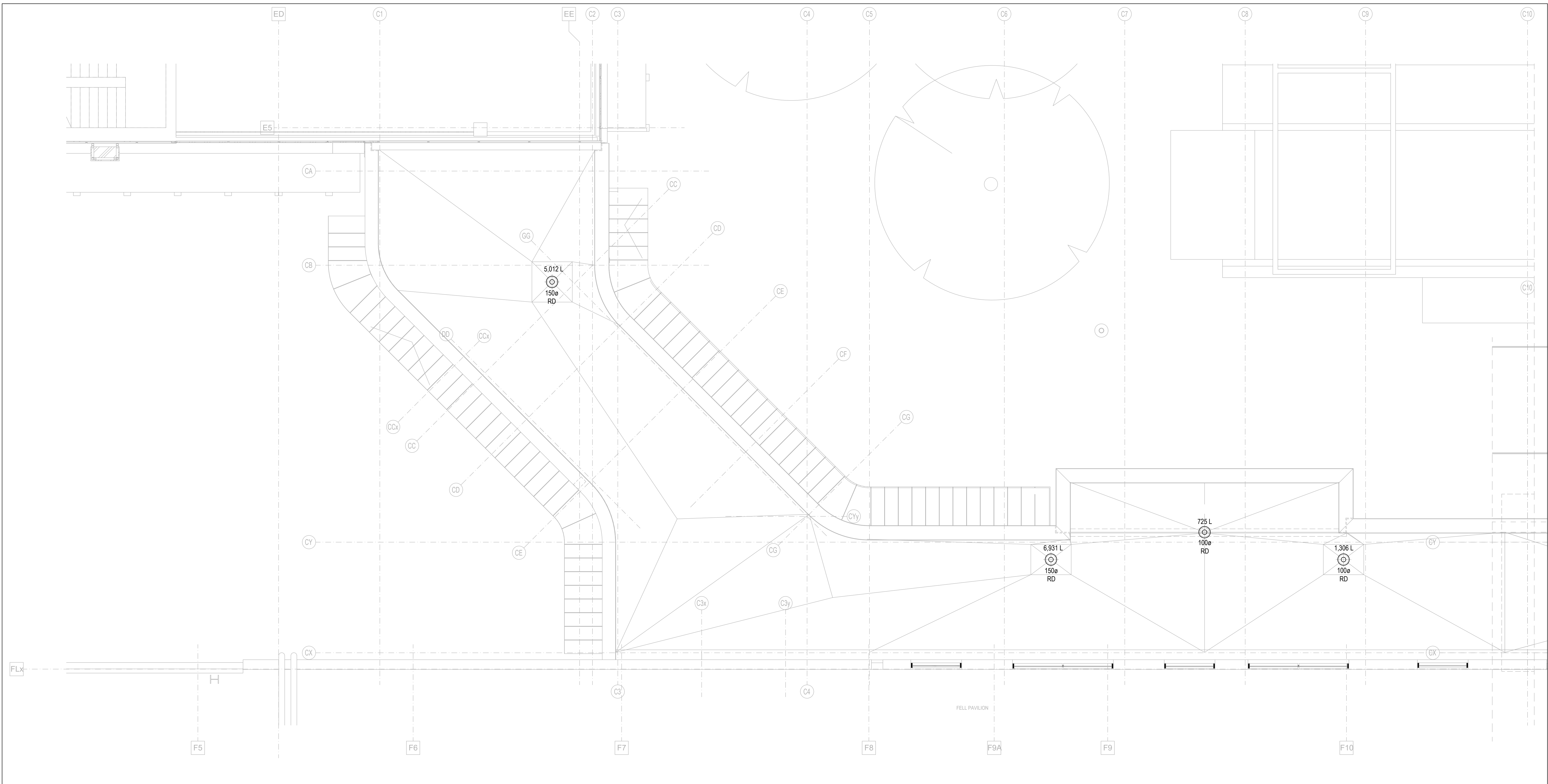
TITLE:  
LEVEL 1 FLOOR PLAN - CORRIDOR - NEW  
WORK - PLUMBING

PROJECT NO:  
MRK-23004289  
CHECKED:  
S.S.

DRAWING NO:  
**M-114**



2 ROOF PLAN - PATIENT TRANSFER CANOPY - NEW WORK - PLUMBING  
1:50



1 ROOF PLAN - CORRIDOR - NEW WORK - PLUMBING  
1:50

CLIENT:

**UHN** University Health Network  
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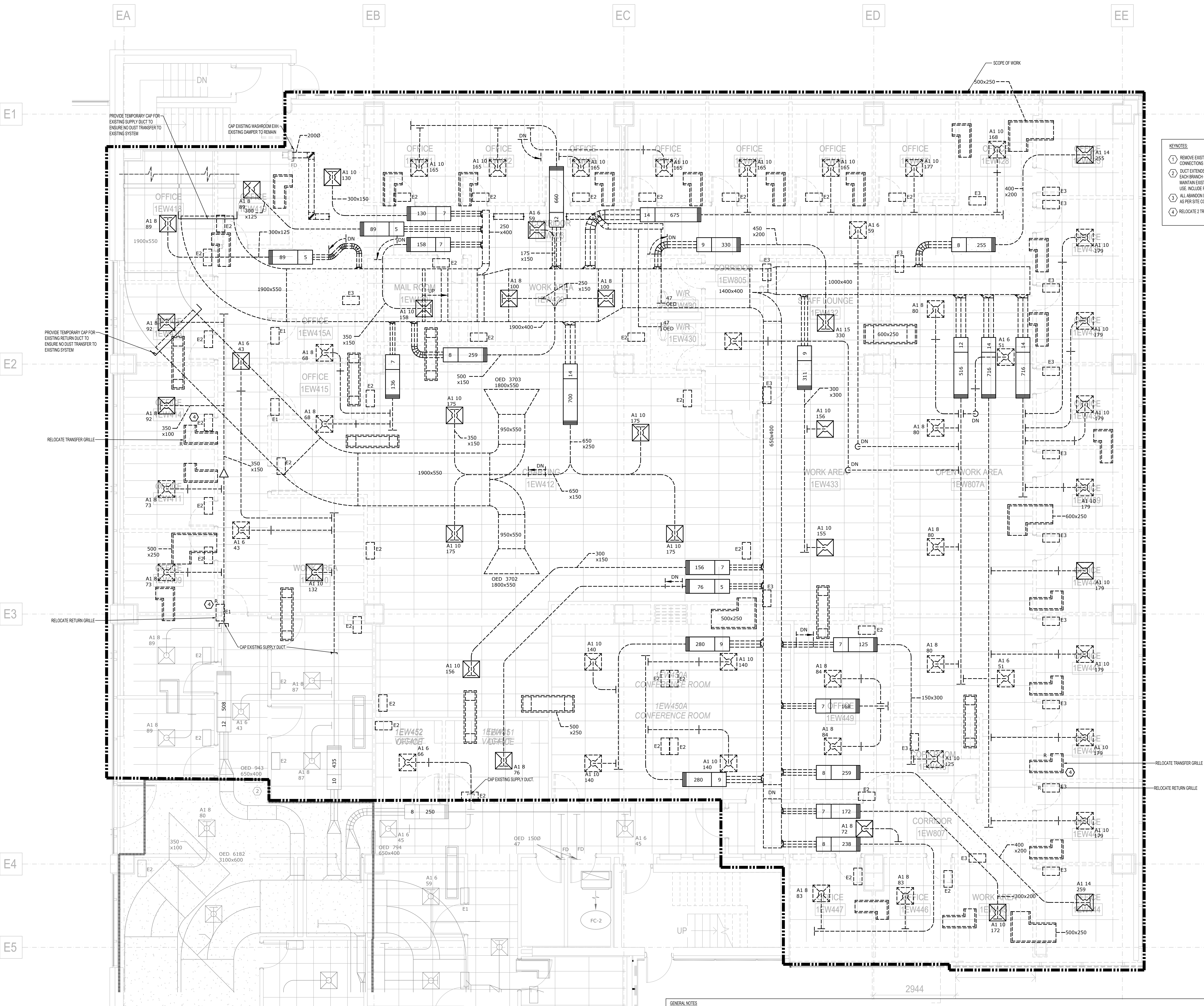
PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
399 Bathurst Street Toronto, ON, M5T 2S8

TITLE:  
ROOF PLAN - CORRIDOR - NEW WORK -  
PLUMBING

PROJECT NO:  
MRK-23004289  
CHECKED:  
S.S.

DRAWING NO:

M-115



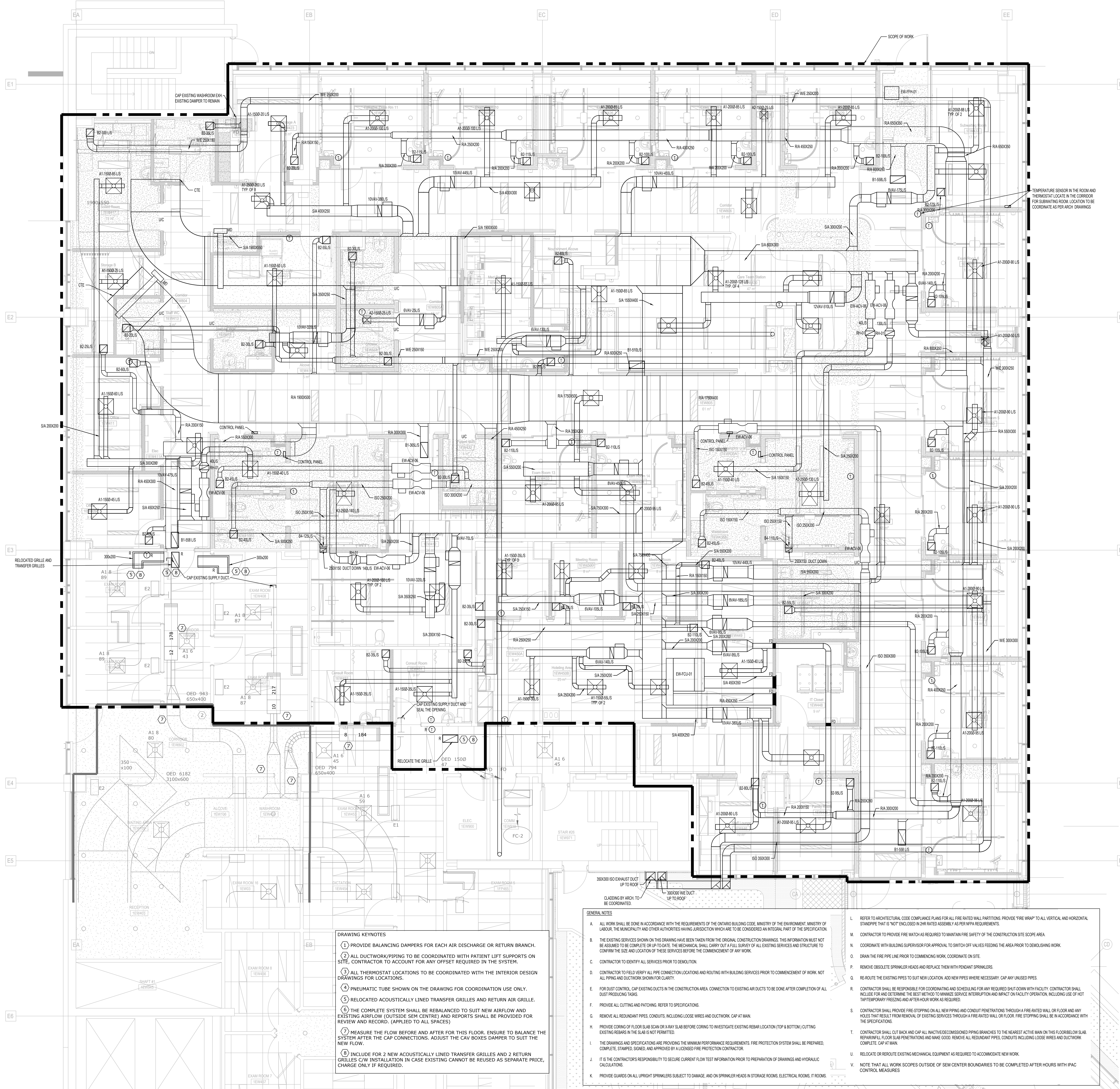
- KEYNOTES:**
- 1 REMOVE EXISTING DUCT CAPS TO CONNECT NEW DUCT WORK. CONTRACTOR TO MAKE SURE ALL DUCT CONNECTIONS ARE SEALED PROPERLY AND ENSURE PROPER CLEARANCE FOR ALL ACCESS POINTS.
  - 2 DUCT EXTENDS TO EXISTING DUCTWORK AND NOT INCLUDED IN THE SCOPE. CONTRACTOR TO VERIFY EACH BRANCH ON SITE AND ENSURE NO INTERRUPTION TO OCCUPIED SPACES. CONTRACTOR TO MAINTAIN EXISTING SPACES AT ALL TIMES AND MAKE SURE NO DUST IS TRANSFERRED TO SPACES IN USE. INCLUDE FOR AFTER HOURS WORK IF REQUIRED FOR MAIN CONNECTION IF REQUIRED.
  - 3 ALL ABANDON DUCTS WITHIN THE RENOVATION AREAS SHALL BE REMOVED, CUT BACK AND CAP AT MAIN AS PER SITE CONDITION.
  - 4 RELOCATE 2 TRANSFER GRILLES AND 2 RETURN GRILLES.

- GENERAL NOTES:**
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, MINISTRY OF THE ENVIRONMENT, MINISTRY OF LABOUR, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION WHICH ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SPECIFICATION.
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  - PROVIDE GUARDS ON ALL UPRIGHT SPRINKLERS SUBJECT TO DAMAGE, AND ON SPRINKLER HEADS IN STORAGE ROOMS, ELECTRICAL ROOMS, IT ROOMS.
  - REFER TO ARCHITECTURAL CODE COMPLIANCE PLANS FOR ALL FIRE RATED WALL PARTITIONS. PROVIDE "FIRE WRAP" TO ALL VERTICAL AND HORIZONTAL STANDPIPE THAT IS "NOT" ENCLOSED IN DMR RATED ASSEMBLY AS PER NFPA REQUIREMENTS.
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  - REMOVE OBSOLETE SPRINKLER HEADS AND REPLACE THEM WITH PENDANT SPRINKLERS.
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  - RELOCATE OR REMOVE EXISTING MECHANICAL EQUIPMENT AS REQUIRED TO ACCOMMODATE NEW WORK.
  - NOTE THAT ALL WORK SCOPES OUTSIDE OF SEM CENTER BOUNDARIES TO BE COMPLETED AFTER HOURS WITH IPAC CONTROL, MEASURES.

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**PROJECT:**  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
399 Bathurst Street, Toronto, ON, M5T 2S8

**TITLE:**  
LEVEL 1 FLOOR PLAN - DEMO - VENTILATION



- DRAWING KEYNOTES**
1. PROVIDE BALANCING DAMPERS FOR EACH AIR DISCHARGE OR RETURN BRANCH.
  2. ALL DUCTWORK/PIPING TO BE COORDINATED WITH PATIENT LIFT SUPPORTS ON SITE. CONTRACTOR TO ACCOUNT FOR ANY OFFSET REQUIRED IN THE SYSTEM.
  3. ALL THERMOSTAT LOCATIONS TO BE COORDINATED WITH THE INTERIOR DESIGN DRAWINGS FOR LOCATIONS.
  4. PNEUMATIC TUBE SHOWN ON THE DRAWING FOR COORDINATION USE ONLY.
  5. RELOCATED ACOUSTICALLY LINED TRANSFER GRILLES AND RETURN AIR GRILLE.
  6. THE COMPLETE SYSTEM SHALL BE REBALANCED TO SUIT NEW AIRFLOW AND EXISTING AIRFLOW (OUTSIDE SEM CENTER) AND REPORTS SHALL BE PROVIDED FOR REVIEW AND RECORD. (APPLIED TO ALL SPACES)
  7. MEASURE THE FLOW BEFORE AND AFTER FOR THIS FLOOR. ENSURE TO BALANCE THE SYSTEM AFTER THE CAP CONNECTIONS. ADJUST THE CAP BOXES DAMPER TO SUIT THE NEW FLOW.
  8. INCLUDE FOR 2 NEW ACOUSTICALLY LINED TRANSFER GRILLES AND 2 RETURN GRILLES C/W INSTALLATION IN CASE EXISTING CANNOT BE REUSED AS SEPARATE PRICE, CHARGE ONLY IF REQUIRED.

- GENERAL NOTES**
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  - RELOCATE OR REROUTE EXISTING MECHANICAL EQUIPMENT AS REQUIRED TO ACCOMMODATE NEW WORK.
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NO.	REVISION	DATE
10	Issued for Addendum M-04	2024.11.18
9	Issued for Addendum M-03	2024.11.12
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7	Issued for Addendum M-01	2024.10.20
6	Issued for Tender	2024.10.11
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4	Issued for 90% CDD	2024.09.09
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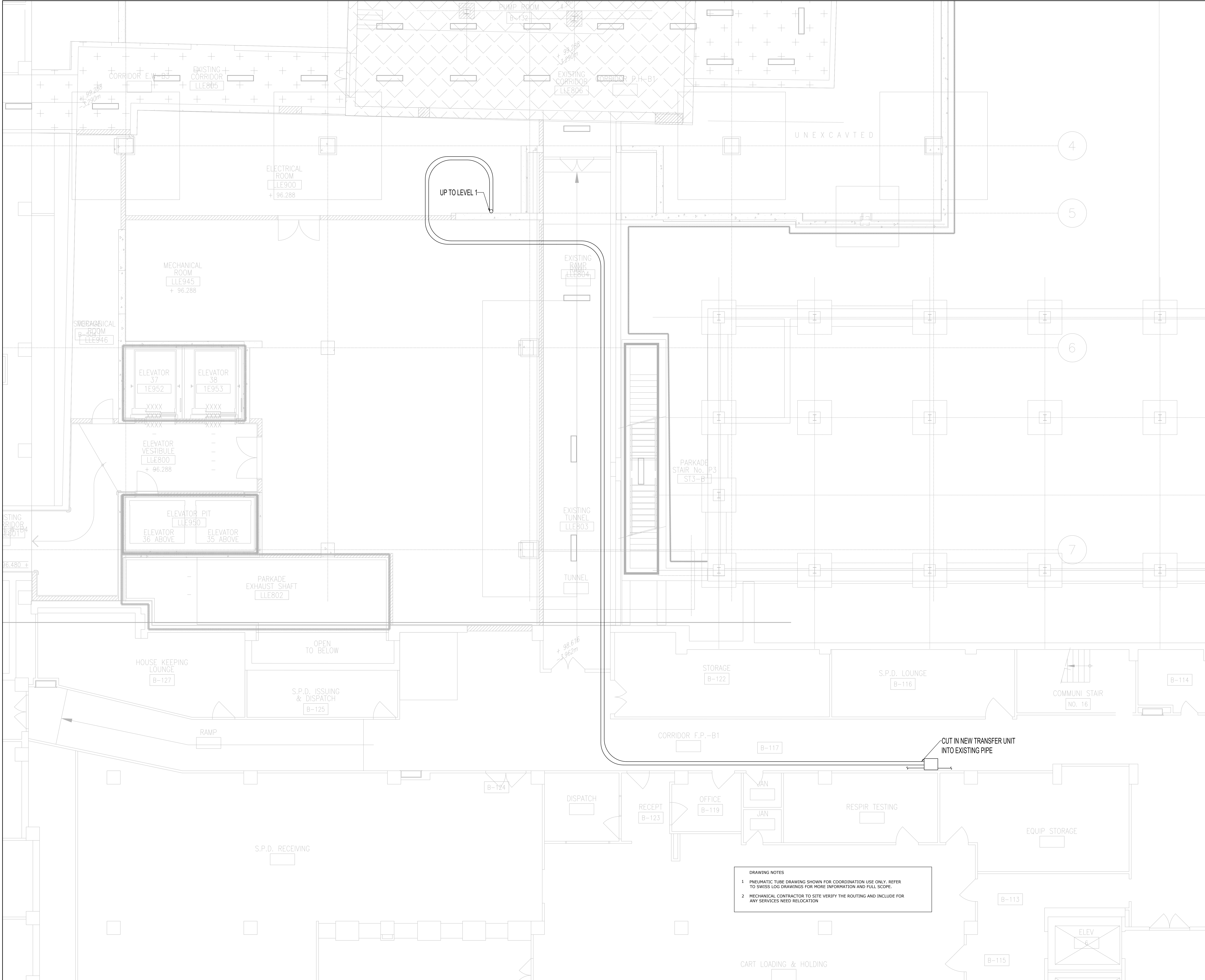
PROJECT:  
**Seniors Emergency Medicine Centre (SEMC) & External Corridor**  
Toronto Western Hospital  
399 Bathurst Street Toronto, ON, M5T 2S8


LEVEL 1 FLOOR PLAN - NEW WORK - VENTILATION

PROJECT NO: MRK-23004289  
CHECKED: S.S.

DRAWING NO: **M-211A**

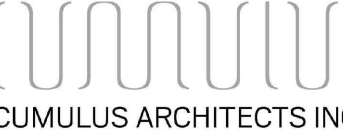







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PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
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TITLE:  
BELOW GRADE FLOOR PLAN - NEW WORK  
- PNEUMATIC PIPING

PROJECT NO:  
MRK-23004289

DRAWING NO:  
M-300A

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5	Issued for 100% CD	2024.09.27
4	Issued for 90% CD	2024.09.09
3	Issued for 50% CD / Permit	2024.08.02
2	Issued for 100 DD	2024.05.10
1	Issued for Design Development Progress	2024.04.05

1

BELOW GRADE FLOOR PLAN - NEW WORK - PNEUMATIC PIPING



A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, MINISTRY OF THE ENVIRONMENT, MINISTRY OF LABOUR, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION WHICH ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SPECIFICATION.

B. THE EXISTING SERVICES SHOWN ON THIS DRAWING ARE FOR INFORMATION. THIS INFORMATION MUST NOT BE ASSUMED TO BE COMPLETE OR UP-TO-DATE. THE CONTRACTOR SHALL CARRY OUT A FULL SURVEY OF ALL EXISTING SERVICES AND EQUIPMENT SIZE BEFORE THE COMMENCEMENT OF ANY WORK.

C. CONTRACTOR TO IDENTIFY ALL SERVICES PRIOR TO DEMOLITION.

D. PROVIDE ALL CUTTING AND PATCHING.

E. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING FOR ANY REQUIRED SHUT-DOWN WITH FACILITY CONTRACTOR AND INCLUDE FOR DETERMINING THE BEST METHOD TO MINIMIZE SERVICE INTERRUPTION AND IMPACT ON FACILITY OPERATION, INCLUDING THE TIME FOR TEMPORARY FREEZING AND AFTER-CURVE WORK AS REQUIRED.

F. CONTRACTOR TO INCLUDE FOR ALL VARY SERVICES TO BE RELOCATED IN THE CORRIDOR CEILING IN ORDER TO INSTALL THE NEW SERVICES

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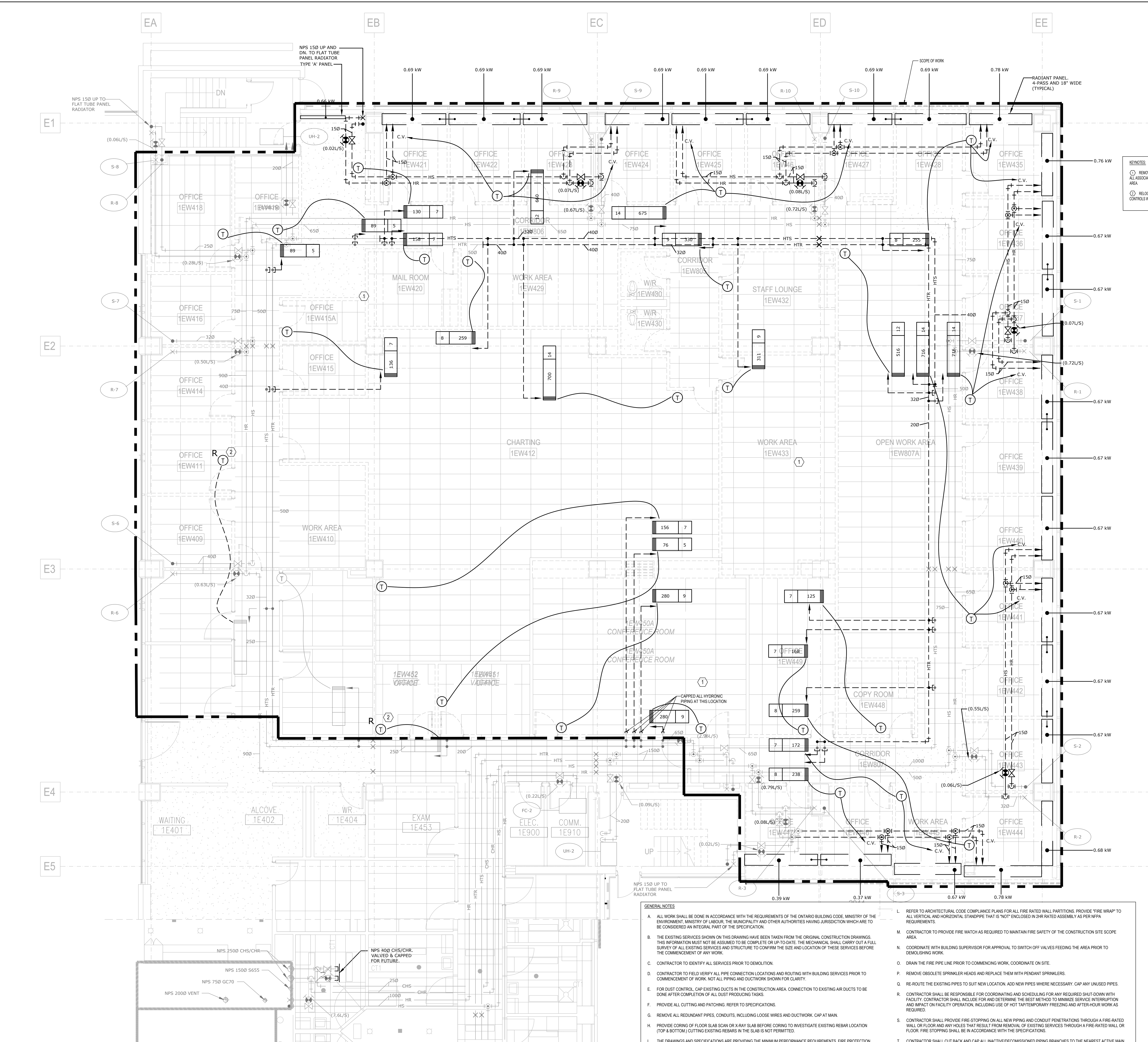
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BELOW GRADE FLOOR PLAN - NEW WORK  
- HVAC & PIPING

PROJECT NO: MRK-230  
CHECKED: S.S

DRAWING NO.

# M-300B



**KEYNOTES**

① REMOVE ALL VAV AND RADIANT PANEL PIPING AND CAP AS REQUIRED TO INSTALL NEW SYSTEM. REMOVE ALL ASSOCIATED THERMOSTATS, CONTROL WIRING, VALVES (ASSUME NOT HOLDING) TYPICAL FOR RENOVATION AREA.

② RELOCATE 2 THERMOSTATS FOR THE AREA OUTSIDE SEM CENTRE AND RECONNECT WITH THE SAME CONTROLS WITH EXISTING VAVS.

- GENERAL NOTES**
- A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, MINISTRY OF THE ENVIRONMENT, MINISTRY OF LABOUR, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION WHICH ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SPECIFICATION.
- B. THE EXISTING SERVICES SHOWN ON THIS DRAWING HAVE BEEN TAKEN FROM THE ORIGINAL CONSTRUCTION DRAWINGS. THIS INFORMATION MUST NOT BE ASSUMED TO BE COMPLETE OR UP-TO-DATE. THE MECHANICAL SHALL CARRY OUT A FULL SURVEY OF ALL EXISTING SERVICES AND STRUCTURE TO CONFIRM THE SIZE AND LOCATION OF THESE SERVICES BEFORE THE COMMENCEMENT OF ANY WORK.
- C. CONTRACTOR TO IDENTIFY ALL SERVICES PRIOR TO DEMOLITION.
- D. CONTRACTOR TO FIELD VERIFY ALL PIPE CONNECTION LOCATIONS AND ROUTING WITH BUILDING SERVICES PRIOR TO COMMENCEMENT OF WORK. NOT ALL PIPING AND DUCTWORK SHOWN FOR CLARITY.
- E. FOR DUST CONTROL, CAP EXISTING DUCTS IN THE CONSTRUCTION AREA. CONNECTION TO EXISTING AIR DUCTS TO BE DONE AFTER COMPLETION OF ALL DUST PRODUCING TASKS.
- F. PROVIDE ALL CUTTING AND PATCHING. REFER TO SPECIFICATIONS.
- G. REMOVE ALL REDUNDANT PIPES, CONDUITS, INCLUDING LOOSE WIRES AND DUCTWORK. CAP AT MAIN.
- H. PROVIDE CORING OF FLOOR SLAB SCAN OR X-RAY SLAB BEFORE CORING TO INVESTIGATE EXISTING REBAR LOCATION TOP & BOTTOM CUTTING EXISTING REBAR IN THE SLAB IS NOT PERMITTED.
- I. THE DRAWINGS AND SPECIFICATIONS ARE PROVIDING THE MINIMUM PERFORMANCE REQUIREMENTS. FIRE PROTECTION SYSTEM SHALL BE PREPARED, COMPLETE, STAMPED, SIGNED, AND APPROVED BY A LICENSED FIRE PROTECTION CONTRACTOR.
- J. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE CURRENT FLOW TEST INFORMATION PRIOR TO PREPARATION OF DRAWINGS AND HYDRAULIC CALCULATIONS.
- K. PROVIDE GUARDS ON ALL UPRIGHT SPRINKLERS SUBJECT TO DAMAGE, AND ON SPRINKLER HEADS IN STORAGE ROOMS.
- L. REFER TO ARCHITECTURAL CODE COMPLIANCE PLANS FOR ALL FIRE RATED WALL PARTITIONS. PROVIDE "FIRE WRAP" TO ALL VERTICAL AND HORIZONTAL STANDPIPE THAT IS "NOT" ENCLOSED IN 2HR RATED ASSEMBLY AS PER NFPA REQUIREMENTS.
- M. CONTRACTOR TO PROVIDE FIRE WATCH AS REQUIRED TO MAINTAIN FIRE SAFETY OF THE CONSTRUCTION SITE SCOPE AREA.
- N. COORDINATE WITH BUILDING SUPERVISOR FOR APPROVAL TO SWITCH OFF VALVES FEEDING THE AREA PRIOR TO DEMOLISHING WORK.
- O. DRAIN THE FIRE PIPE LINE PRIOR TO COMMENCING WORK. COORDINATE ON SITE.
- P. REMOVE OBSOLETE SPRINKLER HEADS AND REPLACE THEM WITH PENDANT SPRINKLERS.
- Q. RE-ROUTE THE EXISTING PIPES TO SUIT NEW LOCATION. ADD NEW PIPES WHERE NECESSARY. CAP ANY UNUSED PIPES.
- R. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING FOR ANY REQUIRED SHUT-DOWN WITH FACILITY. CONTRACTOR SHALL INCLUDE FOR AND DETERMINE THE BEST METHOD TO MINIMIZE SERVICE INTERRUPTION AND IMPACT ON FACILITY OPERATION, INCLUDING USE OF HOT TAP/TEMPORARY FREEZING AND AFTER-HOUR WORK AS REQUIRED.
- S. CONTRACTOR SHALL PROVIDE FIRE STOPPING ON ALL NEW PIPING AND CONDUIT PENETRATIONS THROUGH A FIRE-RATED WALL OR FLOOR AND ANY HOLES THAT RESULT FROM REMOVAL OF EXISTING SERVICES THROUGH A FIRE-RATED WALL OR FLOOR. FIRE STOPPING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- T. CONTRACTOR SHALL CUT BACK AND CAP ALL INACTIVE/DECOMMISSIONED PIPING BRANCHES TO THE NEAREST ACTIVE MAIN ON THIS FLOOR/BELOW SLAB. REPAIR/IN FLOOR SLAB PENETRATIONS AND MAKE GOOD. REMOVE ALL REDUNDANT PIPES, CONDUITS INCLUDING LOOSE WIRES AND DUCTWORK COMPLETE. CAP AT MAIN.
- U. RELOCATE OR REROUTE EXISTING MECHANICAL EQUIPMENT AS REQUIRED TO ACCOMMODATE NEW WORK.
- V. NOTE THAT ALL WORK SCOPES OUTSIDE OF SEM CENTER BOUNDARIES TO BE COMPLETED AFTER HOURS WITH IPAC CONTROL MEASURES.

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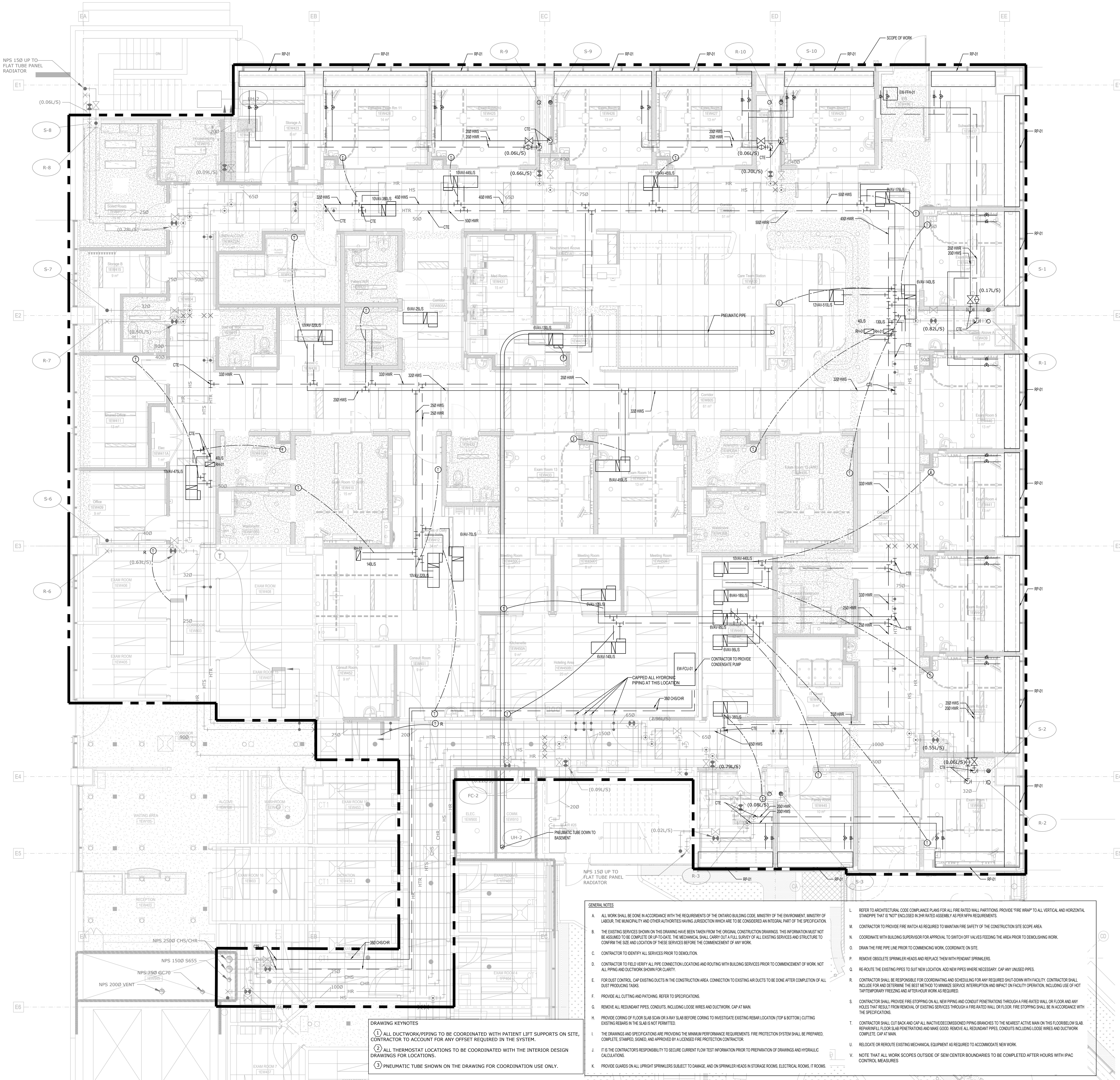
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**PROJECT:**  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
399 Bathurst Street, Toronto, ON, M5T 2S8

**LEVEL 1 FLOOR PLAN - DEMO - HVAC PIPING**

**PROJECT NO:** MRK-23004289 **DRAWING NO:** M-301

**CHECKED:** S.S. **DATE:**



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5	Issued for 100% CD	2024.09.27
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PROJECT:  
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LEVEL 1 FLOOR PLAN - NEW WORK - HVAC  
PIPING

PROJECT NO:  
MRK-23004289  
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DRAWING NO:

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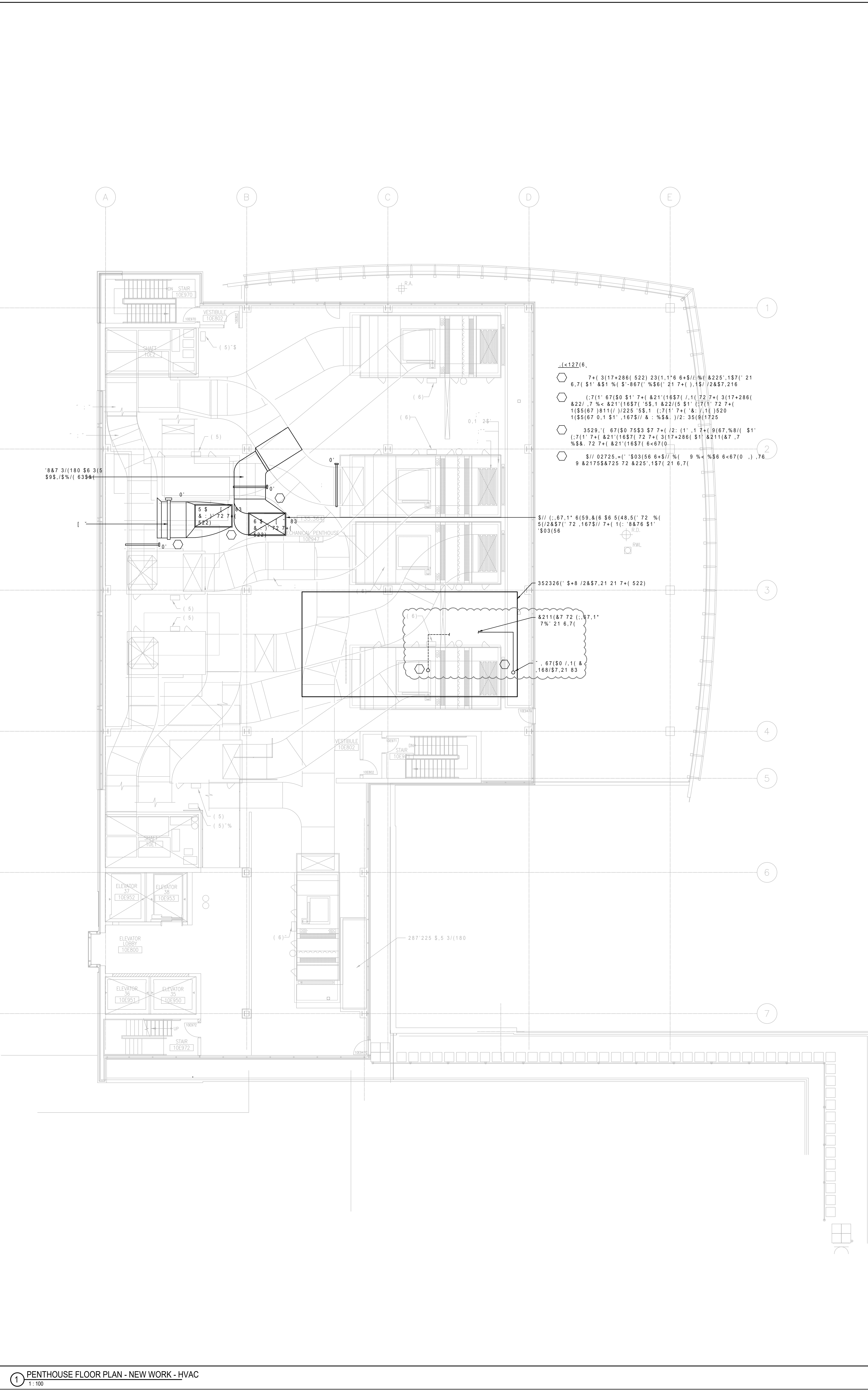
**PROJECT:**  
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LEVEL 1 FLOOR PLAN - CORRIDOR - NEW  
WORK - PIPING

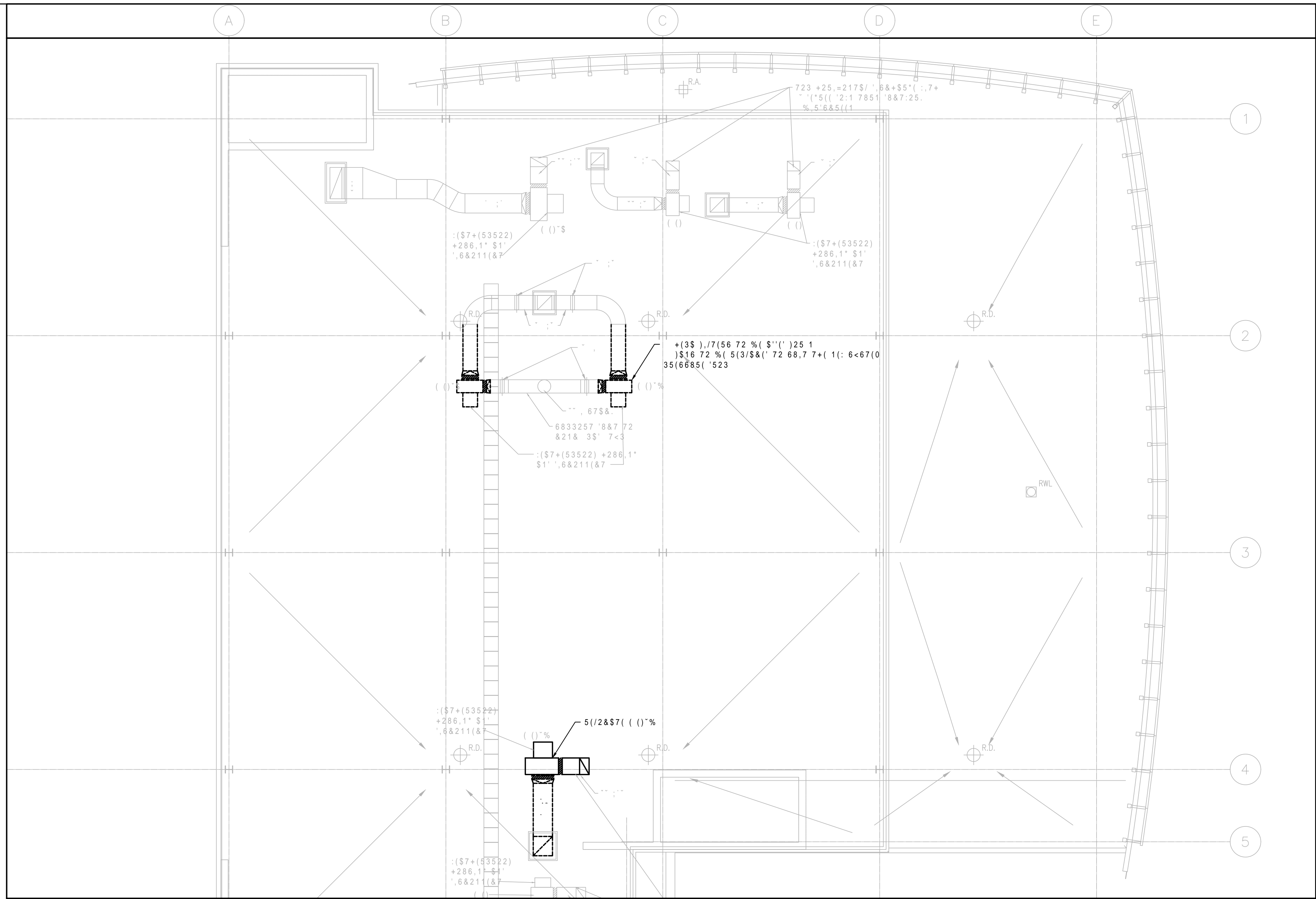
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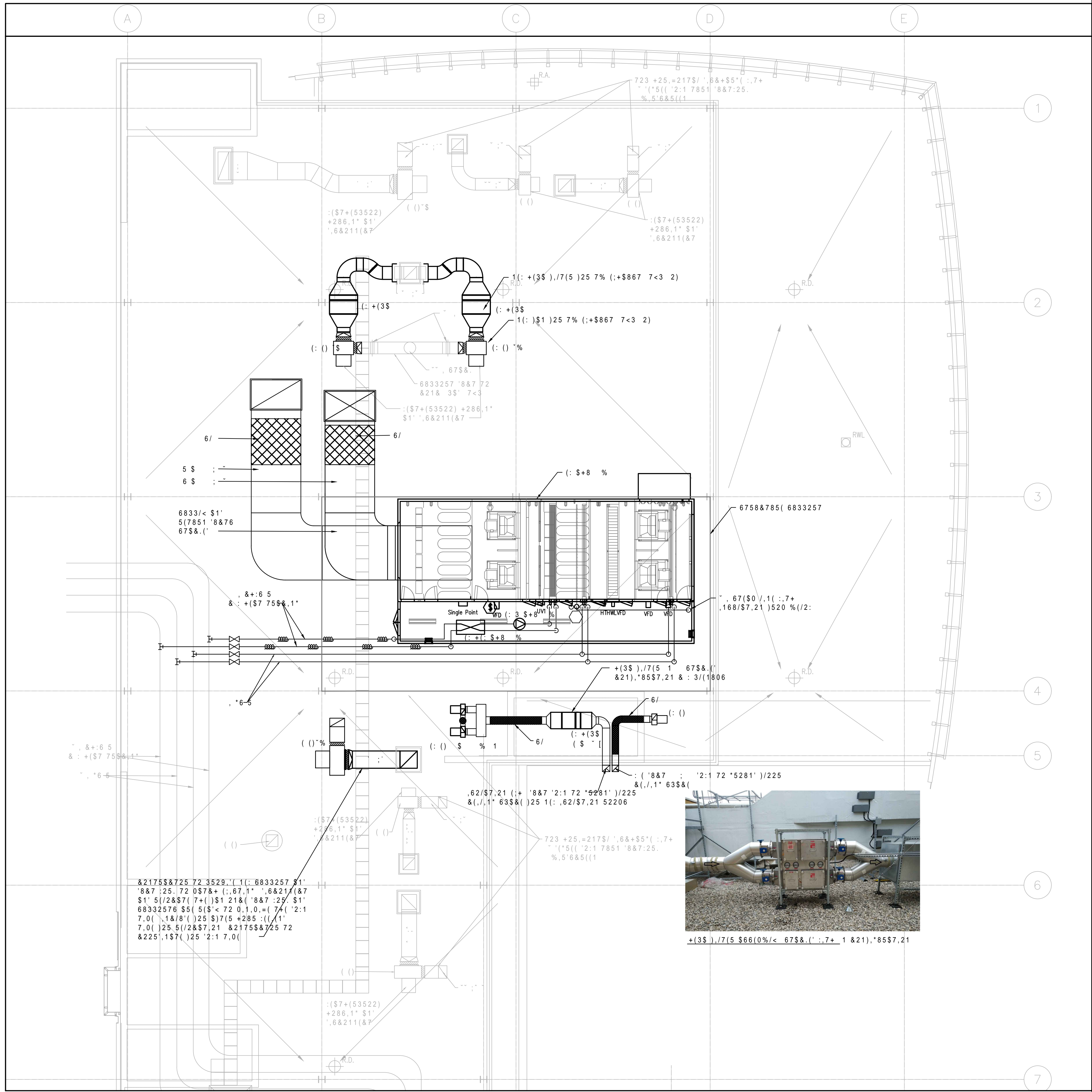
M-311B




1 PENTHOUSE FLOOR PLAN - NEW WORK - HVAC  
1:100




2 ROOF FLOOR PLAN - DEMO - HVAC  
1:100




3 ROOF FLOOR PLAN - NEW WORK - HVAC  
1:100



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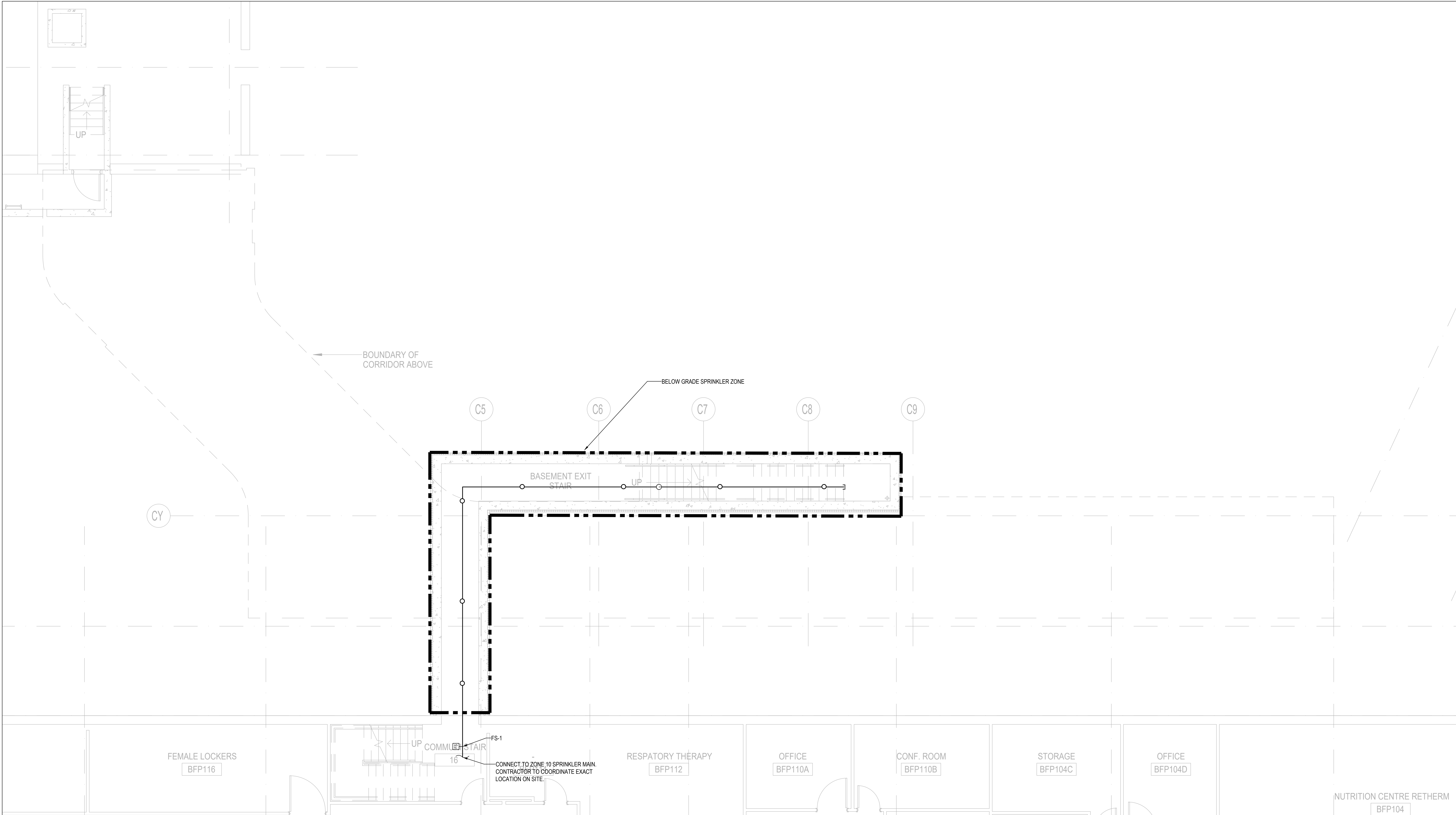
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PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
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TITLE:  
PENTHOUSE & ROOF FLOOR PLAN - NEW  
WORK - HVAC

PROJECT NO:  
MRK-23004289

DRAWING NO:  
M-313



1 BELOW GRADE FLOOR PLAN - NEW WORK - FIRE PROTECTION  
1:50

NOTE: CONTRACTOR TO SUBMIT SPRINKLER SHOP DRAWINGS WITH THE ENGINEER'S STAMP AND THE HYDRAULIC LOAD CALCULATIONS TO THE CITY AS PART OF PERMIT SUBMISSION.

FIRE PROTECTION SYSTEM SHALL BE IN ACCORDANCE WITH AND SUBJECT TO NFPA AND OBC REGULATIONS.

- FIRE PROTECTION NOTES**
- CONTRACTOR TO INCLUDE FOR ALL OFFSETS REQUIRED FOR COORDINATION WITHIN MECHANICAL AND ELECTRICAL SERVICES. THE OFFSETTING INCLUDES ALL HVAC, HYDRONICS, PLUMBING AND FIRE PROTECTION SERVICES.
  - THE DRAWINGS AND SPECIFICATIONS ARE PROVIDING THE MINIMUM PERFORMANCE REQUIREMENTS. THE FIRE PROTECTION SYSTEM SHALL BE PREPARED, COMPLETE, STAMPED, SIGNED, AND APPROVED BY A LICENSED SPRINKLER CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR THE FLOW TEST INFORMATION PRIOR TO PREPARATION OF DRAWINGS AND HYDRAULIC CALCULATIONS.
  - CONTRACTOR TO PROVIDE FIRE WATCH AS REQUIRED TO MAINTAIN FIRE SAFETY OF THE CONSTRUCTION SITE SCOPE AREA.
  - THE CONTRACTOR SHALL PROVIDE FIRE-STOPPING ON ALL NEW PIPING AND CONDUIT PENETRATIONS THROUGH A FIRE-RATED WALL OR FLOOR AND ANY HOLES THAT RESULT FROM REMOVAL OF EXISTING SERVICES THROUGH A FIRE-RATED WALL OR FLOOR.
  - COORDINATE WITH HOSPITAL OF SHUTTING DOWN AND DRAINING FIRE LINE PRIOR TO COMMENCING NEW WORK. PROVIDE FIRE WATCH AS REQUIRED TO ENSURE BUILDING SAFETY DURING SPRINKLER MAIN PIPE REMOVAL.
  - SPRINKLER PIPES SHALL NOT BE INSTALLED BENEATH CEILING MOUNTED MECHANICAL EQUIPMENT.

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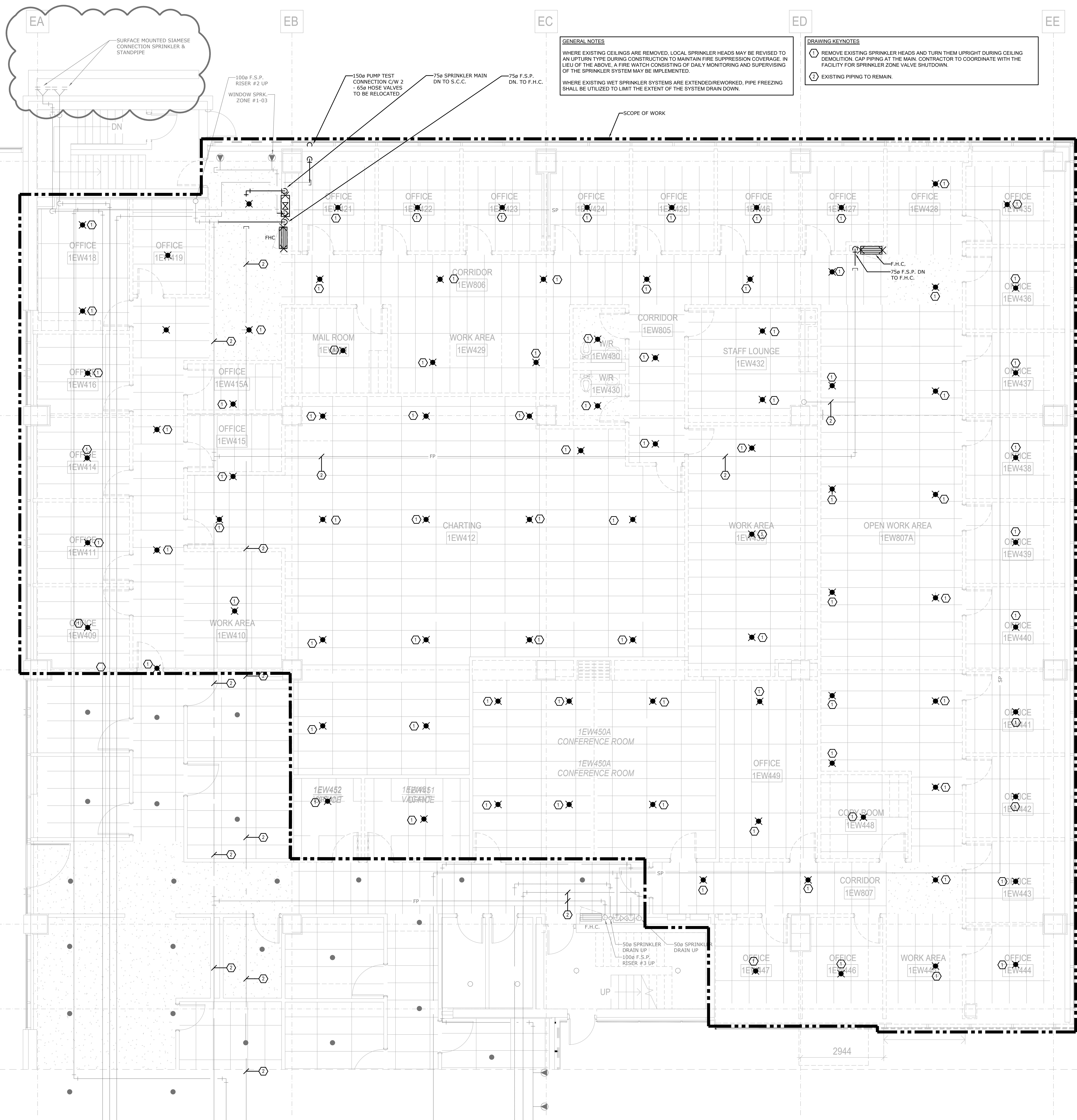
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PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
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TITLE:  
BELOW GRADE FLOOR PLAN - NEW WORK  
- FIRE PROTECTION

PROJECT NO:  
MRK-23004289  
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DRAWING NO:  
M-400



1 LEVEL 1 FLOOR PLAN - DEMO - FIRE PROTECTION  
1:50

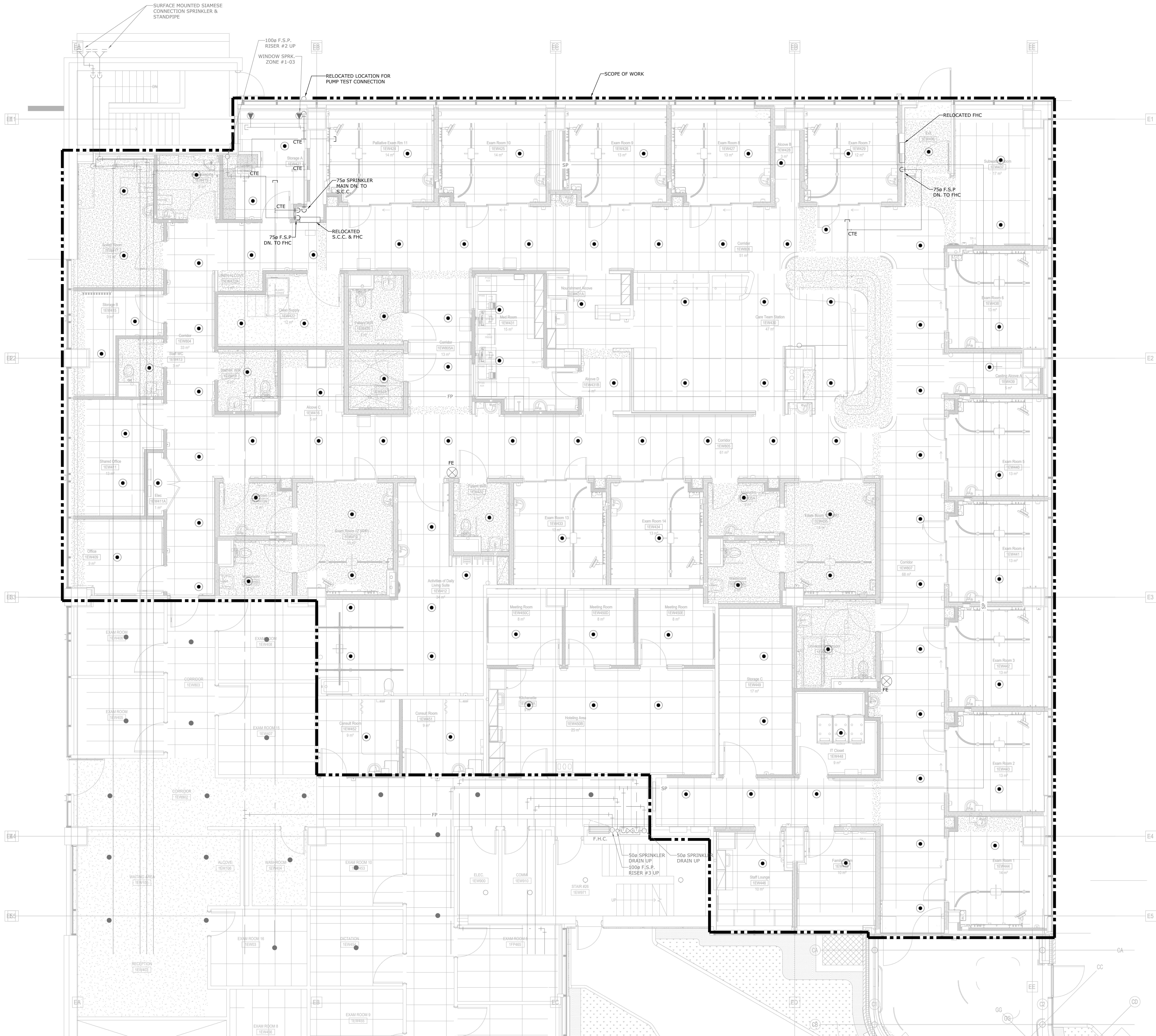
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PROJECT:  
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TITLE:  
LEVEL 1 FLOOR PLAN - DEMO - FIRE PROTECTION

PROJECT NO:  
MRK-23004289  
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PROJECT:  
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LEVEL 1 FLOOR PLAN - NEW WORK - FIRE PROTECTION

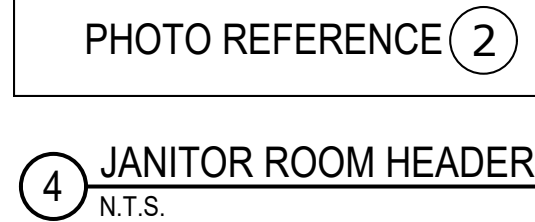
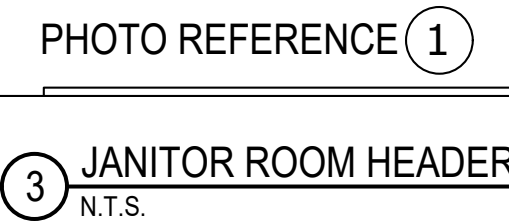


FIRE PROTECTION NOTES

- KEYNOTES

- 
- OPTION 2: CONTRACTOR TO PROVIDE NEW ZONE CONTROL VALVE IN CORRIDOR COMPLETE WITH SIB DRAIN CONNECTED TO FLOOR BELOW. EXACT LOCATION TO BE COORDINATED ON SITE. COORDINATE WITH UH FOR SHUT-DOWN.
- SCOPE OF WORK
- PIPE SIZE TO BE PROVIDED BY SPRINKLER CONTRACTOR BASED ON HYDRAULIC CALCULATION.
- CONTRACTOR TO COORDINATE PIPE ROUTING WITHIN CEILING AND REPORT TO CONSULTANT FOR ALL FINDINGS. COORDINATE WITH UH FOR SHUT-DOWN AND AFTER HOUR WORK.
- PIPE ROUTING TO BE COORDINATED ON SITE
- EXISTING FP AS PER AS-BUILT. EXACT LOCATION TO BE VERIFIED.
- CTE (OPTION 2)
- CONTRACTOR TO VERIFY CEILING SPACE AND REPORT BACK TO ENGINEER FOR ANY DISCREPANCIES. ALLOW FOR SEPARATE PRICE FOR ALTERNATE PIPE ROUTING.
- EXISTING JANITOR ROOM
- OPTION 1: CONTRACTOR TO COORDINATE AND VERIFY ZONE VALVE LOCATION INSIDE HOUSEKEEPING ROOM. COORDINATE WITH UH FOR AFTER HOURS WORK. ALLOW FOR PIPE MODIFICATION AS REQUIRED. REPORT BACK TO MECHANICAL CONSULTANT FOR ANY DISCREPANCIES.
- EXISTING HEADER FOR MULTIPLE ZOV

2 EXISTING AS-BUILT DRAWING - SPRINKLER FIRST FLOOR PLAN  
1 : 100



<p><b>CLIENT:</b></p>  <p><b>UHN</b></p>	<p><b>University Health Network Toronto Western Hospital</b> 390 Bathurst Street Toronto ON M5T 2S8 <a href="http://www.uhn.ca">www.uhn.ca</a></p>
<p><b>ARCHITECT:</b></p>  <p><b>CUMULUS ARCHITECTS' INC.</b></p> <p>160 Pears Ave - Suite 300 Toronto, ON M5R 3P6 416-534-0763 <a href="http://www.cumulusarch.com">www.cumulusarch.com</a></p>	
<p><b>CONSULTANT:</b></p>  <p>1-905-895-3217 / 1-905-895-0167 250 Commerce Valley Drive West, Suite 110 Markham, ON L3T 0A8 Canada</p> <p><a href="http://www.exp.com">www.exp.com</a></p> <ul style="list-style-type: none"> <li>• BUILDINGS • EARTH &amp; ENVIRONMENT • ENERGY •</li> <li>• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •</li> </ul>	

10	Issued for Advertisement M-04	2024-11-18
9	Issued for Advertisement M-03	2024-11-12
8	Issued for Advertisement M-02	2024-11-06
7	Issued for Advertisement M-01	2024-10-29
6	Issued for Tender	2024-10-11
5	Issued for 100% CD	2024-09-27
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3	Issued for 50% CD / Permit	2024-08-02
2	Issued for 100 CD	2024-07-10
1	Issued for Design Development Progress	2024-04-04
NO	DESCRIPTION	DATE

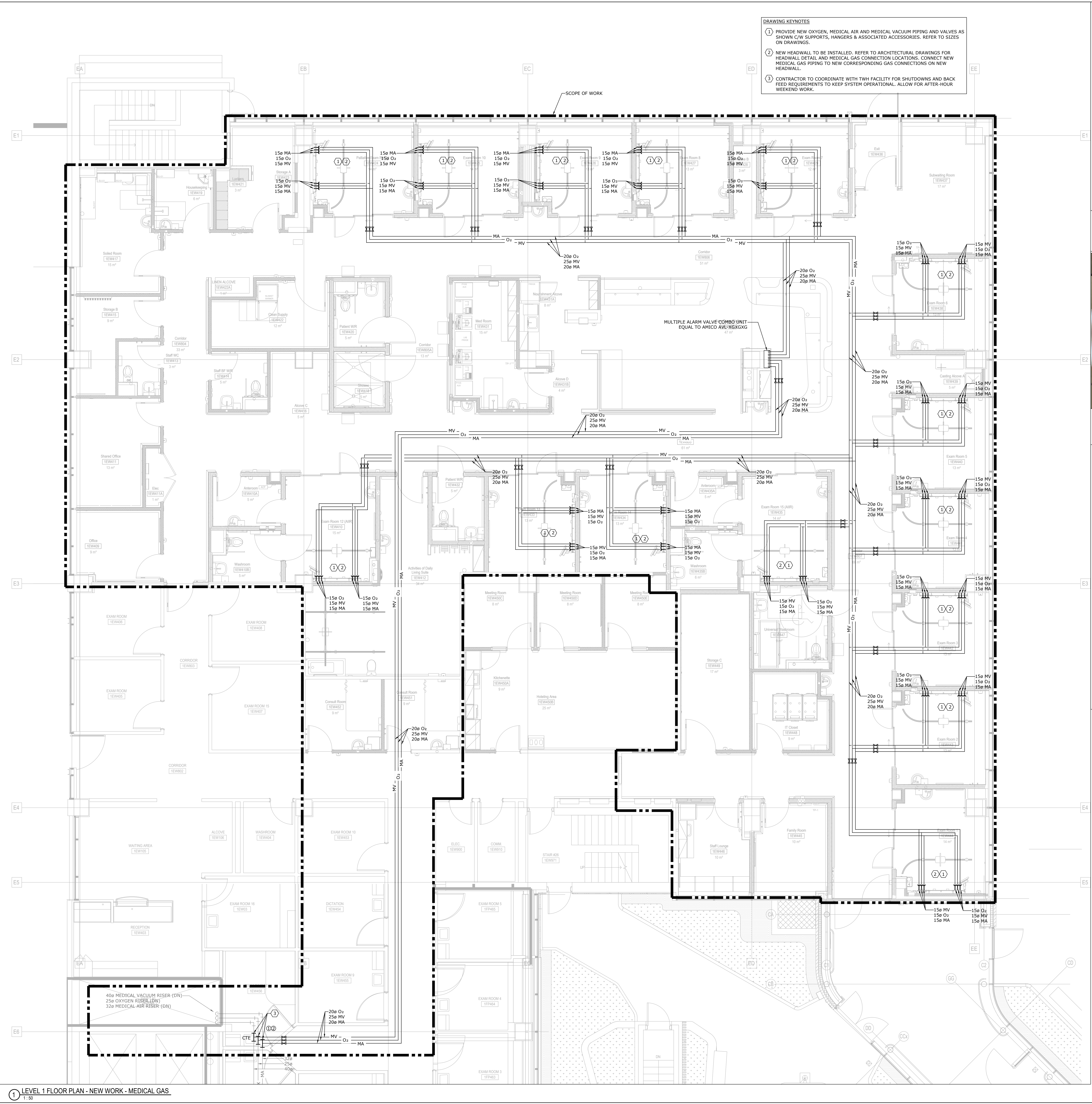
SHEET REVISION

PROJECT:  
**Seniors Emergency Medicine Centre (SEMC) &  
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 Toronto Emergency Hospital  
 399 Bayview Drive, Toronto, ON M5T 2S8

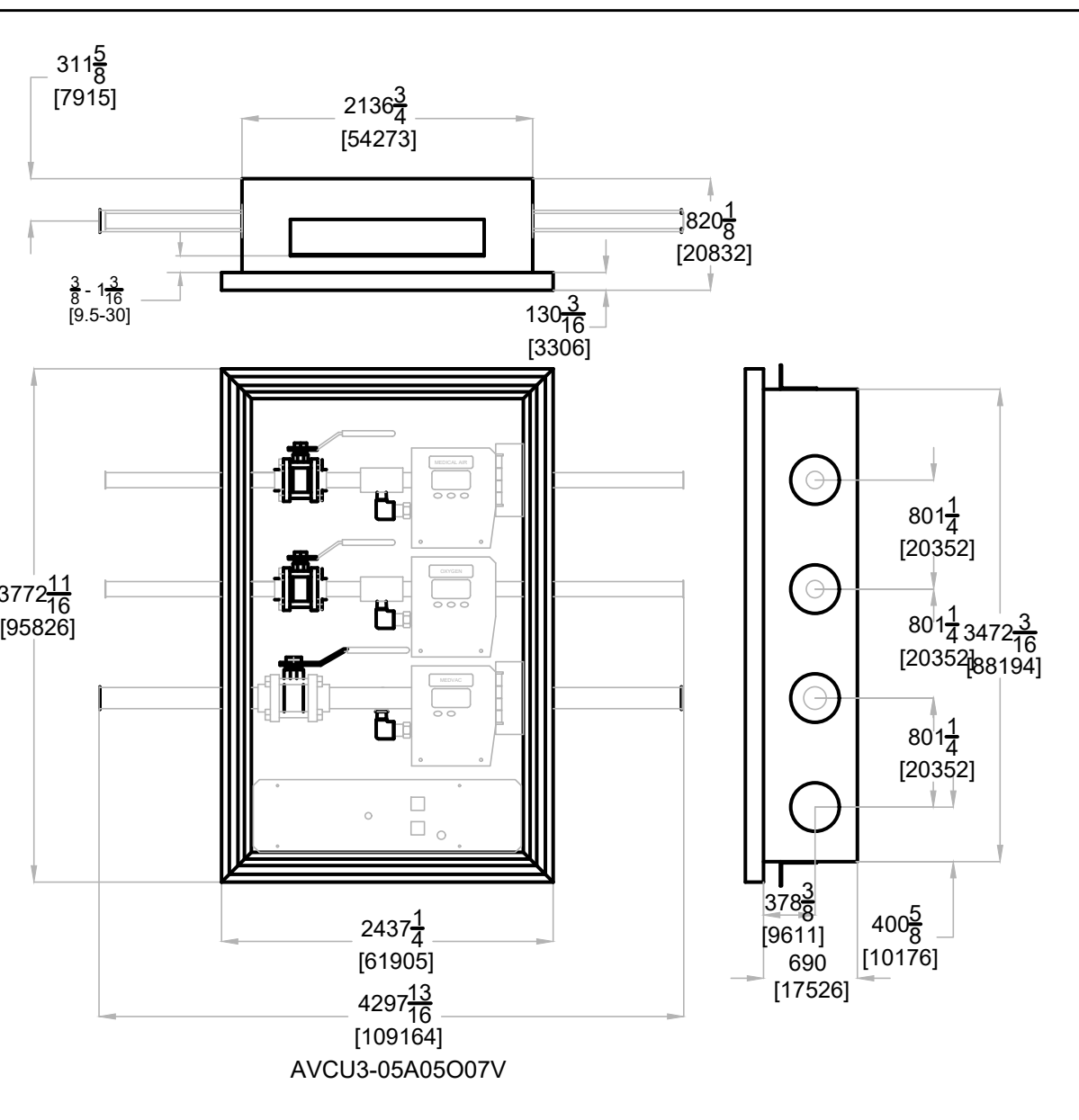
TITLE:  
**LEVEL 1 FLOOR PLAN - CORRIDOR - NEW  
 WORK - FIRE PROTECTION**

PROJECT NO: <b>MRK-23004289</b>	DRAWING NO: <b>01</b>
CHECKED: <b>S.S</b>	

M-411B



- DRAWING KEYNOTES**
- 1 PROVIDE NEW OXYGEN, MEDICAL AIR AND MEDICAL VACUUM PIPING AND VALVES AS SHOWN C/W SUPPORTS, HANGERS & ASSOCIATED ACCESSORIES. REFER TO SIZES ON DRAWINGS.
  - 2 NEW HEADWALL TO BE INSTALLED. REFER TO ARCHITECTURAL DRAWINGS FOR HEADWALL DETAIL AND MEDICAL GAS CONNECTION LOCATIONS. CONNECT NEW MEDICAL GAS PIPING TO NEW CORRESPONDING GAS CONNECTIONS ON NEW HEADWALL.
  - 3 CONTRACTOR TO COORDINATE WITH TWH FACILITY FOR SHUTDOWNS AND BACK FILL REQUIREMENTS TO KEEP SYSTEM OPERATIONAL. ALLOW FOR AFTER-HOUR WEEKEND WORK.



2 MEDICAL GAS ZONE VALVE BO<sub>2</sub> DETAIL  
NTS



PHOTO REFERENCE 1  
3 EXISTING MEDICAL GAS PIPING  
NTS

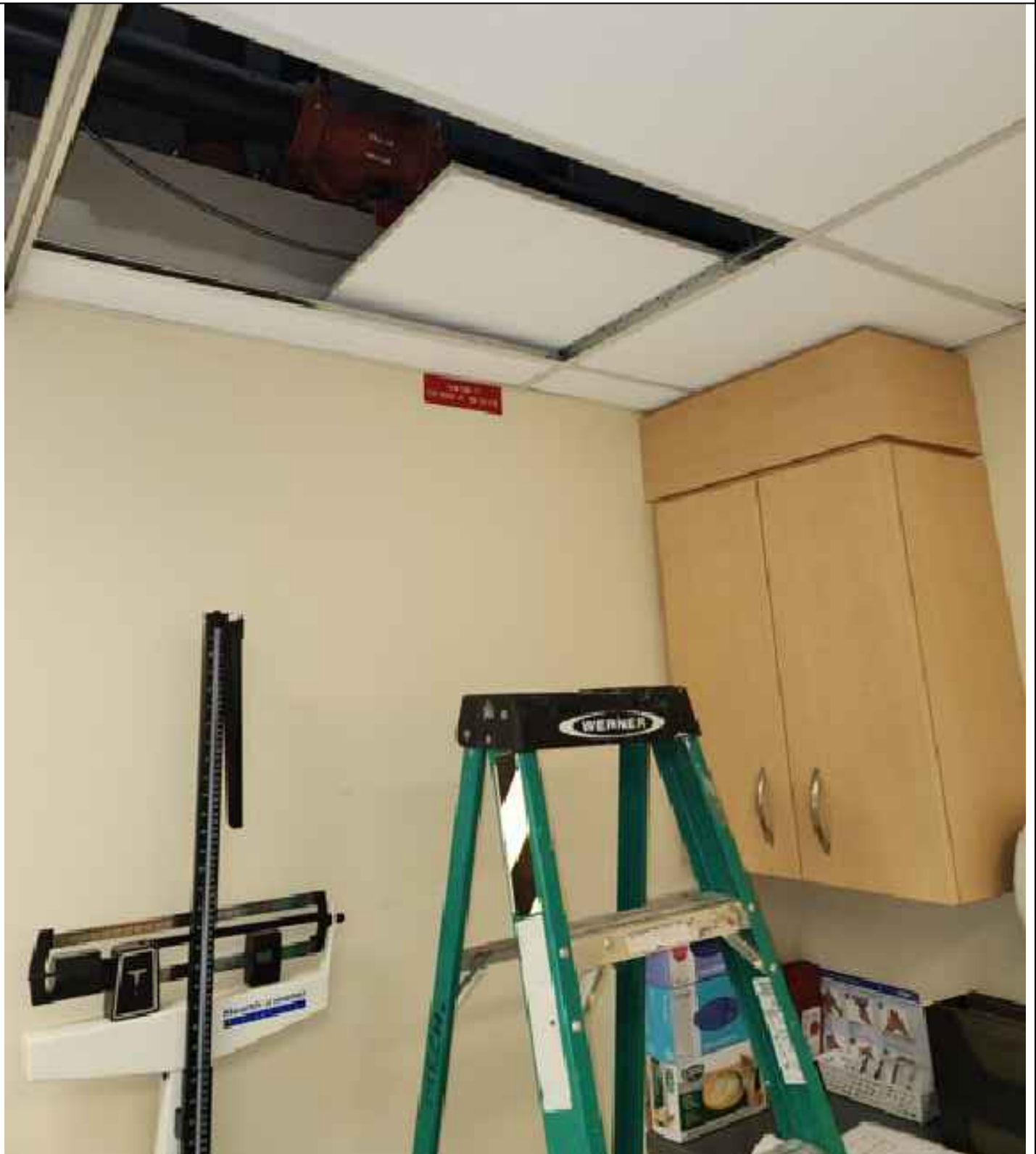


PHOTO REFERENCE 2  
4 EXISTING MEDICAL GAS PIPING LOCATION  
NTS

**CLIENT:**  
University Health Network  
Toronto Western Hospital  
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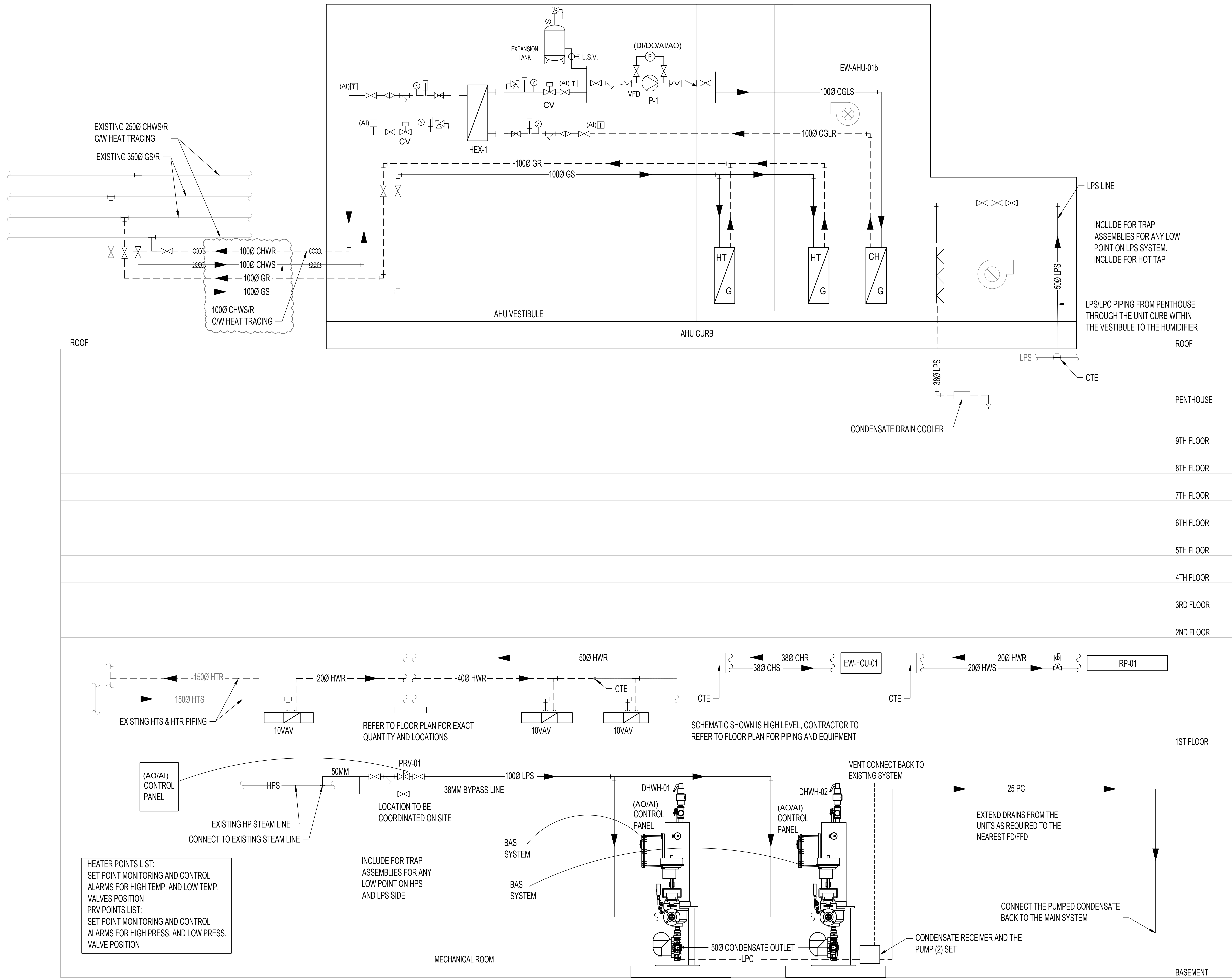
NO.	REVISION	DATE
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9	Issued for Addendum M-03	2024.11.12
8	Issued for Addendum M-02	2024.11.06
7	Issued for Addendum M-01	2024.10.29
6	Issued for Permit	2024.10.11
5	Issued for 100% CDD	2024.09.27
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3	Issued for 50% CDD - Permit	2024.08.02
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1	Issued for Design Development Progress	2024.04.05
NO.	DESCRIPTION	DATE

**PROJECT:**  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
399 Bathurst Street Toronto, ON, M5T 2S8

**LEVEL 1 FLOOR PLAN - NEW WORK - MEDICAL GAS**

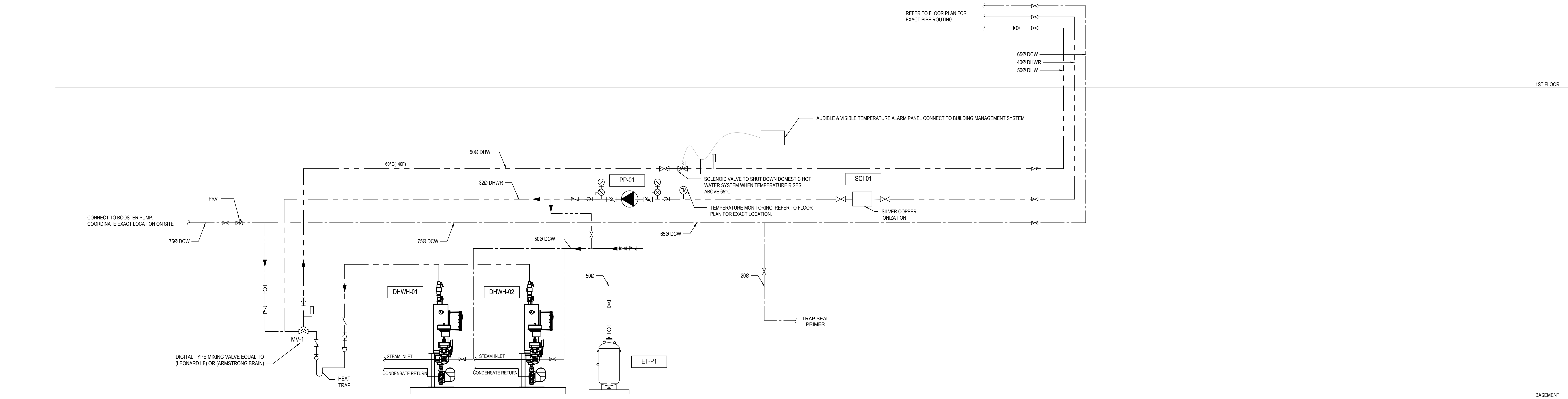
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**CHECKED:** P.R.  
**DATE:** M-501



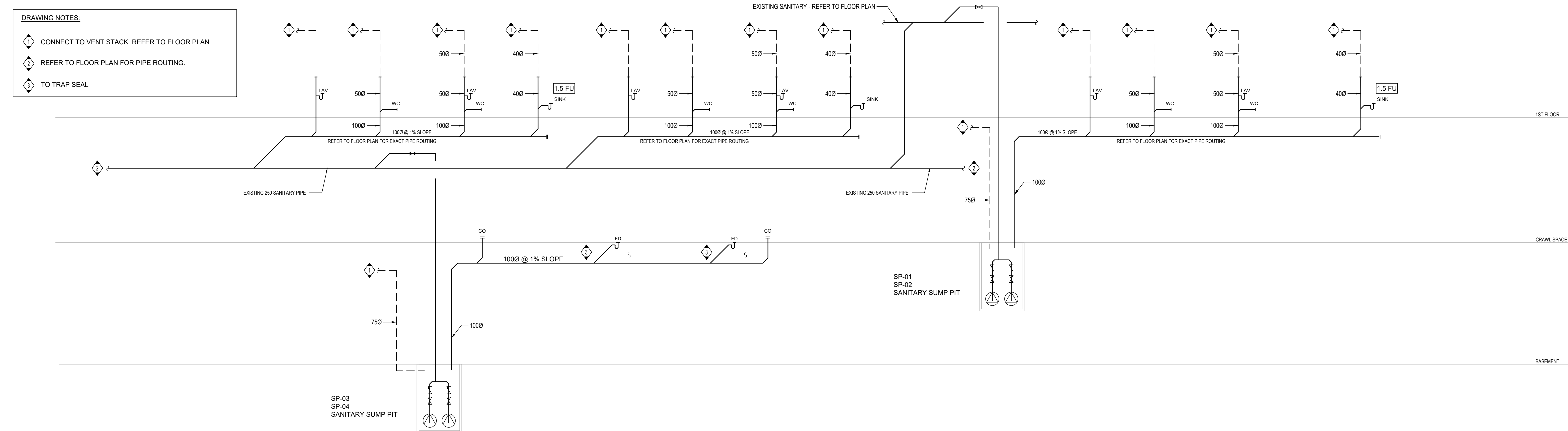


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9	Issued for Addendum M-03	2024.11.12
8	Issued for Addendum M-02	2024.11.06
7	Issued for Addendum M-01	2024.10.29
6	Issued for Review	2024.10.11
5	Issued for 100% CD	2024.09.27
4	Issued for 90% CD	2024.09.09
3	Issued for 50% CD / Permit	2024.08.02
2	Issued for 100 DD	2024.05.10
1	Issued for Design Development Progress	2024.04.05
NO	DESIGN LOW	DATE

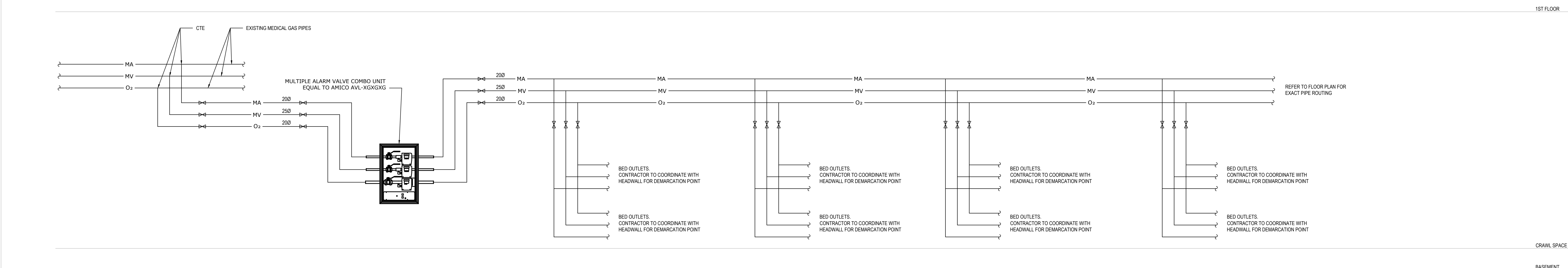
PROJECT:  
**Seniors Emergency Medicine Centre (SEMC) & External Corridor**  
Toronto Western Hospital  
399 Bathurst Street Toronto, ON M5T 2S8  
TITLE:  
**HYDRONIC & PIPING SCHEMATIC DIAGRAMS**



1 PLUMBING SCHEMATIC DIAGRAM



2 SANITARY SCHEMATIC DIAGRAM



3 MEDICAL GAS SCHEMATIC DIAGRAM

NO.	REVISION	DATE
10	Issued for Addendum M-04	2024.11.18
9	Issued for Addendum M-03	2024.11.12
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3	Issued for 50% CD / Permit	2024.08.02
2	Issued for 100 DD	2024.05.10
1	Issued for Design Development Progress	2024.04.05
NO.	DESCRIPTION	DATE

PROJECT:  
**Seniors Emergency Medicine Centre (SEMC) & External Corridor**  
Toronto Western Hospital  
399 Bathurst Street, Toronto, ON, M5T 2S8

TITLE:  
**PLUMBING, SANITARY & MEDICAL GAS SCHEMATIC DIAGRAMS**

PROJECT NO:  
**MRK-23004289**

CHECKED:  
**S.S.**

DRAWING NO:  
**M-603**

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FORCE FLOW HEATER SCHEDULE																				
EQUIPMENT TAG	LOCATION	DESCRIPTION	MANUFACTURER	MODEL	AIRFLOW (L/S)	HEATING CAPACITY (KW)	FLUID				PRESSURE DROP (kPa)	ELECTRICAL		EMERGENCY POWER (Y/N)	REMOTE THERMOSTAT (Y/N)	DIMENSIONS			WEIGHT (KG)	REMARKS
							EWTC (°C)	LWT (°C)	FLOW (L/S)			MOTOR (KW)	POWER (V/Ph/Hz)			LENGTH (MM)	WIDTH (MM)	HEIGHT (MM)		
EW-FPH-01	EXIT 1EW346 (SEM CENTRE)	CEILING MOUNTED	SIGMA	SFF-A-02	104	4	66	54	0.1	0.07	0.075	120/160	Y	N	660	241	660	34.0		
FP-FPH-01	EXIT DOOR AT FP ROOF & STAIR	CEILING MOUNTED	SIGMA	SFF-A-02	104	4	66	54	0.1	0.71	0.075	120/160	Y	N	660	241	660	34.0		
FP-UH0101	LOWER LEVEL	CEILING MOUNTED	SIGMA	015H	132	4	66	54	0.18	2.09	0.037	120/160	Y	N	483	368	343	13.2		
NOTES: 1. CW LOCALISED PACKAGED CONTROLS.																				

ELECTRIC HEAT TRACING SCHEDULE							
TAG	SERVICE	PIPE DIAMETER	PIPE LENGTH		ELECTRICAL V/Ph/Hz	EMERGENCY POWER	COMMENTS
		(mm)	(FT)	(m)			
ETC-01	CHILLED WATER	150	64.0	19.5	208/1/60	(Y/N) Y	
NOTES:	1. PROVIDE CABLE SEGMENTS AS REQUIRED TO COMPLETELY TRACE PIPING RUN AS INDICATED ON DRAWINGS.						
	2. PROVIDE RAYCLIC (OR EQUIVALENT) POWERED AND UN-POWERED CONNECTIONS AND SUPPORTS AS REQUIRED TO PROVIDE COMPLETE SYSTEM.						
	3. PICK-UP DRY CONTACTS AT EACH CONTROLLER TO ALARM BAS ON ANY TROUBLE SIGNAL.						
	4. COMMUNICATIONS CABLE IS REQUIRED TO BE EXTENDED FROM PIPE MOUNTED RTD BACK TO CONTROLLER. ALLOW FOR SUFFICIENT CONTROLS CABLING AND CONDUIT.						
	5. CONTROLS CABLE TO BE IN CONDUIT.						
	6. HEAT TRACING AND PIPE SYSTEMS ARE DESIGNATED FOR -10°F AMBIENT TEMPERATURE.						
	7. THIS SCHEDULE IS TO BE READ IN CONJUNCTION WITH SPECIFICATION 20 07 00 REGARDING STANDARDS FOR PIPE INSULATION.						

AIR TERMINAL SCHEDULE						
SYSTEM TAG	DESCRIPTION	MANUFACTURER	MODEL	FACE SIZE	DAMPER	REMARKS
A1	SUPPLY DIFFUSER	EH PRICE	SPD	600x600	Y	REFER TO VENTILATION DRAWINGS FOR NECK DIAMETER, HIGH INDUCTION CONSTRUCTION
A2	SUPPLY DIFFUSER	EH PRICE	SPD	300x300	Y	REFER TO VENTILATION DRAWINGS FOR NECK DIAMETER, HIGH INDUCTION CONSTRUCTION
A3	ISOLATION ROOM SUPPLY DIFFUSER	EH PRICE	LFD	900x600	Y	250 NECK DIAMETER
A4	SUPPLY DIFFUSER	EH PRICE	CF	25 MM 1 ADJUSTA SLOT	N	DIFFUSER PLENUM TO BE BUILD ON SITE BY MECHANICAL CONTRACTOR, CONCEALED MUD...
B1	RETURN EXHAUST GRILLE	EH PRICE	80 EGG CRATE	600x300	N	
B2	RETURN EXHAUST GRILLE	EH PRICE	80 EGG CRATE	300x300	N	
B3	RETURN EXHAUST GRILLE	EH PRICE	80 EGG CRATE	600x600	N	
B4	RETURN EXHAUST GRILLE	EH PRICE	730FF	200x200	N	SIDE WALL GRILLE, LOW LEVEL
B5	RETURN EXHAUST GRILLE	EH PRICE	CF	25 MM 1 ADJUSTA SLOT	N	DIFFUSER PLENUM TO BE BUILD ON SITE BY MECHANICAL CONTRACTOR, CONCEALED MUD...
NOTES:	1. GRILLE / DIFFUSER COLOR TO BE COORDINATED WITH THE ARCHITECTURAL DOCUMENTS. FINISH TO BE CLARIFIED PRIOR TO ORDERING. 2. PROVIDE VOLUME DAMPERS FOR RETURN GRILLES 3. MOUNTING TYPE OF GRILLES / DIFFUSERS (T-BAR VS DRYWALL MOUNTED) TO BE COORDINATED WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING.					

FAN SCHEDULE															REMARKS
SYSTEM REFERENCE TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	AIR FLOW (CFM)	AIR FLOW (L/S)	FAN E.S.P. (Pa)	MIN OUTLET VELOCITY (M/S)	ELECTRICAL		FAN EFFICIENCY %	EMERGENCY POWER (Y/N)	FIRE SHUT DOWN (Y/N)	UNIT WEIGHT (KG)	
									POWER (V/Hz/PH)	FLA (A)					
EW-EF-14	WASHROOM EXH.	ROOF	PENNBARRY		700	330	374	8	575/603	0.9	1.18	Y	N	13.6	EXISTING FANS TO BE REPLACED WITH NEW FANS TO ADD HEPA FILTERS IN THE...
EW-EF-13A & 13B	ISOLATION EXH.	ROOF	PENNBARRY	D08	850	401	747	8	575/603	2.4	99.00	Y	N	16.8	
EW-EF-6A & 6B	EXISTING TB EXHAUST SYSTEM	ROOF	PENNBARRY	VCR-SWSIAF 222	7842	3,701	1643	8	575/603	17.0	1.26	Y	N	90.7	
NOTES:	1. ALL ROOF MOUNTED FANS OW 450 MM HIGH ROOF CURB. 2. DIRECT DRIVE WITH EC MOTOR. 3. PROVIDE WEATHER PROOF DISCONNECTS FOR ALL OUTDOOR FANS. 4. PROVIDE LOCAL DISCONNECTS FOR CEILING/ROOF MOUNTED FANS. 5. PROVIDE VFDS FOR ALL FANS IN THE PENTHOUSE AND LOCAL DISCONNECT. COORDINATE EXACT LOCATION ON SITE. 6. EXHAUST STACK SHOULD BE MINIMUM 3M ABOVE ANY NEARBY AIR INTAKE (EW-AHU-019) 7. FANSTACK SUPPORTS SHALL BE PROVIDED														


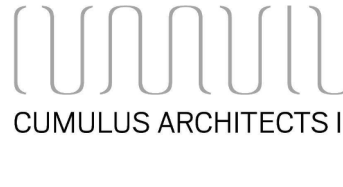
FAN COIL UNIT SCHEDULE (2P CHILLED WATER)																				
SYSTEM REFERENCE TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	AIR FLOW (CFM)	AIR FLOW (L/S)	UNIT E.S.P. (Pa)	COOLING COIL				ELECTRICAL				EMERGENCY POWER (Y/N)	FIRE SHUT DOWN (Y/N)	UNIT WEIGHT (KG)	REMARKS	
								TOTAL (KW)	SENSIBLE (KW)	EWI ("C)	LWT ("C)	FLOW (L/S)	PD (KPA)	FLA (A)	MCA (A)					MROPD (A)
EW-FCU-01	IT ROOM COOLING UNIT	IT ROOM	IEC	HYL16	1478	698	50	13.84	13.36	5.6	12.2	0.49	9.27	11.4	12.825	20	115/60/1	N	Y	102.06
NOTES: 1. FAN COIL UNIT TO BE COMPLETE WITH 2" (50MM) MERV 13 FILTER SECTION. 2. PROVIDE ECM MOTOR 3. FAN COIL UNIT TO HAVE BOTTOM ACCESS FOR SERVICE. 4. FCU IS COMPLETE WITH DRAIN PAN AND DRAIN PUMP																				

VAV BOXES WITH REHEAT COILS SCHEDULE															
SYSTEM REFERENCE TAG	MANUFACTURER	MODEL	SIZE	MAX. AIR FLOW (L/S)	INLET SIZE (MM)	OUTLET			REHEAT COIL					REMARKS	
						WIDTH (MM)	HEIGHT (MM)	EAT (°C)	LAT (°C)	NO OF ROWS	FLOW (L/S)	EWI (°C)	LWT (°C)		WPD (KPA)
8/VAV-XXLS	PRICE	SDV	6	160	200	305	203	12.8	25.6	1	0.024	65.6	54.4	0.239	
8/VAV-XXLS	PRICE	SDV	8	315	250	305	254	12.8	25.6	1	0.041	65.6	54.4	0.867	
10/VAV-XXLS	PRICE	SDV	10	515	300	356	318	12.8	25.6	1	0.060	65.6	54.4	0.299	
12/VAV-XXLS	PRICE	SDV	12	735	350	406	381	12.8	25.6	1	0.082	65.6	54.4	0.717	
NOTES:	1. REFER TO FLOOR PLANS FOR EXACT QUANTITY OF VAV BOXES. 2. EACH UNIT SHALL BE WITH INTEGRAL COILA AND 3FT ATTENUATOR 3. VAV BOX MIN. POSITION IS 30% 4. CONTRACTOR TO PROVIDE ACCESS TO EACH VAV BOX AS PER MANUFACTURER RECOMMENDATION AND COORDINATE WITH ARCHITECTURAL CEILING PLANS 5. CONTRACTOR TO PROVIDE VENT AND DRAIN CONNECTION FOR EVERY COIL CONNECTION 6. MECHANICAL EQUIPMENT TO BE INSTALLED AS PER MANUFACTURER RECOMMENDATION BY MECHANICAL CONTRACTOR														

HEPA FILTER SCHEDULE																							
SYSTEM REFERENCE TAG	DESCRIPTION SERVICE	LOCATION	MANUFACTURER	MODEL NO.	AIR FLOW		TOTAL FILTER AREA (SMT)	EFFECTIVE FILTER AREA (M <sup>2</sup> ) (SMT)	FILTER FACE VELOCITY (M/S)	1st STAGE FILTER (PRE-FILTERS)				2nd STAGE FILTER (HEPA)				FILTER ASSEMBLY			TOTAL PRESSURE DROP (KPA)	TOTAL WEIGHT (KPA)	REMARKS
					(CFM)	(L/s)				FILTER DESCRIPTION	EFFICIENCY	PRESS. DROP (PA)		FILTER DESCRIPTION	EFFICIENCY	INITIAL EST.	PRESS. DROP (PA)	WIDTH (MM)	HEIGHT (MM)	LENGTH (MM)			
												INITIAL EST.	FINAL (RECOMMENDED)										
EW-HEPA-01	ISOLATION EXHAUST	ROOF	CTC	B2-412-21-RCD-M605-B	890	420	0.37	0.37	1.125	600x600x100 (4)	MERV 11	50	188	600x600x300 (4)	99.90%	200	500	762	1676	1905	875	386	N-1 CONFIGURATION DUTY/STANDBY
EW-HEPA-02 & 03	TB EXHAUST	ROOF	CTC	B2-412-22-TD24M-PG-B	7840	3,700	1.49	1.49	2.479	600x600x100 (4)	MERV 11	50	188	600x600x300 (4)	99.90%	200	500	1397	1626	2514.6	875	500	
NOTES: 1. EACH HEPA FILTER ASSEMBLY SHALL BE COMPLETE WITH BASE 2. MANJAL ISOLATION DAMPER AT THE INLET OF THE FILTER AND MOTORIZED DAMPER AT THE OUTLET OF THE FILTER ASSEMBLY																							

RADIANT PANEL SCHEDULE								REMARKS
SYSTEM REFERENCE TAG	MANUFACTURER	MODEL	WIDTH  (MM)	TUBE PASSES (QTY)	HEATING CAPACITY (KW/M)	MEAN TEMPERATURE (°C)	FLOW  (L/S)	
RP-01	SIGMA	SLC	457	6	0.222	60	0.0048	
NOTES: 1. REFER TO FLOOR PLANS FOR EXACT QUANTITY AND PANEL LENGTH. 2. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR CEILING TYPE BEFORE ORDERING THE RADIANT PANELS								

SILENCER SCHEDULE																						
SYSTEM REFERENCE TAG	DESCRIPTION	UNITS SERVED	LOCATION	MANUFACTURER	MODEL	AIR FLOW (L/S)	VELOCITY (M/S)	SIZE (MM)			PRESSURE DROP		REQUIRED ATTENUATION (DB)								REMARKS	
								W (mm)	H (mm)	L (mm)	IDEAL (PA)	WITH SYSTEM (PA)	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz		
SL-01	AHU SUPPLY AIR	AHU-01	ROOF DUCT MOUNTED	Kinetics Noise Control	575 KCRS-F-TF	26500	9	2300	1350	1829	37	37	4	8	16	19	17	13	8	4	Tiedler firm-lined silencer. System effect pressure drop assumes turning vanes at outlet side elbow.	
SL-02	AHU RETURN AIR	AHU-01	ROOF DUCT MOUNTED	Kinetics Noise Control	575 KCRS-F-TF	26500	-9	2300	1350	2134	27	37	6	8	18	21	15	12	8	6		Tiedler firm-lined silencer.
SL-03	TOILET EXHAUST	E-EF-08	ROOF DUCT MOUNTED	Kinetics Noise Control	700 KCRS-F-TF	350	3	300	300	914	10	37	2	6	12	11	9	7	5	3		Tiedler firm-lined silencer.
SL-04	ISOLATION EXHAUST	E-EF-07 A & B	ROOF DUCT MOUNTED	Kinetics Noise Control	350 KCRS-F-TF	420	4	350	300	2439	7	37	5	13	21	23	20	11	9	7		Tiedler firm-lined silencer.
NOTES: 1. VELOCITY SHOWN IS + (FORWARD FLOW) OR - (REVERSE FLOW) AS DEFINED BY ASTM E477-13.																						

CLIENT:	
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CONSULTANT:	
<div><div><div>1 905.695.3217   416.905.695.0167</div><div>225 Commerce Valley Drive West, Suite 110</div><div>Markham, ON L3T 0G6</div><div>Canada</div></div><div><div>www.esg.com</div></div></div>	
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PROJECT:	
<div><div><div>Seniors Emergency Medicine Centre (SEMC) &amp; External Corridor</div><div>Toronto Western Hospital</div><div>399 Bathurst Street Toronto, ON, M5T 2S8</div></div></div>	
TITLE:	
MECHANICAL SCHEDULES #1	
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AIR CURTAIN SCHEDULE (ELECTRIC)																
SYSTEM REFERENCE TAG	LOCATION	DESCRIPTION	MANUFACTURER	MODEL	AIRFLOW  (L/S)	HEATING CAPACITY (KW)	ELECTRICAL		EMERGENCY POWER (Y/N)	REMOTE THERMOSTAT (Y/N)	UNIT				WEIGHT  (KG)	REMARKS
							MOTOR (KW)	POWER (V/Ph/Hz)			NZ WIDTH (MM)	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)		
FP-ACH11	CORRIDOR EAST DOOR	CEILING MOUNTED	POWERED AIRE	CHA-2-72 (E)	1659	20	2 x 0.75	575/360	Y	N	1800	1900	426	515	182	
NOTES:	1. UNIT IS CW LOCAL CONTROL PANEL,SOCONNECT WITH BACHet CARD TO BE CONNECTED TO BAS CONTROLS 2. MECHANICAL CONTRACTOR TO INCLUDE FOR STEP DOWN TRANSFORMER IF REQUIRED AND ELEC. TO PROVIDE POWER. 3. INTERLOCK UNIT WITH CONCEALED DOOR SWITCH AND UNIT TO BE BOTTOM SUPPLY AND BOTTOM RETURN. 4. UNIT COLOR TO BE COORDINATED ON SITE AND WITH ARCH. BEFORE ORDERING 5. FOR EQUALS OR ALTERNATES - THE MIN LENGTH WILL BE TO COVER THE DOOR OPENING AND IF THE UNIT IS LONGER ITS TO BE ACCEPTED BY THE CONSULTANTS. 6. MOUNTING AS PER MANUFACTURER RECOMMENDATION															

ENERGY RECOVERY VENTILATOR SCHEDULE (ERV)																
SYSTEM REFERENCE TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	AIR FLOW (CFM)	AIR FLOW (L/S)	HEATING COIL (ELEC)		ELECTRICAL (UNIT AND ELEC. HEATER)				EMERGENCY POWER (Y/N)	FIRE SHUT DOWN (Y/N)	UNIT WEIGHT (KG)	REMARKS
							TOTAL (KW)	FLA (A)	MCA (A)	MROPD (A)	POWER (V/Hz/PH)					
FP-AH12ERV-1	ENERGY RECOVERY	CEILING MOUNTED	OXYGEN 8	A16IN	500	236	2.00	14.9	18.3	20	208/60/1	Y	Y	200.0		
FP-AH14ERV-1	ENERGY RECOVERY	CEILING MOUNTED	OXYGEN 8	A16IN	500	236	2.00	14.9	18.3	20	208/60/1	Y	N	200.0		
NOTES: 1.ERV DESIGNED WITH FAN AND ELEC. HEATER FOR PRE HEAT 2. PROVIDE ECM MOTOR 3. ALL UNITS TO HAVE BOTTOM ACCESS FOR SERVICE. 4. MERV 13B FILTERS 5. MAIN POWER WILL FEED THE ELEC. HEATER AND ELECTRICAL CONTRACTOR TO PROVIDE WIRING FROM HEATER TO THE UNIT 6. MAINTAIN CLEARANCE AS REQUIRED, UNIT TO BE INSTALLED SUCH A WAY THAT IT CAN BE DROPPED FOR MAINTENANCE WITHOUT PIPING REWORK.																

CEILING MOUNTED VENTILATION UNIT SCHEDULE																													
SYSTEM REFERENCE TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	AIR FLOW		UNIT E.S.P. (Pa)	COOLING COIL (DX)				HEATING COIL (30% P GLY)								SILENCER		ELECTRICAL			EMERGENCY POWER (Y/N)	FIRE SHUT DOWN (Y/N)	UNIT WEIGHT (KG)	REMARKS	
					(CFM)	(L/S)		TOTAL (KW)	SENSIBLE (KW)	EAT DB (°C)	EAT WB (°C)	LAT DB (°C)	LAT WB (°C)	TOTAL (KW)	EAT DB (°C)	LAT DB (°C)	EW T (°C)	LWT (°C)	FLOW (L/S)	PD (KPA)	INLET (Y/N)	DISCHARGE (Y/N)	MCA (A)	MROPD (A)					POWER (V/Hz/PH)
FP-ACH12	CORRIDOR VENT.	CORRIDOR CEILING MOUNTED	DAIKIN	BCHD0161	1500	708	124	15.6	13	26.7	18.3	12.0	11.7	5.4	21.10	27.3	50.7	37.8	0.095	0.81	N	N	19.8	25	115/60/1	Y	N	216	
FP-ACH13	CORRIDOR VENT.	CORRIDOR CEILING MOUNTED	DAIKIN	BCHD0161	1500	708	124	15.6	13	26.7	18.3	12.0	11.7	5.4	21.10	27.3	50.7	37.8	0.095	0.81	N	N	19.8	25	115/60/1	Y	N	216	
FP-ACH14	CORRIDOR VENT.	CORRIDOR CEILING MOUNTED	DAIKIN	BCHD0161	1500	708	124	15.6	13	26.7	18.3	12.0	11.7	5.4	21.10	27.3	50.7	37.8	0.095	0.81	N	N	19.8	25	115/60/1	Y	N	216	
NOTES: 1. UNITS TO BE COMPLETE WITH 2" (50MM) MERV 13 FILTER SECTION. 2. PROVIDE ECM MOTOR 3. ALL UNITS TO HAVE BOTTOM ACCESS FOR SERVICE AND INSTALLED IN SUCH A WAY THAT THE UNIT CAN BE DROPPED DOWN FOR MAINTENANCE WITHOUT THE PIPING REWORK. 4. REFER TO FLOOR PLANS FOR LOCATIONS AND PROVIDE REQUIRED CLEARANCE AS PER THE MANUFACTURER RECOMMENDATION 5. REFER TO CONDENSING UNIT SCHEDULE FOR OUTDOOR UNITS 6. FOCUS ARE COMPLETE WITH DRAIN PAN AND LEAK DETECTION																													

AIR COOLED CONDENSING UNIT SCHEDULE															
SYSTEM REFERENCE TAG	AC INDOOR UNIT REFERENCE	LOCATION	MANUFACTURER	MODEL	NOMINAL COOLONG CAPACITY (KW)	ELECTRICAL			EMERGENCY POWER (Y/N)	FIRE ALARM SHUT DOWN (Y/N)	WEIGHT (KG)				REMARKS
						MOP AMPS	MCA AMPS	VOLTAGE V/PHHz							
FP-AH12-CU	FP-AH12	OUTDOOR	REFPLUS	OEZ-050-1H1-SD	15.94	40	26.38	208/60/3	Y	N	172				
FP-AH13-CU	FP-AH13	OUTDOOR	REFPLUS	OEZ-050-1H1-SD	15.94	40	26.38	208/60/3	Y	N	172				
FP-AH14-CU	FP-AH14	OUTDOOR	REFPLUS	OEZ-050-1H1-SD	15.94	40	26.38	208/60/3	Y	N	172				
NOTES: 1. REFRIGERANT SHALL BE R410A OR ANY LATEST REF. AVAILABLE AS LONG AS THE UNIT CAPACITY AND SIZING IS MET. 2. CONTRACTOR TO COORDINATE ON SITE FOR THE REFRIGERANT PIPING SIZE AND INSTALLATION BASED ON MANUFACTURER RECOMMENDATION. 3. MECHANICAL CONTRACTOR TO COORDINATE WALL, CEILING AND ROOF PENETRATIONS AND ELECTRICAL REQUIREMENTS ON SITE. 4. REFER TO ASSOCIATED INDOOR UNIT SCHEDULE FOR COMPLETE SYSTEM INFORMATION 5. UNITS COMPLETE WITH LOW-AMBIENT KIT. FINAL LOCATION AND ENCLOSURE TO BE COORDINATED WITH ARCH. DRAWINGS															

SNOW MELT ZONES CAPACITY OUTPUT SCHEDULE															
REFERENCE ZONE TAG	DESCRIPTION /LOCATION	FLUID TYPE	TOTAL OUTPUT		FLOW (L/s)	EGT (°C)	LGT (°C)	FLUID PD (kPa)	PRESSURE RATING (kPa)	APP. AREA (m2)	OUTPUT/AREA (W / m2)	TUBE DIAMETER (MM)	NO OF CIRCUITS (QTY)	MANIFOLD CABINET SIZE (MMxMMxMM)	REMARKS
			(MBH)	(KW)											
SM-ZONE-01	SEM COURTYARD	GLYCOL	129.0	37.8	0.86	51.6	40.6	23.50	600.0	90.0	420.0	20.0	12.0	1000x500x150	FINAL COORINATION TO BE DONE BASED ON SHOP DRAWINGS
NOTES: 1. MECHANICAL CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR FOR MANIFOLD LOATION. 2. MECHANICAL CONTRACTOR TO COORDINATE WITH ARCHITECTURAL/LANDSCAPE DRAWINGS FOR EXACT ZONE BOUNDRY. 3. INSTALL SNOW ICE DETECTOR IN LOCATION EXPOSED TO OUTDOOR WEATHER CONDITIONS, SLEEVE SENSOR CABLE TO THE CONTROL. 4. COORDINATE THE WIRE MESH, INSULATION ETC. WITH THE SUPPLIER AND WITH GENERAL CONTRACTOR 5. USE GLYCOL MIN. 30% FOR THE SNOW MELT SYSTEM TO MATCH EXISTING. 6. SUPPLIER TO INCLUDE THE CONTROLLER ETC WITH BACHet CARD IN THE CORRIDOR CEILING. 7. CONTRACTOR TO ENSURE FULL INSTALLATION AND COORDINATION ON SITE 8. SLEEVE ALL PIPING PASSING THRU THE SNOW MELT ZONE.															

HEAT EXCHANGER SCHEDULE															
SYSTEM REFERENCE TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	HEAT TRANSFER (KW)	COLD SIDE (BUILDING - WATER)					COLD SIDE (AHU COIL - GLYCOL)				
						FLUID FLOW (L/S)	EW T (°C)	LWT (°C)	PD (KPA)		FLUID FLOW (L/S)	EW T (°C)	LWT (°C)	PD (KPA)	PRESSURE RATING (PSI)
EW-HEX-AHU-01B	AHU COOLING	AHU VESTIBULE	BELL & GOSSETT	AP86	530	WATER	14	7.2	16.1	27	30% P.G.	15	17.2	8.3	33.5
NOTES: 1. HEAT EXCHANGER IS TO BE RATED IN ACCORDANCE WITH AHRI STANDARD 400 2. PROVIDE 25-50MM RUBBER/NEOPRENE PADS, THE HEX IS TO BE INSTALLED INTEGRAL TO THE UNIT VESTIBULE AND COODINATED BY AHU UNIT SUPPLIER. CONTRACTOR TO PROVIDE PROPER CLEARANCE FOR MAINTENANCE.															

PUMP SCHEDULE (HYDRONIC SYSTEM)															
SYSTEM REFERENCE TAG	DESCRIPTION SYSTEM	LOCATION	MANUFACTURER	MODEL	FLUID TYPE	FLOW RATE (L/S)	PUMP HEAD (KPA)	MOTOR SIZE		ELECTRICAL (V/PHHz)	VFD (Y/N)	OPERATION (DUTY/STANDBY)	PRESSURE RATING (KPA)	EMERGENCY POWER (Y/N)	REMARKS
								MOTOR POWER (KW)	DUTY POINT POWER (KW)						
EW-P-AHU-01B	COOLING PUMP	AHU VESTIBULE	BELL & GOSSETT	E-80 SERIES 4X4XB	30% P.G.	15	82	2.2	2.0	575/360	Y	DUTY	1207	Y	
NOTES: 1. BAS INTERFACE FOR SETPOINT MONITORING, ALARM, ETC. 2. PUMP COMPLETE WITH VFD. MECHANICAL CONTRACTOR TO SUPPLY AND ELECTRICAL CONTRACTOR TO INSTALL THE VFD. 3. PROVIDE SUCTION GUIDE & FLO-TREX VALVE 4. PROVIDE 25-50MM RUBBER/NEOPRENE PADS, THE PUMP IS TO BE INSTALLED INTEGRAL TO THE UNIT VESTIBULE AND COODINATED BY AHU UNIT SUPPLIER. CONTRACTOR TO PROVIDE PROPER CLEARANCE FOR MAINTENANCE.															

STEAM PRESSURE REDUCING VALVE (PRV) SCHEDULE								
SYSTEM REFERENCE TAG	DESCRIPTION	MODEL	INLET PRESSURE (KPA)	OUTLET PRESSURE (KPA)	FLOW REQUIRED Y/N	BYPASS Y/N	PRESSURE RATING (KPA)	REMARKS
PRV-01	FOR DHW HEATER STEAM SIDE	Coilon-FM F1100-PR1	690	66.9	1044	Y/N	1035	
NOTES: 1. 50MM INLET AND 100MM OUTLET								

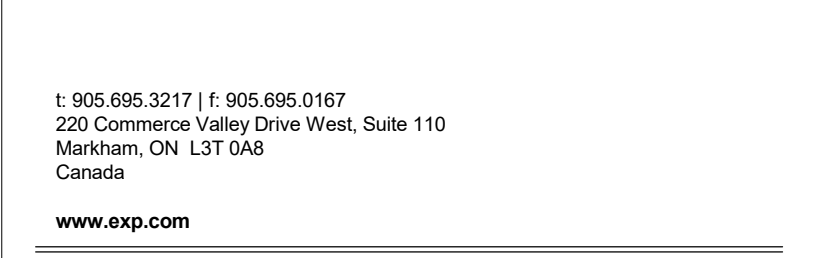
CLIENT:



ARCHITECT:



CONSULTANT:



PROJECT:

Seniors Emergency Medicine Centre (SEMC) & External Corridor

Toronto Western Hospital  
399 Balfour Street, Toronto, ON, M5T 2S8

TITLE:

MECHANICAL SCHEDULES #2

PROJECT NO: MRK-23004289

DRAWING NO:

CHECKED:

M-702

PLUMBING FIXTURE SCHEDULE												
SYSTEM REFERENCE TAG	TYPE	LOCATION	MANUFACTURER	MODEL	TRIM AND ACCESSORIES						REMARKS	
					FAUCET/VALVE	FLOW	FIXTURE DRAIN AND P-TRAP	VALVES AND SUPPLIES	CARRIER	SEAT		MISC
WC-1	WALL HUNG WATER CLOSET - NON BF	STAFF WRM	AMERICAN STANDARD	3351101.02	SLOAN SL-ROYAL 111-1.28-SG	4.8 LPF			WATTS ISCA-101-LJR	CENTOCO AM505TSC05SFE-001		
WC-2	WALL HUNG WATER CLOSET - BF	PATIENT, UNIVERSAL AND BF WASHROOM	AMERICAN STANDARD	3351101.02	SLOAN ROYAL 111-YG-1.28-SG	4.8 LPF			WATTS ISCA-101-LJR	CENTOCO AM505TSC05FE-001		C/W FRANKE BACKREST - CM-16104-WM
WC-3	WATER CLOSET - BF	ACTIVITIES OF DAILY LIVING SUITE	ZURN	Z5661-LH						ZURN Z595TSS-EL		
L-1	LAVATORY - NON BF	STAFF WRM	AMERICAN STANDARD	356915.02	CHICAGO FAUCETS - 786-GN8FCABCP (RIGID)	3.8 LPM	MCQUIRE PRODRAIN MCQUIRE P-TRAP 8802CBSAN	MCQUIRE LFKC170LK	WATTS CA-411		MIXING VALVE LAWLER 570-86820	TRANSITION TO 1-1/2" P-TRAP AS PER IPAC REQUIREMENTS.
L-2	LAVATORY - BF	PATIENT, UNIVERSAL AND BF WASHROOM	AMERICAN STANDARD	0958908EC.020 0062000.020	CHICAGO FAUCETS - 786-GN8FCABCP (RIGID)	3.8 LPM	MCQUIRE PRODRAIN MCQUIRE P-TRAP 8802CBSAN	MCQUIRE LFKC170LK	WATTS CA-411-CA-481		MIXING VALVE LAWLER 570-86820	TRANSITION TO 1-1/2" P-TRAP AS PER IPAC REQUIREMENTS.
S-1	COUNTER SINK - SINGLE BOWL - HANDS FREE	NOURISHMENT, KITCHENETTE	FRANKE	LB56808.316P-1-3	CHICAGO FAUCETS - 786-GN8FCABCP (RIGID)	5.7 LPM	MCQUIRE P-TRAP 8812CBSAN	MCQUIRE LFKC165LK			MIXING VALVE LAWLER 570-86820	
HHS-1	HAND HYGIENE SINK - FOOT DEPAL	REFER TO DRAWINGS	AMERICAN STANDARD	9118111.02	CHICAGO FAUCET 626-FCABCP	5.7 LPM	MCquire 8902CBSAN	834-EPSLSOABCP	WATTS CA-421-M60		MIXING VALVE LAWLER 570-86820	
HHS-2	HAND HYGIENE SINK - HANDS FREE - BARRIER FREE	REFER TO DRAWINGS	WHITEHALL	4151-CSG-H1	CHICAGO FAUCET 116.429 AB-1	5.7 LPM	MCQUIRE P-TRAP 8802CBSAN	MCQUIRE LFKC165LK	WATTS CA-421-M60		MIXING VALVE 243.260.00.1/242.340.00.1	HARDWIRE CHICAGO FAUCET 243.260.00.1/242.340.00.1
CS-1	CASTING SINK - FLOOR MOUNTED	CASTING ALCOVE A	FRANKE	SL2424-316-1-2-1140F-316	CHICAGO FAUCETS - 631-GN8FCABCP	5.7 LPM					MIXING VALVE LAWLER 570-86820	COMPLETE WITH PATTERSON GLECO TRAP HV KIT - 5 GALLON - PRACTICON
SH-1	SHOWER	SHOWER ROOM	CHICAGO FAUCETS	HAND SHOWER - 624-LCP	CHICAGO FAUCETS - SH-TP6-00-023	5.5 LPM	WATTS WDS-SQNB (102MM NICKEL BRONZE)					
MS-1	MOP SINK	HOUSEKEEPING ROOM	STERN WILLIAMS	SBC-1700								
BT-1	BATHTUB	ACTIVITIES OF DAILY LIVING SUITE	ZARA	ZARA II								
BF-1	BOTTLE FILLING STATION	CORRIDORS	ELKAY	LZW5M8K								
EW-1	EYEWASH STATION	SOILED & HOUSEKEEPING ROOMS	BRADLEY	S19294HB, S19294HBT							MIXING VALVE NAVIGATOR S19-2000 EFX8	
WS-1	WASHER DISINFECTOR	SOILED ROOM	MEIKO	SAN TOPLINE 10A	CHICAGO FAUCETS 540-LDE35-317ABCP	3.8 LPM						SUPPLIED BY UHN
TSP-1	TRAP SEAL PRIMER	REFER TO DRAWINGS	PPP	MP-500-12V								COMPLETE WITH DU-4 TO SERVE MULTIPLE FLOOR DRAINS.
FD-1	FLOOR DRAIN	REFER TO DRAWINGS										
NOTES: 1. COLOUR OF ALL FIXTURES (EXCEPT STAINLESS STEEL) & WATER CLOSET SEATS SHOULD BE WHITE 2. QUANTITY OF FIXTURES AS INDICATED IN THE DRAWINGS 3. FIXTURES IN KITCHEN & SERVERY AREAS ARE SUPPLIED BY OTHERS. REFER TO KITCHEN SCHEDULES ON DRAWINGS. 3. ALL FIXTURES TO BE SUPPLIED WITH MIXING VALVES.												

IMPERIAL TO METRIC SIZING CONVERSION				
1/8"	3mm	1"	25mm	3"
1/4"	6mm	1-1/4"	32mm	3-1/2"
3/8"	10mm	1-1/2"	40mm	4"
1/2"	15mm	2"	50mm	5"
3/4"	20mm	2-1/2"	65mm	6"

DOMESTIC HOT WATER HEATER SCHEDULE - STEAM DOUBLE WALL												
SYSTEM REFERENCE TAG	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	HOT WATER FLOW L/S	STEAM PRESSURE (kPa)	STEAM FLOW (Kg/hr)	OPERATING TEMP. MAX. (°C)	ELECTRICAL MOP VOLTAGE AMPS	EMERGENCY POWER (V/N)	OPERATING WEIGHT (KG)	REMARKS
DHW-H-01	STEAM DOMESTIC HEATER	LEVEL 0 - MECH ROOM	COLTON INDUSTRIES	PK-08D	2.2	1045	71	10	120/160	Y	455	
DHW-H-02	STEAM DOMESTIC HEATER	LEVEL 0 - MECH ROOM	COLTON INDUSTRIES	PK-08D	2.2	69	1045	71	10	120/160	Y	455
NOTES: 1. THE DHW EATERS ARE SKID SYSTEM AND C/W HEATRS, VALVES, CONTROLS ETC. 2. CONTRACTOR TO CONNECT THE LPS AND CONDENSATE BACK TO THE MAIN SYSTEM AND INCLUDE FOR FREEZING AS REQUIRED 3. MATCH THE EXISTING PNEUMATIC CONTROLS FOR STEAM SYSTEM IN THE MECHANICAL ROOM 4. INCLUDE FOR CONDENSATE PUMP FOR EACH HEATER SKID. TO CONENCT TO THE EXSTING SYSTEM (2 IN TOTAL)												

EXPANSION TANK SCHEDULE									
EQUIPMENT TAG	DESCRIPTION	SERVICE	LOCATION	MANUFACTURER - MODEL	DIMENSIONS (MM)	MAX. WORKING PRESSURE (KPA)	TANK CAPACITY (L)	OPERATING WEIGHT (KG)	COMMENTS
ET-P1	EXPANSION TANK	DOMESTIC WATER	LEVEL 0 - MECH ROOM	TACO - CA140-125P	1019 x 508	1034	140	228	POTABLE WATER, BLADDER TYPE
ET-2	EXPANSION TANK	CHILLED GLYCOL	ROOF AHU VESTIBULE	AMTROL - 200-L	610 x 965	-	-	287	

PLUMBING & DRAINAGE PUMPS													
REFERENCE TAG	SERVICE	LOCATION	TYPE	FLOW RATE L/S	HEAD PRESSURE KPA	RPM	MANUFACTURER-MODEL	MOTOR SIZE KW (HP)	ELECTRICAL POWER SUPPLY (V/PH/Hz)	STARTER TYPE	WEIGHT (KG)	EMERGENCY POWER(Y/N)	COMMENTS
PP-01	DHW RECIRCULATION	LEVEL 0	RECIRCULATION	1.30	110	3450	TACO - VR19H	0.9	208/160	-	14	NO	
SP-1	SANITARY	FOUNDATION	SUBMERSIBLE	4.7	105	3450	ZOELLER - 6294	1.11 KW	208/360	-	44	YES	DUTY C/W GUIDE RAIL Z-RAIL 38-0129 STEP-DOWN TRANSFORMER (600V/208V) TO BE SUPPLIED BY MANUFACTURER.
SP-2	SANITARY	FOUNDATION	SUBMERSIBLE	4.7	105	3450	ZOELLER - 6294	1.11 KW	208/360	-	44	YES	STAND-BY C/W GUIDE RAIL Z-RAIL 38-0129 STEP-DOWN TRANSFORMER (600V/208V) TO BE SUPPLIED BY MANUFACTURER.
SP-3	SANITARY	FOUNDATION	SUBMERSIBLE	4.7	120	3450	ZOELLER - J6294	1.11 KW	208/360	-	44	YES	DUTY C/W GUIDE RAIL Z-RAIL 38-0129 STEP-DOWN TRANSFORMER (600V/208V) TO BE SUPPLIED BY MANUFACTURER.
SP-4	SANITARY	FOUNDATION	SUBMERSIBLE	4.7	120	3450	ZOELLER - J6294	1.11 KW	208/360	-	44	YES	STAND-BY C/W GUIDE RAIL Z-RAIL 38-0129 STEP-DOWN TRANSFORMER (600V/208V) TO BE SUPPLIED BY MANUFACTURER.
NOTES:													

DOMESTIC HOT WATER - COPPER SILVER IONIZATION SCHEDULE																									
REFERENCE TAG	MANUFACTURER	MODEL	SYSTEM	SERVICE	DHW R SIZE	TOTAL IONIZATION OUTPUT REQUIREMENTS	WATER TREATMENT TYPE	CONTROLLER						FLOW CELL										REMARKS	
								CONTROLLER MODEL	PASSWORD PROTECTION	CONTROLLER TYPE	VARIABLE DC VOLTAGE OUTPUT CAPACITY	OPERATIONAL STATUS VOLT FREE CONTACT(S)	VISUAL ALARM	FLOW CELL MODEL NO.	NO. OF INSTALLED & ACTIVE ION CHAMBER CELLS	NO. OF SPARE ION CHAMBER CELLS	EXTERNAL JACKET COMPOSITION	ELECTRODES PER CELL	ORIENTATION	PRESSURE TOLERANCE (PSI)	TEMPERATURE TOLERANCE (C)	CONNECTION	LOCATION INSTALLED		BI-DIRECTIONAL INTERNAL LAMINAR FLOW
SCI-1	CSI DEFENDER	CSI-E1	DHWR	DOMESTIC HOT WATER RETURN	32mm	10 AMPS	COPPER SILVER IONIZATION	CSI-E1+1 (or) SMX-A1+1	YES	PLC	0 - 180	1	YES - LED (GREEN / AMBER / RED)	ICR-820	2	NA	316 - SCHEDULE 40 STAINLESS STEEL		VERTICAL	≤ 250	99	32mm	DHWR	YES	1,2,3,4,5,6,7,8,9,10
NOTES: 1. CONTROLLER MUST INCLUDE INTEGRATED ELECTRICAL BREAKERS FOR EACH CHAMBER CELL(S) AND PLC 2. IONIZATION SYSTEM TO PROVIDE AUTOMATED PLC VARIABLE VOLTAGE AND CONSTANT CURRENT 3. CONTROLLER TO PROVIDE INDEPENDENT CHAMBER CELL ACTIVATION AND MONITORING 4. PROVIDE 208/160 (15 amps) TO THE COPPER SILVER IONIZATION CONTROLLER 5. ELECTRODES SHALL CONTAIN NO LESS THAN 90% COPPER AND 10% SILVER 6. CONTROLLER MUST BE INSTALLED NO MORE THAN 12 FEET FROM CHAMBER CELL(S) 7. CONTROLLER AND CHAMBER CELLS MUST BE INSTALLED AT NO LESS THAN 4 FEET FROM FLOOR 8. CONTROLLER AND CHAMBER CELLS MUST BE INSTALLED AT NO MORE THAN 6.5 FEET FROM THE FLOOR 9. CONTROLLER AND CHAMBER CELLS MUST BE EASILY ACCESSIBLE FOR MAINTENANCE 10. PROVIDE LAMOTTE DC1500 ELECTRONIC COLORIMETER (COPPER)																									

ELECTRIC HEAT TRACING SCHEDULE								
REFERENCE TAG	MANUFACTURER	MODEL	DESCRIPTION	LENGTH (M)	REQUIRED OUTPUT (W/M)	ELECTRIC.. V/PH/Hz	EMERGENCY POWER (V/N)	REMARKS
ETC-01	RAYCHEM	5XL22-OR	SERVING CORRIDOR CANOPY	32.6	10	208/160	Y	CONTROLLER C910-485 RAYCHEM
NOTES: 1. PROVIDE CABLE SEGMENTS AS REQUIRED TO COMPLETELY TRACE PIPING RUN AS INDICATED ON DRAWINGS. 2. PROVIDE RAYCLO (OR EQUIVALENT) POWERED AND UN-POWERED CONNECTIONS AND SUPPORTS AS REQUIRED TO PROVIDE COMPLETE SYSTEM. 3. PICK-UP DRY CONTACTS AT EACH CONTROLLER TO ALARM BAS ON ANY TROUBLE SIGNAL. 4. COMMUNICATIONS CABLE IS REQUIRED TO BE EXTENDED FROM PIPE MOUNTED RTD BACK TO CONTROLLER. ALLOW FOR SUFFICIENT CONTROLS CABLING AND CONDUIT. 5. CONTROLS CABLE TO BE IN CONDUIT 6. HEAT TRACING AND PIPE SYSTEMS ARE DESIGNED FOR 23°C (10°F) AMBIENT TEMPERATURE 7. THIS SCHEDULE IS TO BE READ IN CONJUNCTION WITH SPECIFICATION 20 05 25 REGARDING STANDARDS FOR PIPE INSULATION.								

CLIENT:



ARCHITECT:



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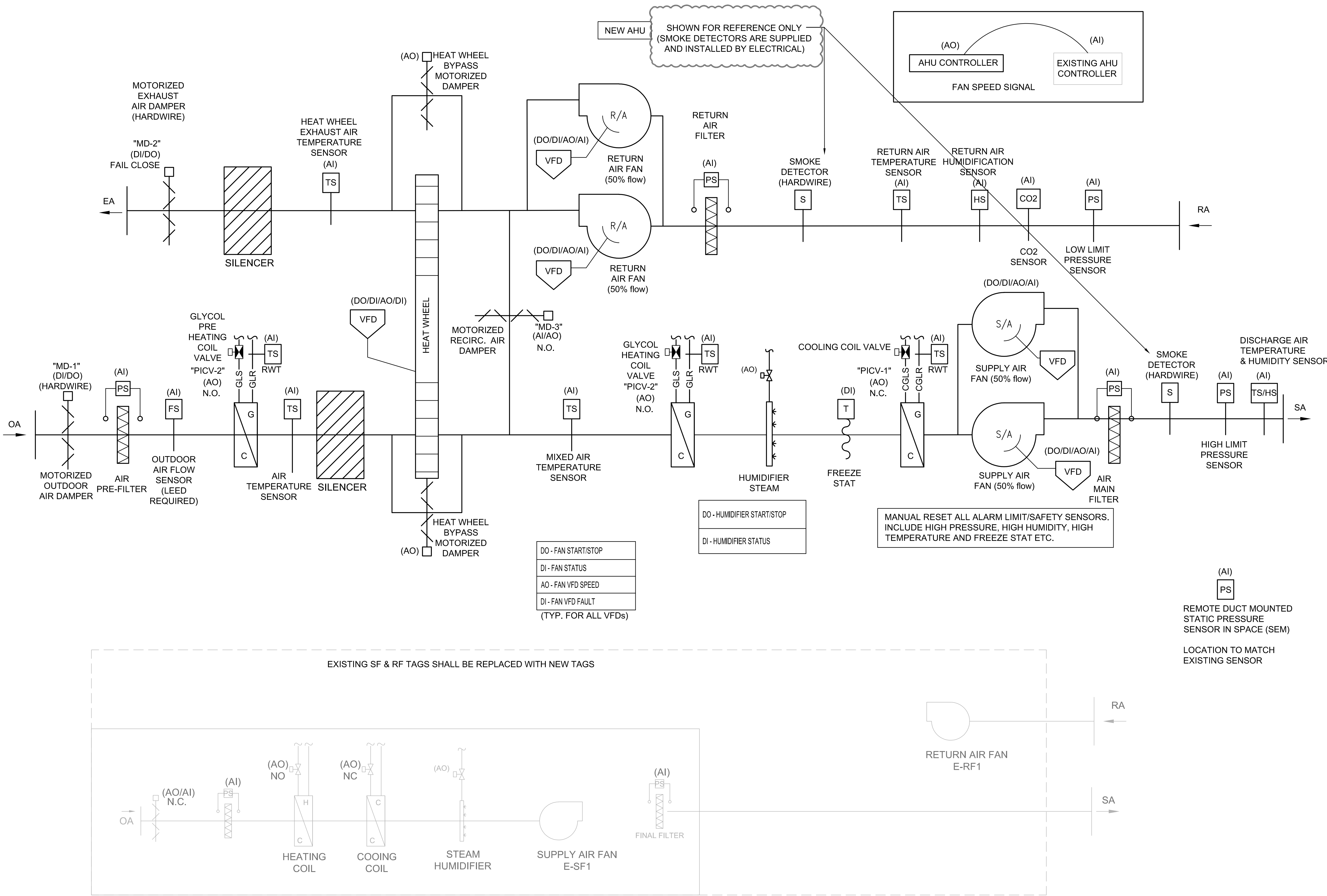
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2	Issued for 100 CD	2024.05.10
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NO	DESCRIPTION	DATE

PROJECT:  
Seniors Emergency Medicine Centre (SEMC) &  
External Corridor  
Toronto Western Hospital  
399 Bathurst Street, Toronto, ON, M5T 2S8

TITLE:  
MECHANICAL SCHEDULES #3

PROJECT NO:  
MRK-23004289  
CHECKED:

DRAWING NO:  
M-703



ALARMS SHALL BE PROVIDED AS FOLLOWS:

- MAIN FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

RETURN FILTER DIFFERENTIAL PRESSURE MONITOR:

THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE RETURN FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- RETURN FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

16. THE FOLLOWING SENSORS ARE FOR THE PURPOSE OF MONITORING AND ENERGY CALCULATIONS:

- OUTDOOR AIRFLOW
- HEAT WHEEL SUPPLY AIR TEMPERATURE
- SUPPLY FAN DISCHARGE AIR TEMPERATURE
- SUPPLY AIRFLOW
- HEATING COIL SUPPLY AIR TEMPERATURE
- COOLING COIL SUPPLY AIR TEMPERATURE
- RETURN AIRFLOW
- RETURN FAN DISCHARGE AIR TEMPERATURE
- EXHAUST AIRFLOW

17. ALARM AND WARNING

- THE BAS SHALL ANNUNCIATE THE FOLLOWING ALARMS:

- RETURN DUCT CO2 LEVEL HIGH
- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.
- LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.
- SUPPLY FAN VFD FAULT.
- RETURN FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RETURN FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RETURN FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- RETURN FAN VFD FAULT.
- HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 2.8°C (ADJ.) GREATER THAN SETPOINT.
- LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 2.8°C (ADJ.) LESS THAN SETPOINT.
- HEAT WHEEL ROTATION FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- HEAT WHEEL IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- HEAT WHEEL RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- HEAT WHEEL VFD FAULT
- PRE-FILTER CHANGE REQUIRED: PRE-FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- MAIN FILTER CHANGE REQUIRED: MAIN FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- RETURN FILTER CHANGE REQUIRED: RETURN FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- HIGH MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 32°C (ADJ.).
- LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 7°C (ADJ.).
- HIGH RETURN AIR CARBON DIOXIDE CONCENTRATION: IF THE RETURN AIR CO2 CONCENTRATION IS GREATER THAN 1000 PPM (ADJ.) WHEN THE UNIT IS RUNNING.
- HIGH RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS GREATER THAN 70% (ADJ.).
- LOW RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS LESS THAN 35% (ADJ.).
- HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 32°C (ADJ.).
- LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 7°C (ADJ.).
- HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 49°C (ADJ.).
- LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 7°C (ADJ.).

GENERAL NOTE:

- ALL FLOW MEASURING DEVICES SHALL BE REVIEWED WITH CONSULTANT BEFORE INSTALLATION AND UPSTREAM AND DOWNSTREAM DISTANCES SHALL BE COMPLIED AS PER MANUFACTURER RECOMMENDATIONS.
- THE AIR HANDLING SYSTEM SEQUENCE OR OPERATION SHALL BE PRINTED AND LAMINATED TO A HARD COPY WHICH APPROPRIATELY DISPLAYS ALL NECESSARY EQUIPMENT, DEVICES AND OTHER CONTROL COMPONENTS, INCLUDING THE SEQUENCE OF OPERATION. THE SEQUENCE OF OPERATION SHALL BE SECURELY FIXED ONTO THE AIR HANDLING UNIT. ALSO DISPLAY THE SEQUENCE OF OPERATION FOR PUMP AND HEX.
- CONTROLS CONTRACTOR TO ENSURE PARALLEL OPERATION FOR THE UNITS. NEW UNITS SHALL WORK WITH EXISTING UNIT AS PER THE SCENARIOS PROVIDED IN AHU SCHEDULE.
- PARALLEL OPERATION: BOTH UNITS TO RUN AT THE SAME FAN SPEED & CONTROL TO THE SAME SET POINT
- ONE UNIT OUT OF SERVICE: THE REMAINING UNIT OPERATES AT FULL CAPACITY.
- THE BAS SYSTEM SHALL CLEARLY REPRESENT THE FULL SYSTEM (EXISTING AND NEW UNIT) INCLUDING SEQUENCE AND GRAPHICS.

SEQUENCE OF OPERATION FOR VARIABLE AIR VOLUME SYSTEM:

GENERAL

- THE SYSTEM START IS INITIATED BY A BAS SCHEDULE 24/7 (ADJ.).
- THE OPERATOR SHALL BE ABLE TO OVERRIDE THE SCHEDULE AND START/STOP THE SYSTEM THROUGH THE BAS.
- THE SYSTEM SHALL OPERATE AS A MIXED AIR UNIT IN NORMAL OPERATION, WITH THE OUTDOOR AIR DAMPER SET TO A MINIMUM POSITION (33%) REFER O SCHEDULE FOR VARIOUS STAGES OF THIS UNIT.
- ALL TEMPERATURE SENSORS IN THE AIR HANDLING UNIT SHALL BE AVERAGE TYPE.
- THE UNIT CONSISTS OF A SUPPLY FAN, AN EXHAUST FAN, AN ENERGY RECOVERY WHEEL, COILS, FILTERS, MANIFOLD ETC
- THE UNIT SHALL BE EQUIPPED WITH CONTROLLER FOR INTEGRATION TO THE BAS. THE CONTROLLER SHALL BE CONTROLLING THE COMPONENTS OF THE UNIT. THE BAS IS TO SCHEDULE, ENABLE/DISABLE, MONITOR AND HAVE SETPOINT ADJUSTMENTS OF THE UNIT.
- THE UNIT SHALL BE WORKING IN PARALLEL WITH EXISTING UNIT ONCE COMMISSIONING IS COMPLETE.

2. UNIT START UP

- ON STARTUP, THE OUTSIDE AIR DAMPER AND THE EXHAUST AIR DAMPER SHALL CLOSE. THE RE-CIRCULATION AIR DAMPER SHALL OPEN.
- ONCE THE DAMPER STATUS ARE PROVED, THE VFD OF THE RETURN AIR FANS SHALL BE ENABLED. RETURN FAN(S) SPEED SHALL RAMP TO THE MINIMUM SPEED OF 30 % (ADJ.).
- ONCE THE RETURN FAN(S) ARE RUNNING, THE VFD OF THE SUPPLY FAN(S) SHALL BE ENABLED. SUPPLY FAN(S) SPEED SHALL RAMP TO THE MINIMUM SPEED OF 30 % (ADJ.).
- OUTSIDE AIR DAMPER AND EXHAUST AIR DAMPER MODULATE OPEN. RE-CIRCULATION AIR DAMPER SHALL MODULATE TO OPERATE WITH THE PERCENTAGE OF OUTDOOR AIR AS INDICATED IN THE AHU SCHEDULE.
- WHEN SUPPLY FAN(S) AND RETURN FAN(S) ARE PROVEN ON, THE SUPPLY FAN(S) VFD SHALL BE USED FOR BALANCING AND MAINTAINING THE SUPPLY AIR DUCT STATIC PRESSURE SET POINT (ADJ.) AND THE RETURN FAN(S) VFD SHALL BE USED FOR BALANCING AND MAINTAINING THE RETURN AIR DUCT STATIC PRESSURE SET POINT (ADJ.) AND SPACE POSITIVE PRESSURE SET POINT (ADJ.); THE DUCT STATIC PRESSURE SENSORS SHALL BE LOCATED 2/3 OF SUPPLY/RETURN DUCT WORK.
- ONCE BOTH SUPPLY FAN(S) AND RETURN FAN(S) ARE RUNNING, THE SYSTEM SHALL ENABLE THE TEMPERATURE, PRESSURE AND HUMIDITY CONTROL SEQUENCE MENTIONED BELOW.

3. UNIT SHUTDOWN

- WHEN THE UNIT SHUTS DOWN, BOTH SUPPLY FAN(S) AND RETURN FAN(S) SHALL STOP.
- ONCE THE SUPPLY AND RETURN FAN(S) HAVE BEEN PROVEN OFF THE OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPER SHALL FULLY CLOSE AFTER 4 SECONDS' DELAY.
- THE RE-CIRCULATION AIR DAMPER SHALL FULLY OPEN.
- THE HEAT RECOVERY WHEEL SHALL STOP.
- THE HUMIDIFIER VALVE AND THE COOLING COIL VALVE SHALL CLOSE.

4. SUPPLY AIR TEMPERATURE CONTROL

- THE HEAT RECOVERY WHEEL, THE RE-CIRCULATION AIR DAMPER, THE HEATING COIL VALVE AND THE COOLING COIL VALVE SHALL MODULATE IN SEQUENCE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT. REFER TO HEAT RECOVERY WHEEL CONTROL SEQUENCE FOR SUPPLY AIR TEMPERATURE CONTROL WHEN HEAT WHEEL IS IN OPERATION.
- SUPPLY AIR TEMPERATURE SETPOINT SHALL BE MAINTAINED AT 13°C (ADJ.).

5. PRE-HEATING COIL VALVE (GLYCOL COIL)

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

- THE HEATING COIL VALVE SHALL BE ENABLED WHENEVER:
  - OUTSIDE AIR TEMPERATURE IS LESS THAN 15°C (ADJ.).
  - AND THE SUPPLY AIR TEMPERATURE IS BELOW SETPOINT.
  - AND THE FAN STATUS IS ON.

THE HEATING COIL VALVE SHALL OPEN TO 100% (ADJ.) WHENEVER THE FREEZESTAT IS ON.

6. HEATING COIL VALVE (GLYCOL COIL)

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND MODULATE THE PRE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

- THE HEATING COIL VALVE SHALL BE ENABLED WHENEVER:
  - OUTSIDE AIR TEMPERATURE IS LESS THAN 15°C (ADJ.).
  - AND THE SUPPLY AIR TEMPERATURE IS BELOW SETPOINT.
  - AND THE FAN STATUS IS ON.

THE HEATING COIL VALVE SHALL OPEN TO 100% (ADJ.) WHENEVER THE FREEZESTAT IS ON.

7. COOLING COIL VALVE (GLYCOL COIL)

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND MODULATE THE COOLING COIL VALVE TO MAINTAIN ITS COOLING SETPOINT.

- THE COOLING COIL SHALL BE ENABLED WHENEVER:
  - OUTSIDE AIR TEMPERATURE IS MORE THAN 12°C (ADJ.).
  - AND THE SUPPLY AIR TEMPERATURE IS ABOVE SETPOINT.
  - AND THE FAN STATUS IS ON.

THE COOLING COIL SHALL OPEN TO 100% (ADJ.) WHENEVER THE FREEZESTAT IS ON.

8. HEAT RECOVERY WHEEL - VARIABLE SPEED:

THE CONTROLLER SHALL MODULATE THE HEAT RECOVERY WHEEL FOR ENERGY RECOVERY AS FOLLOWS:

COOLING RECOVERY MODE:

THE CONTROLLER SHALL MEASURE THE HEAT WHEEL DISCHARGE AIR TEMPERATURE AND MODULATE THE HEAT WHEEL SPEED TO MAINTAIN A SETPOINT 1°C (ADJ.) LESS THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT. THE HEAT WHEEL SHALL RUN FOR HEAT RECOVERY WHENEVER:

- THE UNIT RETURN AIR TEMPERATURE IS 3°C (ADJ.) OR MORE BELOW THE OUTSIDE AIR TEMPERATURE.
- AND THE UNIT IS IN A COOLING MODE.
- AND THE SUPPLY FAN IS ON.

HEATING RECOVERY MODE:

THE CONTROLLER SHALL MEASURE THE HEAT WHEEL DISCHARGE AIR TEMPERATURE AND MODULATE THE HEAT WHEEL SPEED TO MAINTAIN A SETPOINT 1°C (ADJ.) GREATER THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT. THE HEAT WHEEL SHALL RUN FOR HEAT RECOVERY WHENEVER:

- THE UNIT RETURN AIR TEMPERATURE IS 3°C (ADJ.) OR MORE ABOVE THE OUTSIDE AIR TEMPERATURE.
- AND THE UNIT IS IN A HEATING MODE.
- AND THE SUPPLY FAN IS ON.

FROST PROTECTION:

THE HEAT WHEEL SHALL MODULATE ITS SPEED TO MAINTAIN AN EXHAUST DISCHARGE TEMPERATURE ABOVE 0°C (ADJ.) TO PREVENT FREEZING OF THE WHEEL.

WHENEVER THE HEAT RECOVERY WHEEL IS OFF, THE BYPASS DAMPER SHALL MODULATE OPEN TO BYPASS THE HEAT RECOVERY WHEEL.

8. HUMIDITY CONTROL

- WHEN BOTH SUPPLY AND RETURN FAN(S) ARE PROVEN ON, THE ELECTRIC HUMIDIFIER SHALL BE ENABLED AND THE HUMIDIFIER VALVE SHALL MODULATE TO MAINTAIN THE RETURN AIR HUMIDITY SET POINT. THE SUPPLY AIR HUMIDITY SENSOR SHALL OVERRIDE THE RETURN AIR HUMIDITY CONTROL TO PREVENT THE SUPPLY AIR HUMIDITY RISING ABOVE 65%.
- WHEN THE OUTDOOR AIR TEMPERATURE IS LESS THAN 10°C (ADJ.), THE RETURN AIR HUMIDITY SET POINT SHALL BE 35% (ADJ.) WHEN THE OUTDOOR AIR TEMPERATURE IS ABOVE 10°C, THE SET POINT SHALL BE 40% (ADJ.).
- HUMIDITY CONTROL SHALL BE ENABLED IN BOTH OCCUPIED MODE
- WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 20°C AND THE RETURN AIR HUMIDITY IS MORE THAN 60% FOR 15 MINUTES (ADJ.), SYSTEM SHALL ENTER INTO DEHUMIDIFICATION MODE. THE COOLING COIL VALVE SHALL MODULATE TO MAINTAIN A LOWER SET POINT FOR DEHUMIDIFICATION. REHEAT COILS AT SPACE LEVEL SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SET POINT.

9. ECONOMIZER CONTROL:

- THE CONTROLLER SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE OUTDOOR AIR, EXHAUST AIR AND RE-CIRCULATION AIR DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 1°C (ADJ.) LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION (AS INDICATED ON THE AHU SCHEDULE) OPEN WHENEVER OCCUPIED. DURING ECONOMIZER OPERATION, THE HEAT RECOVERY WHEEL BY-PASS MOTORIZED DAMPER WILL BE FULLY OPEN AND HEAT WHEEL WILL BE OFF.
- THE ECONOMIZER SHALL BE ENABLED WHENEVER:
  - OUTSIDE AIR TEMPERATURE IS LESS THAN 18°C (ADJ.) AND,
  - THE OUTSIDE AIR ENTHALPY IS LESS THAN 33KJ/KG (ADJ.) AND,
  - THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE AND,
  - THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY AND,
  - THE SUPPLY FAN STATUS IS ON.

c. THE ECONOMIZER SHALL CLOSE WHENEVER:

- MIXED AIR TEMPERATURE DROPS 2.8°C (ADJ.) BELOW SETPOINT OR,
- THE FREEZESTAT IS ON OR,
- ON LOSS OF SUPPLY FAN STATUS.

10. SAFETY

- THE FREEZE STAT (LOW TEMPERATURE SWITCH) SHALL STOP THE UNIT VIA HARDWARE INTERLOCK IF THE TEMPERATURE DROPS BELOW THE FREEZE STAT SET POINT OF 4°C (ADJ.). THE HEATING COIL VALVE SHALL FULLY OPEN. AN ALARM RESET CAN BE PERFORMED AT THE UNIT PANEL.
- IF THE DISCHARGE AIR HIGH STATIC PRESSURE SWITCH EXCEEDS THE DUCT STATIC PRESSURE SET POINT OF 1000 PA (ADJ.), THE UNIT SHALL SHUTDOWN VIA HARDWARE INTERLOCK. AN ALARM SHALL BE ANNUNCIATED AT THE BAS. A LOCAL MANUAL RESET IS REQUIRED TO RESUME NORMAL OPERATION.
- THE HUMIDIFIER AIR PROVING SWITCH AND HIGH LIMIT CUT-OUT SHALL DE-ENERGIZE THE HUMIDIFIER UPON ACTIVATION. A LOCAL MANUAL RESET IS REQUIRED TO RESUME NORMAL OPERATION.
- SMOKE DETECTOR SHALL BE INTEGRATED TO THE FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. A SIGNAL RELAY SHALL BE PROVIDED FOR BAS CONTRACTOR. A HARDWIRED CONNECTION SHALL BE PROVIDED TO THE VFD TO SHUT DOWN THE UNIT AND GENERATE AN ALARM UPON RECEIVING A SMOKE DETECTOR SIGNAL. A LOCAL MANUAL STARTUP IS REQUIRED TO RESUME NORMAL OPERATION.
- THE FIRE SYSTEM SHALL SHUTDOWN THE UNIT VIA HARDWARE INTERLOCK. A SEPARATE SIGNAL SHALL BE SENT TO THE BAS. A LOCAL MANUAL STARTUP IS REQUIRED TO RESUME NORMAL OPERATION.

12. POWER RESTORATION

- IN THE EVENT OF LOSS OF NORMAL POWER, THE UNIT SHALL SHUTDOWN.

13. INTEGRATION

- FOLLOWING POINTS WILL BE READING FROM THE VFD OVER BACNET MS/TP:
  - SPEED AND EXTERNAL SPEED REFERENCE
  - FREQUENCY;
  - CURRENT;
  - TORQUE PERCENTAGE;
  - POWER (KW);
  - TOTAL POWER (KWH);
  - OPERATION HOURS;
  - VFD TEMPERATURE;
  - FAULT AND ALARM;
  - HOA STATUS;

14. TRENDS

- THE BAS SHALL TREND THE FOLLOWING POINTS:
  - ALL ANALOG INPUTS;
  - ALL ANALOG OUTPUTS;
  - SET POINT AND SCHEDULE
  - ALL BINARY INPUTS;
  - ALL BINARY OUTPUTS;
  - CRITICAL ALARM POINTS

15. FILTERS

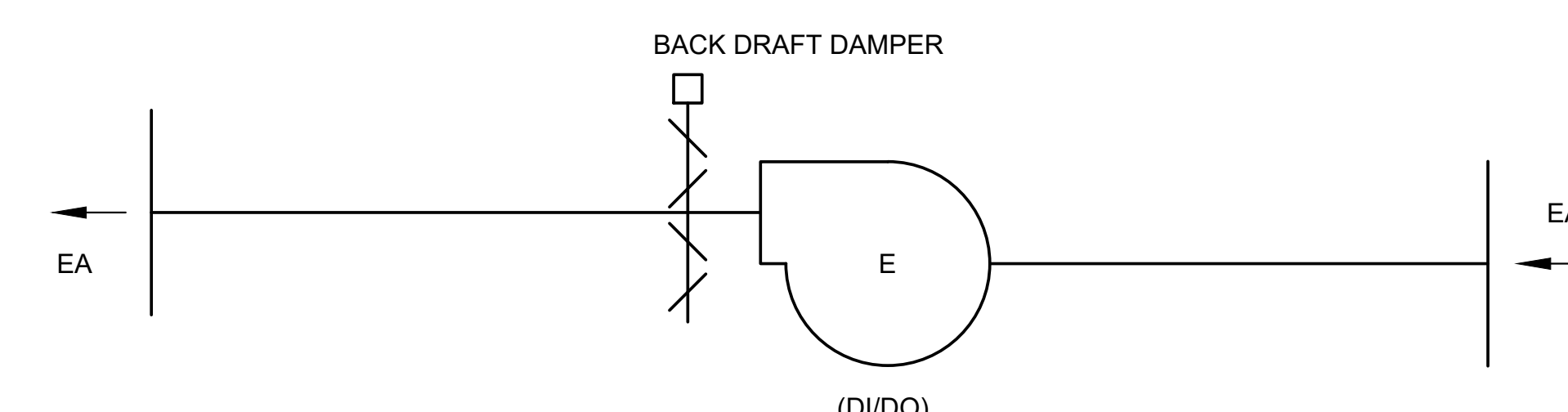
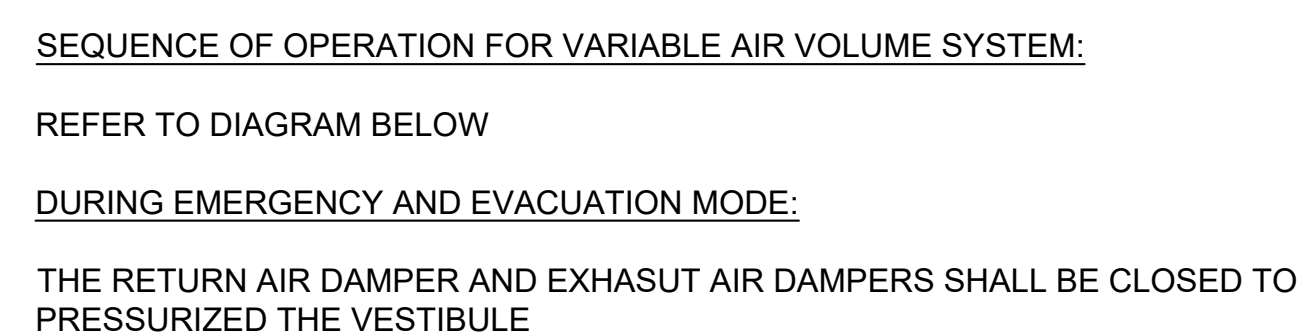
PRE-FILTER DIFFERENTIAL PRESSURE MONITOR:  
THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE PRE-FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- PRE-FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

MAIN FILTER DIFFERENTIAL PRESSURE MONITOR:

THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE MAIN FILTER.

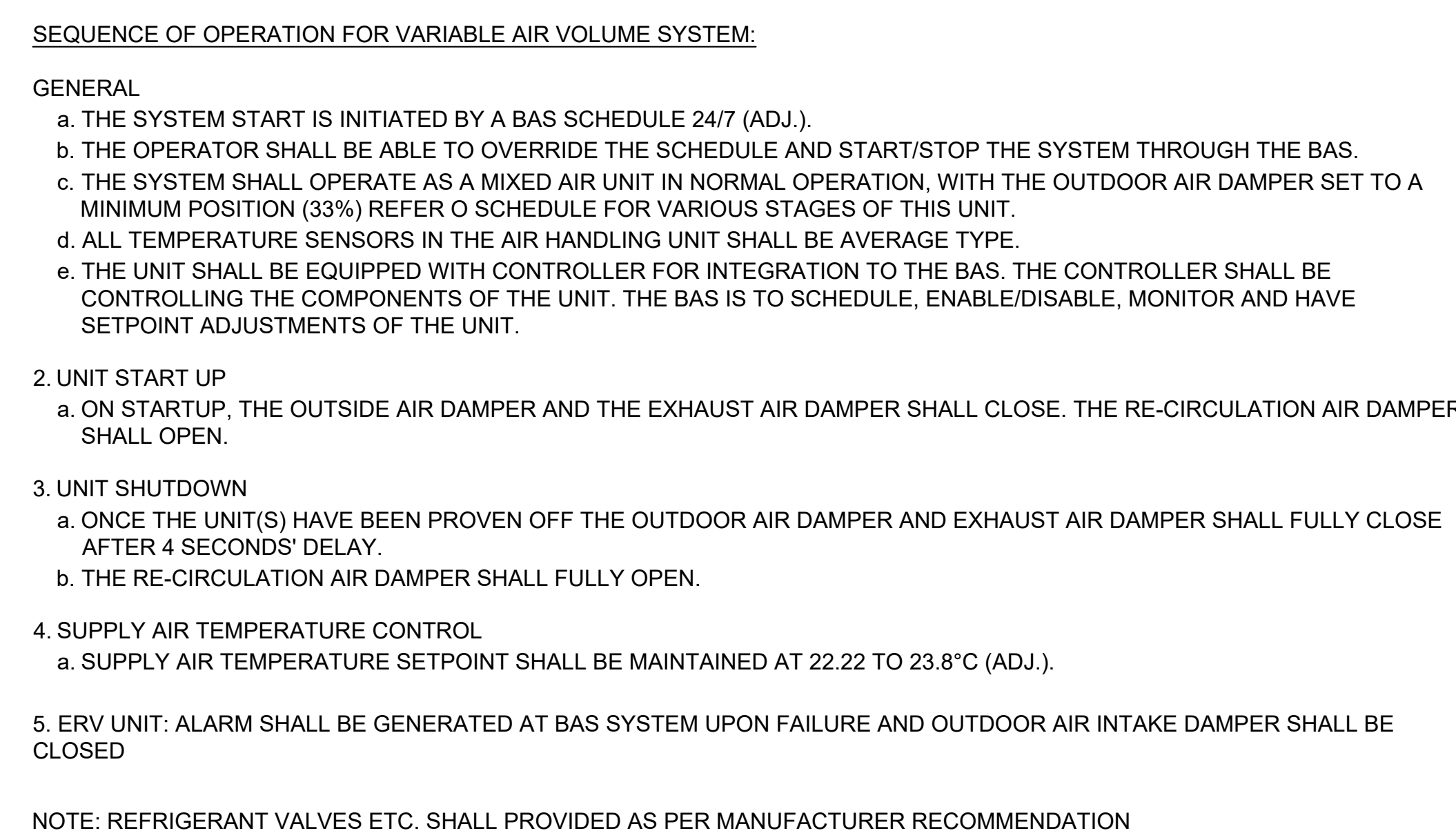


**SEQUENCE OF OPERATION:**

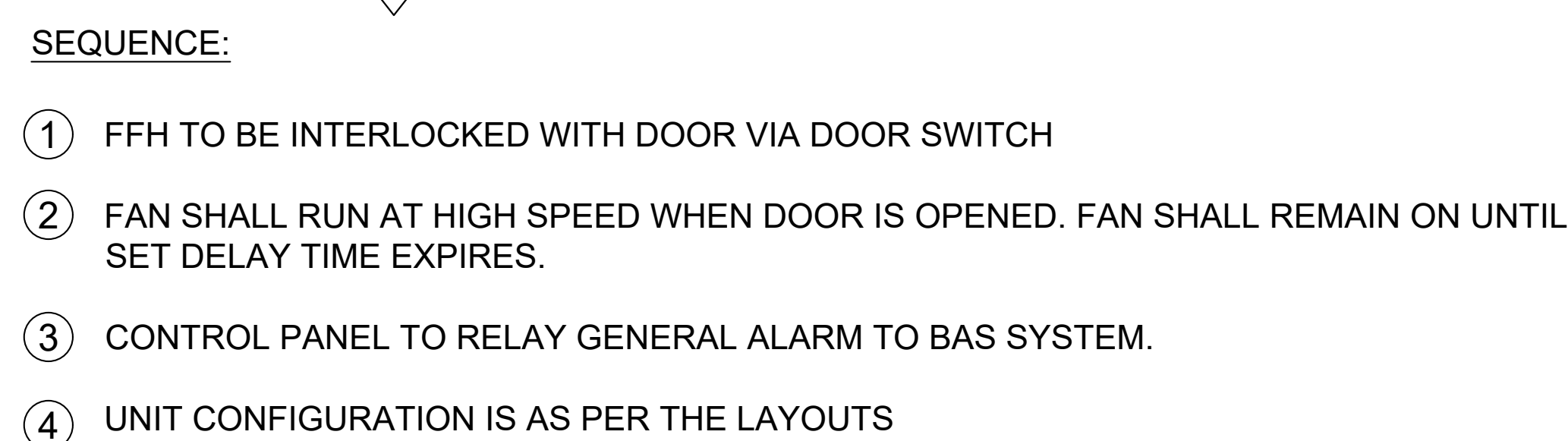
**VENTILATION MODE:**

- 1 EXHAUST FAN SHALL BE STARTED AND STOPPED THROUGH THE BAS BY EITHER THE OPERATOR OR THE PRE-PROGRAMMED TIME SCHEDULE, AND RUN CONTINUOUSLY.
- 2 THE BAS SHALL MONITOR THE STATUS OF EXHAUST FAN AT THE MCC AND PROVIDE TROUBLE ALARM AT BAS
- 3 BAS SHALL START/STOP EXHAUST FANS BASED ON PROGRAMMABLE SCHEDULE.

5 WASHROOM EXHAUST FAN CONTROL DIAGRAM  
M-802 SCALE: N.T.S.



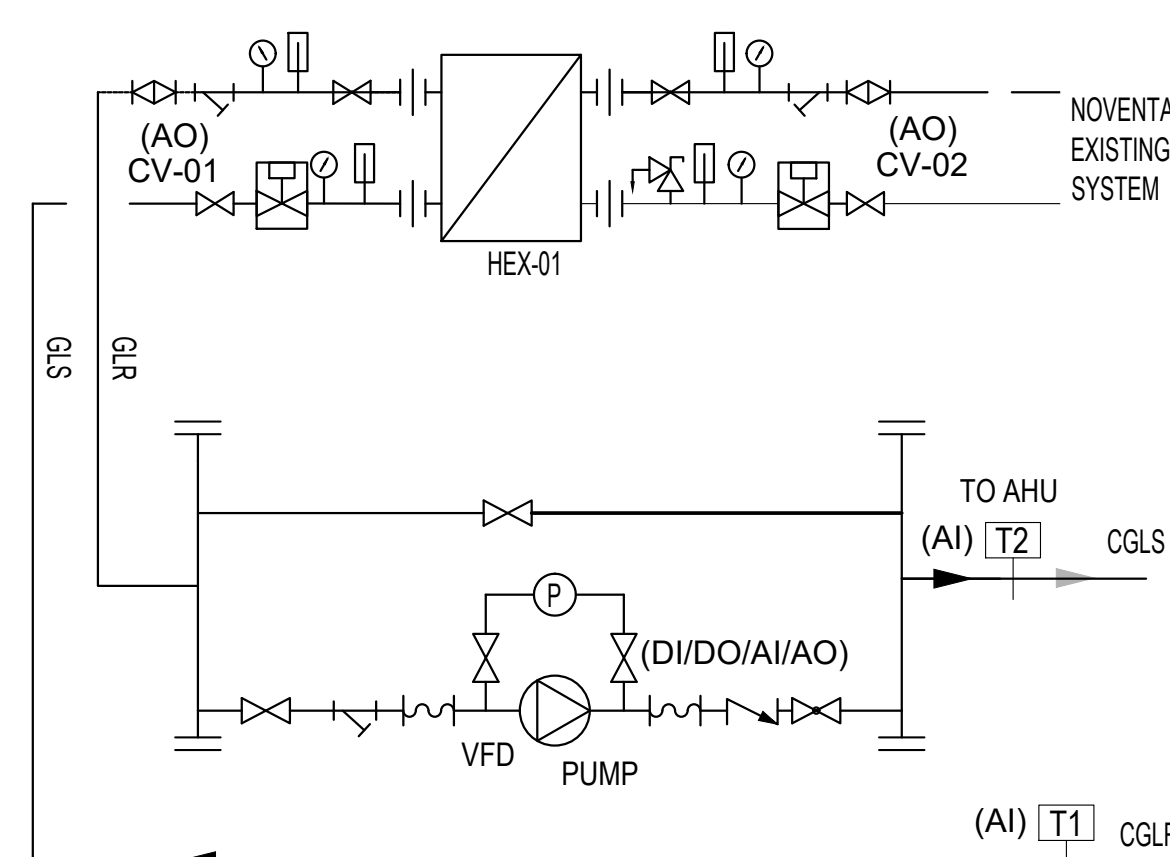
2 CORRIDOR UNIT CONTROL DIAGRAM  
M-802 SCALE: N.T.S.



3
M-802

## CONTROL SCHEMATIC - FORCE FLOW HEATER

SCALE: N.T.S.



SEQUENCE OF OPERATION (NEW SYSTEM):

COOLING

THE CONTROL VALVES AT THE HEAT EXCHANGER WILL BE OPEN  
PUMPS WILL TURN ON AS PER AHU COOLING DEMAND

BAS TO PROVIDE ALARM IF PUMP FAILS

4 CONTROL SCHEMATIC - HEX/PUMP  
M-802 SCALE: N.T.S.

## MISCELLANEOUS CONTROL / MONITOR

FIRE ALARM

1. THE BAS SHALL PICK UP A FIRE ALARM OUTPUT ALARM CONTACT FROM THE FIRE ALARM PANEL AND REPORT TO THE OPERATOR'S WORKSTATION.

## ELECTRICAL ROOM

- |    |  |    |
|----|--|----|
| 1. | BAS TO MONITOR THE FOLLOWING:  |    |
|    | ROOM TEMPERATURE   | AI |
|    | AC UNITS STATUS  | DI |
|    | TROUBLE ALARM  | DI |
|    | WATER LEAK DETECTION ALARM   | DI |
| 2. | WHEN ROOM TEMPERATURE EXCEEDS 29.4°C (85°F), AN ALARM SHALL REGISTER AT THE BAS. |    |

## ELECTRICAL HEAT TRACING

1. BAS TO MONITOR THE ELECTRICAL HEAT TRACING; A BAS ALARM SHALL BE GENERATED FOR ANY FAILURE.

GENERAL NOTE: ALL FLOW MEASURING DEVICES SHALL BE REVIEWED WITH CONSULTANT BEFORE INSTALLATION AND UPSTREAM AND DOWNSTREAM DISTANCES SHALL BE COMPLIED AS PER MANUFACTURER RECOMMENDATIONS


10	Issued for Addendum M-04	2024.11.18
9	Issued for Addendum M-03	2024.11.12
8	Issued for Addendum M-02	2024.11.06
7	Issued for Addendum M-01	2024.10.25
6	Issued for Tender	2024.10.11
5	Issued for 100% CD	2024.09.27
4	Issued for 90% CD	2024.09.06
3	Issued for 50% CD / Permit	2024.08.02
2	Issued for 100 DD	2024.05.10
1	Issued for Design Development Progress	2024.04.05
NO	DESCRIPTION	DATE

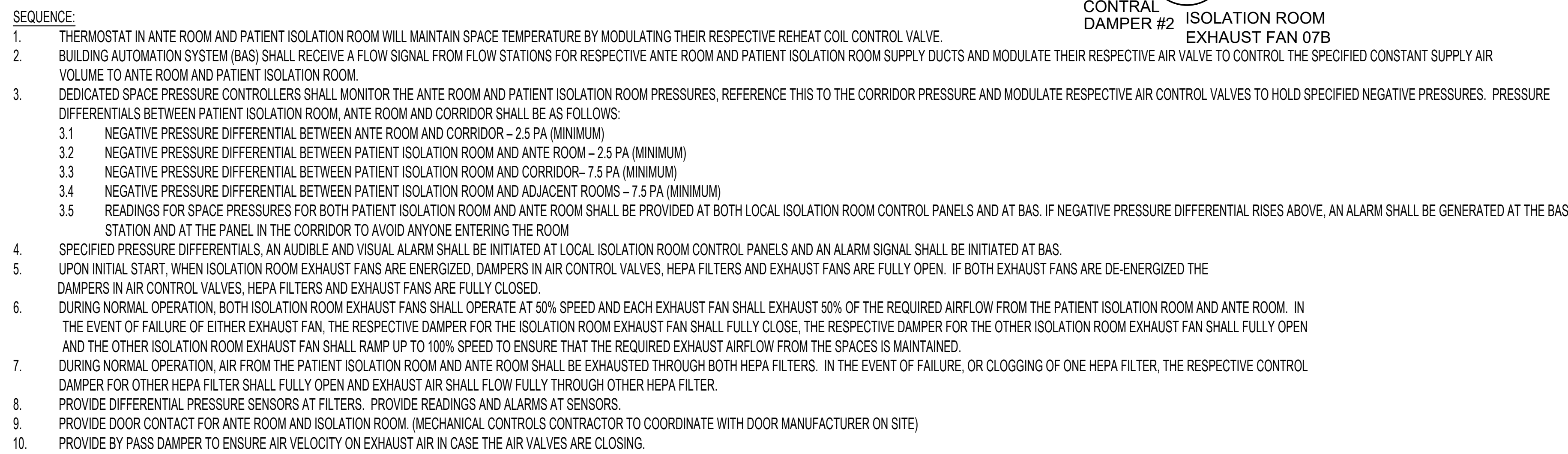
PROJECT:  
**Seniors Emergency Medicine Centre (SEMC)**  
**External Corridor**  
 Toronto Western Hospital  
 399 Bathurst Street, Toronto, ON, M5T 2S8

TITLE:  
CONTROL DIAGRAMS #2

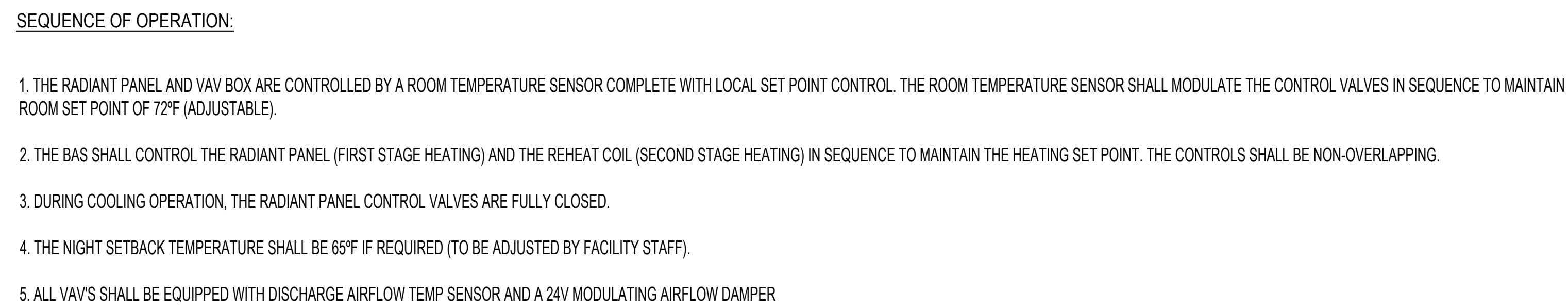
PROJECT NO:	MRK-230
CHECKED:	SS

DRAWING NO.

M-802

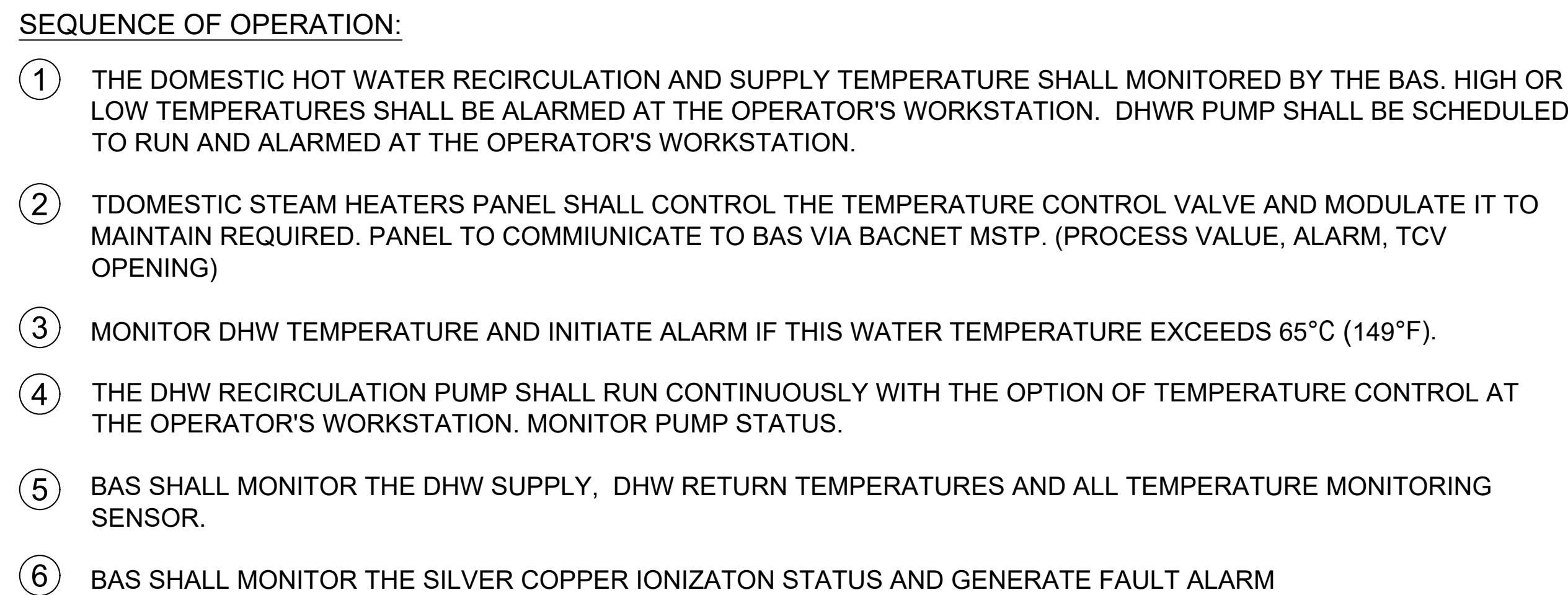


1 ISOLATION  
M-803 SCALE: N.T.S.

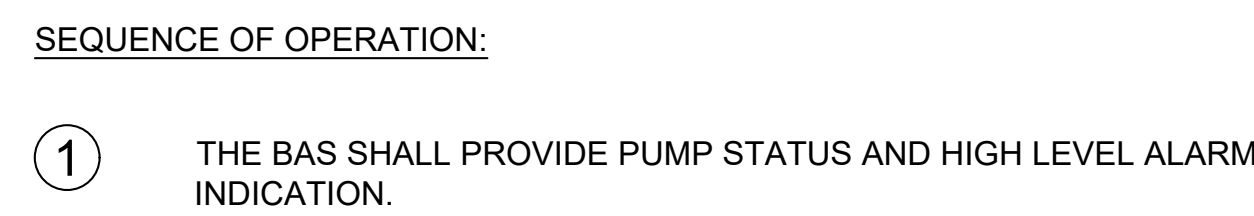


3  
M-803

CONTRC  
SCALE: N.T.S.



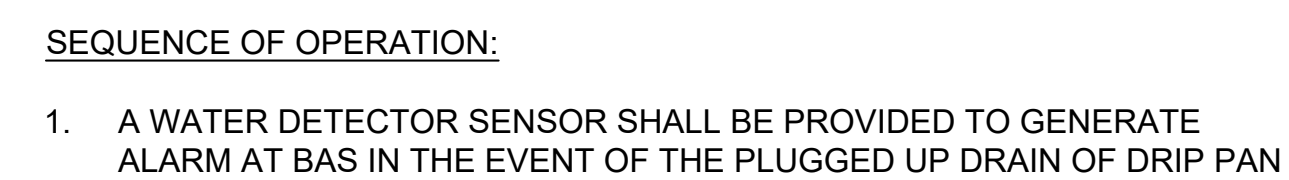
2 CONTROL  
M-803 SCALE: N.T.S.



4  
M-803

CONTROL

SCALE: N.T.S.



CLIENT:

 **UHN**

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ARCHITECT:

**CUMULUS ARCHITECTS INC.**  
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Markham, ON L3T 0A5  
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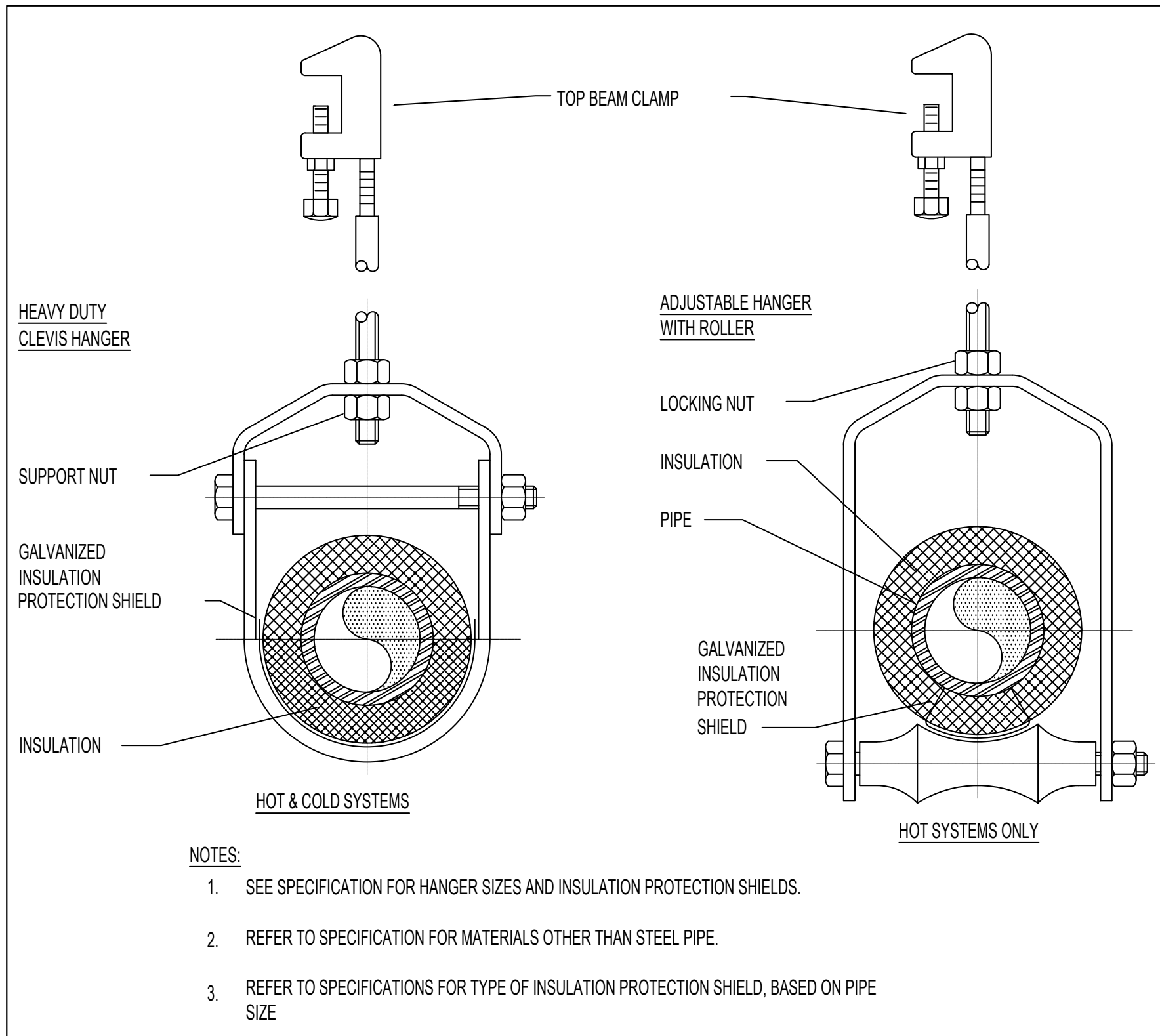
PROJECT:  
**Seniors Emergency Medicine Centre (SEMC) & External Corridor**  
Toronto Western Hospital  
390 Bathurst Street Toronto, ON, M5T 2S8

### CONTROL DIAGRAMS #3

PROJECT NO:  
MRK-2300  
CHECKED:  
SS

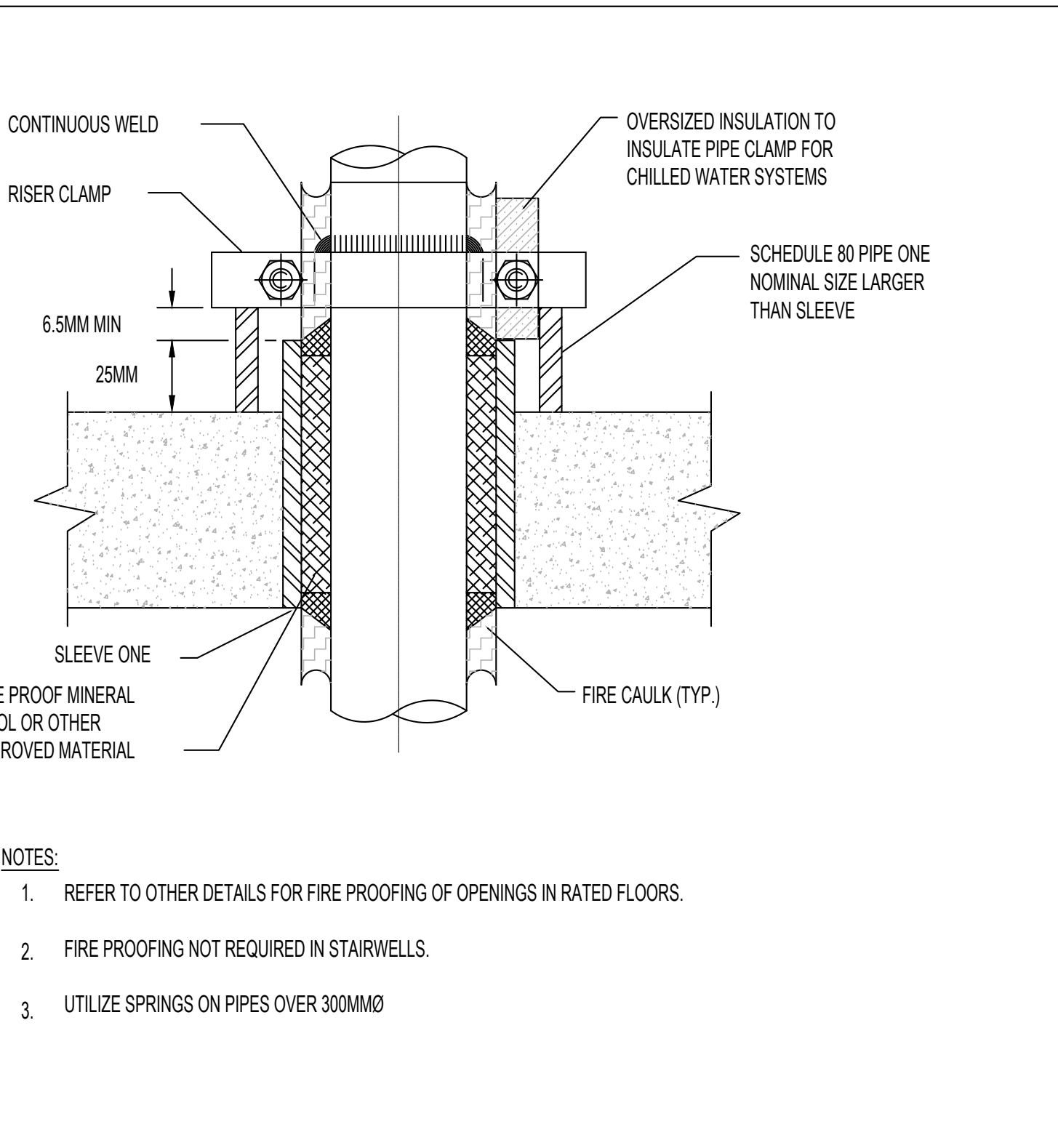
DRAFTING NO.

M-803



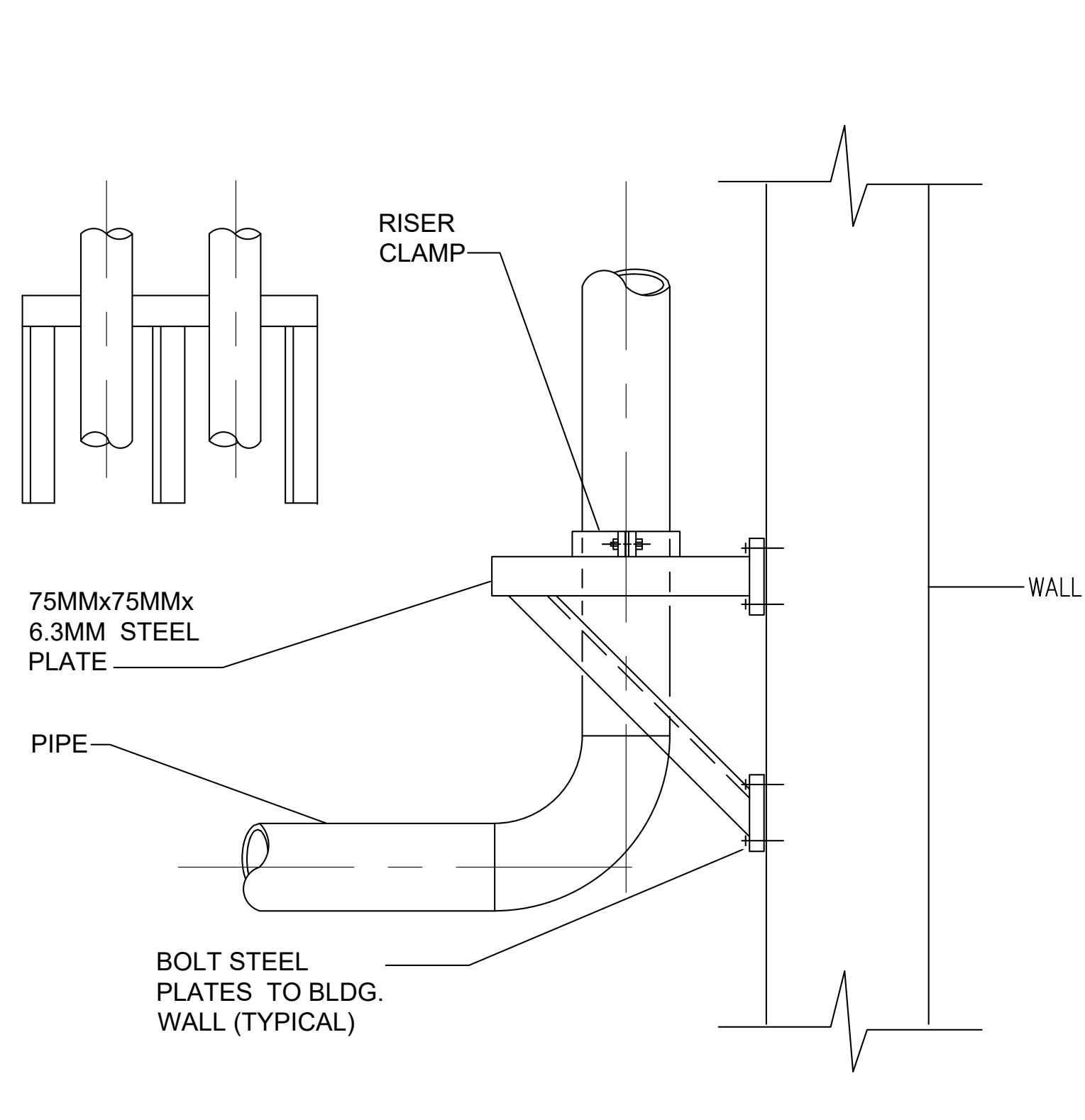
PIPE HANGER SUPPORT LESS THAN OR EQUAL TO 200MM DIAMETER PIPE DETAIL

SCALE: N.T.S. 01



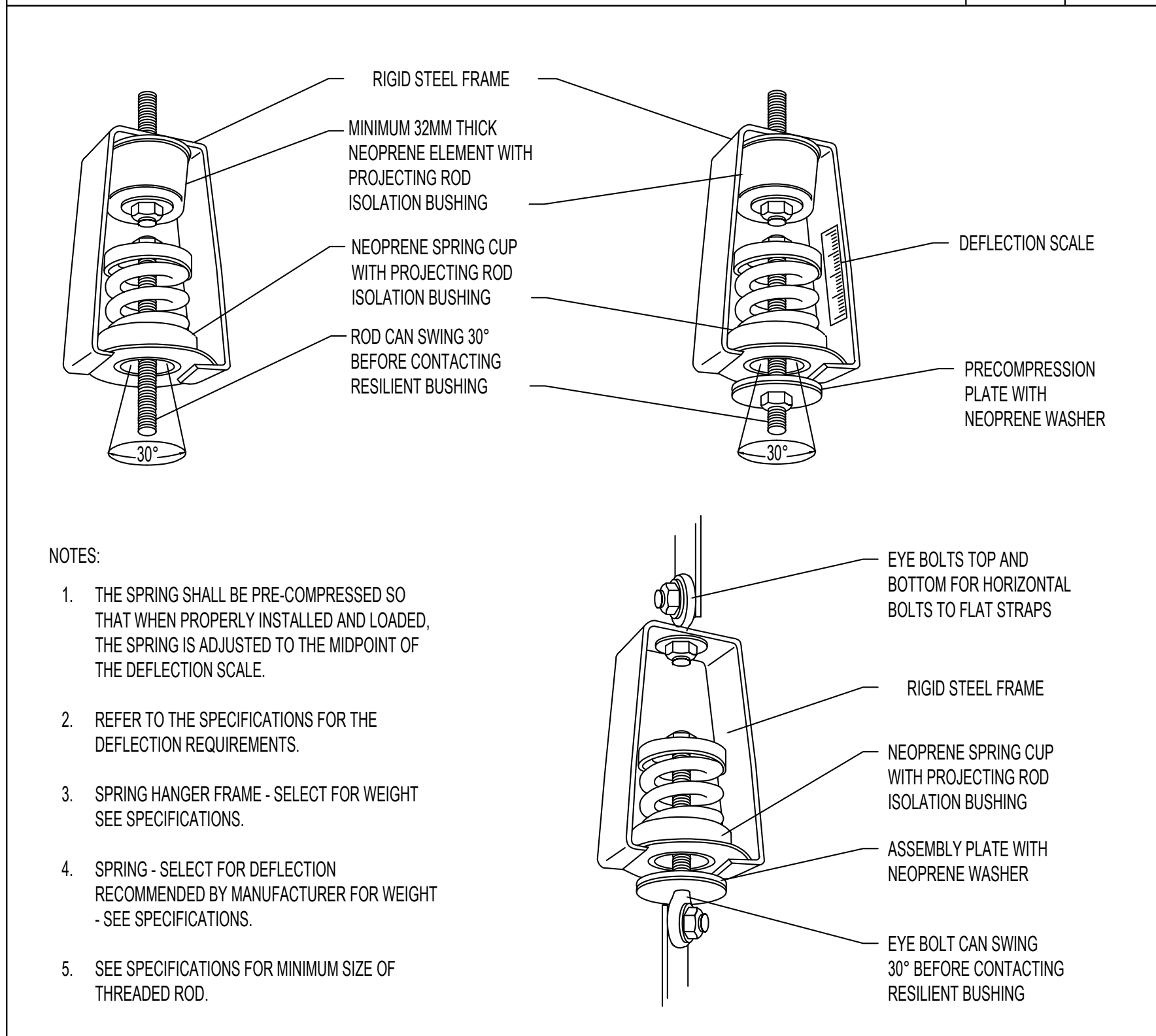
TYPICAL PIPE RISER SUPPORT DETAIL

SCALE: N.T.S. 02



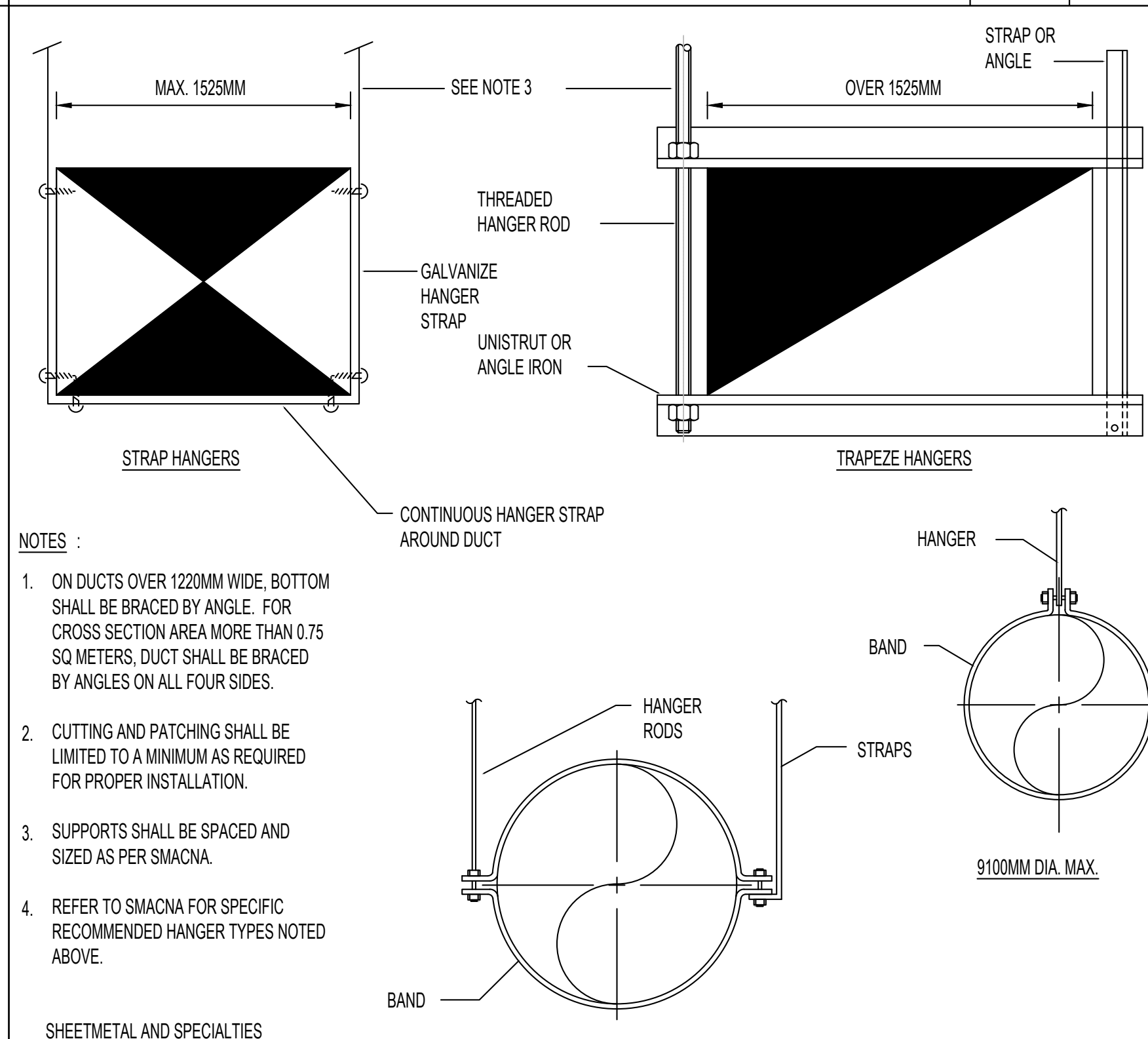
EXTERIOR PIPE RISER SUPPORT DETAIL

SCALE: N.T.S. 03



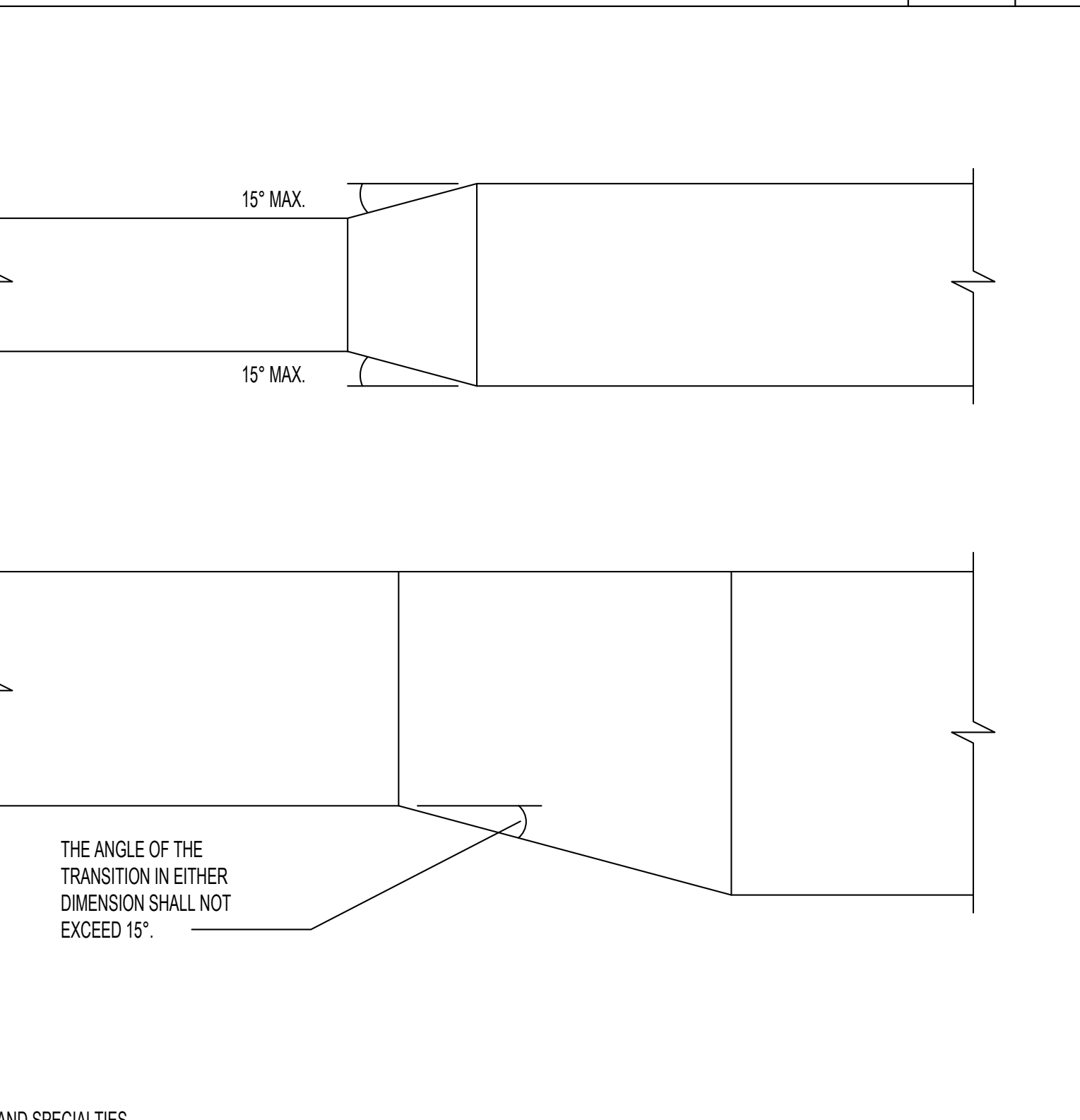
SPRING ISOLATED HANGERS FOR PIPE OR EQUIPMENT DETAIL

SCALE: N.T.S. 04



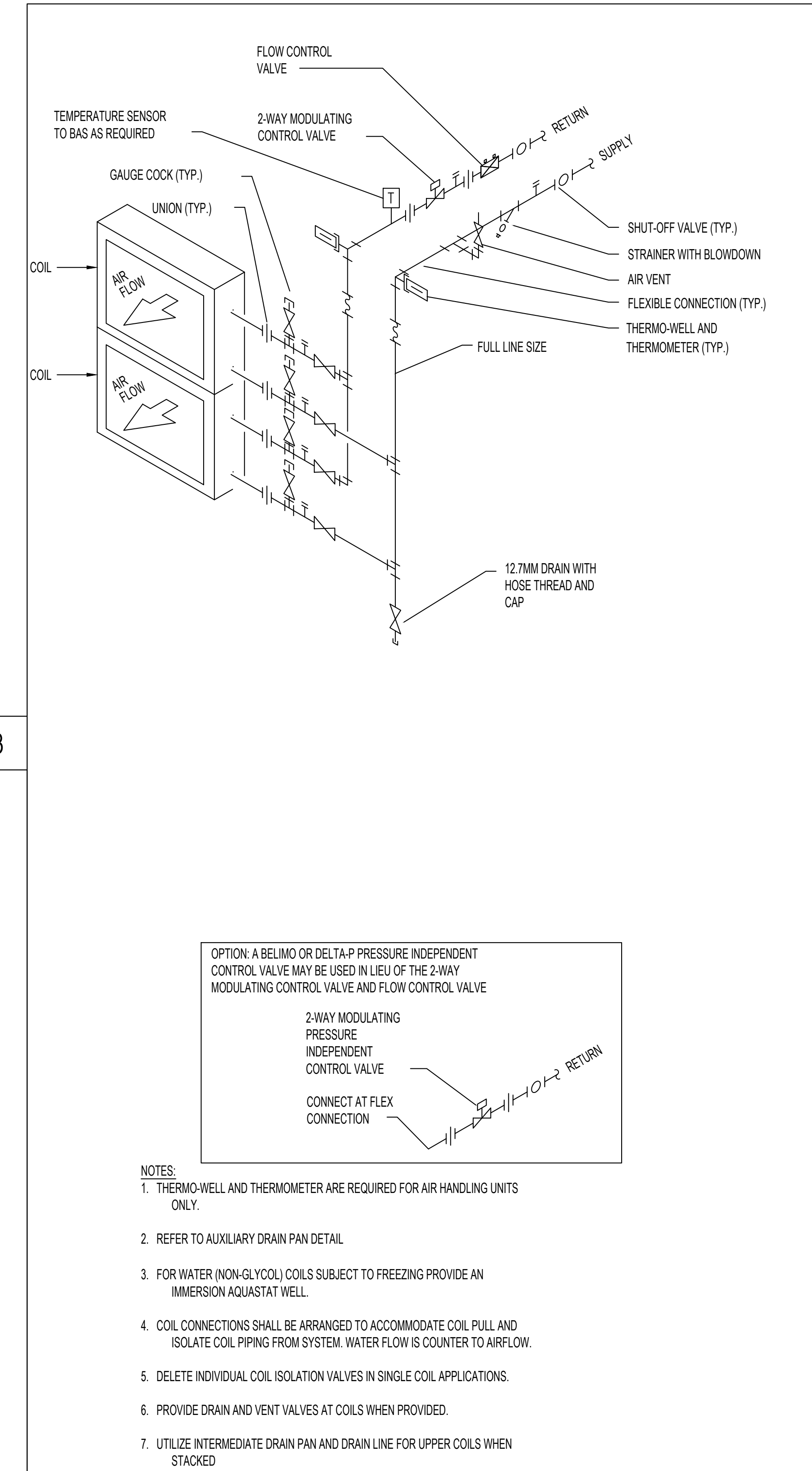
DUCT HANGER SUPPORT

SCALE: N.T.S. 05



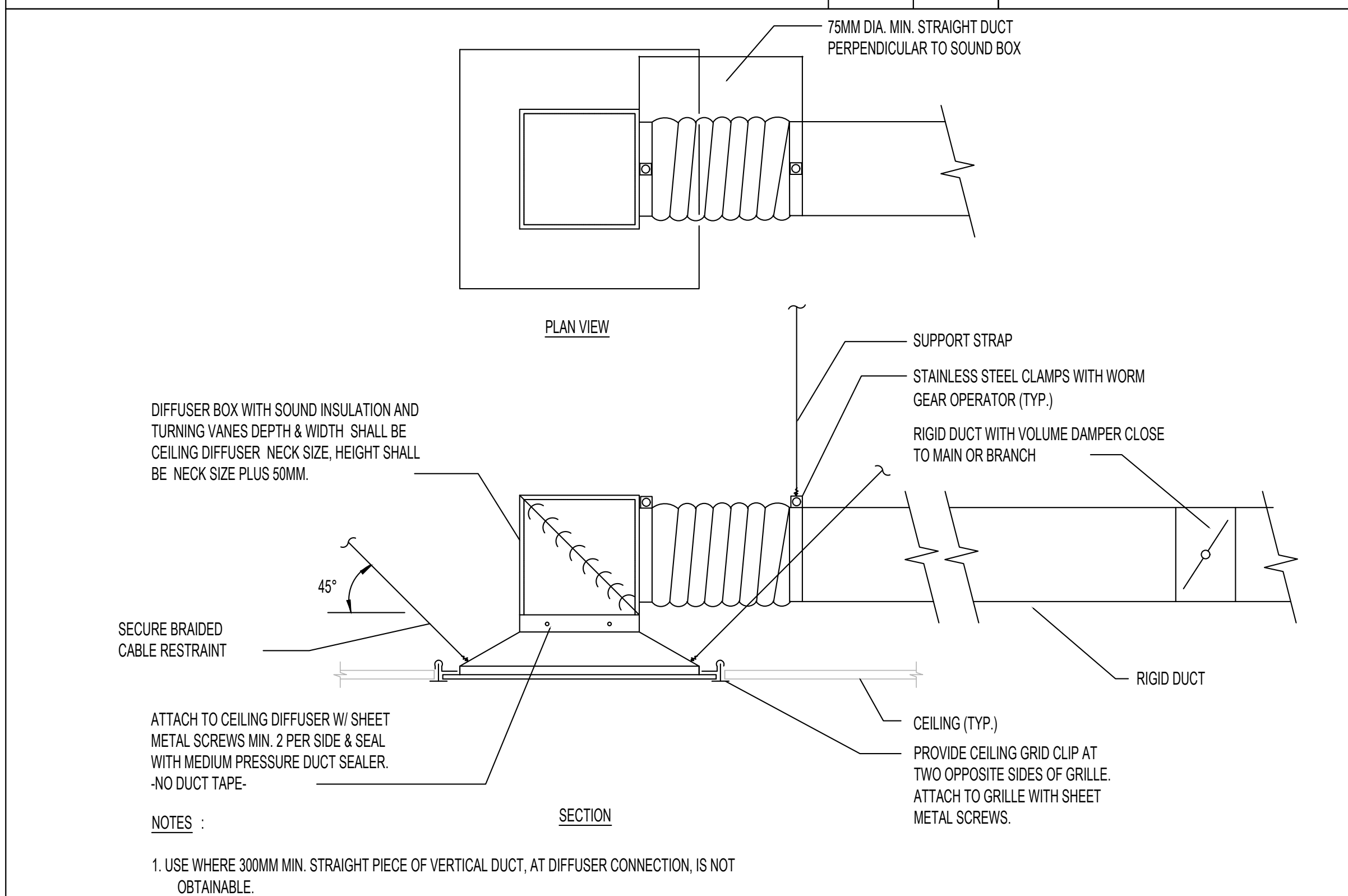
DUCT TRANSITION

SCALE: N.T.S. 06



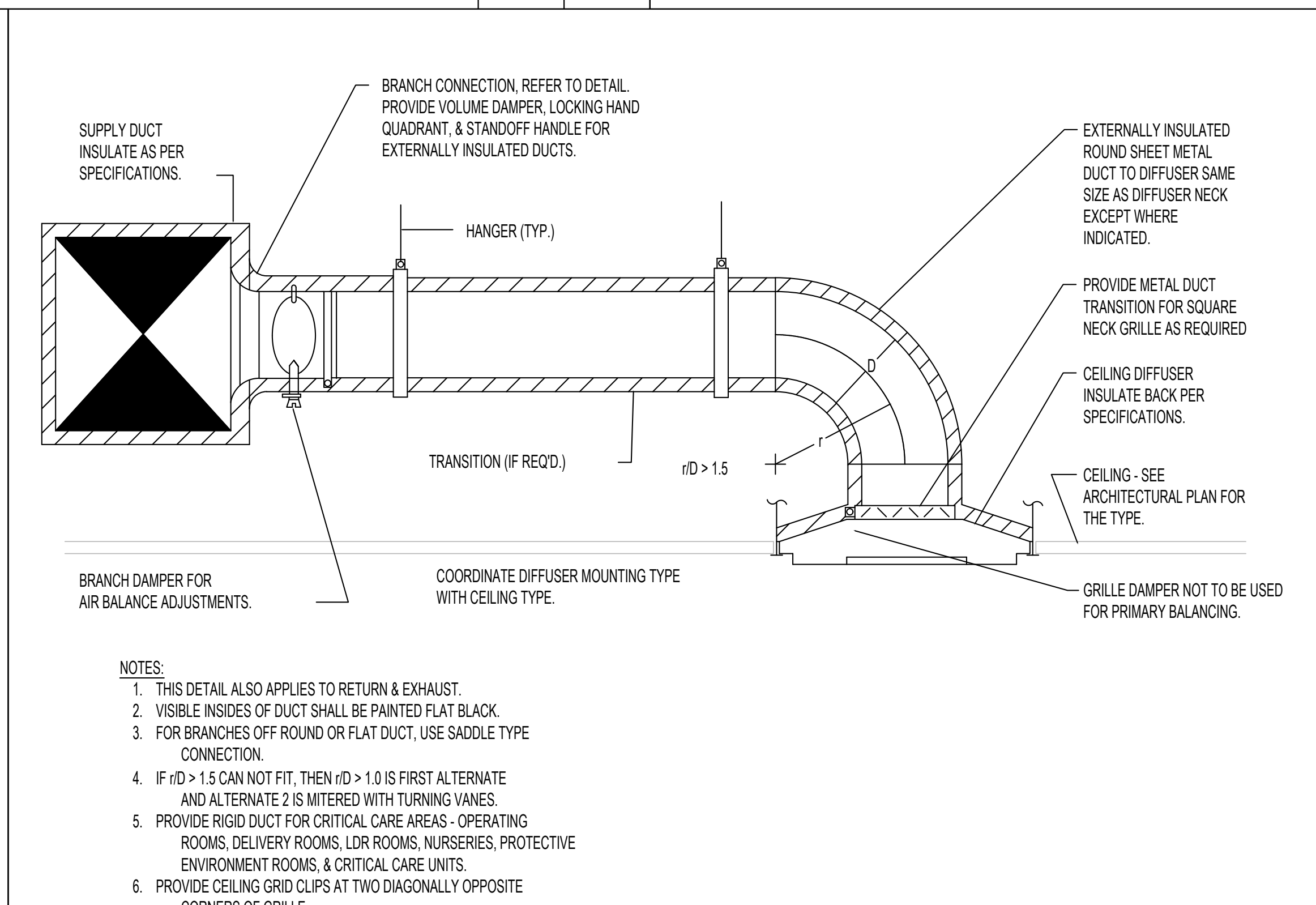
TWO-WAY MODULATING WATER COIL DETAIL

SCALE: N.T.S. 07



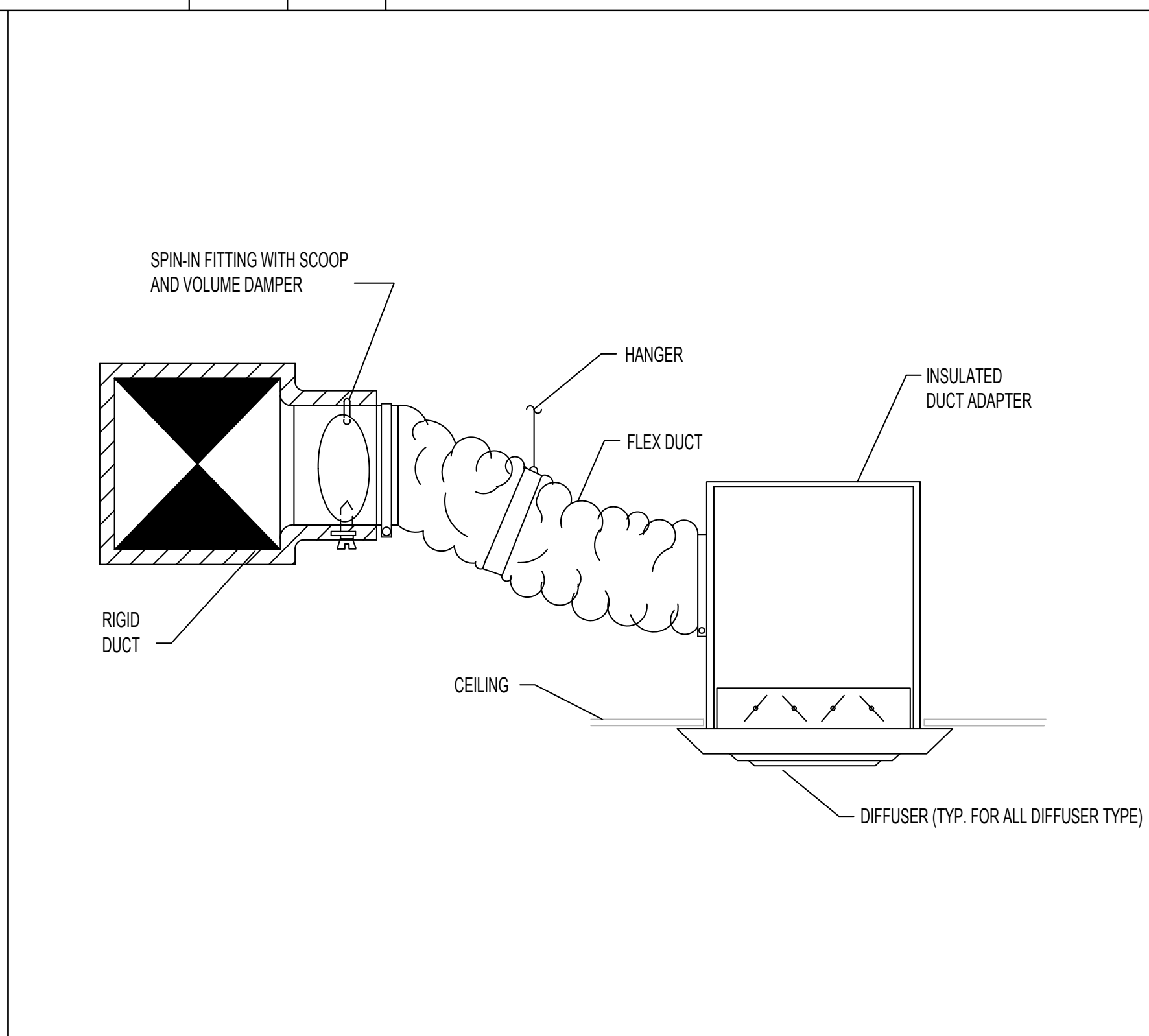
LOW CLEARANCE CEILING DIFFUSER

SCALE: N.T.S. 08

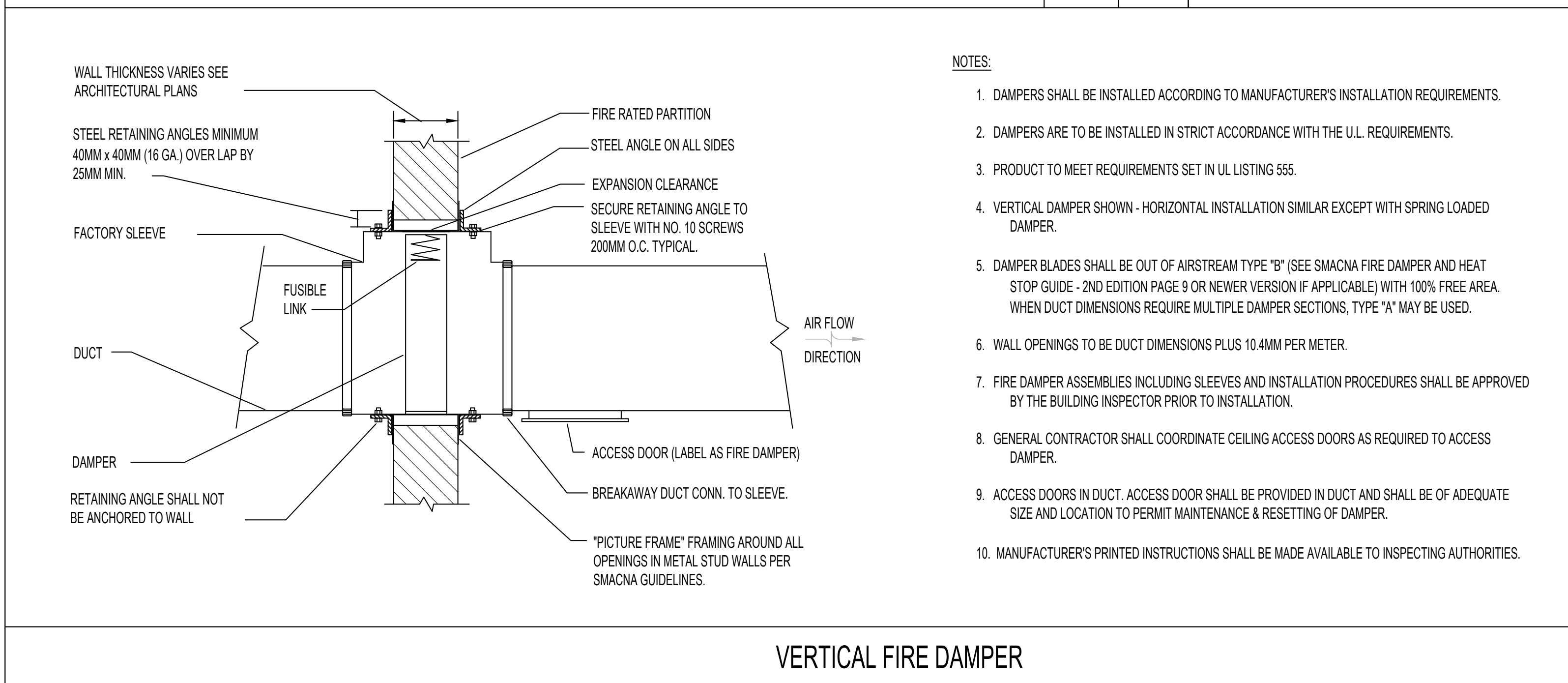


CEILING DIFFUSER - RIGID DUCT

SCALE: N.T.S. 09



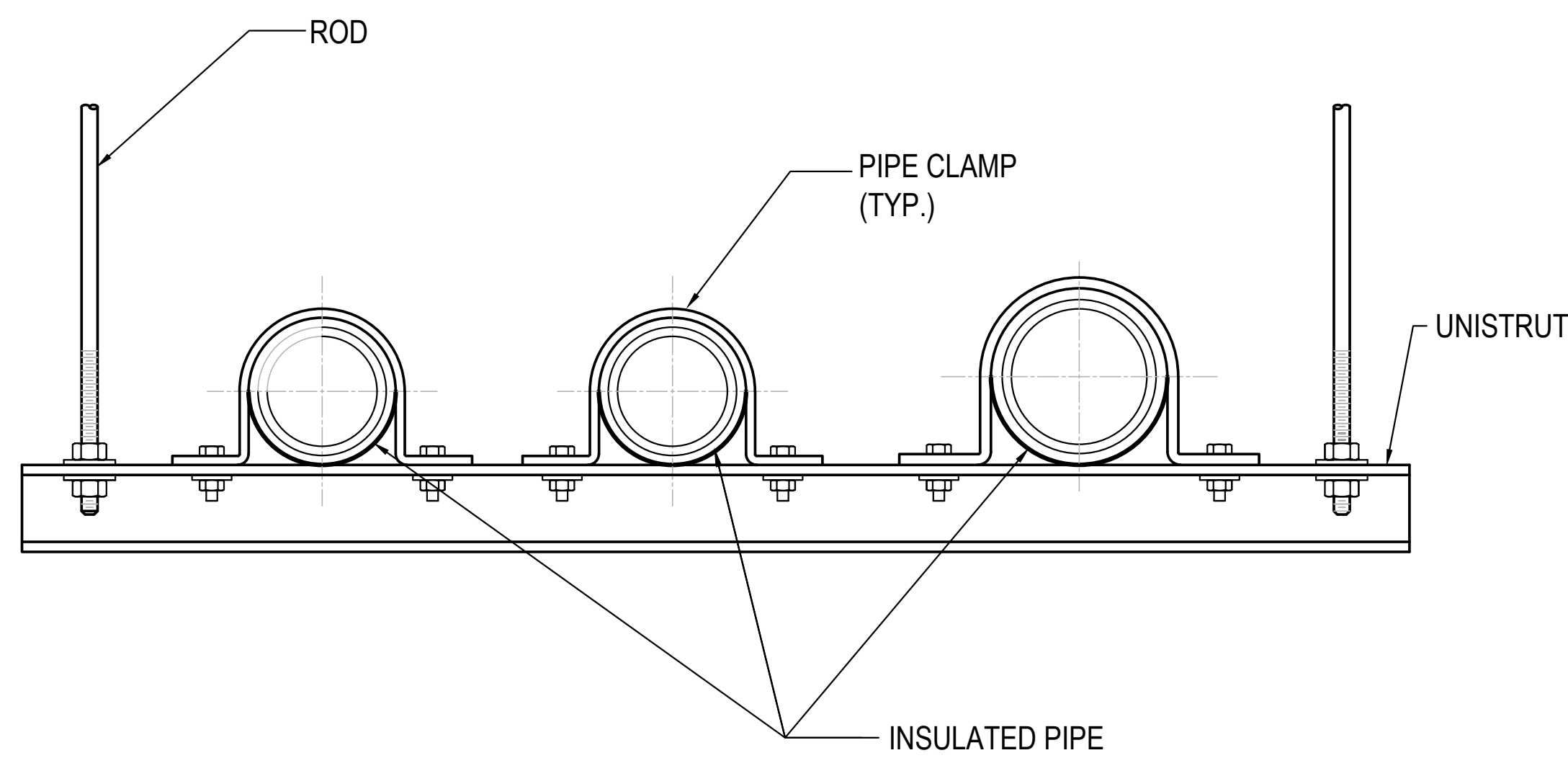
DIFFUSER WITH INSULATED PLENUM



VERTICAL FIRE DAMPER

NO.	REVISION	DATE
10	Issued for Addendum M-04	2024.11.18
9	Issued for Addendum M-03	2024.11.12
8	Issued for Addendum M-02	2024.11.06
7	Issued for Addendum M-01	2024.10.29
6	Issued for Tender	2024.10.11
5	Issued for 100% CDD	2024.09.27
4	Issued for 90% CDD	2024.09.09
3	Issued for 50% CDD - Prelim	2024.08.02
2	Issued for 100 DD	2024.05.10
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NO.	DESCRIPTION	DATE





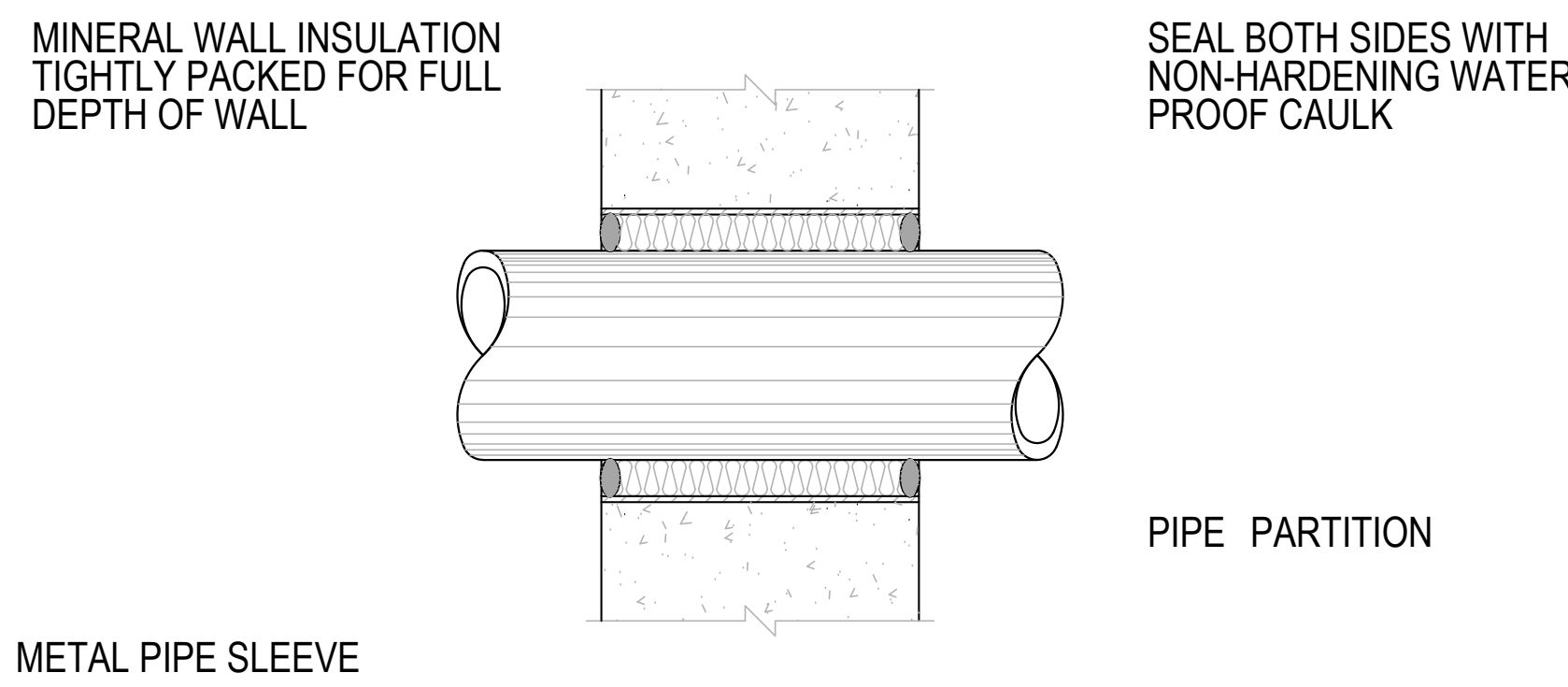
NOTES:

1. ALL HANGING METHODS TO BE COORDINATED WITH STRUCTURAL.

PIPE GROUP HANGER SUPPORT

SCALE:  
N.T.S.

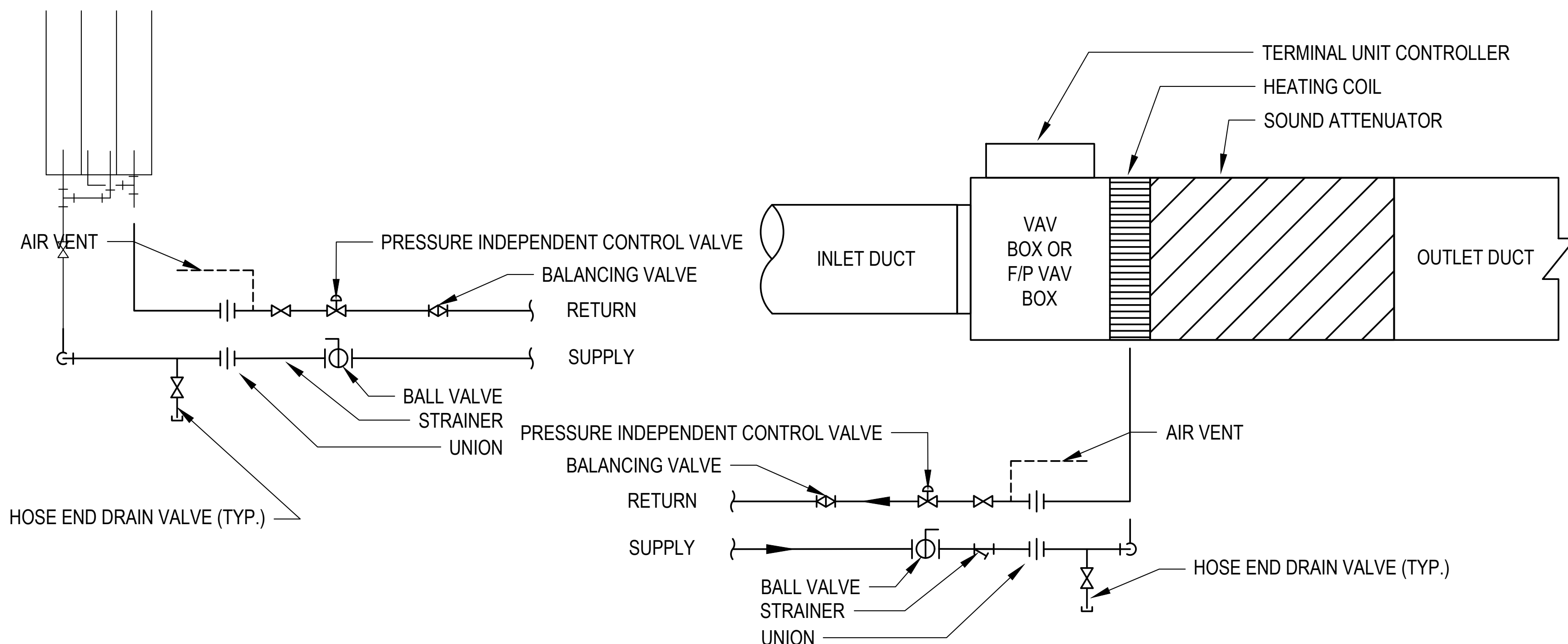
01



SCALE:  
N.T.S.

02

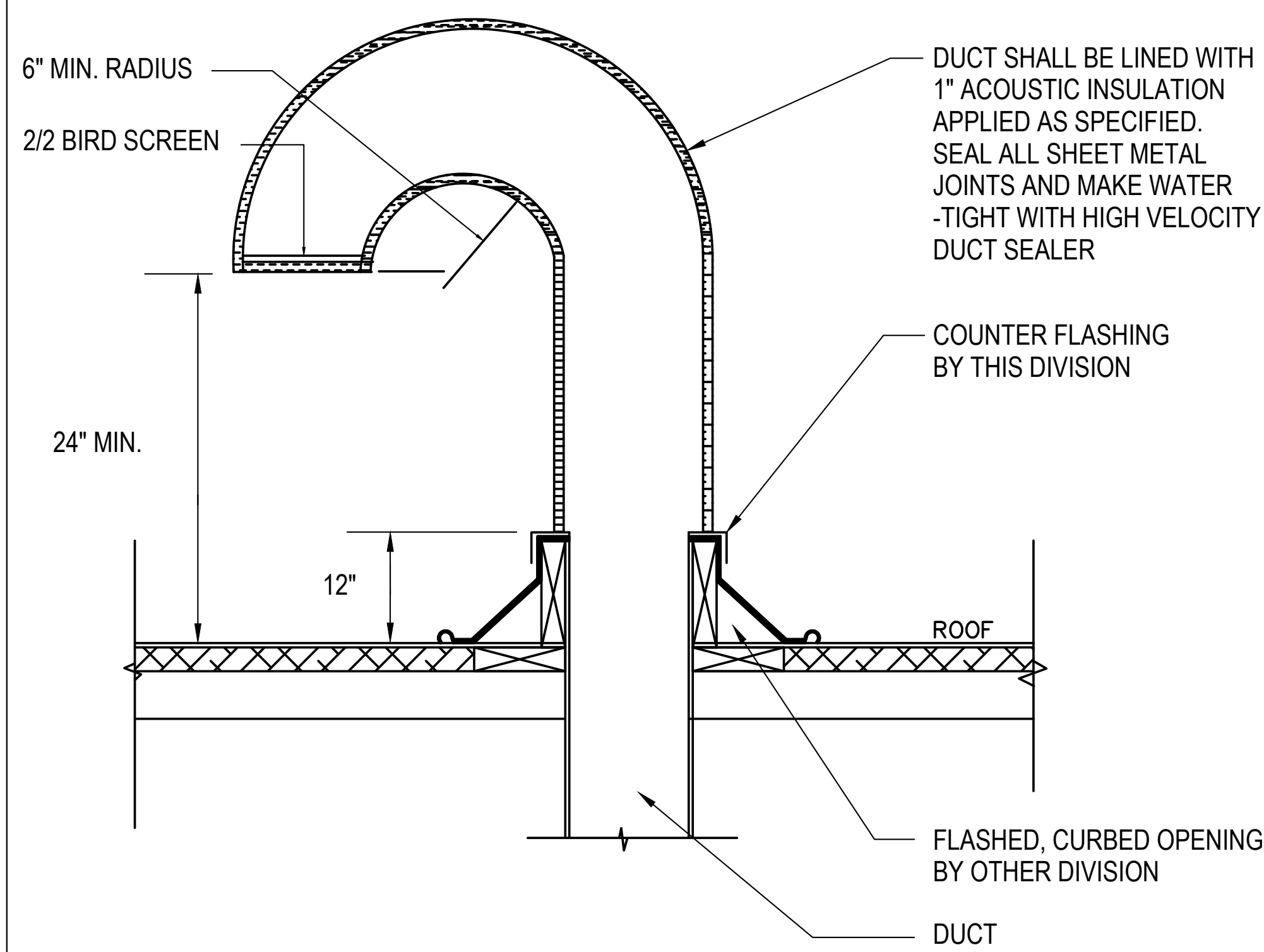
PIPE PENETRATION THROUGH NON-FIRE RATE WALL DETAIL



SCALE:  
N.T.S.

03

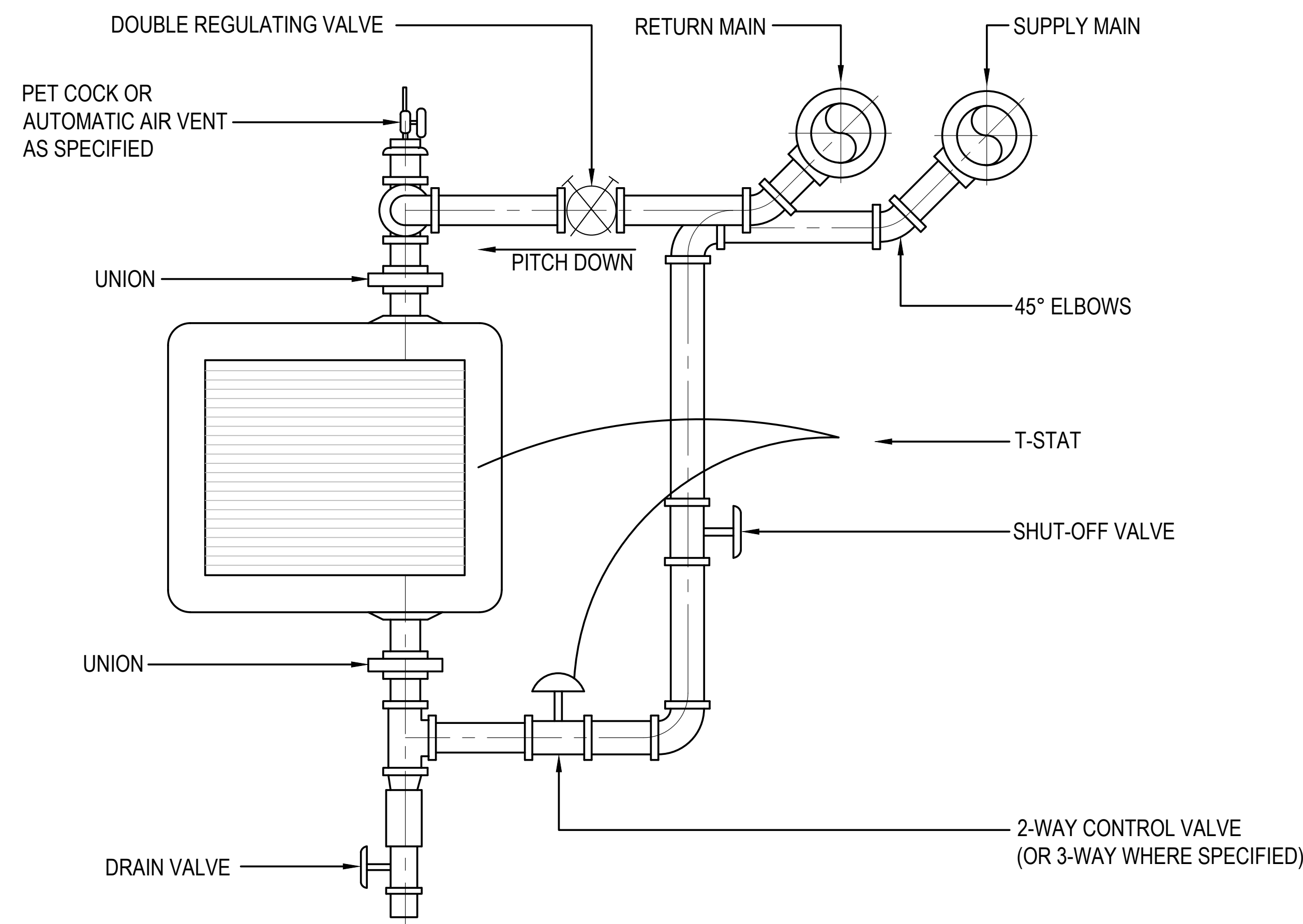
VAV BOX COIL AND RADIANT PANEL PIPING DETAIL



VENT C/W GOOSENECK

SCALE:  
N.T.S.

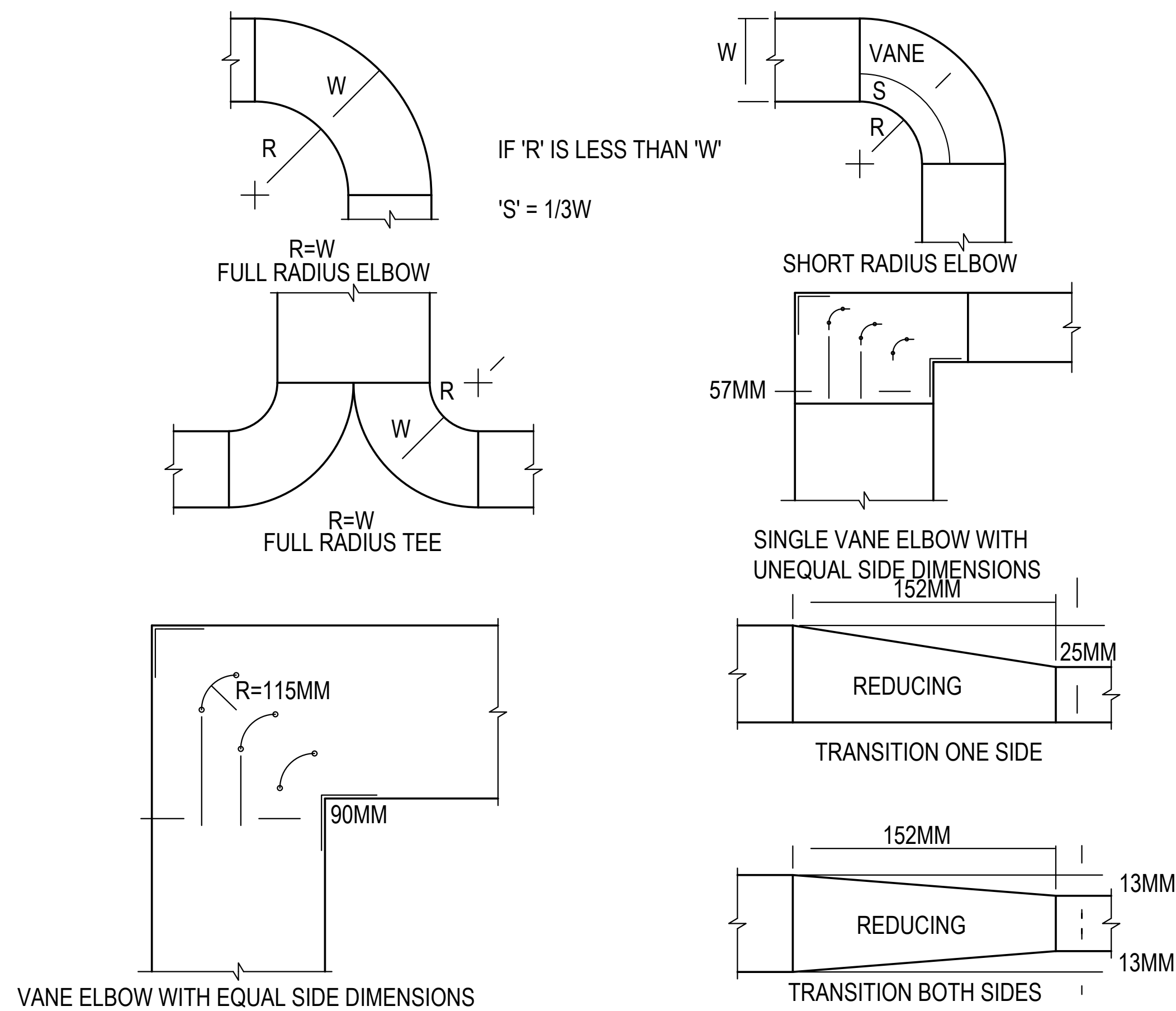
04



SCALE:  
N.T.S.

05

TYPICAL CONNECTIONS TO HOT WATER UNIT HEATER



SCALE:  
N.T.S.

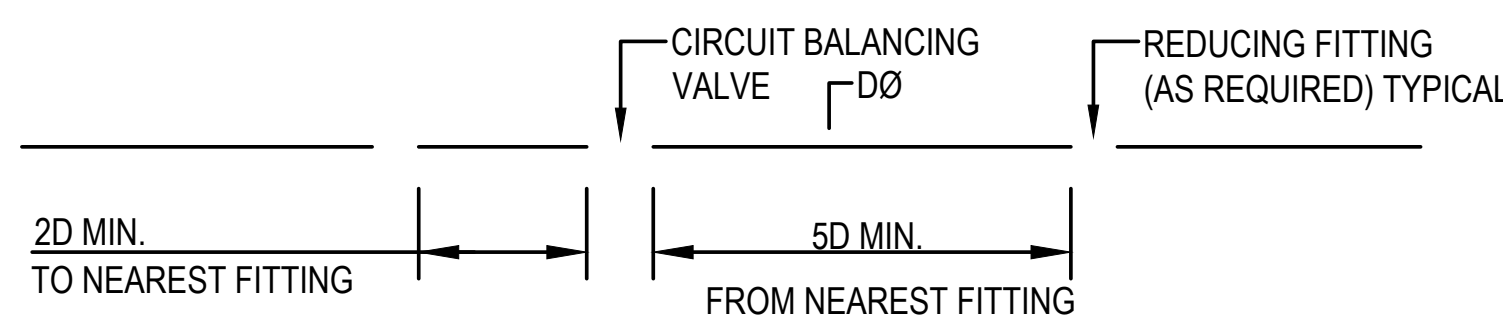
06

SQUARE AND RADIUS ELBOW DETAILS

CIRCUIT BALANCING VALVE SCHEDULE (IMPERIAL)			
SIZE	NOM FLOW (GPM)	MAX. GPM	
1/2"	UP TO	3.1	4.3
3/4"	3	6.9	9.6
1"	8.8	10.1	14.5
1 1/4"	10.2	16.2	24
1 1/2"	15	24	32
2"	25	40	55
2 1/2"	40	100	138
3"	95	145	200
4"	145	235	310
5"	230	320	500
6"	320	490	700
8"	500	900	1250

CIRCUIT BALANCING VALVE SCHEDULE (METRIC)			
SIZE	NOM FLOW (GPM)	MAX. L/S	
15	UP TO	0.20	0.27
20	0.19	0.44	0.61
25	0.43	0.64	0.91
32	0.64	1.02	1.51
40	0.95	1.51	2.02
50	1.58	2.52	3.5
65	2.52	6.3	8.70
75	5.59	9.1	13
100	9.15	15	20
125	14.51	20	32
150	20.19	31	44
200	31.55	57	79

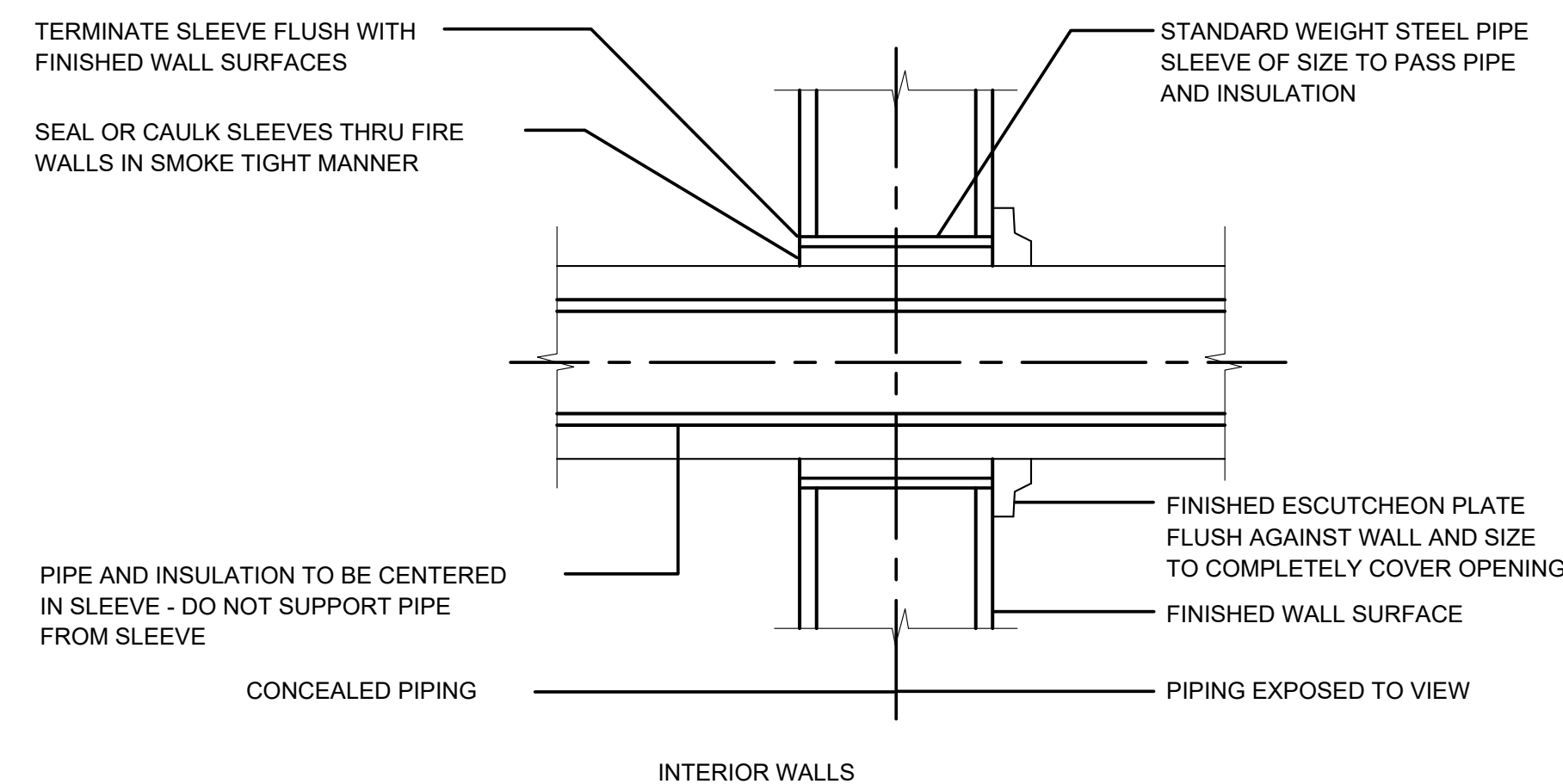
- NOTE:
- ABOVE SELECTION BASED ON TOUR & ANDERSSON: 1FT ΔP @ MIN., 1 PSI (6.9KPa) NOMINAL & 2 PSI (13.8 KPa) MAX. AT FULL OPEN.
  - MECHANICAL CONTRACTOR MUST SIZE AND PROVIDE WATER CIRCUIT BALANCING VALVE AS PER SCHEDULE AND DETAIL.



CIRCUIT BALANCING VALVE DETAIL/SCHEDULE

SCALE:  
N.T.S.

07

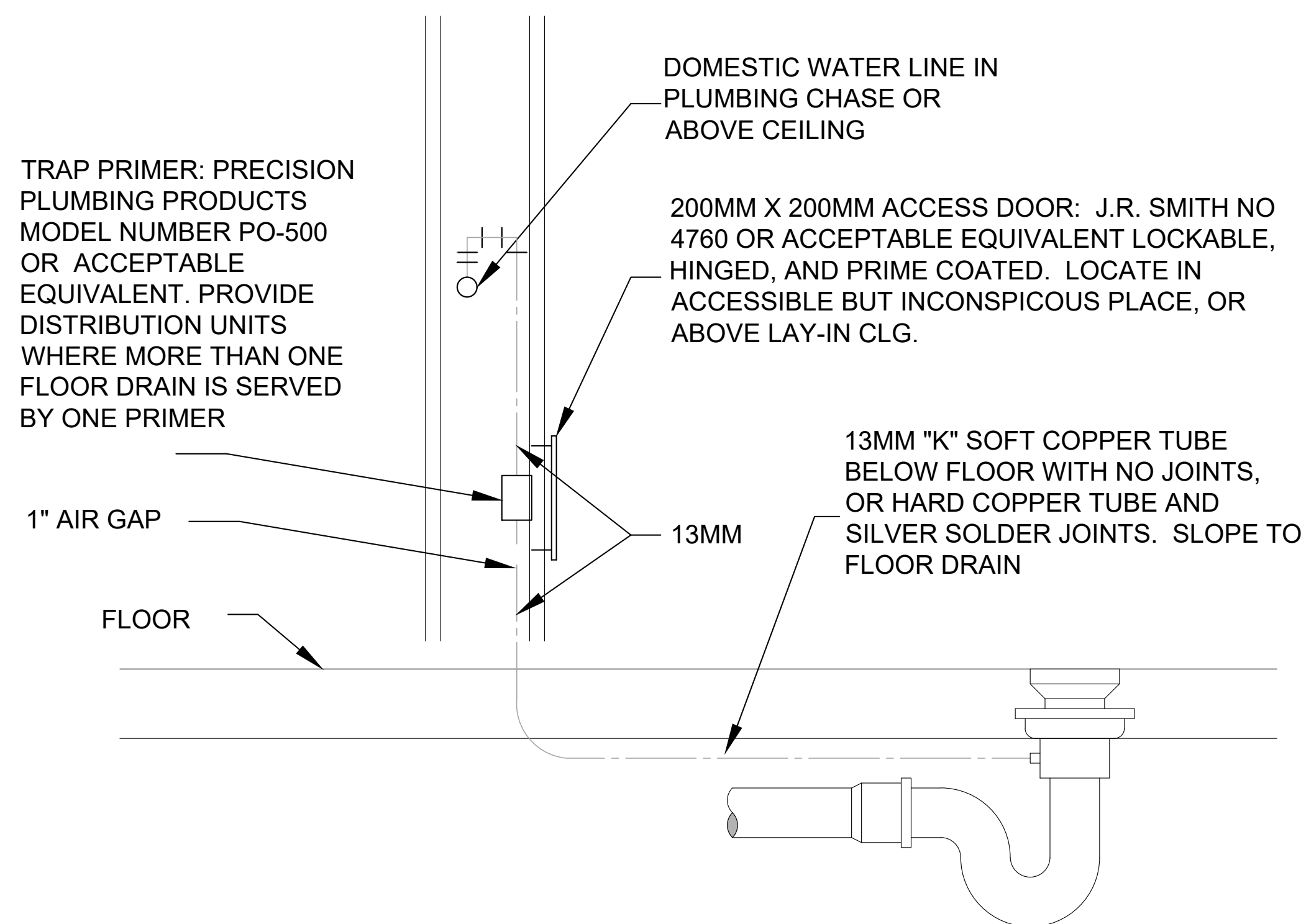


NOTE:  
UTILIZE APPROVED ULC ASSEMBLY FOR FIRE WALLS.

PIPE SLEEVE THROUGH WALL DETAIL

SCALE:  
N.T.S.

08



SCALE:  
N.T.S.

09

TRAP SEAL PRIMER DETAIL

CLIENT:

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7	Issued for Addendum M-01	2024.10.29
6	Issued for Tender	2024.10.17
5	Issued for 100% CD	2024.09.27
4	Issued for 90% CD	2024.09.09
3	Issued for 50% CD / Permit	2024.08.05
2	Issued for 100 DD	2024.05.10
1	Issued for Design Development Progress	2024.04.05
NO.	DESCRIPTION	DATE

PROJECT:  
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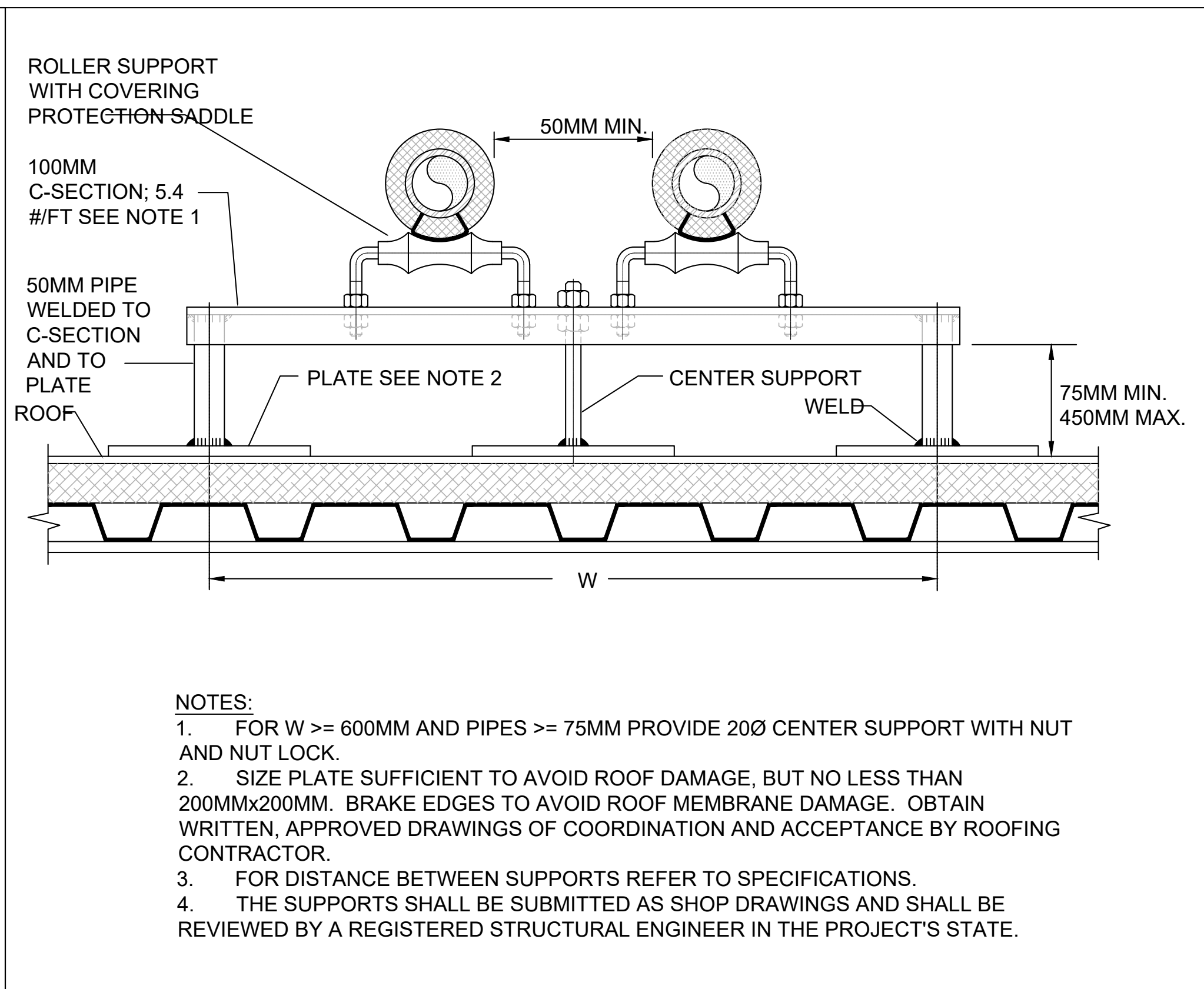
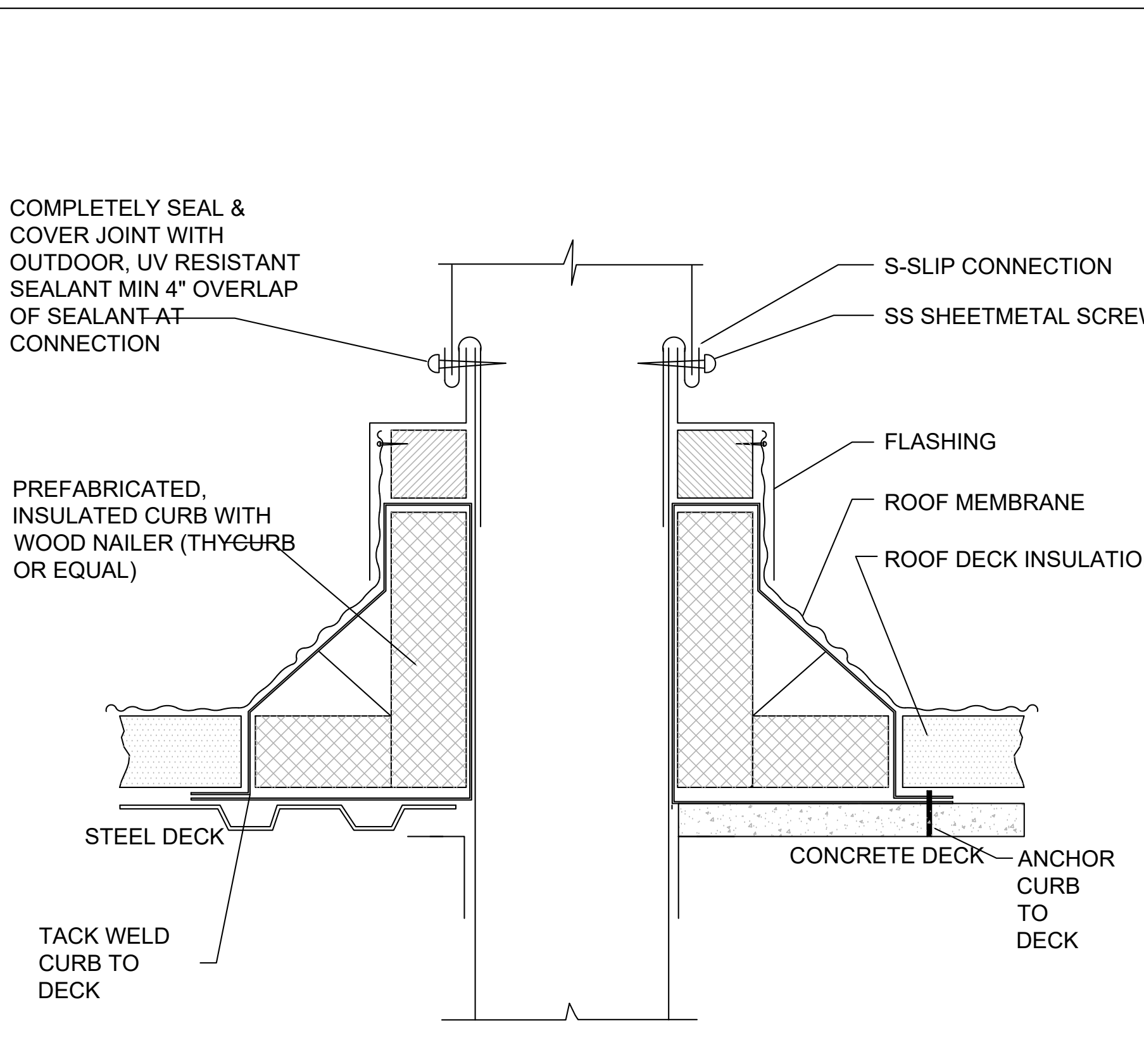
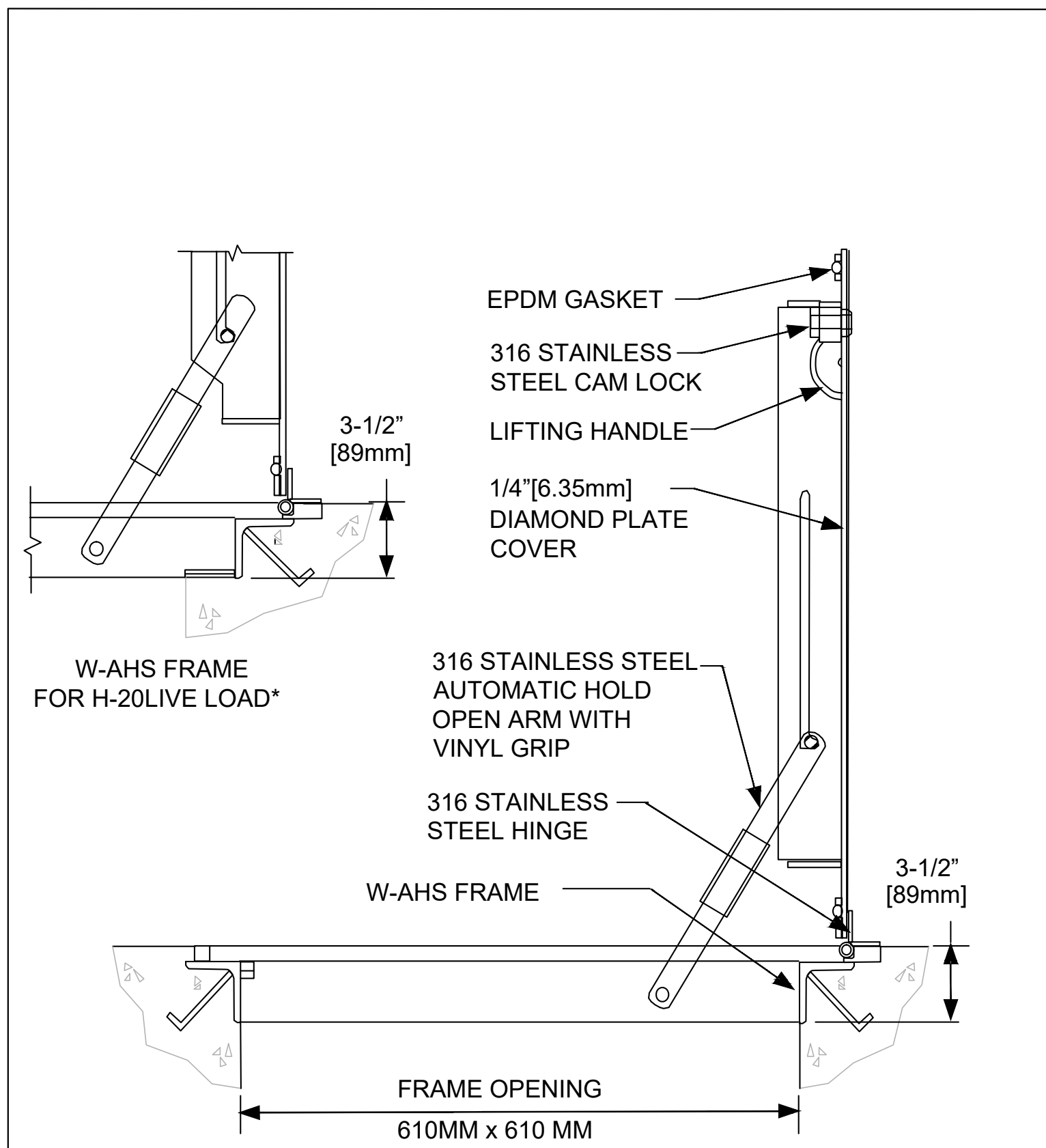
TITLE:  
TYPICAL DETAILS - 3

PROJECT NO:  
MRK-23004289

CHECKED:  
S.S.

DRAWING NO:

M-903



- NOTES:
- FOR  $W \geq 600\text{MM}$  AND PIPES  $\geq 75\text{MM}$  PROVIDE  $20\phi$  CENTER SUPPORT WITH NUT AND NUT LOCK.
  - SIZE PLATE SUFFICIENT TO AVOID ROOF DAMAGE, BUT NO LESS THAN  $200\text{MM} \times 200\text{MM}$ . BRAKE EDGES TO AVOID ROOF MEMBRANE DAMAGE. OBTAIN WRITTEN, APPROVED DRAWINGS OF COORDINATION AND ACCEPTANCE BY ROOFING CONTRACTOR.
  - FOR DISTANCE BETWEEN SUPPORTS REFER TO SPECIFICATIONS.
  - THE SUPPORTS SHALL BE SUBMITTED AS SHOP DRAWINGS AND SHALL BE REVIEWED BY A REGISTERED STRUCTURAL ENGINEER IN THE PROJECT'S STATE.

SUMP PITS COVER DETAIL

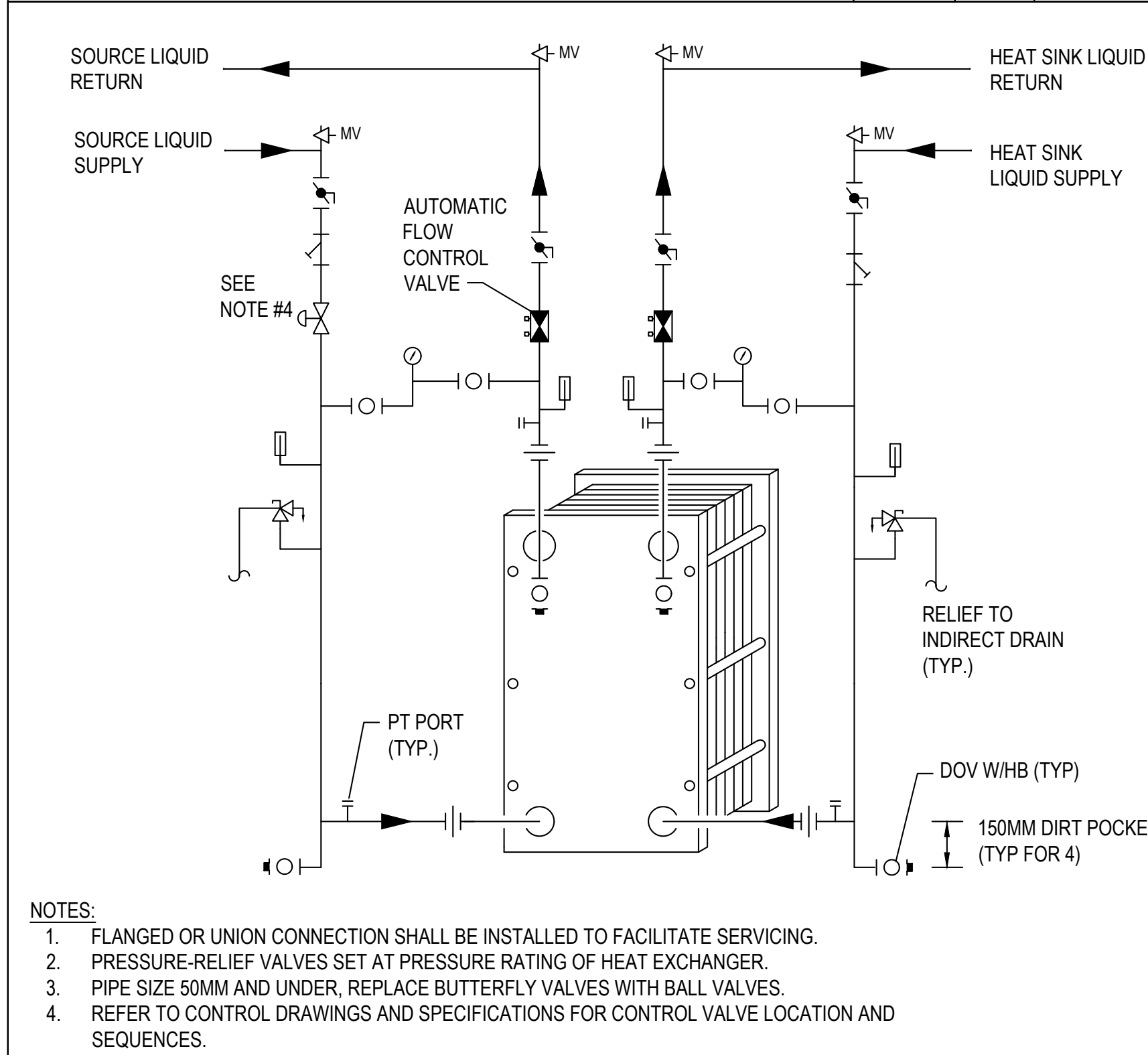
SCALE: N.T.S. 01

DUCT PENETRATION THROUGH ROOF DETAIL

SCALE: N.T.S. 02

ROOF PIPING SUPPORT FOR GREATER THAN 75MM PIPE

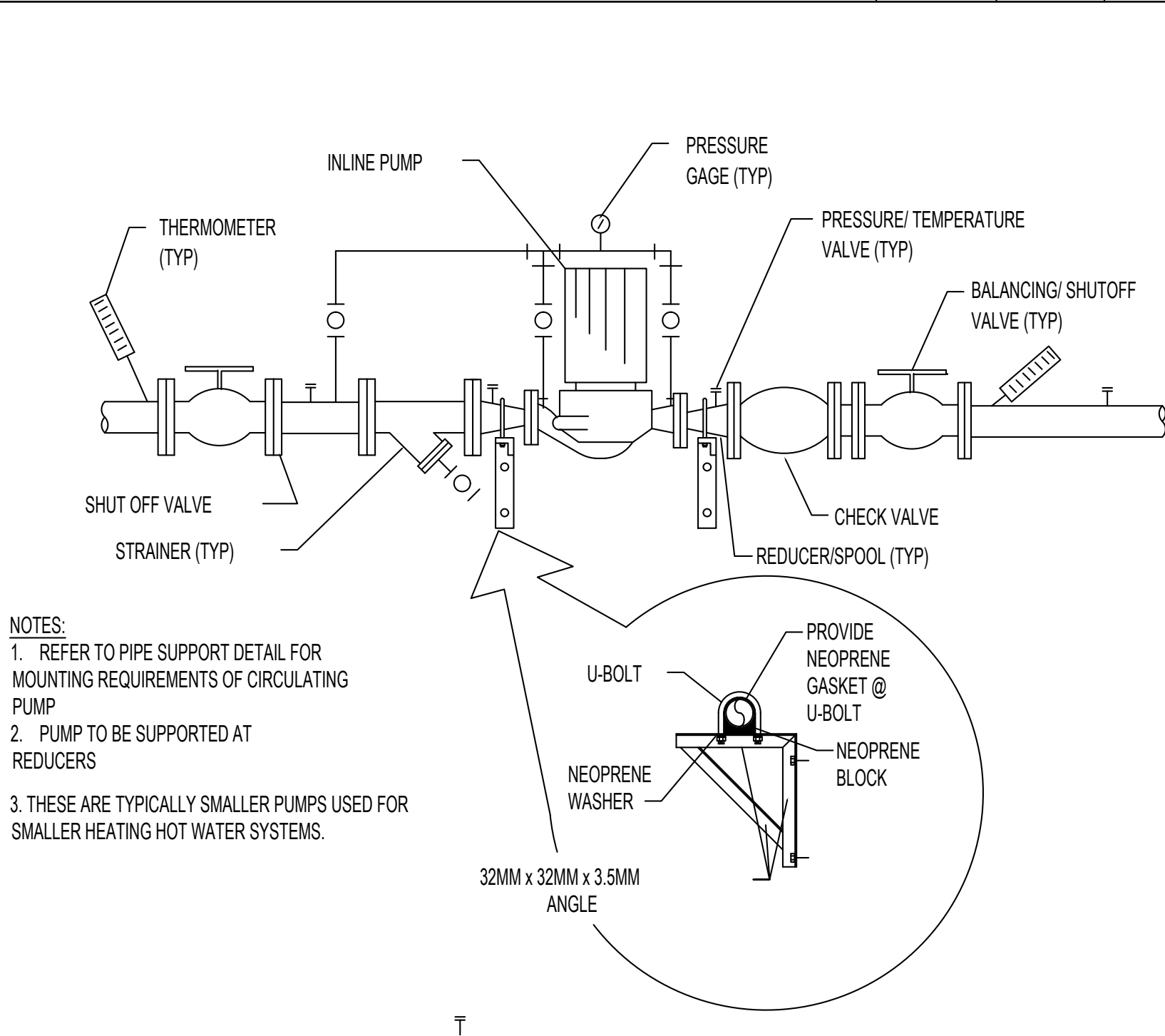
SCALE: N.T.S. 03



- NOTES:
- FLANGED OR UNION CONNECTION SHALL BE INSTALLED TO FACILITATE SERVICING.
  - PRESSURE-RELIEF VALVES SET AT PRESSURE RATING OF HEAT EXCHANGER.
  - PIPE SIZE 50MM AND UNDER, REPLACE BUTTERFLY VALVES WITH BALL VALVES.
  - REFER TO CONTROL DRAWINGS AND SPECIFICATIONS FOR CONTROL VALVE LOCATION AND SEQUENCES.

PLATE AND FRAME HEAT EXCHANGER PIPING

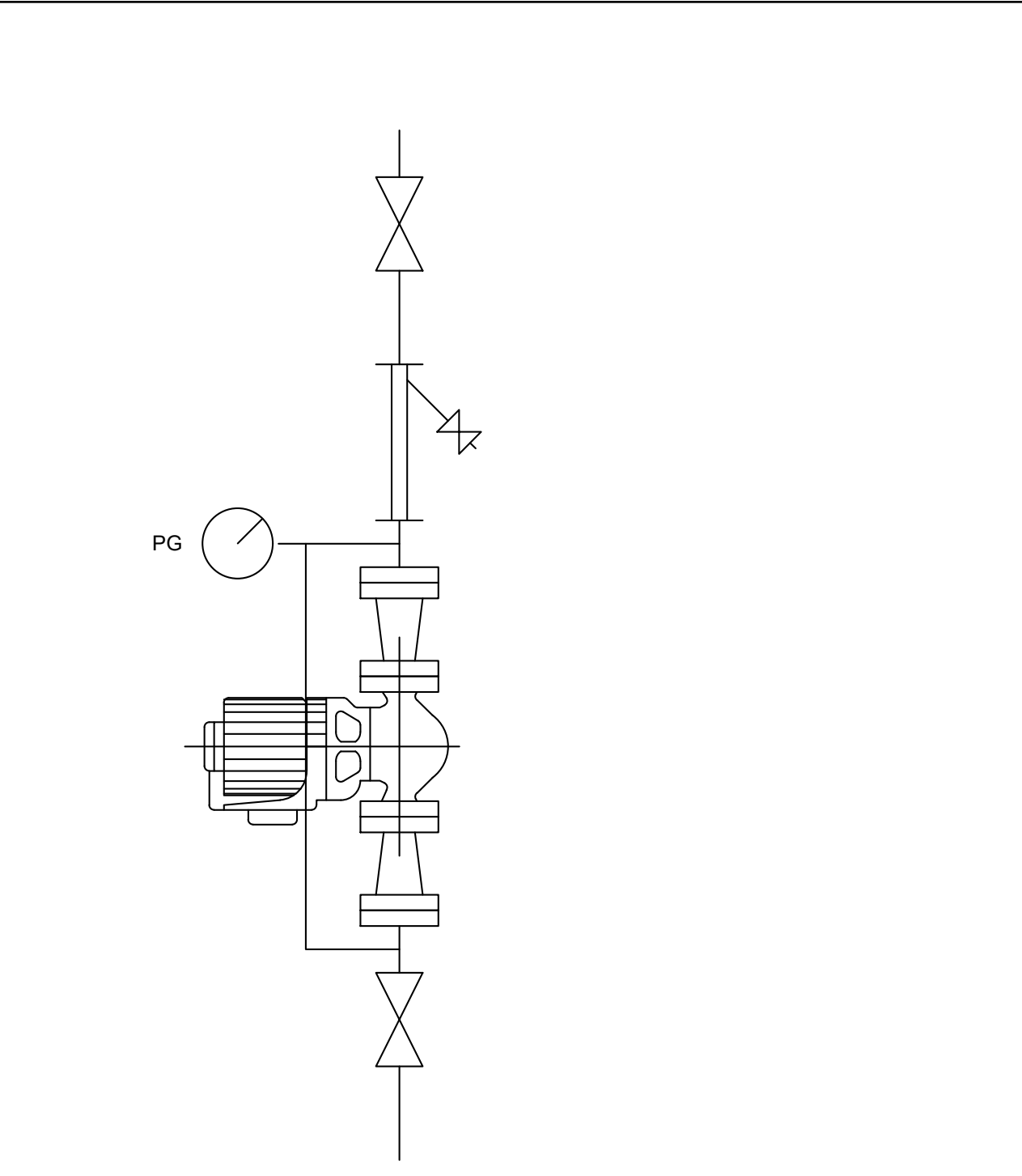
SCALE: N.T.S. 04



- NOTES:
- REFER TO PIPE SUPPORT DETAIL FOR MOUNTING REQUIREMENTS OF CIRCULATING PUMP.
  - PUMP TO BE SUPPORTED AT REDUCERS.
  - THESE ARE TYPICALLY SMALLER PUMPS USED FOR SMALLER HEATING HOT WATER SYSTEMS.

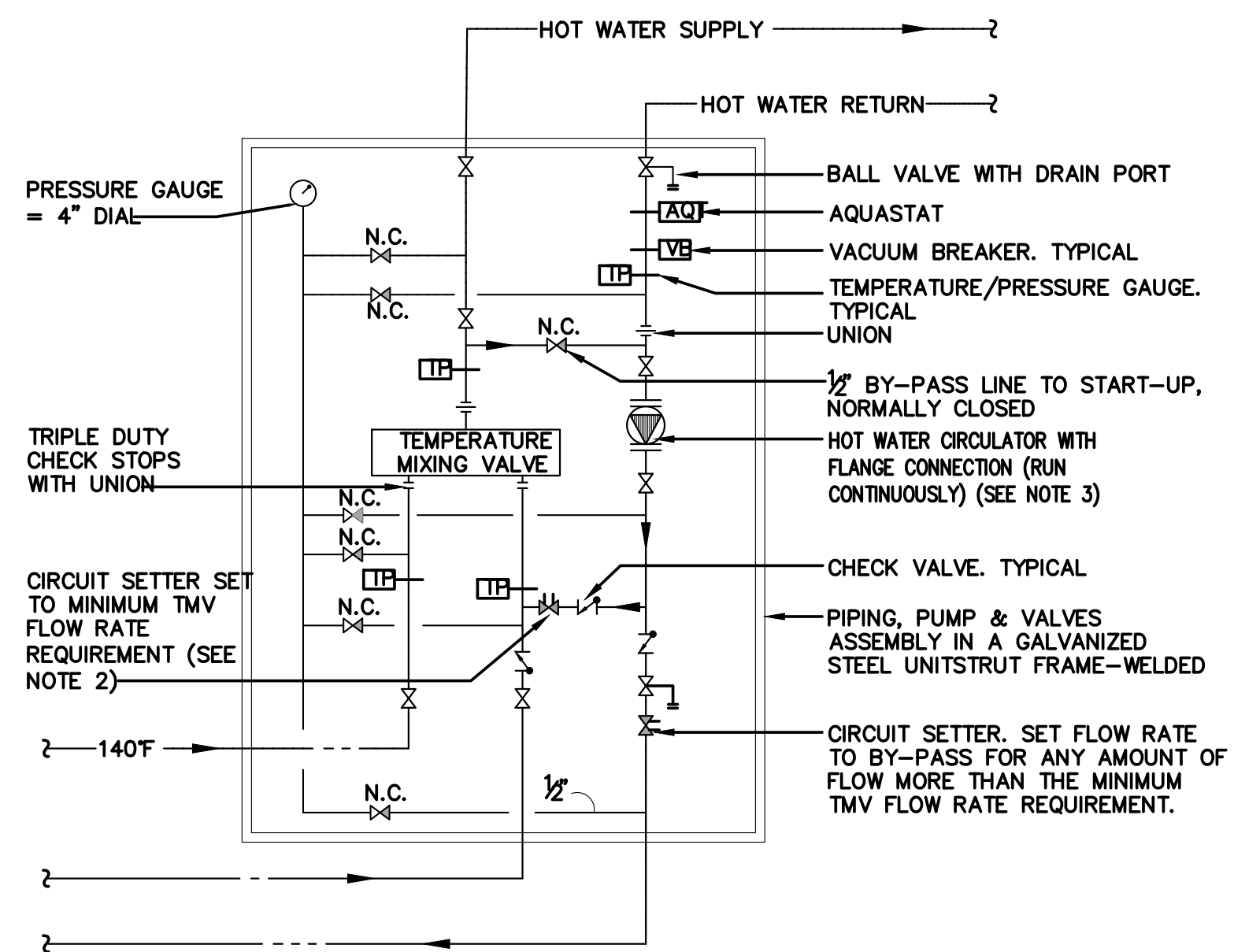
IN-LINE CIRCULATING PUMP DETAIL

SCALE: N.T.S. 05



IN-LINE CIRCULATING PUMP

SCALE: 06



- NOTES
- CIRCUIT SETTER SHALL BE OF GRISWOLD K-VALVE, STAINLESS STEEL CARTRIDGE, 20 MESH S.S. STRAINER, NO LEAD, SUITABLE FOR POTABLE WATER USE WITH HEAD LOSS OF NO MORE THAN 4 FEET.
  - BY-PASS PIPE SIZE SHALL BE AS FOLLOWS:
    - UP TO 1 GPM - 1/2"
    - 1.1 TO 2.5 GPM - 3/4"
    - 2.6 TO 5 GPM - 1"
    - 5.1 TO 10 GPM - 1-1/2"
    - 10.1 TO 17 GPM - 2"
    - OVER 2" AS DIRECTED BY ENGINEER ON SITE.
  - REFER TO INLINE CIRCULATING PUMP PIPING DETAIL FOR ACCESSORIES & OTHER REQUIREMENT.

THERMOSTATIC MIXING VALVE STANDARD DETAIL

SCALE: N.T.S. 07

CLIENT:

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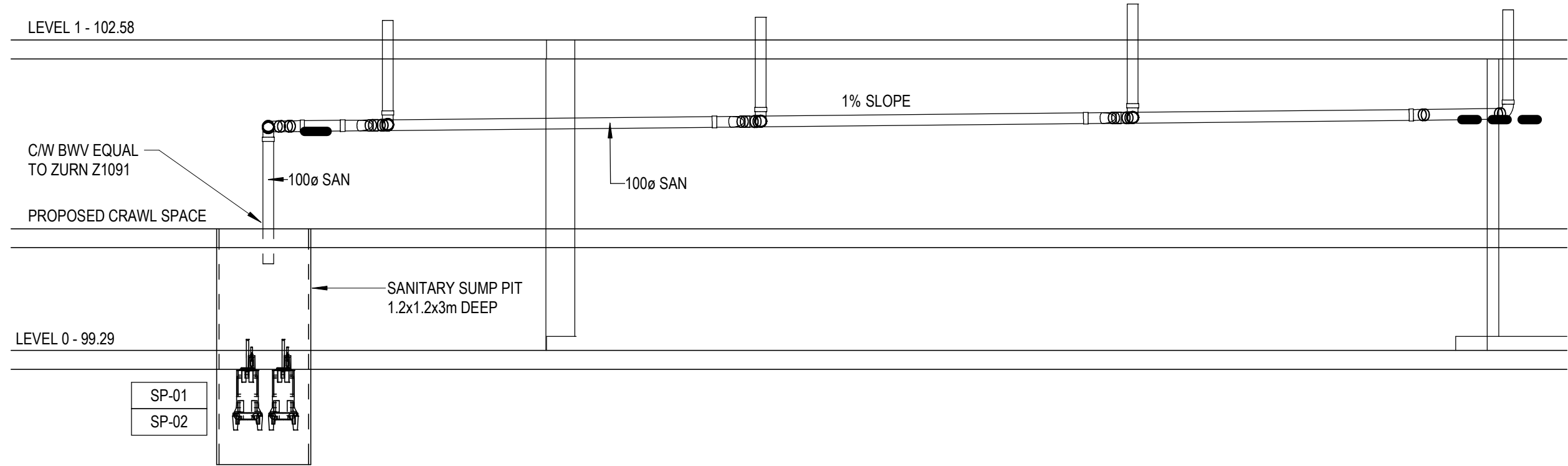
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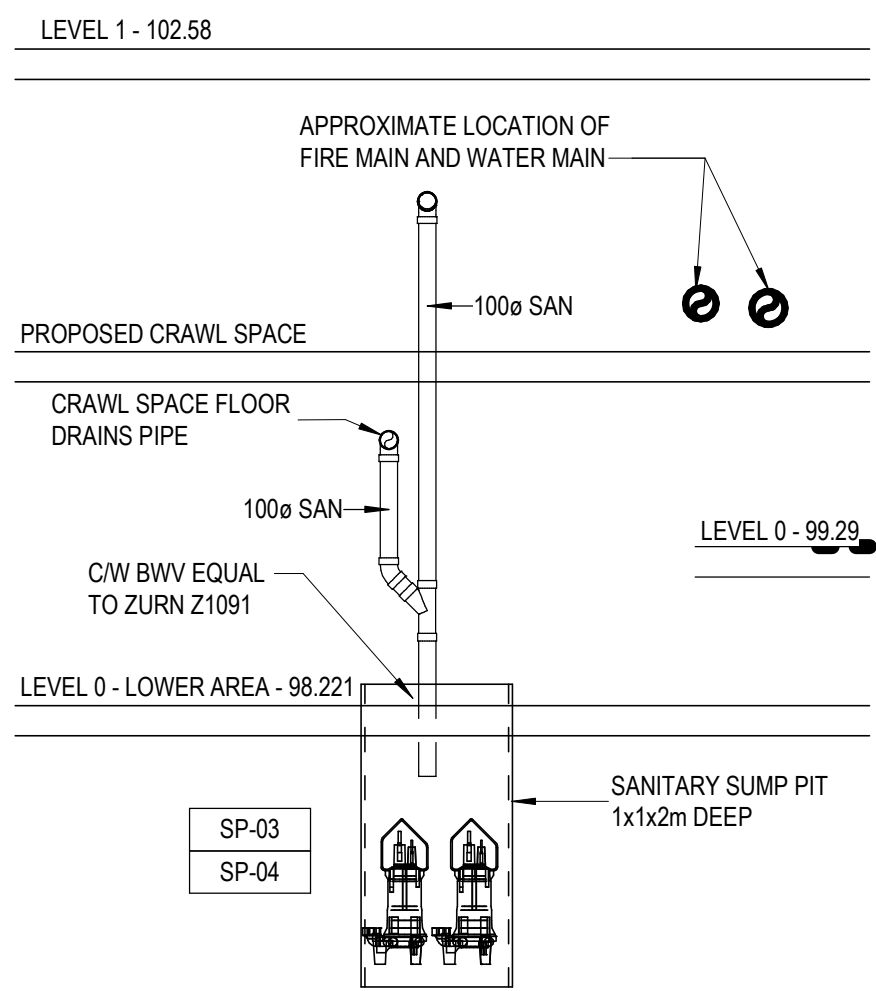
PROJECT:  
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TITLE:  
TYPICAL DETAILS - 4

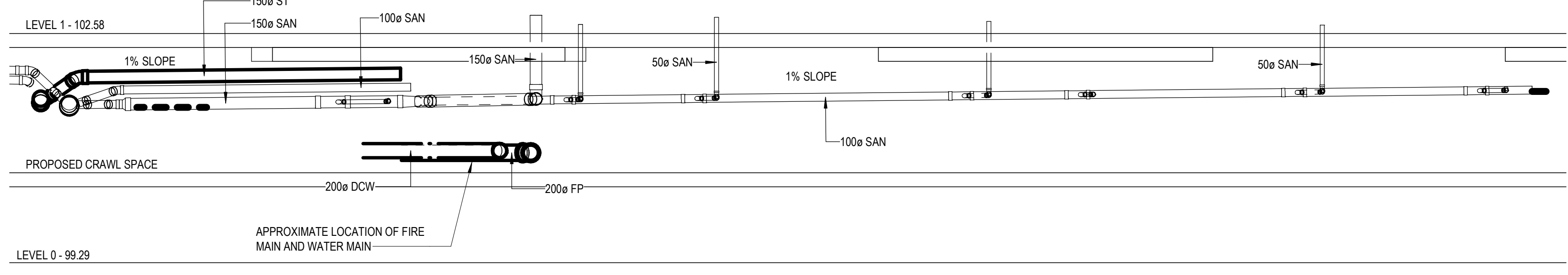
PROJECT NO: MRK-23004289  
DRAWING NO: M-904  
CHECKED: S.S.



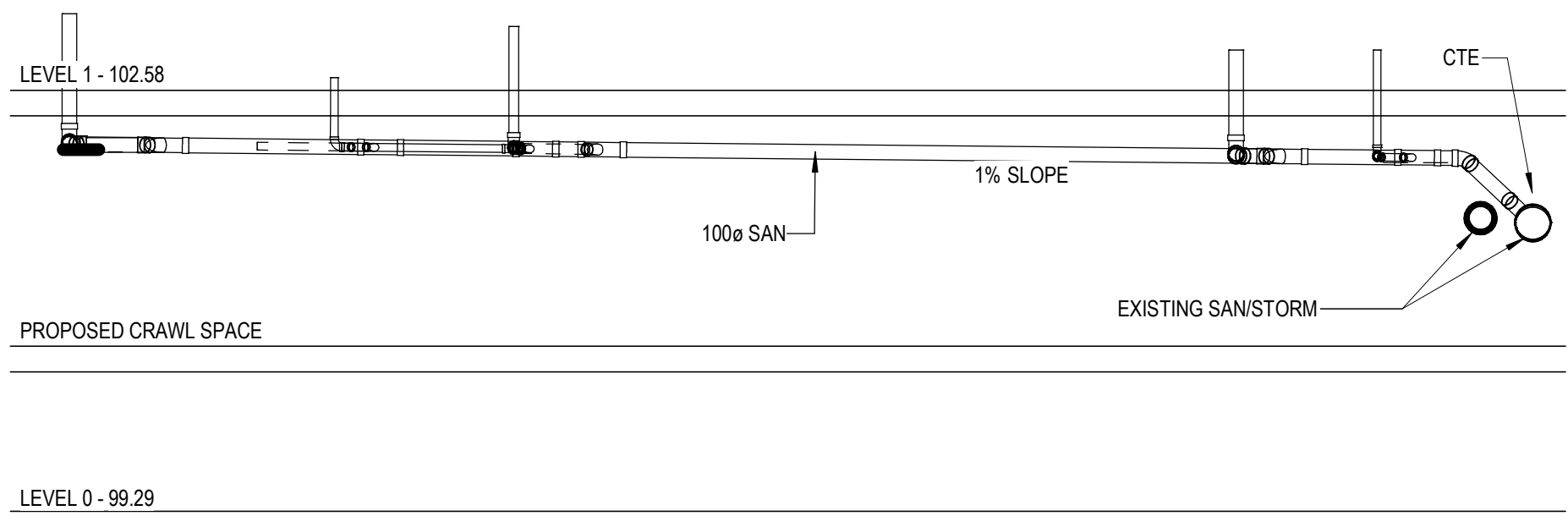
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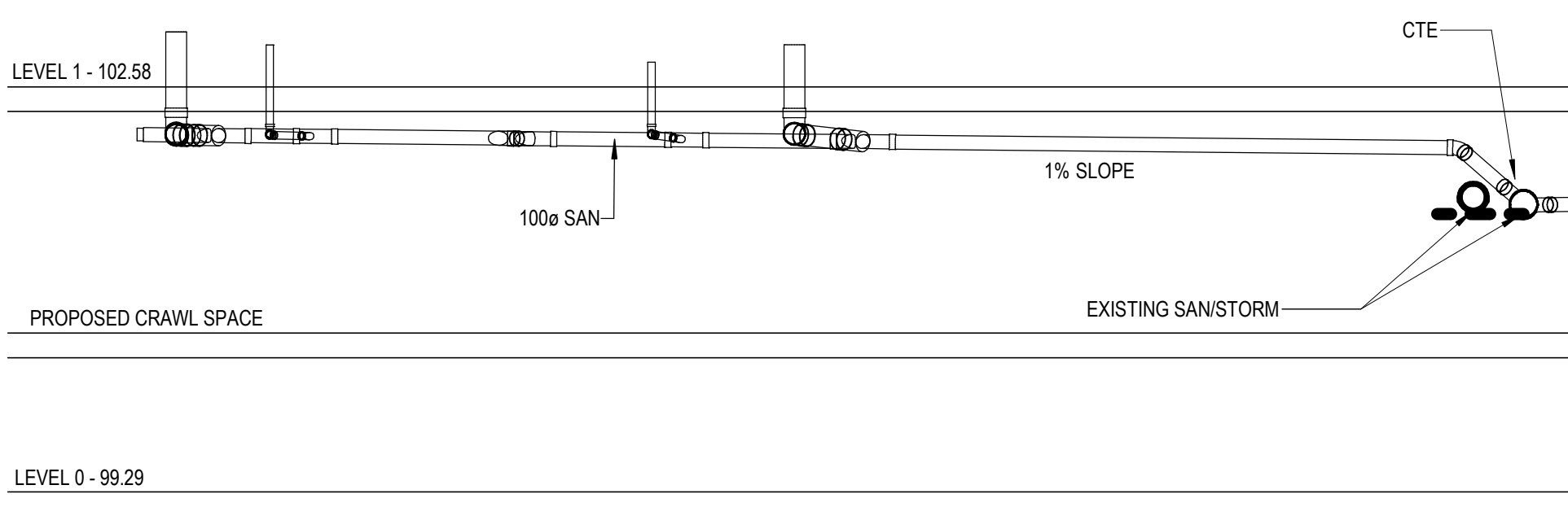
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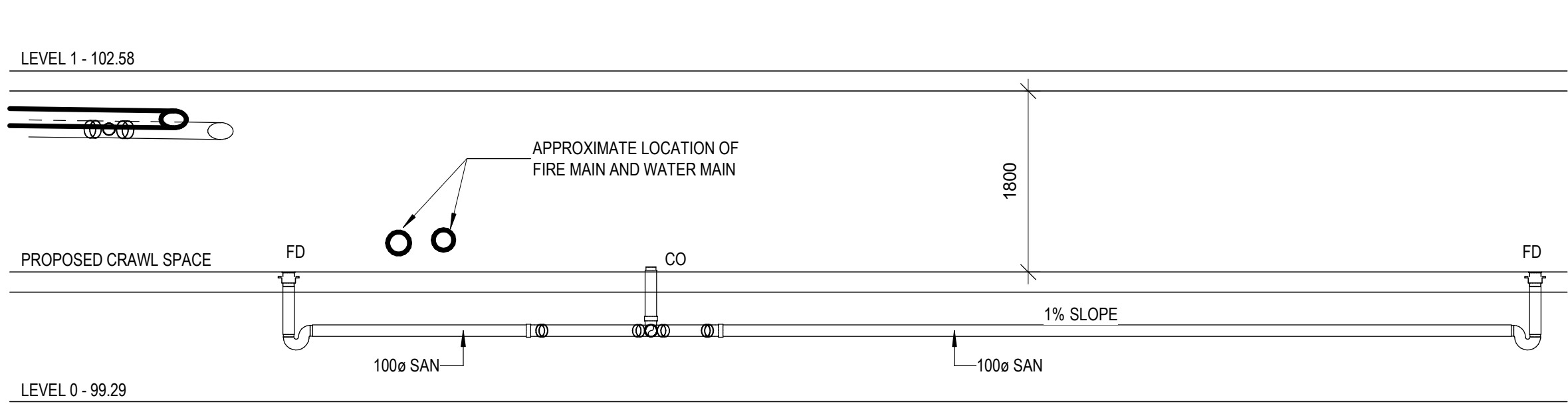
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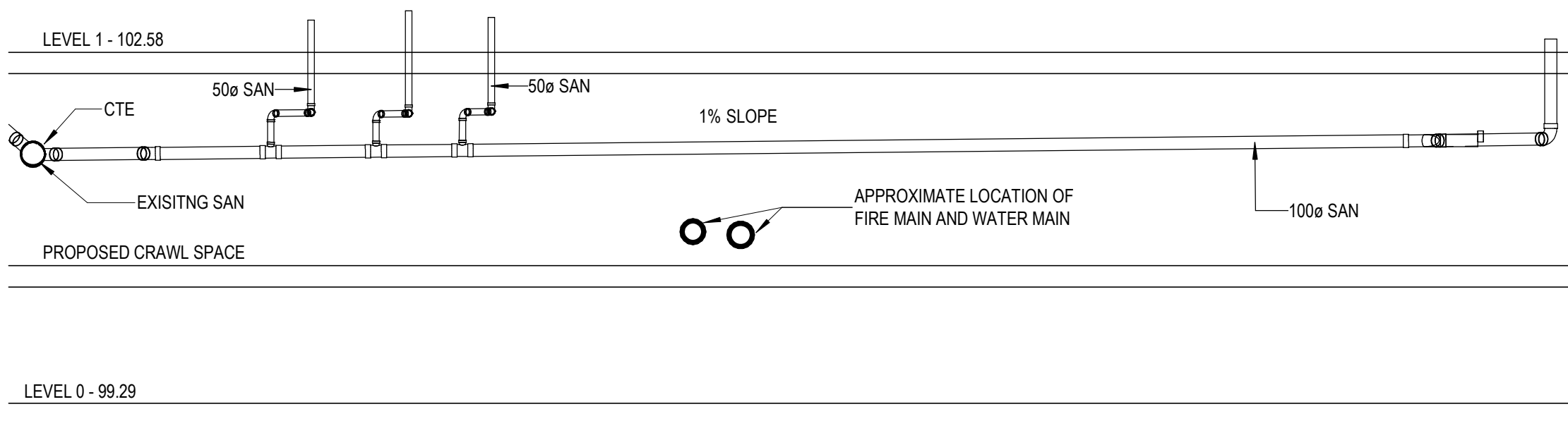
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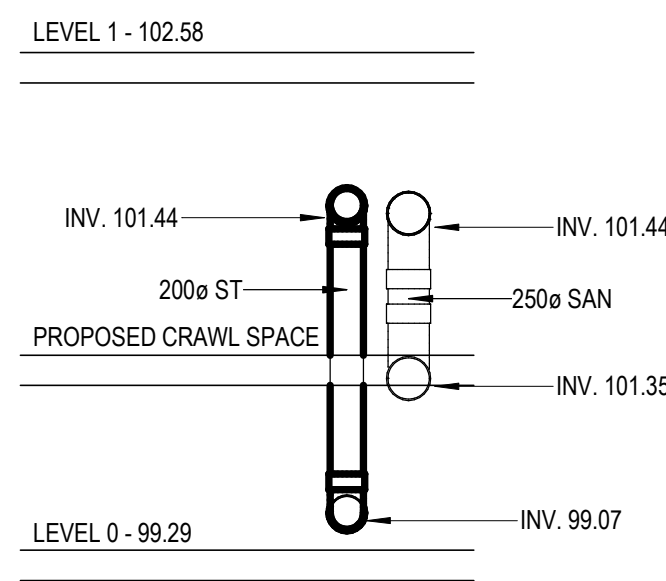
5 SECTION 5  
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6 SECTION 6  
1:50



7 SECTION 7  
1:50



8 SECTION 8  
1:50

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PROJECT:  
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TITLE:  
**PLUMBING SECTIONS**

PROJECT NO:  
**MRK-23004289**

DRAWING NO:

**M-1001**