

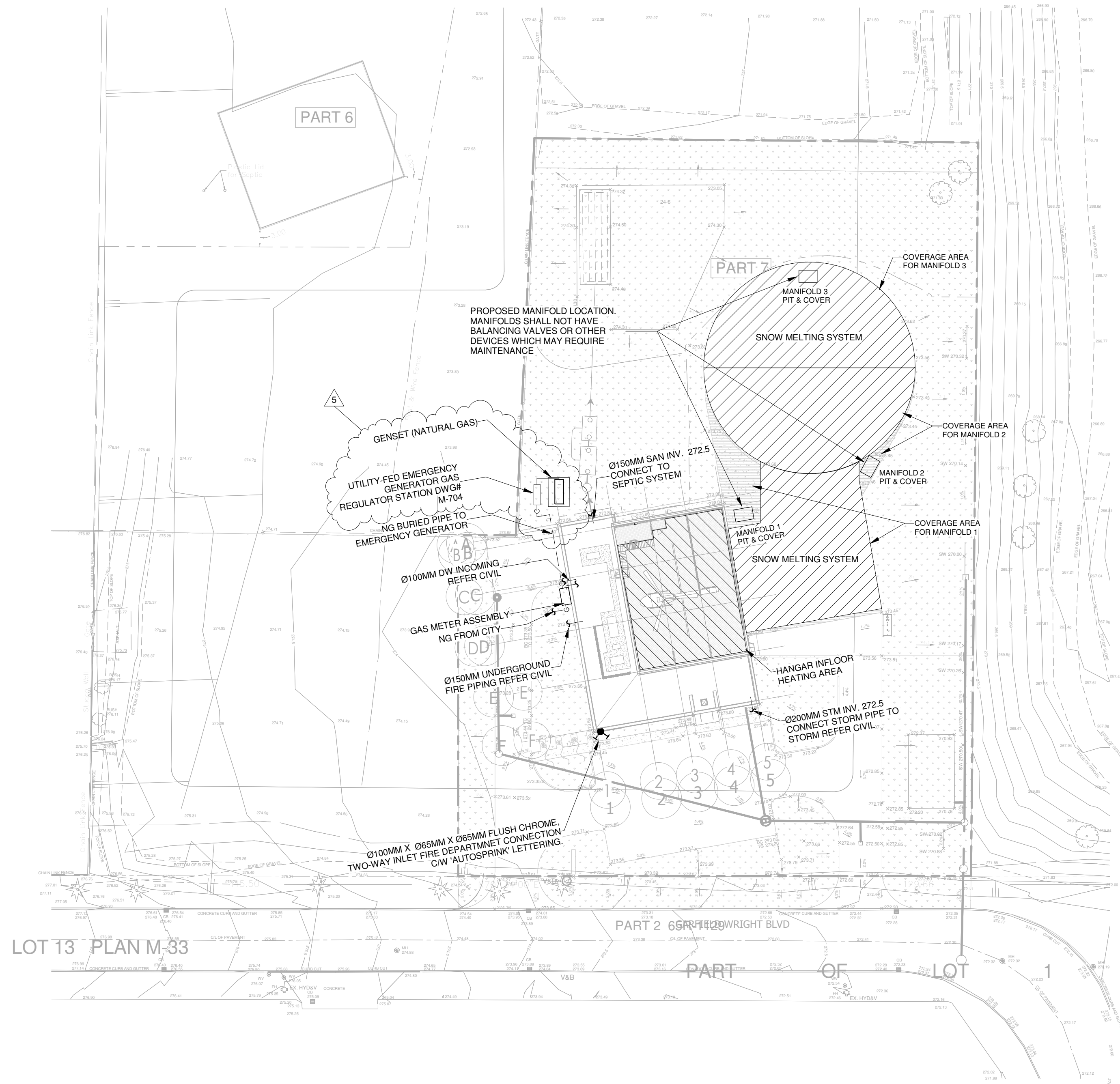
350 GARFIELD WRIGHT
BOULEVARD
TOWN OF EAST GWILLIMBURY

[illegible]

All measurements are to be checked and verified on site by the contractor before proceeding with work

Drawn by: Fizzah Khan/ Iulian Turiga
Checked by: Ali Nakhaei-Zadeh
Original Issue Date: 2024-07-31
Project No: TT-24-005
Scale: As indicated

Drawing
No.
M-100

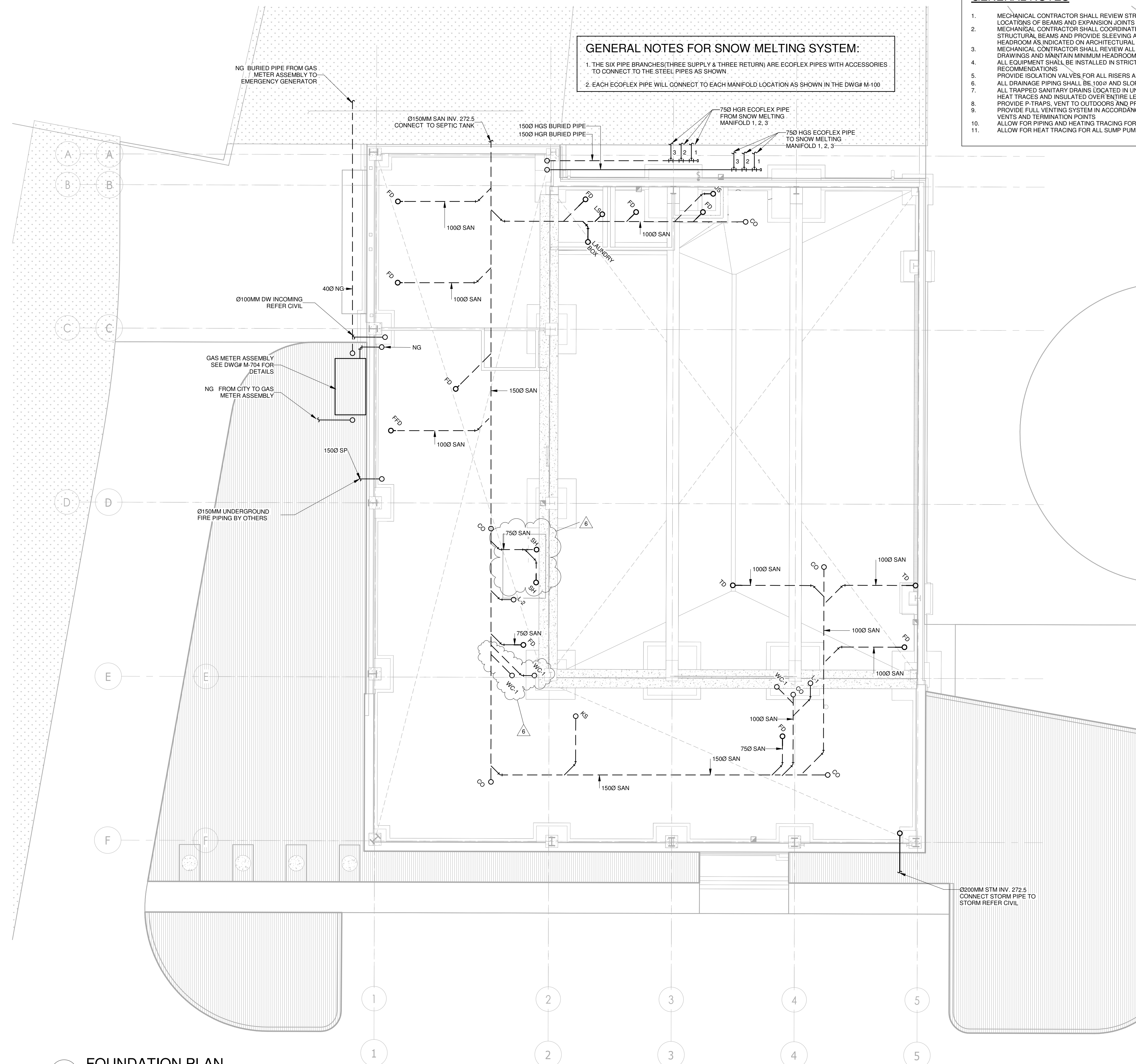


1 SITE PLAN M
SCALE: 1 : 500

YORK REGIONAL POLICE
HELICOPTER HANGAR

350 GARFIELD WRIGHT
BOULEVARD
TOWN OF EAST GWILLIMBURY

Key Plan



GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL REVIEW STRUCTURAL DRAWINGS REGARDING SIZE AND LOCATIONS OF BEAMS AND EXPANSION JOINTS
2. MECHANICAL CONTRACTOR SHALL COORDINATE ALL PIPING AND DUCTWORK WITH STRUCTURAL BEAMS AND PROVIDE ANY NECESSARY STRENGTHENING
3. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT TO MAINTAIN MINIMUM HEADROOM AS INDICATED ON ARCHITECTURAL DRAWINGS
4. MECHANICAL CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS AND MAINTAIN MINIMUM HEADROOM AS INDICATED
5. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS
6. PROVIDE ISOLATION VALVES FOR ALL RISERS AND AT EACH FIXTURE
7. ALL DRAINAGE PIPING SHALL BE 100% AND SLOPED AT 1% UNLESS NOTED OTHERWISE
8. GRAVED SANITARY DRAINS LOG SPACE SHALL BE ELECTRICALLY HEAT TRACES AND INSULATED OVER ENTIRE LENGTH
9. PROVIDE P-TRAPS, VENT TO OUTDOORS AND PRIMING TO ALL FLOOR DRAINS
10. PROVIDE FULL VENTING SYSTEM IN ACCORDANCE WITH OBC PART 7. COORDINATE ALL VENTS AND TERMINATION POINTS
11. ALLOW FOR PIPING AND HEATING TRACING FOR ALL TRAP PRIMERS
12. ALLOW FOR HEAT TRACING FOR ALL SUMP PUMP DISCHARGE PIPING

GENERAL NOTES FOR SNOW MELTING SYSTEM:

1. THE SIX PIPE BRANCHES(THREE SUPPLY & THREE RETURN) ARE ECOFLEX PIPES WITH ACCESSORIES TO CONNECT TO THE STEEL PIPES AS SHOWN
2. EACH ECOFLEX PIPE WILL CONNECT TO EACH MANIFOLD LOCATION AS SHOWN IN THE DWG# M-100

FOUNDATION PLAN

SCALE: 1 : 100

Issues

6	ISSUED FOR ADDENDUM 10	2024-10-15
5	ISSUED FOR ADDENDUM 8	2024-10-07
4	ISSUED FOR ADDENDUM 6	2024-09-30
3	ISSUED FOR ADDENDUM 3	2024-09-23
2	ISSUED FOR TENDER	2024-09-09
1	ISSUED FOR BUILDING PERMIT	2024-07-31
NO.	ISSUED	DATE

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Do not scale drawings

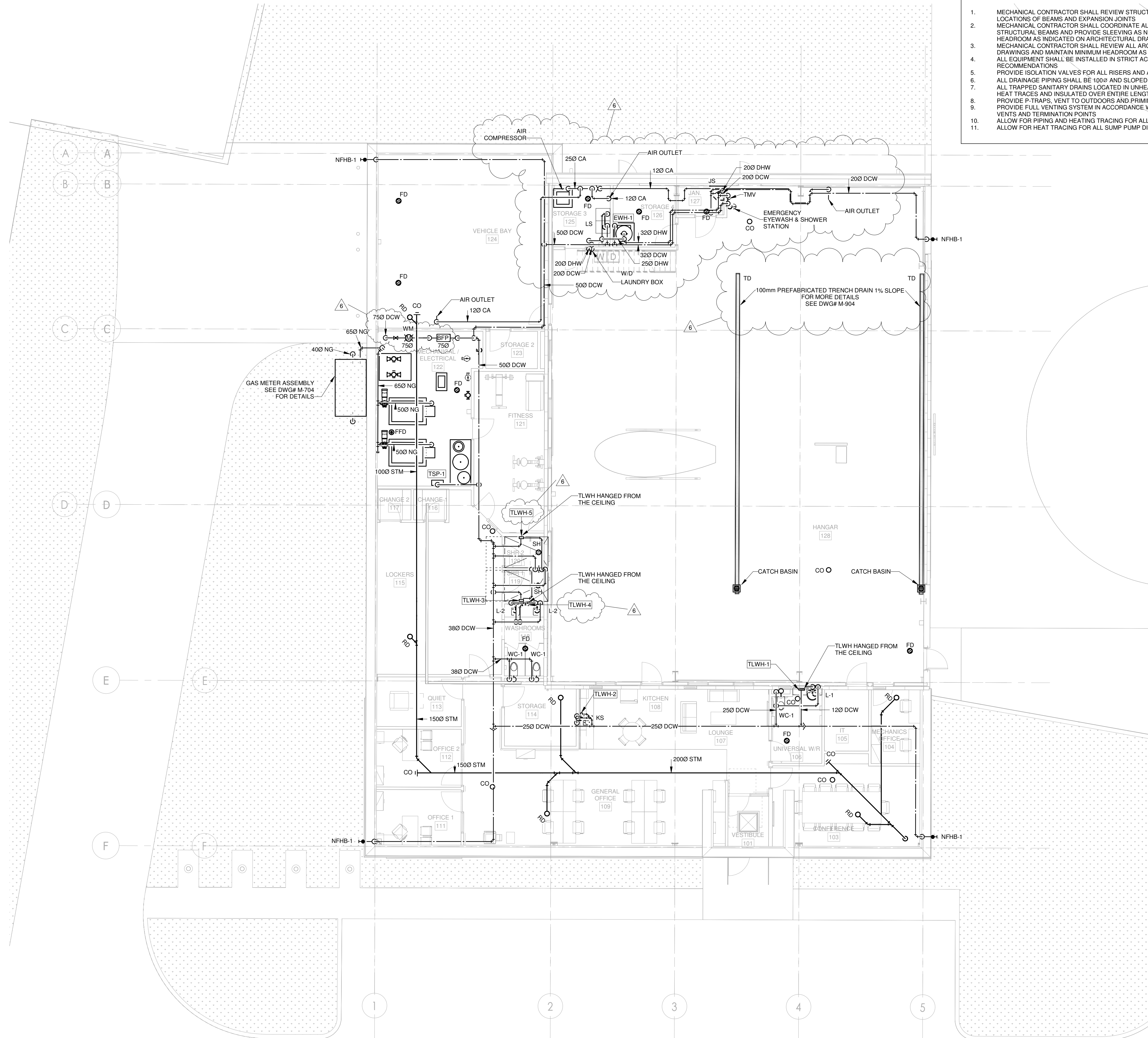
Drawn by: Fizzah Khan/ Iulian Turiga
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Sheet
Title:

FOUNDATION PLAN

Drawing
No.
M-250

10/15/2024 3:00:11 PM
Autodesk Docs/2402 - YRP Helicopter Hangar/TT-24-005-YRP-QCG ME Model_P24.rvt



GENERAL NOTES

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5. PROVIDE ISOLATION VALVES FOR ALL RISERS AND AT EACH FIXTURE
6. ALL DRAINAGE PIPING SHALL BE 100% AND SLOPED AT 1% UNLESS NOTED OTHERWISE
7. ALL TRAPPED SANITARY DRAINS LOCATED IN UNHEATED SPACE SHALL BE ELECTRICALLY HEAT TRACES AND INSULATED OVER ENTIRE LENGTH
8. PROVIDE P-TRAPS, VENT TO OUTDOORS AND PRIMING TO ALL FLOOR DRAINS
9. PROVIDE FULL VENTING SYSTEM IN ACCORDANCE WITH OBC PART 7. COORDINATE ALL VENTS AND TERMINATION POINTS
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PARKIN

Parkin Architects Limited
1 VALLEYBROOK DRIVE, TORONTO, CANADA, M3B 2S7 416-467-8000



YORK REGIONAL POLICE
HELICOPTER HANGAR

350 GARFIELD WRIGHT
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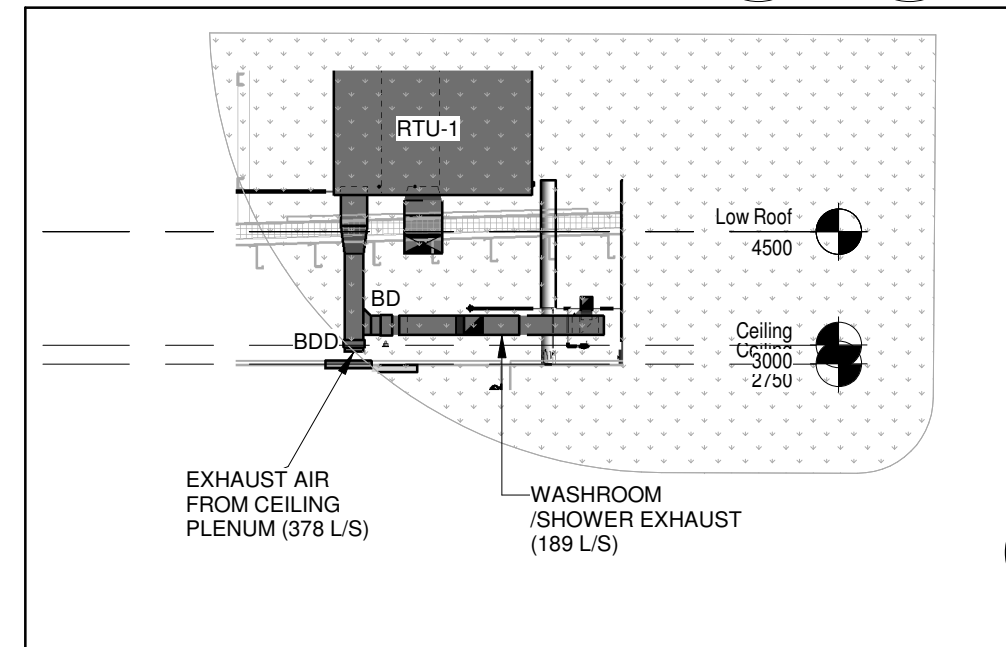
Do not scale drawings

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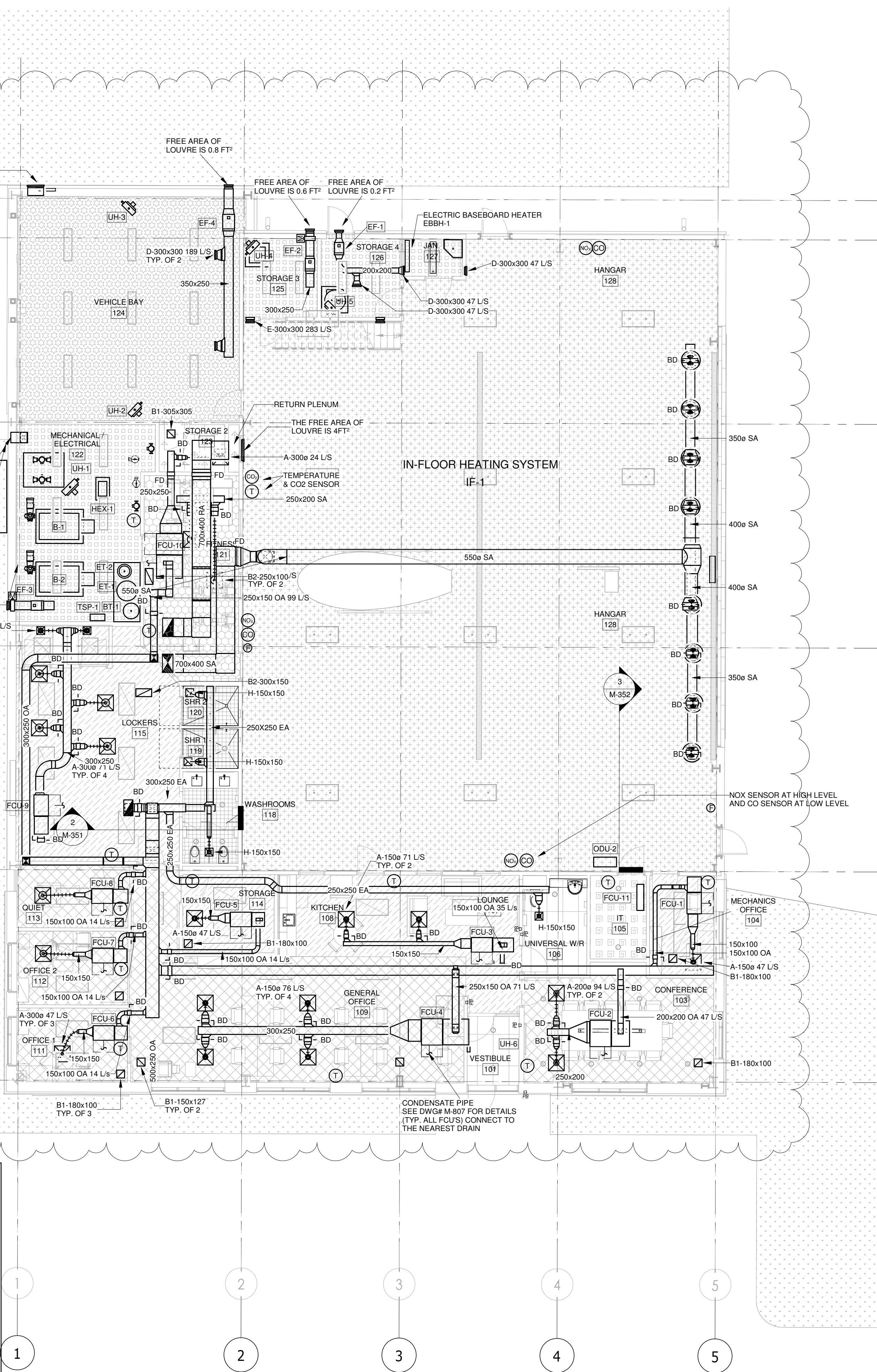
Sheet
Title:
PLUMBING NEW WORK -
LEVEL 1

Drawing
No.
M-251

1 PLUMBING NEW WORK - LEVEL 1
SCALE: 1 : 100



RTU-1 SCHEMATIC CONCEPT
SCALE: 1 : 100



VENTILATION NEW WORK - LEVEL 1
SCALE: 1 : 100

- 1. SEQUENCE OF OPERATION RTU-1**
- 1.1. General**
- 1.1.1. The rooftop unit provides heating, cooling and ventilation air to the spaces via the fan coils. The unit exhaust fan is used to exhaust air from the washrooms. Scheduling should be coordinated with the washroom exhaust fan.
- 1.1.2. The unit is a constant volume unit and consists of supply fan, an exhaust fan, a heat wheel with bypass dampers, a gas fired burner and a DX cooling coil.
- 1.2. Safeties and Limits**
- 1.2.1. A freestest is hardwired to shutdown the fans and close the dampers when the sensed temperature drops below 2 Deg C. A 5 minute time delay is provided on start-up to bypass the limit and allow time for the heating system to come under control. Once the timer has expired the unit will trip if it detects an air temperature of less than 2 Deg C. Once tripped the limit must be reset manually. Provide a reset button on the control panel. Protection will work when the fan is in either 'hand' or 'auto'.
- 1.2.2. Supply air temperature control is disabled until fan run status is received.
- 1.2.3. Simultaneous heating and cooling is prohibited.
- 1.2.4. Minimum on/off run times are provided for both the DX staging and gas burner. Coordinate with manufacturer to ensure proper time delays.
- 1.2.5. If the heat wheel is off for more than 1 day the controller will rotate the wheel at minimum speed for a minimum of 5 minutes.
- 1.3. Modes of Operation**
- 1.3.1. The occupied and unoccupied modes are determined by a time of day schedule.
- 1.4. Occupied Mode**
- 1.4.1. Overview: The unit will provide heating, cooling and ventilation to the spaces via the fan coil units. The unit will control to maintain the supply air temperature at setpoint.
- 1.4.2. Supply Air Temperature Setpoint: The unit delivers neutral air for the fan coils. The setpoint will be set to 16 Deg C (heating) and 18 Deg C (cooling).
- 1.4.3. Supply Fan + OA Damper: The outside air damper is open, and the supply fan runs continuously.
- 1.4.4. Exhaust Fan + EA Damper: The exhaust air damper is open, and the exhaust fan runs continuously.
- 1.4.5. Heat Wheel + Bypass Dampers: When the outdoor air temperature is below 12 Deg C the heat wheel will modulate to either maintain the supply air temperature at setpoint or to provide frost control. When the outdoor air temperature is more than 2 Deg C above the return air temperature the heat wheel will operate at maximum speed. Otherwise when the outdoor air temperature is above 12 Deg C and less than the exhaust air temperature the heat wheel will be off. When the heat wheel is rotating the bypass dampers will be closed. When the heat wheel is off the dampers will be fully open. The controller will provide frost protection for the heat wheel. The controller will slow the wheel down and stop it if necessary to maintain the frost temperature slightly above the frost setpoint which varies with the exhaust air humidity and outdoor air temperature as shown in the table below.
- | OAT (C) | SETPOINT RAW (20%) | OAT (C) | SETPOINT RAW (20%) | OAT (C) | SETPOINT RAW (20%) |
|---------|--------------------|---------|--------------------|---------|--------------------|
| -25 | -15.6 C | -19.4 | -11.1 C | -15.6 | -6.2 C |
| -26.1 | -11.7 C | -20.3 | -7.8 C | -16.1 | -4.9 C |
| -28.3 | -8.5 C | -22.2 | -4.6 C | -17.2 | -1.9 C |
| -32.2 | -5.8 C | -25 | -1.9 C | -19.4 | 0.8 C |
| -35 | -3.9 C | -27.2 | -0.6 C | -20.6 | 2.3 C |
| -40 | -3.3 C | -31.1 | -0.3 C | -23.3 | 3.3 C |
- 1.4.6. DX System: DX cooling will be controlled to maintain the supply air temperature at setpoint.
- 1.4.7. Gas Burner: The gas burner will be controlled to maintain the supply air temperature at setpoint.
- 1.5. Unoccupied Mode**
- 1.5.1. Overview: The unit is off.
- 1.5.2. Supply Fan + OA Damper: The damper is closed and the supply fan is off.
- 1.5.3. Exhaust Fan + EA Damper: The damper is closed and the exhaust fan is off.
- 1.5.4. DX System: DX cooling is off.
- 1.5.5. Gas Burner: The gas burner is off.
- 1.6. Urgent Alarms**
- 1.6.1. Low temperature safety alarm is tripped.
- 1.7. Non-Urgent Alarms**
- 1.7.1. Fan is commanded on and status is not received (2 minute delay).
- 1.7.2. The unit is running and the supply air temperature is below 8 Deg C or above 24 Deg C.
- 1.7.3. Fan is commanded off and status is received (10 minute delay).
- 1.8. Maintenance Alarms**
- 1.8.1. Filter differential is above setpoint.
- 1.8.2. Manual overrides are placed on the system.
- 1.9. Operational Trends (5-minute intervals, 7-days)**
- 1.9.1. All inputs and outputs.
- 1.9.2. Supply air temperature setpoint.
- 1.10. Performance Trends (daily intervals, 5-years)**
- 1.10.1. Supply Air Temperature Index: Daily average of the percentage of the time the supply air temperature is within normal limits (between the cooling setpoint (plus 1 Deg C) and heating setpoint (minus 1 Deg C)).
- 1.10.2. Airflow Cooling Intensity: Daily average of the amount of time in the cooling mode.
- 1.10.3. Airflow Heating Intensity: Daily average of the amount of time in the heating mode.
- 1.10.4. Daily Airflow Hours: The total number of hours the unit operated during the day.

- 1.0 SEQUENCE OF OPERATIONS RTU-2**
- 1.1. General**
- 1.1.1. The rooftop unit provides heating, cooling (free cooling only), and ventilation to the hangar. When gas detection sensors (CONOX) detect the presence of gas, the unit will operate at full volume and 100% outside air regardless of the mode of operation, until gas levels drop to suitable levels.
- 1.1.2. The unit consists of a supply fan, exhaust fan, mixing dampers, energy recovery wheel, and a gas fired burner.
- 1.1.3. The unit is a variable volume unit and the supply and exhaust fans have been provided with variable frequency drives.
- 1.1.4. Provide an alarm strobe/horn in the space for local high gas alarm annunciation.
- 1.2. Safeties and Limits**
- 1.2.1. The DDC controller will shutdown and lockout the unit if the supply air temperature drops below 4 Deg C when the unit is running. Once shutdown the operator must correct the problem and manually restart the unit. Low temperature protection is hardwired to the starter and will work when the fans are being controlled in either hand or auto.
- 1.2.2. Fan speed modulation is disabled until fan run status is received.
- 1.2.3. The minimum speed for the VFD is 50% (30 hz - confirm min speed with balancer).
- 1.2.4. Supply air temperature control is disabled until fan run status is received.
- 1.2.5. Damper control is disabled until fan run status is received.
- 1.2.6. Simultaneous heating and cooling is not permitted.
- 1.2.7. If the heat wheel is off for more than 1 day the controller will rotate the wheel for a minimum of 5 minutes.
- 1.3. Modes of Operation**
- 1.3.1. The occupied and unoccupied modes of operation are determined by a time-of-day schedule or via the occupancy button located at the main entrance. When pressed, the occupancy button will set the occupied mode for 4 hours (adjustable).
- 1.4. Occupied Mode**
- 1.4.1. Overview: The unit will provide heating, cooling (free cooling only), and ventilation to the space. The unit will control to maintain the space temperature at setpoint.
- 1.4.2. Space Temperature Setpoints: The heating setpoint will be set to 22 Deg C and the cooling setpoint set to 24 Deg C.
- 1.4.3. Gas Detection Setpoints: The CO setpoint is 25 ppm. The NOx setpoint is 1 ppm.
- 1.4.4. Supply Fan: The supply fan runs continuously at full speed.
- 1.4.5. Exhaust Fan: The power exhaust fan runs in conjunction with the fresh air damper. Once the damper is open above 30% the power exhaust fan will start and it's speed will be set in accordance with the amount of fresh air being provided.
- 1.4.6. Mixed Air Dampers: The dampers will control to maintain the minimum amount of fresh air to the space, gas detection sensors below setpoint and free cooling when available and required. The minimum fresh air limit is set to 20% (balancer to confirm). If any gas detection sensor is above setpoint, the dampers will be set to 100% outdoor air (gas detection overrides all other control strategies). Free cooling will provide the only stage of cooling for the unit. When free cooling is available the mixed air dampers will modulate to maintain the space temperature at setpoint. Free cooling will be available when the outdoor air temperature is below 18 Deg C.
- 1.4.7. Gas Burner: The gas burner will be controlled to maintain the space temperature at setpoint.
- 1.4.8. Heat Wheel + Bypass Dampers: When the outdoor air temperature is below 12 Deg C the heat wheel will modulate to either maintain the space temperature at setpoint or to provide frost control. When the outdoor air temperature is more than 2 Deg C above the return air temperature the heat wheel will operate at maximum speed. Otherwise when the outdoor air temperature is above 12 Deg C and less than the return air temperature the heat wheel will be off. When the heat wheel is rotating the bypass dampers will be closed. When the heat wheel is off the dampers will be fully open. The control system will provide frost protection for the heat wheel. The controller will slow the wheel down and stop it if necessary to maintain the frost temperature slightly above the frost setpoint.
- 1.4.9. Frost Temperature Setpoint: The frost temperature setpoint varies with the exhaust air humidity and outdoor air temperature as shown in the table below.
- | OAT (C) | SETPOINT RAW (20%) | OAT (C) | SETPOINT RAW (20%) | OAT (C) | SETPOINT RAW (20%) |
|---------|--------------------|---------|--------------------|---------|--------------------|
| -25 | -15.6 C | -19.4 | -11.1 C | -15.6 | -6.2 C |
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| -28.3 | -8.5 C | -22.2 | -4.6 C | -17.2 | -1.9 C |
| -32.2 | -5.8 C | -25 | -1.9 C | -19.4 | 0.8 C |
| -35 | -3.9 C | -27.2 | -0.6 C | -20.6 | 2.3 C |
| -40 | -3.3 C | -31.1 | -0.3 C | -23.3 | 3.3 C |
- 1.5. Unoccupied Mode**
- 1.5.1. Overview: The rooftop unit is off. During the unoccupied mode the RTU will start up to provide heating/cooling as required to maintain the space temperature at the unoccupied setpoints and for gas detection ventilation. If the space temperature drops below the heating setpoint or rises above the cooling setpoint the unit will be enabled to provide unoccupied heating/cooling. A deadband of 2 Deg C is applied to return the unit to the off state. If the gas detection sensors (either CO or NOx) rise above setpoint, the unit will be engaged to ventilate the space.
- 1.5.2. Space Temperature Unoccupied Setpoints: The unoccupied heating setpoint is set to 18 Deg C. The unoccupied cooling setpoint is set to 28 Deg C.
- 1.5.3. Gas Detection Setpoints: The CO setpoint is 25 ppm. The NOx setpoint is 1 ppm.
- 1.5.4. Supply Fan: When the outdoor air temperature is below 5 Deg C, the fan will run continuously at 50% speed, otherwise the fan is off (5 Deg C differential). During unoccupied cooling or heating, the fan will run at 100% speed. During unoccupied gas detection ventilation, the fan will run at 100% speed.
- 1.5.5. Exhaust Fan: The exhaust fan controls as per the occupied mode.
- 1.5.6. Mixed Air Dampers: The fresh air damper is closed and the return damper is open at all points in time except: 1) When gas is detected - dampers go to 100% fresh air, 2) The unit is running for temperature control and free cooling is permitted and required.
- 1.5.7. Gas Heating: Controlled as per the occupied mode. Heating is off when the unit is off.
- 1.5.8. Heat Wheel Control: Controlled as per the occupied mode. The heat wheel is off when the unit is off and/or when the unit is simply circulating air.
- 1.6. Urgent Alarms**
- 1.6.1. Low temperature limit.
- 1.6.2. Low space temperature.
- 1.6.3. CO level above 50 ppm. Alarm strobe/horn in space is activated.
- 1.6.4. NOx level above 3 ppm. Alarm strobe/horn in space is activated.
- 1.7. Non-Urgent Alarms**
- 1.7.1. Fan is commanded on and status is not received (2 minute delay).
- 1.7.2. The supply air temperature drops below 7 Deg C.
- 1.7.3. The supply air temperature rises above 43 Deg C.
- 1.7.4. Fan is commanded off and status is on (10 minute delay).
- 1.8. Maintenance Alarms**
- 1.8.1. Filter alarm.
- 1.8.2. Manual overrides are placed on the system.
- 1.9. Operational Trends (5-minute intervals, 7-days)**
- 1.9.1. All inputs and outputs.
- 1.9.2. Supply air temperature setpoint.
- 1.10. Performance Trends (daily intervals, 5-years)**
- 1.10.1. Space Temperature Index: Daily average of the percentage of the time the space temperature is within normal limits (between the cooling setpoint (plus 1 Deg C) and heating setpoint (minus 1 Deg C)).
- 1.10.2. Airflow Cooling Intensity: Daily average of the amount of time in the cooling mode.
- 1.10.3. Daily Airflow Hours: The total number of hours the unit operated during the day.

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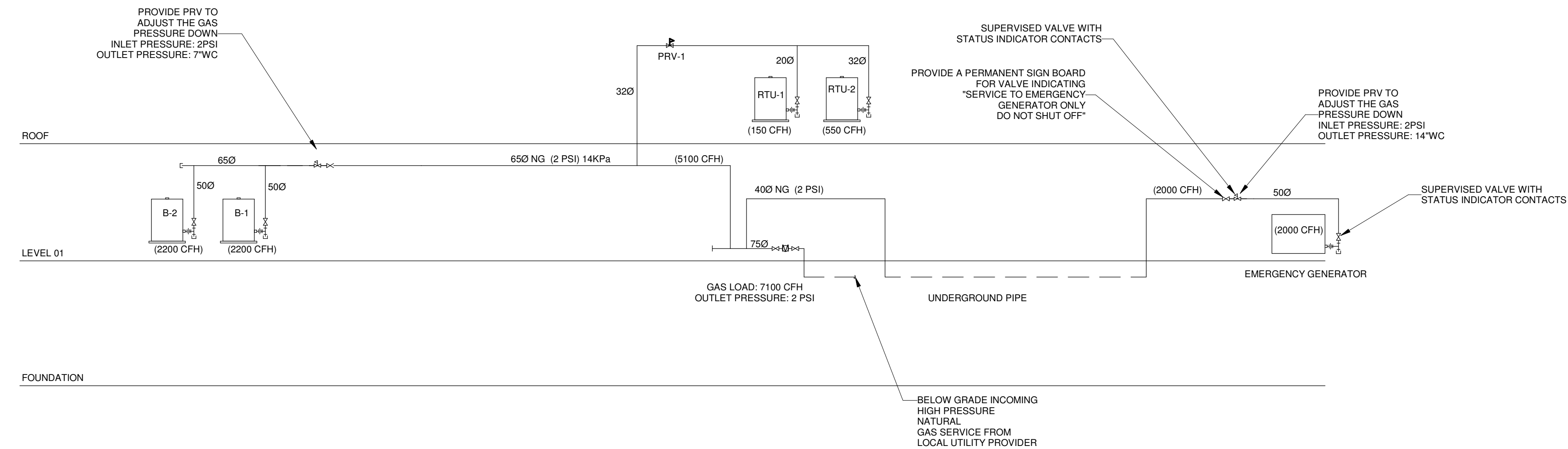
VENTILATION NEW
WORK - LEVEL 1

Drawing
No.
M-351

YORK REGIONAL POLICE
HELICOPTER HANGAR

350 GARFIELD WRIGHT
BOULEVARD
TOWN OF EAST GWILLIMBURY

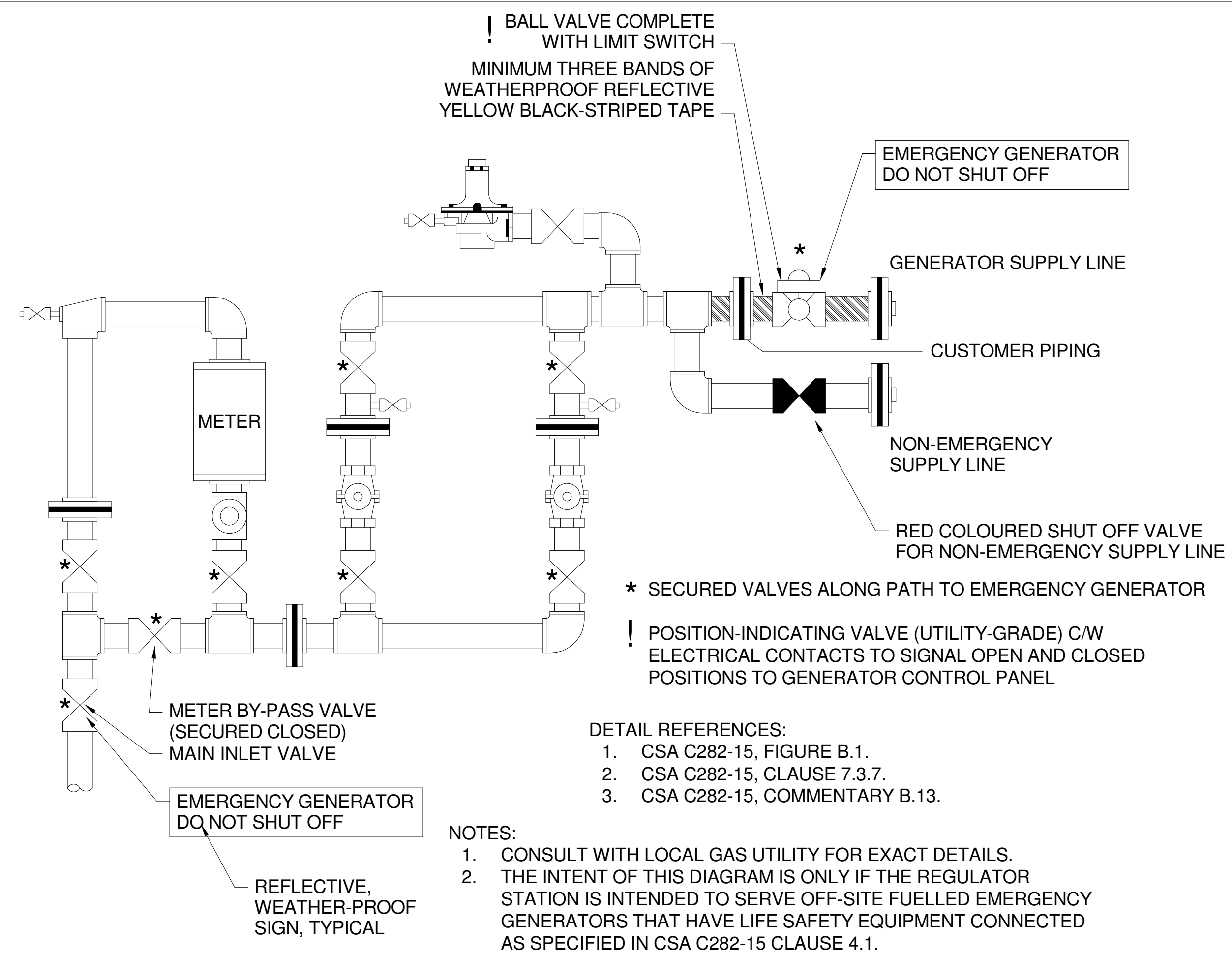
Key Plan



NOTE:
EARTHQUAKE ACTIVATED AUTOMATIC SHUT-OFF VALVE TO BE INSTALLED AS PER SPECIFICATION (23 11 23)

GAS SCHEMATIC

SCALE:N.T.S.



UTILITY-FED EMERGENCY GENERATOR GAS REGULATOR STATION

SCALE: 1 : 1

4	ISSUED FOR ADDENDUM 10	2024-10-15
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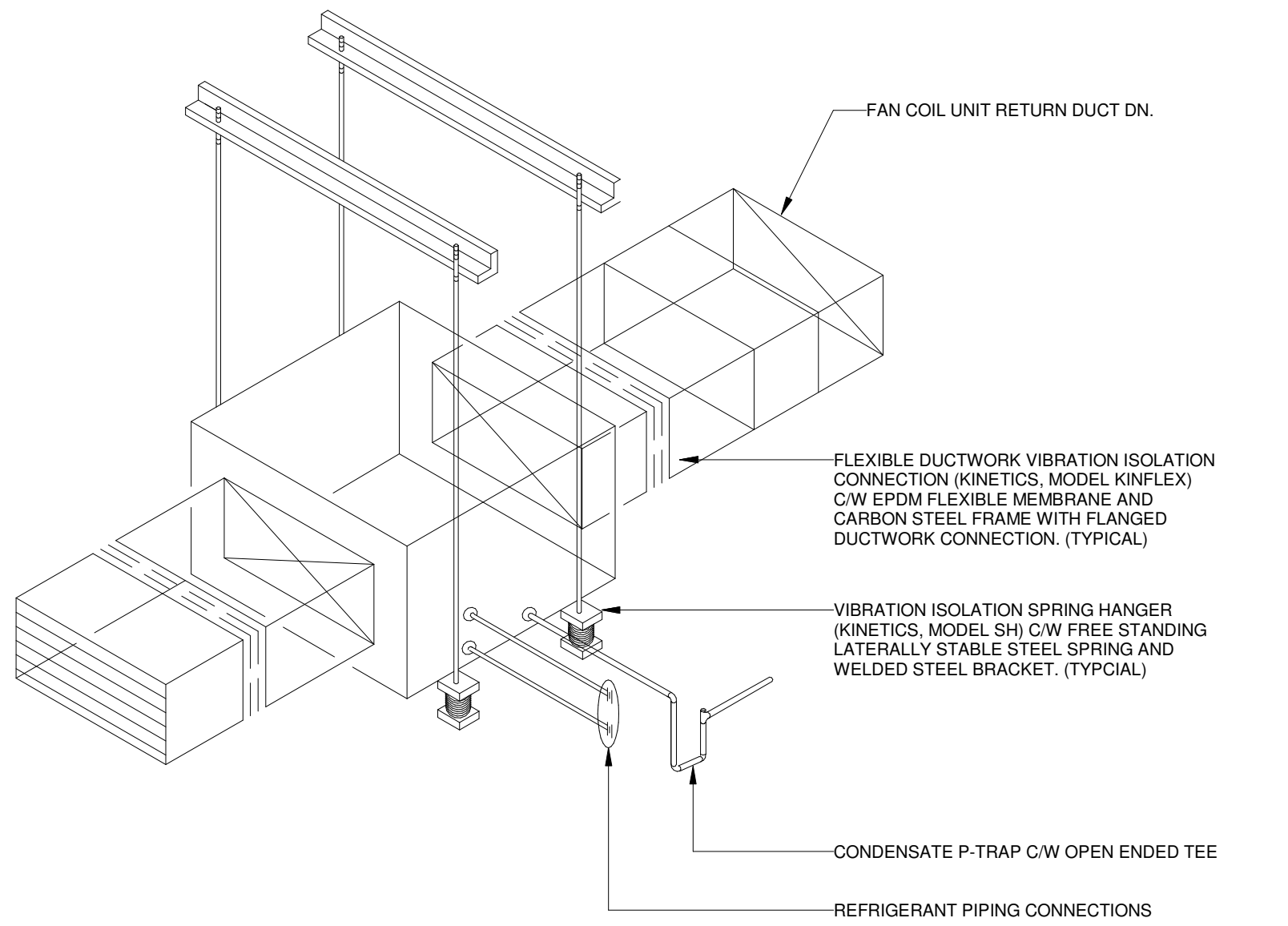
GAS SCHEMATIC

Drawing
No.
M-704

YORK REGIONAL POLICE HELICOPTER HANGAR

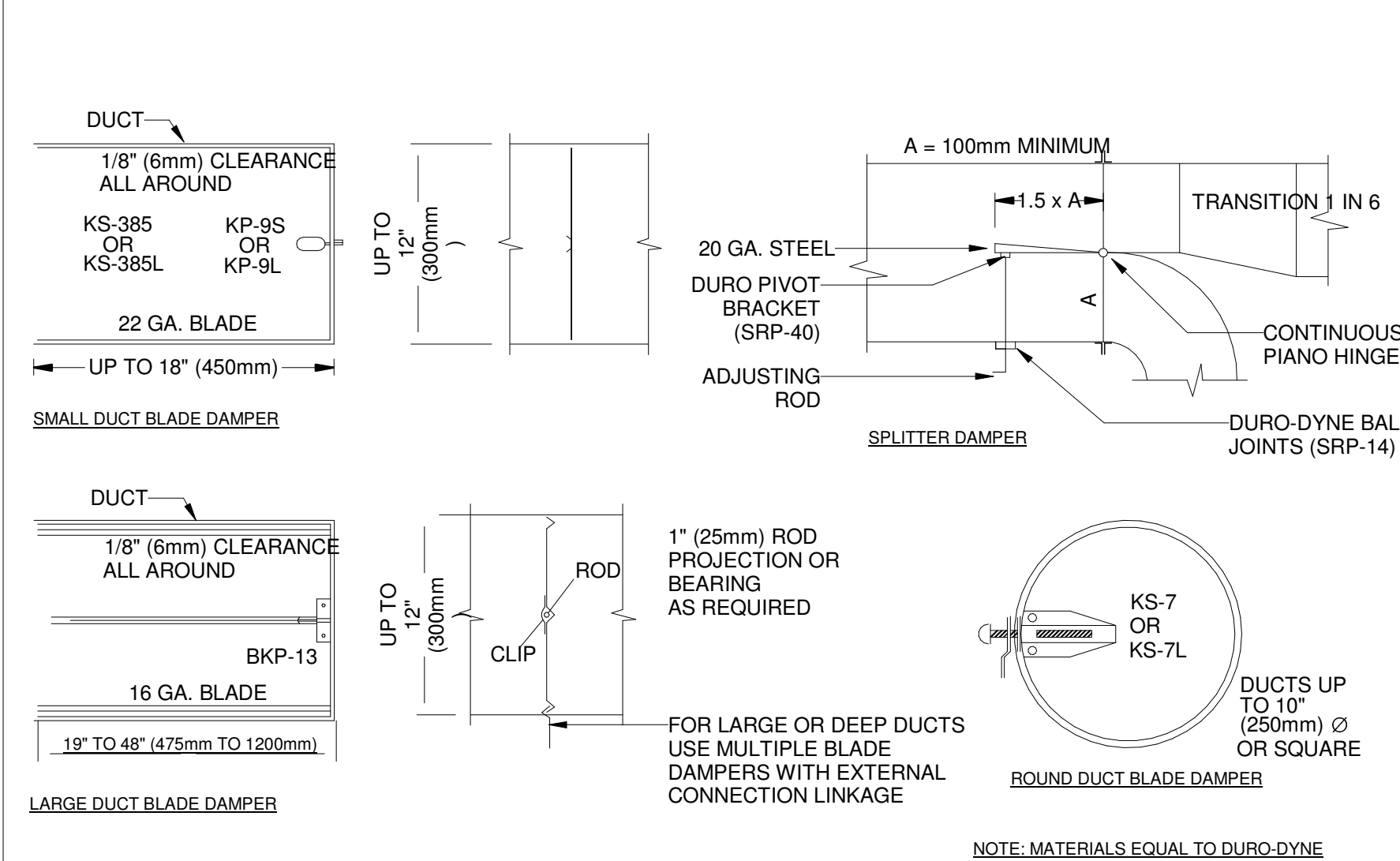
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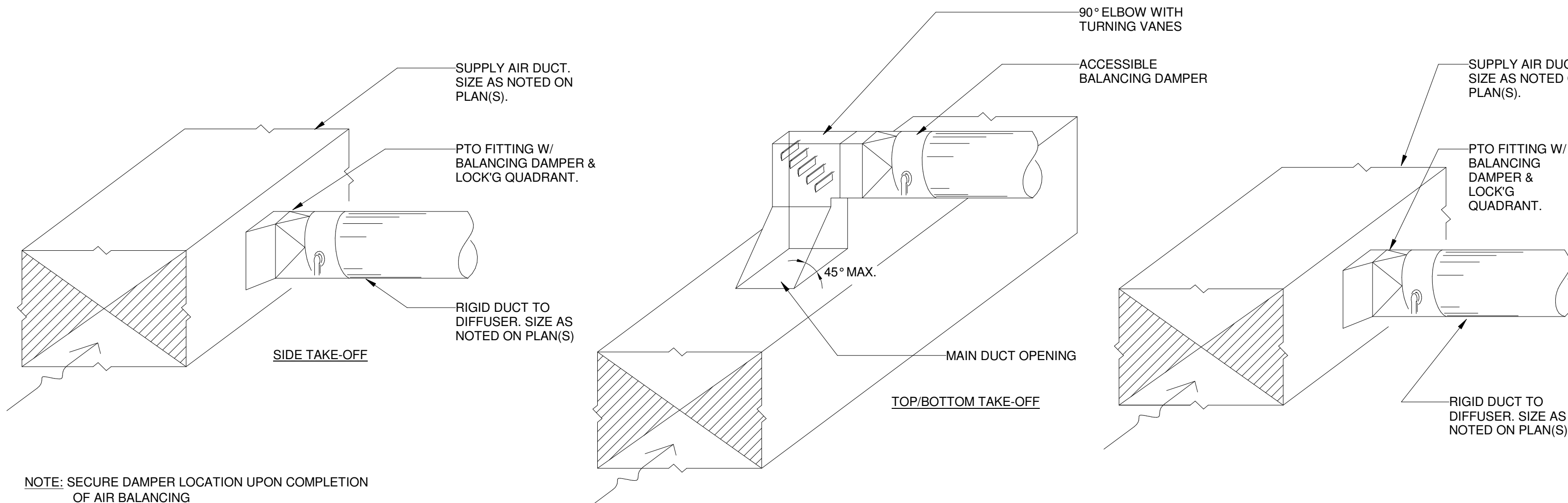
DUCTED FAN COIL UNIT

SCALE:N.T.S.



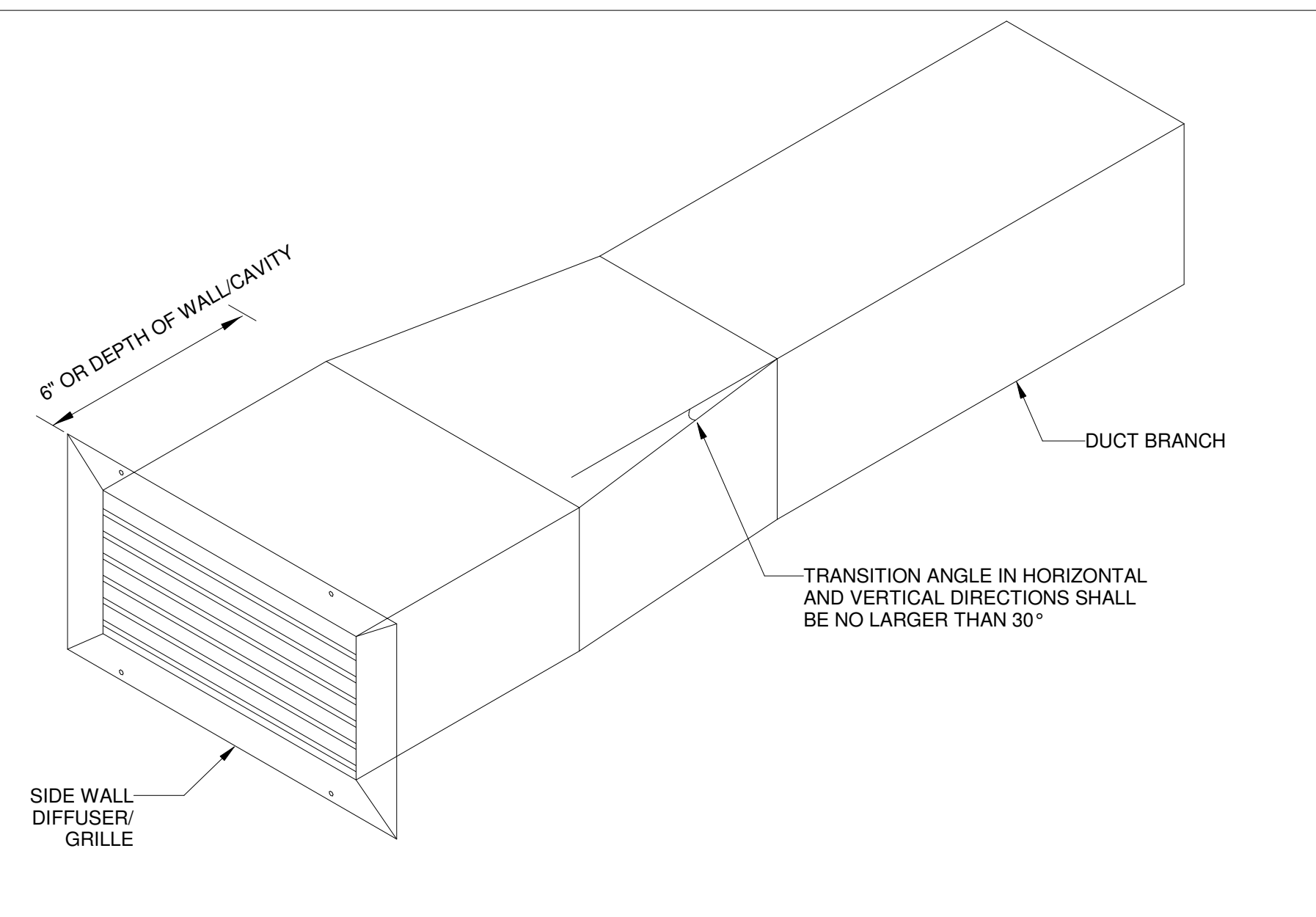
VOLUME DAMPER

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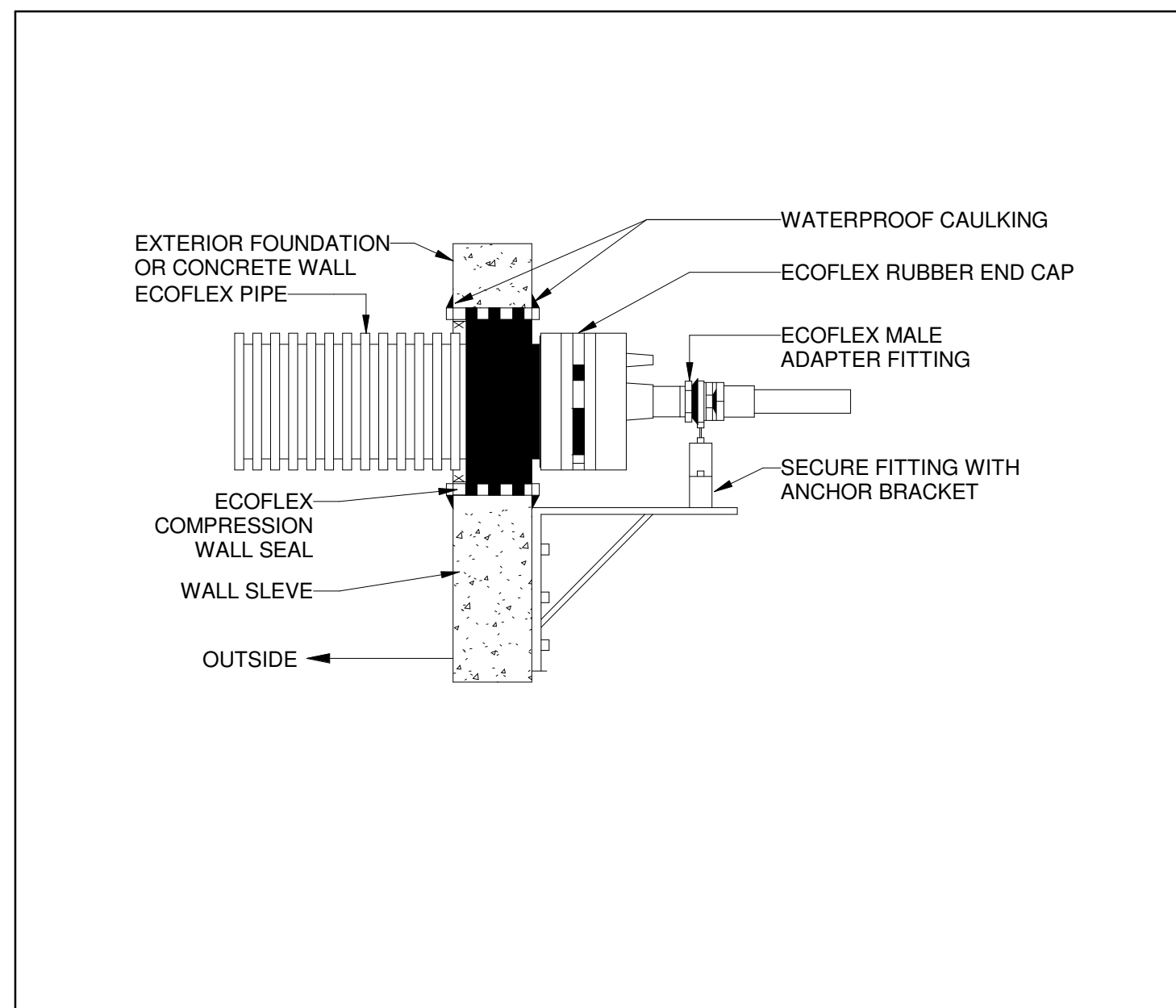
TYPICAL BRANCH TAKE-OFF INSTALLATION

SCALE: 1 : 1



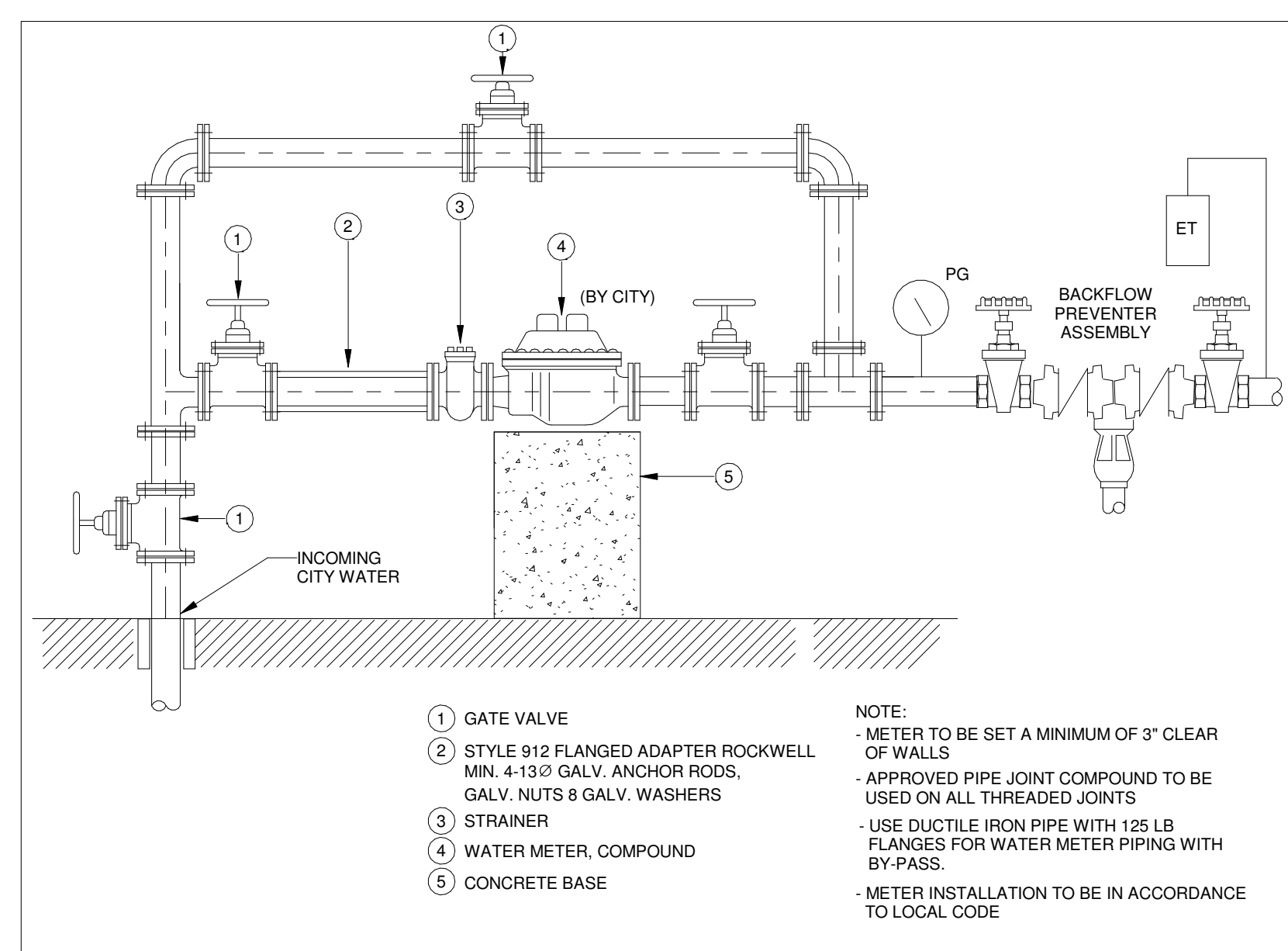
TYPICAL DETAIL OF SIDE WALL DIFFUSER/GRILLE

SCALE:N.T.S.



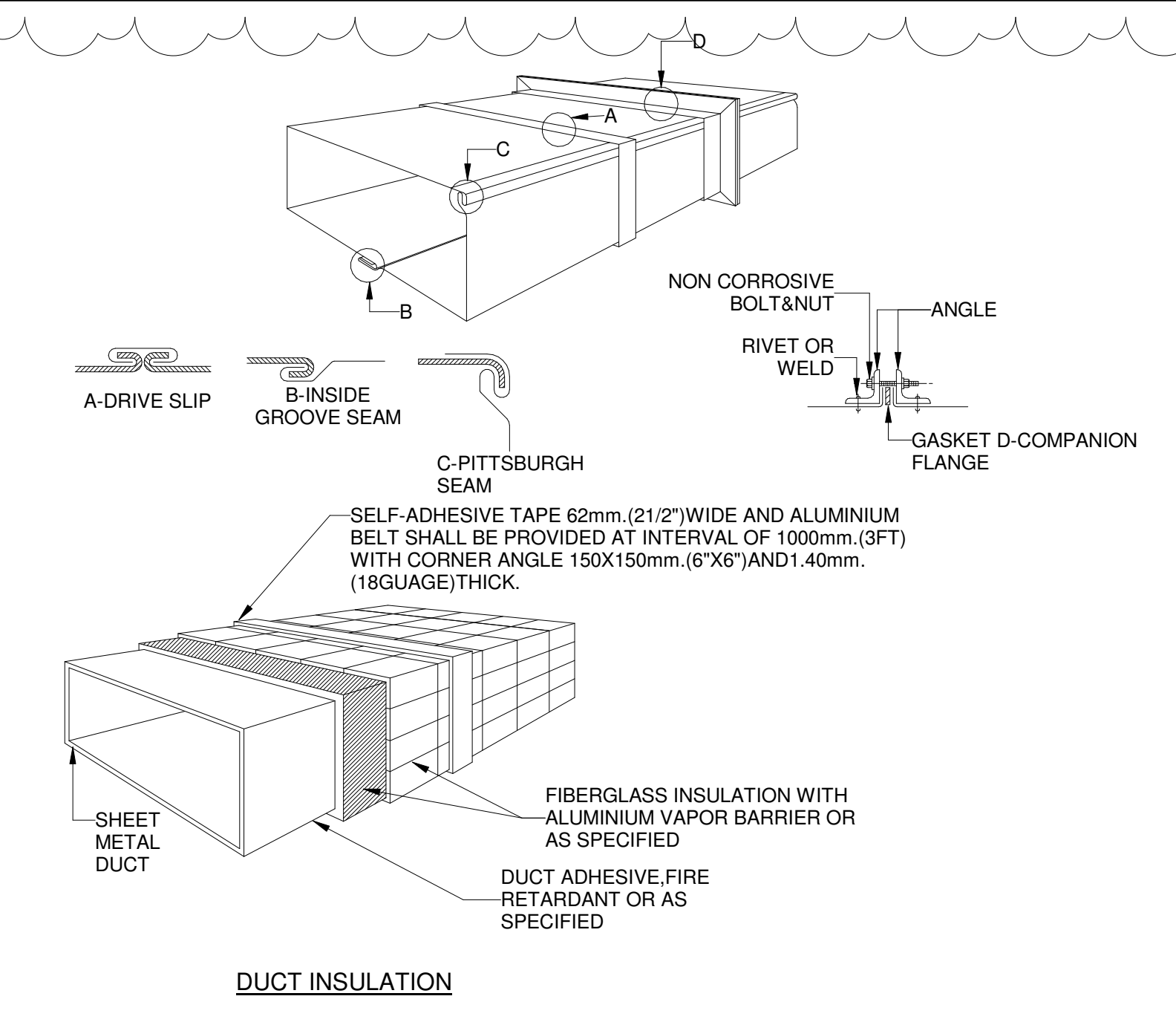
ECOFLEX THERMO CROSS LINKED WALL PENETRATION

SCALE:N.T.S.



WATER METER ASSEMBLY

SCALE:N.T.S.



RECTANGULAR DUCT INSULATION

SCALE:N.T.S.

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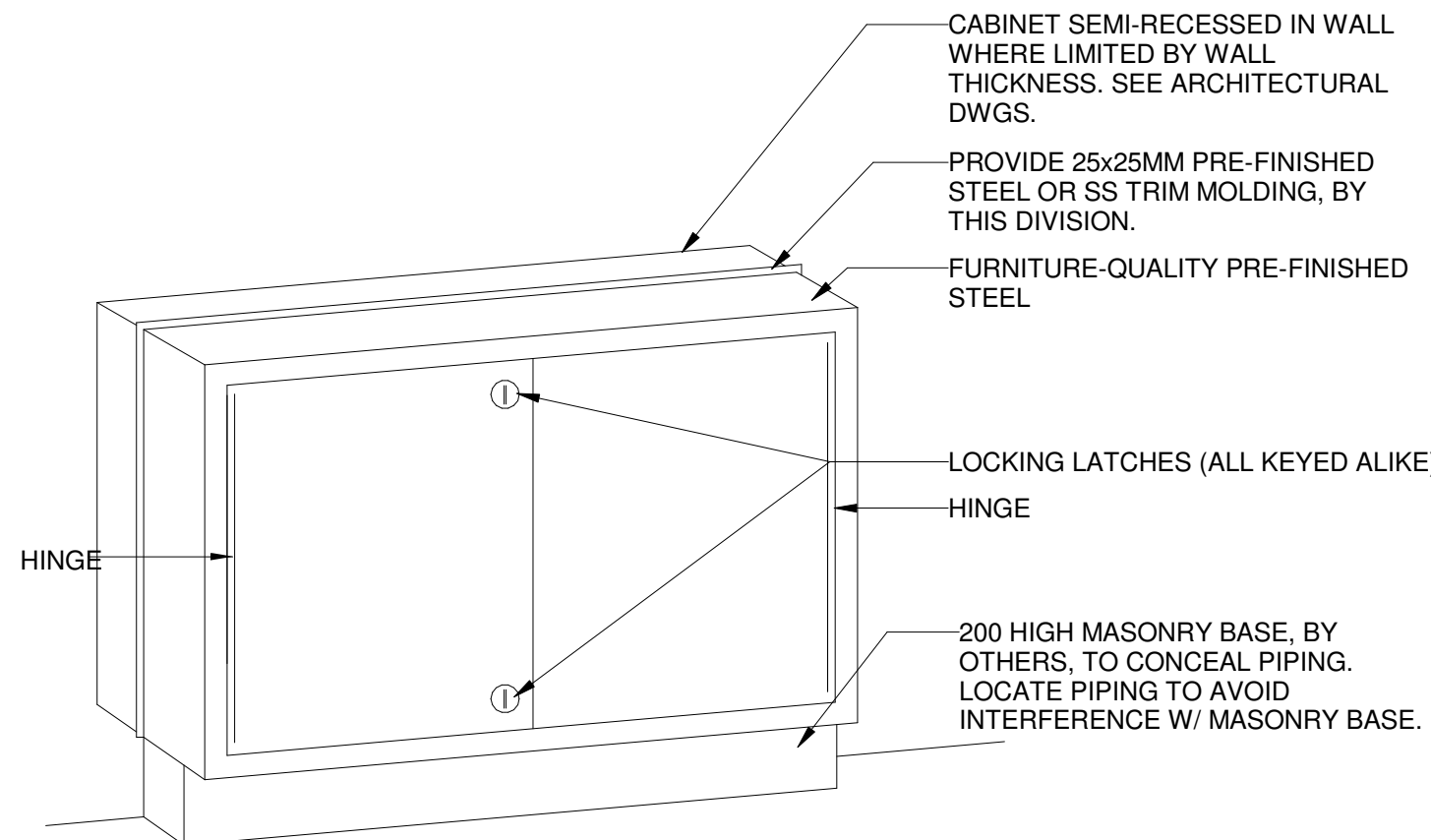
MECHANICAL TYPICAL DETAILS II

Drawing
No.
M-801

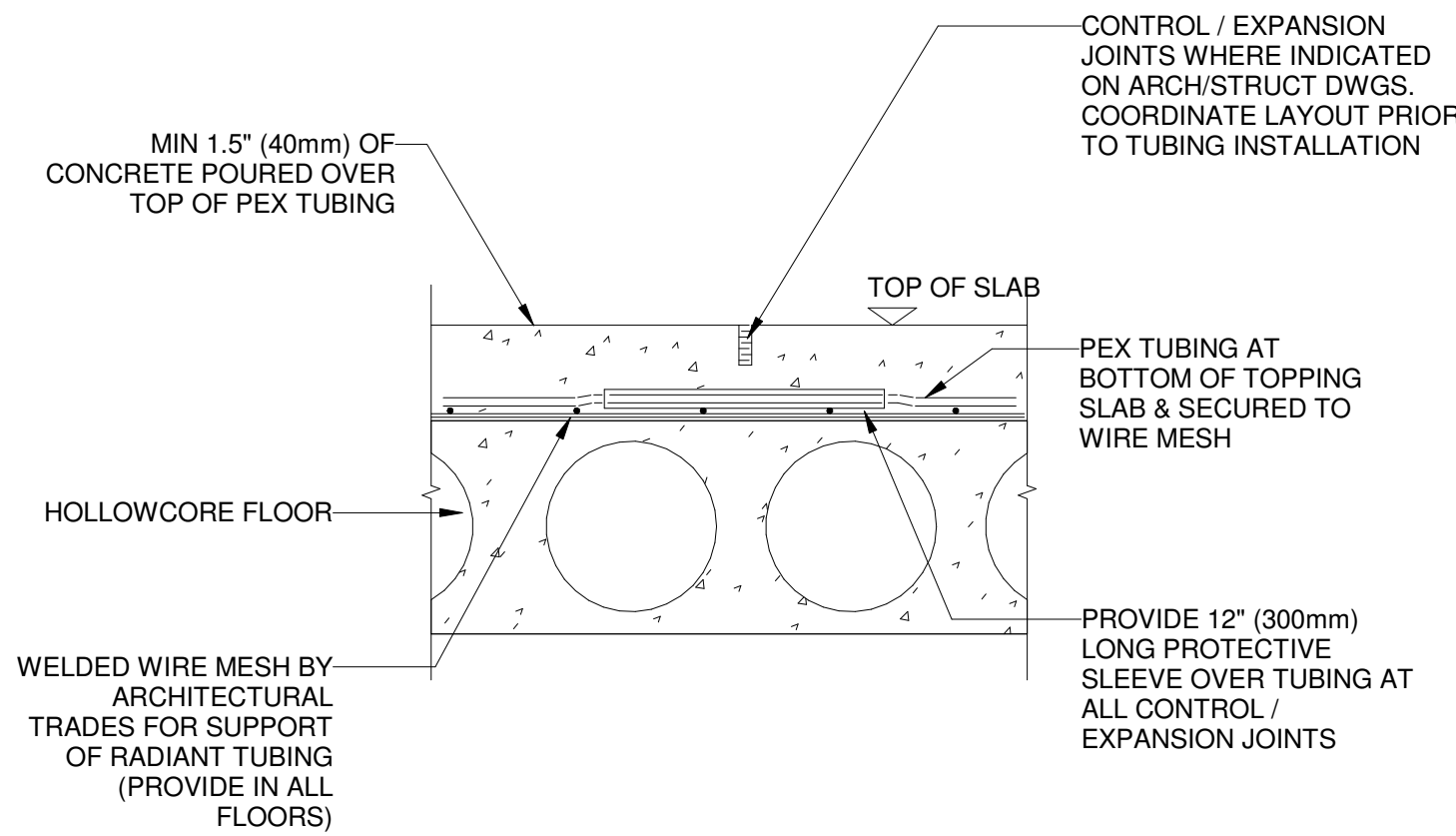
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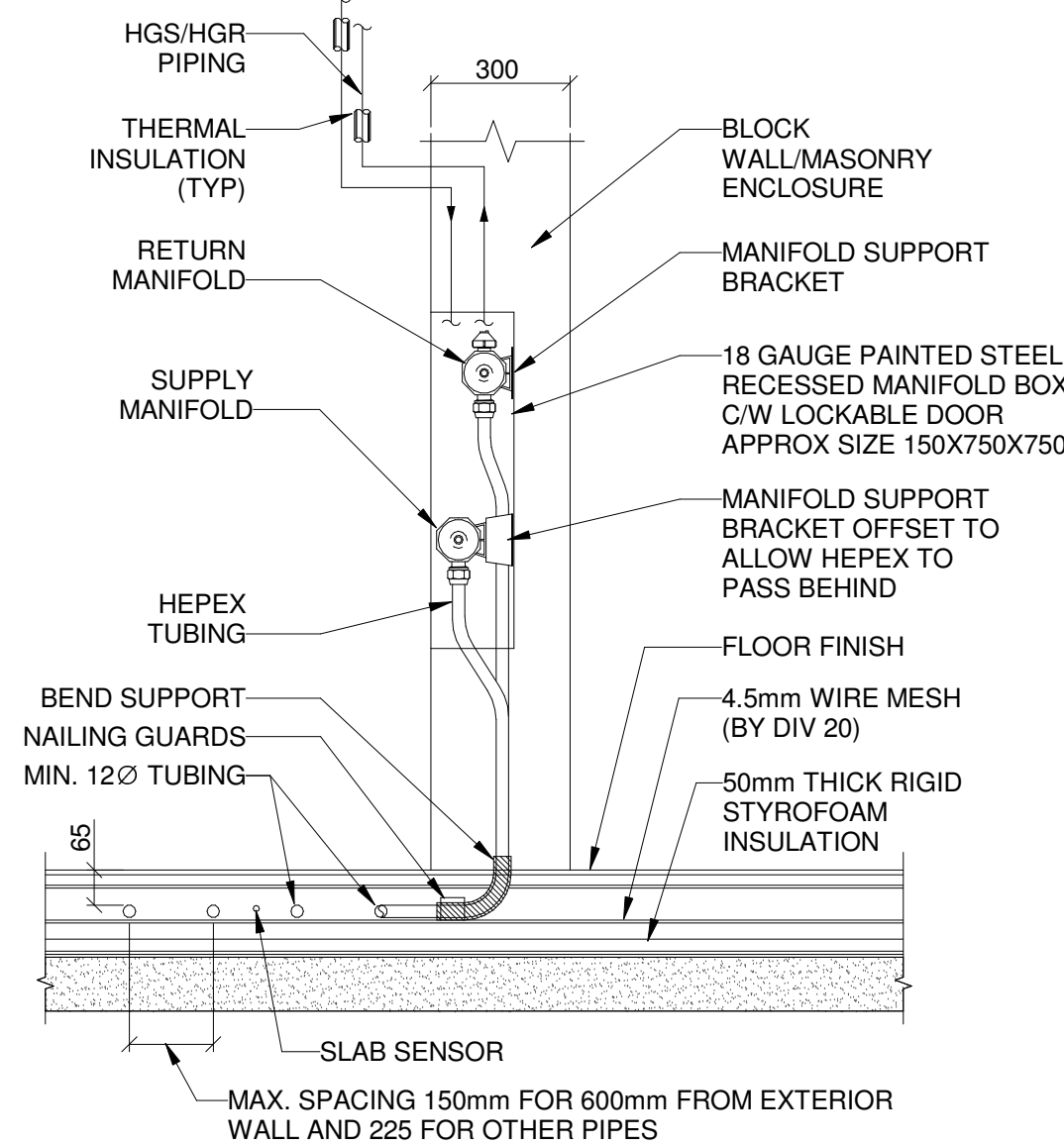
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Plan



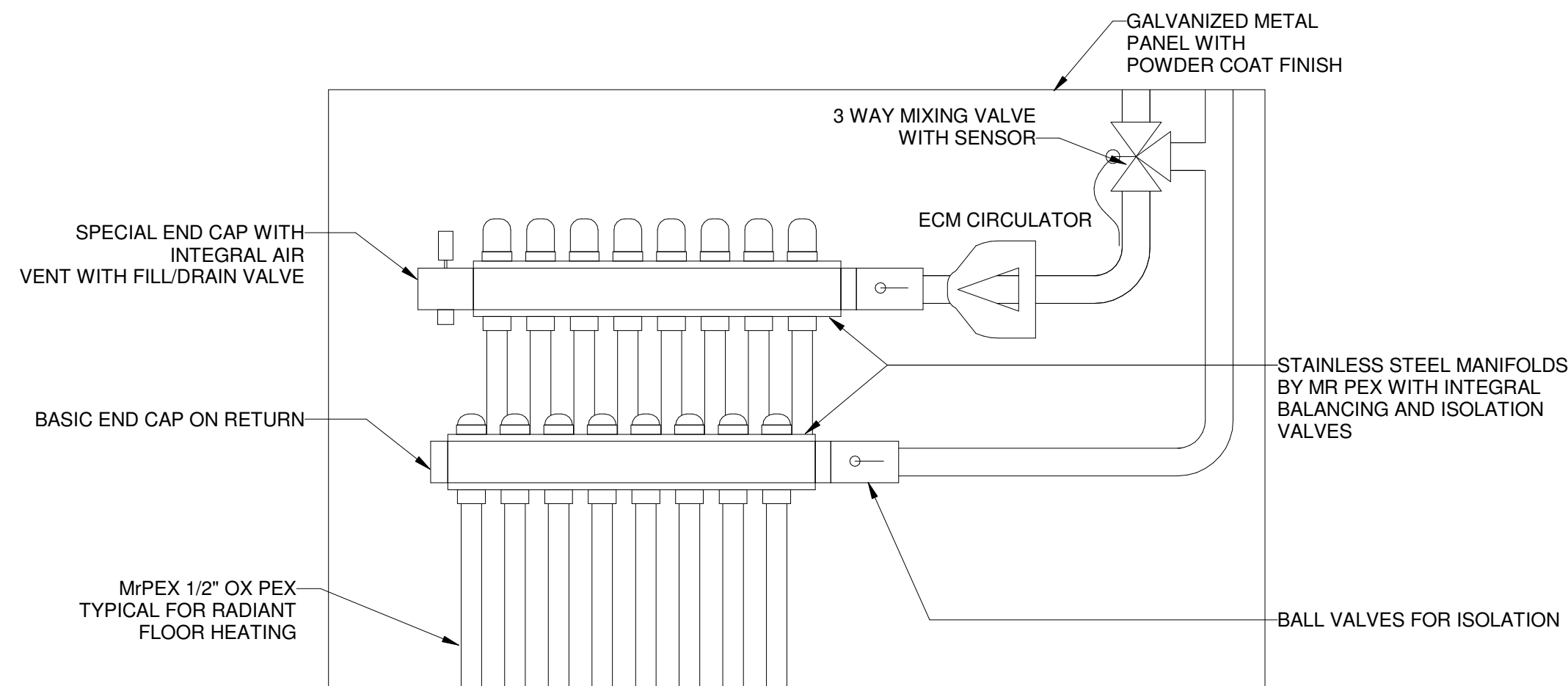
7 **IN-FLOOR HEATING MANIFOLD CABINETS**
SCALE: N.T.S.



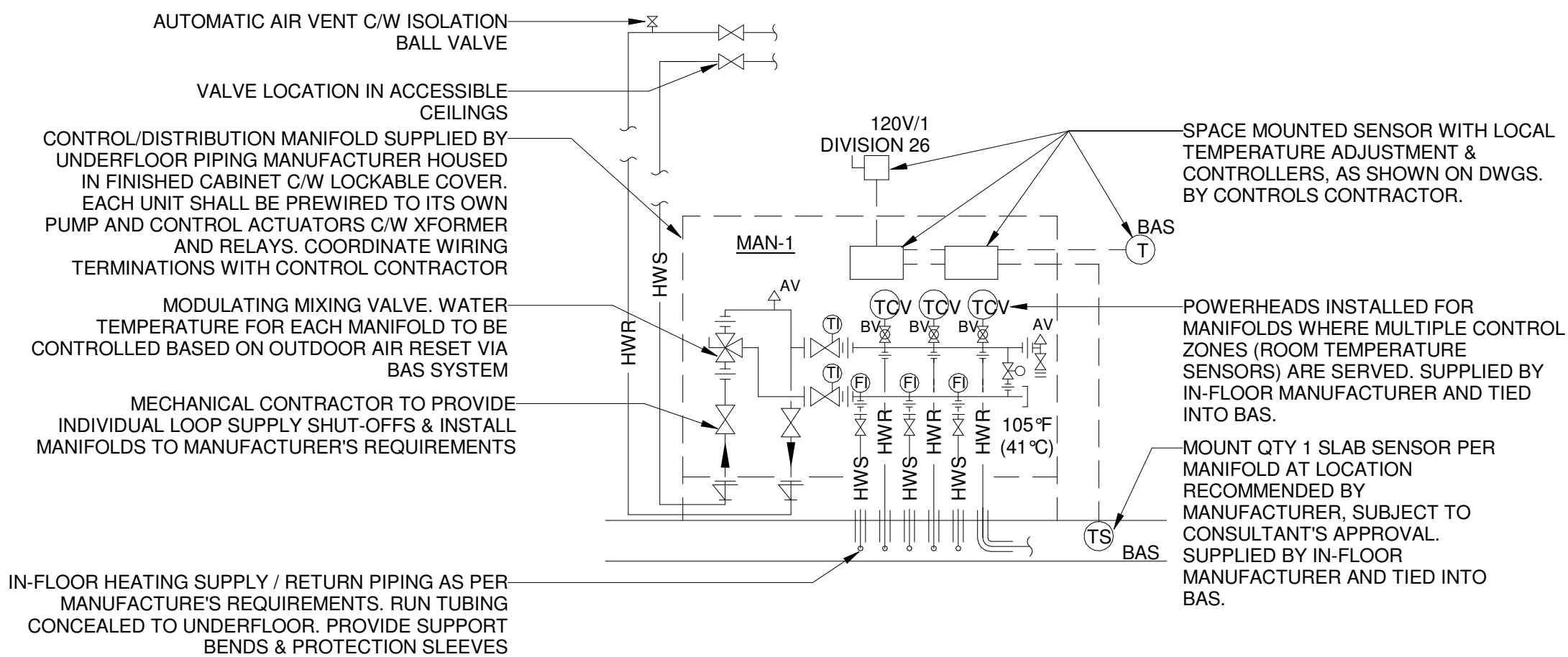
6 **IN-FLOOR RADIANT TUBING INSTALLATION**
SCALE: N.T.S.



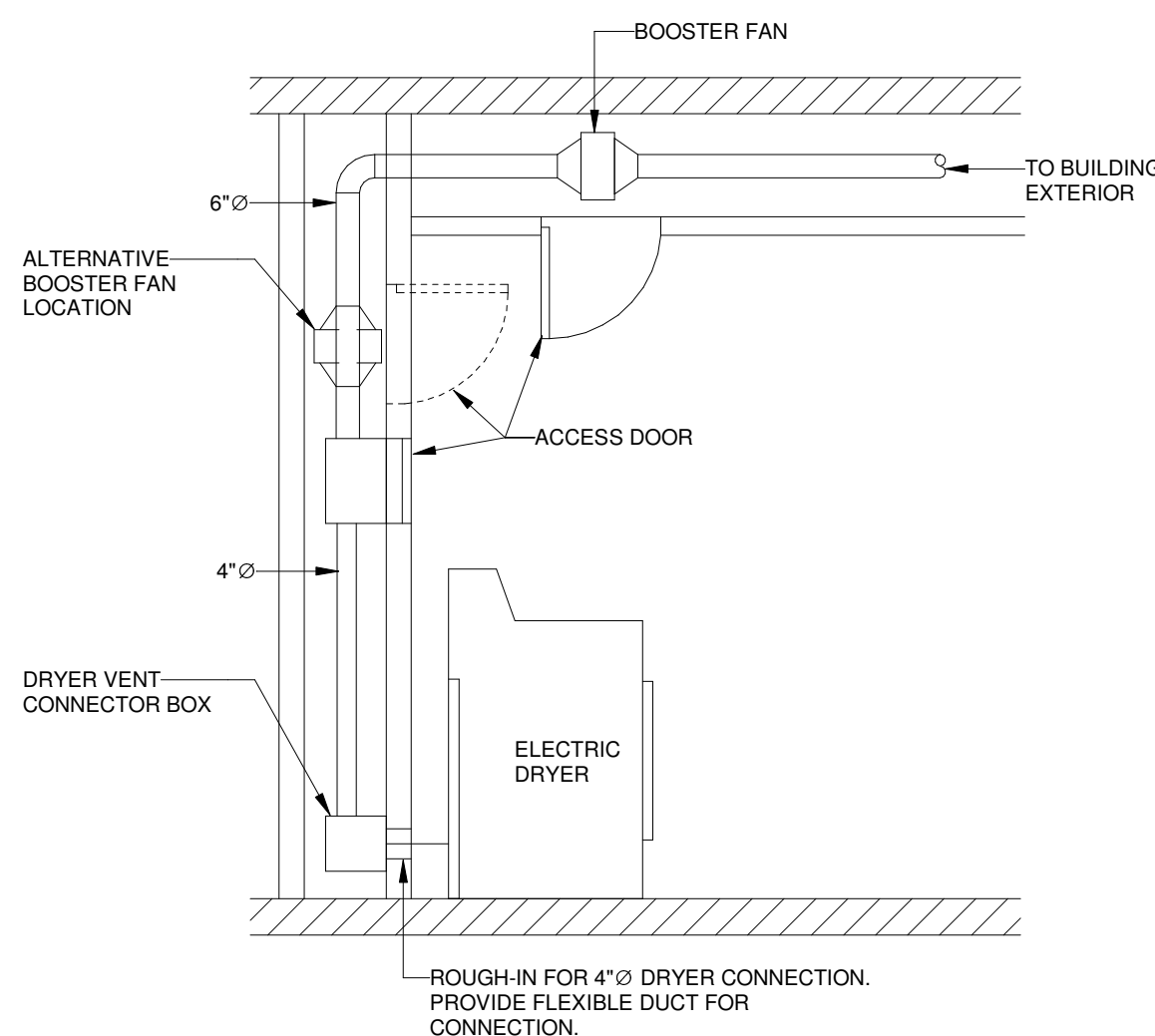
3 **IN-FLOOR HEATING MANIFOLD DETAILS**
SCALE: N.T.S.



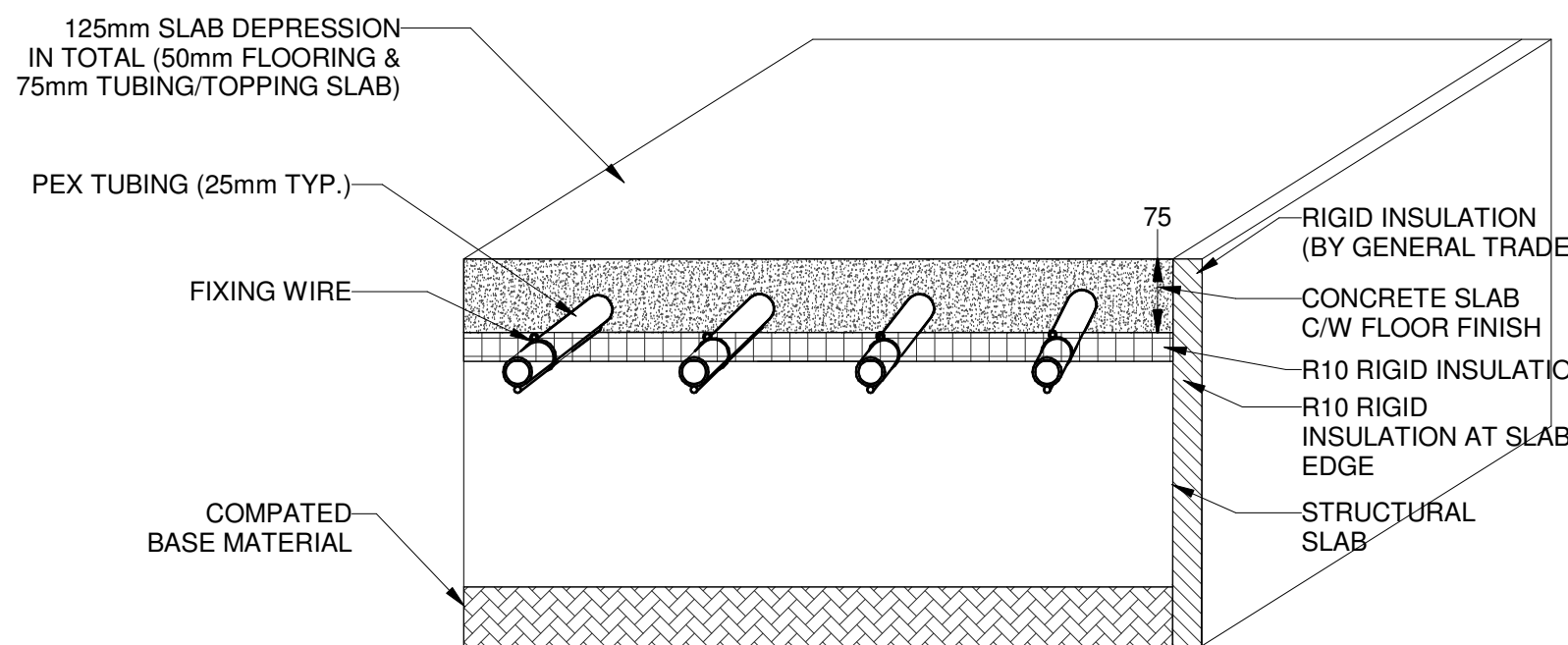
5 **IN-FLOOR HEATING MANIFOLD LAYOUT**
SCALE: N.T.S.



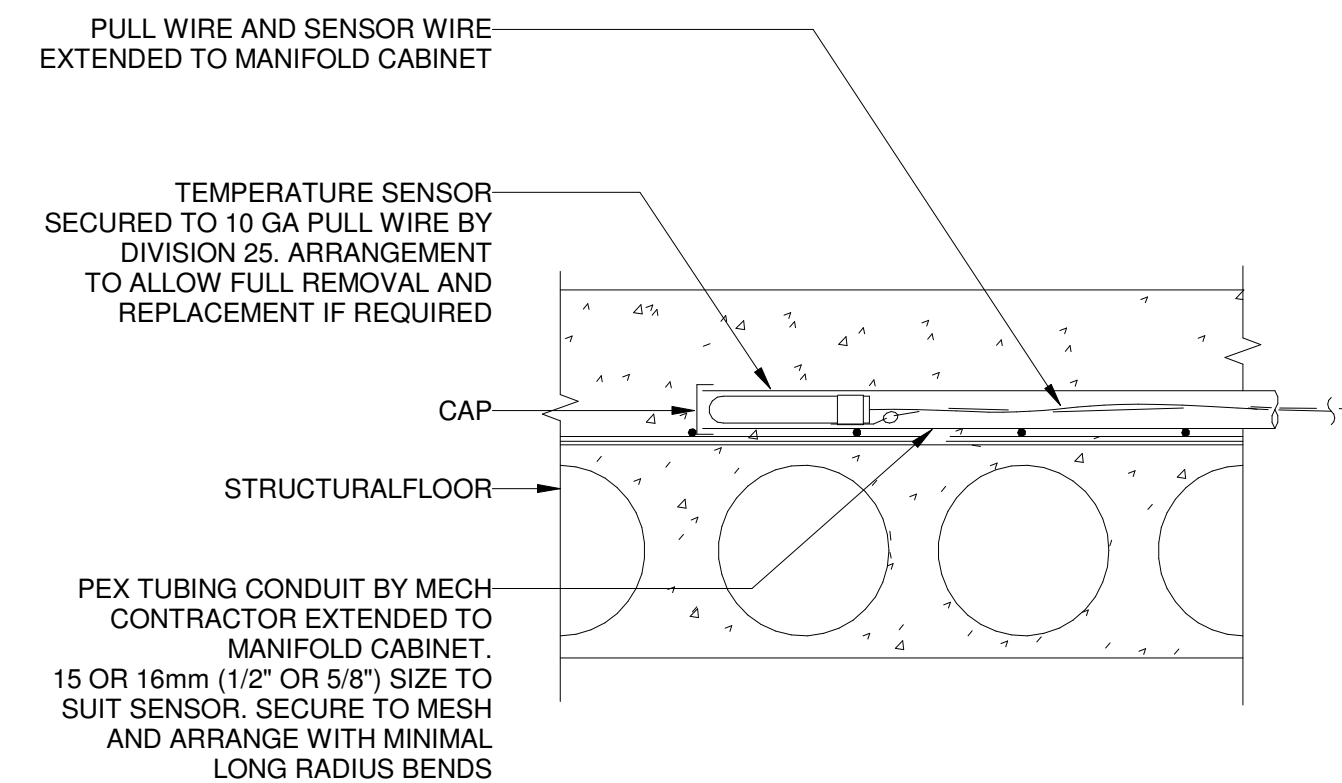
2 **TYP. IN-FLOOR MANIFOLD INSTALLATION**
SCALE: N.T.S.



8 **LAUNDRY DRYER EXHAUST WITH INLINE BOOSTER FAN**
SCALE: N.T.S.



4 **IN-FLOOR HEATING PIPING AND INSULATION**
SCALE: N.T.S.



1 **RADIANT FLOOR HEATING SLAB SENSOR**
SCALE: N.T.S.

Issues

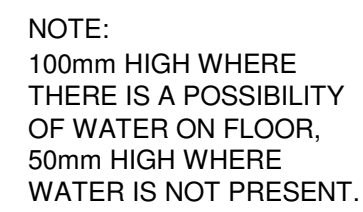
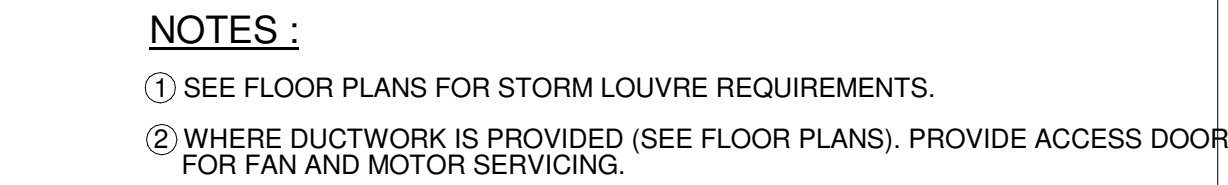
All measurements are to be checked and verified on site by the contractor before proceeding with work

Do not scale drawings

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Project No: TT-24-005
Scale: As indicated

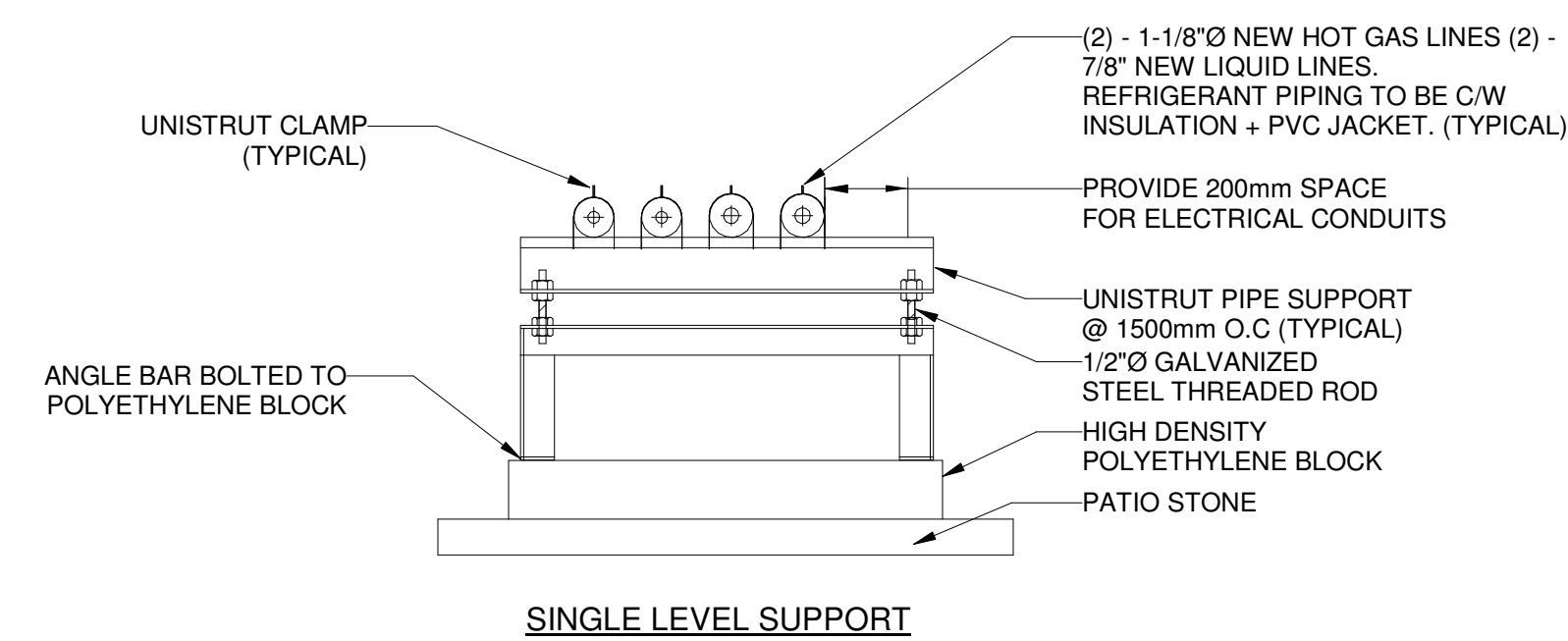
Sheet
Title:
**MECHANICAL TYPICAL
DETAILS VII**

Drawing
No:
M-806

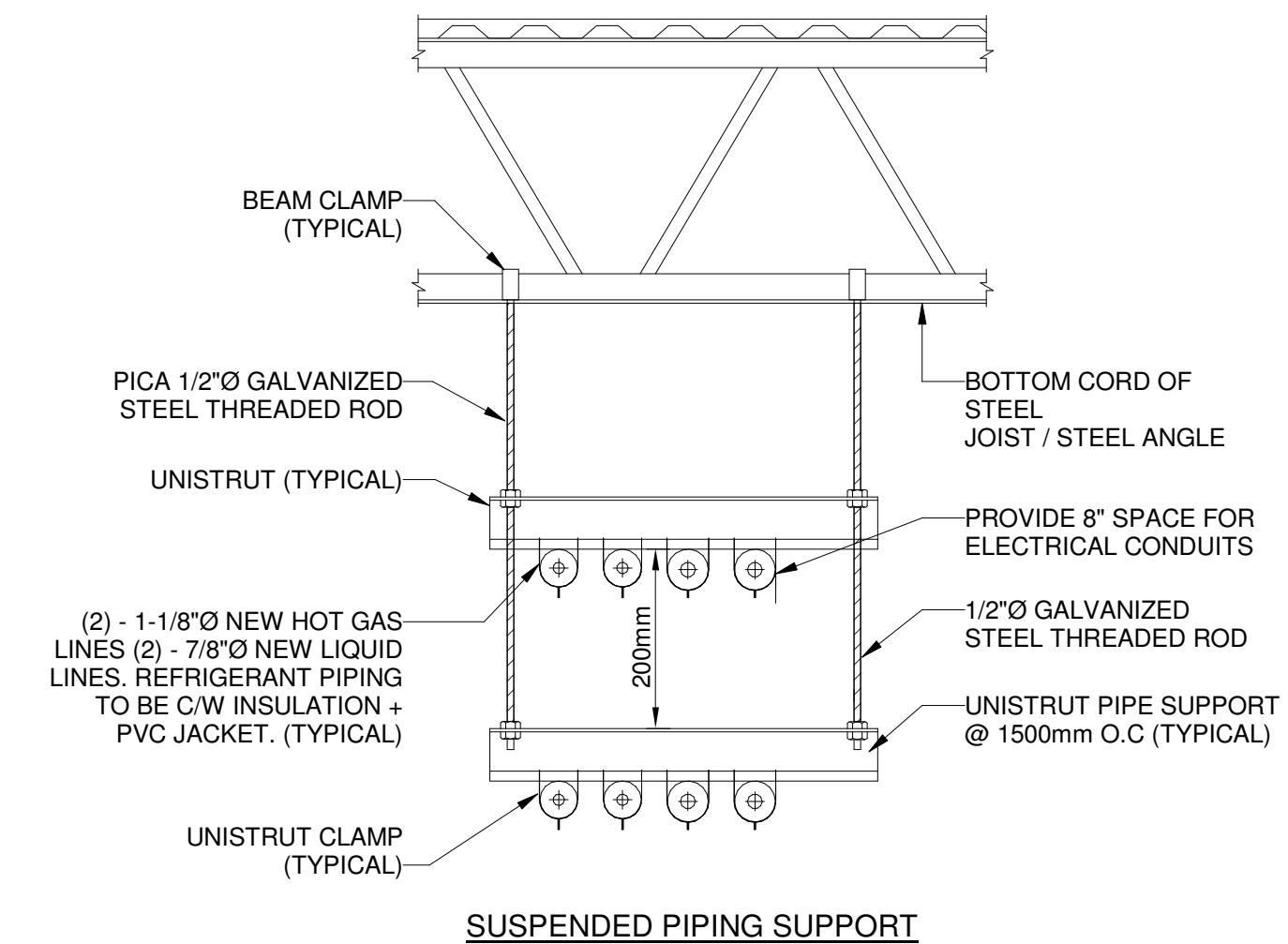


PIPE SIZE (mm)	SLEEVE SIZE	
	FOR BARE PIPE	FOR INSULATED PIPE
20	32	75
25	38	100
32	50	100
38	50	100
50	75	150
75	100	150
100	150	200
150	200	250
200	250	300

2 PIPE SLEEVE THROUGH SLAB DETAIL



1 REFRIGERANT PIPING SUPPORT DETAILS
SCALE:N.T.S.



7 LAUNDRY BOX
SCALE:N.T.S.

[illegible]

Issues

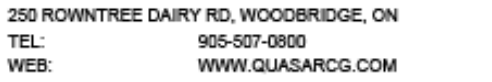
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Sheet
Title:
MECHANICAL TYPICAL
DETAILS IX

Drawing
No. **M-808**



350 GARFIELD WRIGHT
BOULEVARD
TOWN OF EAST GWILLIMBURY

Key Plan

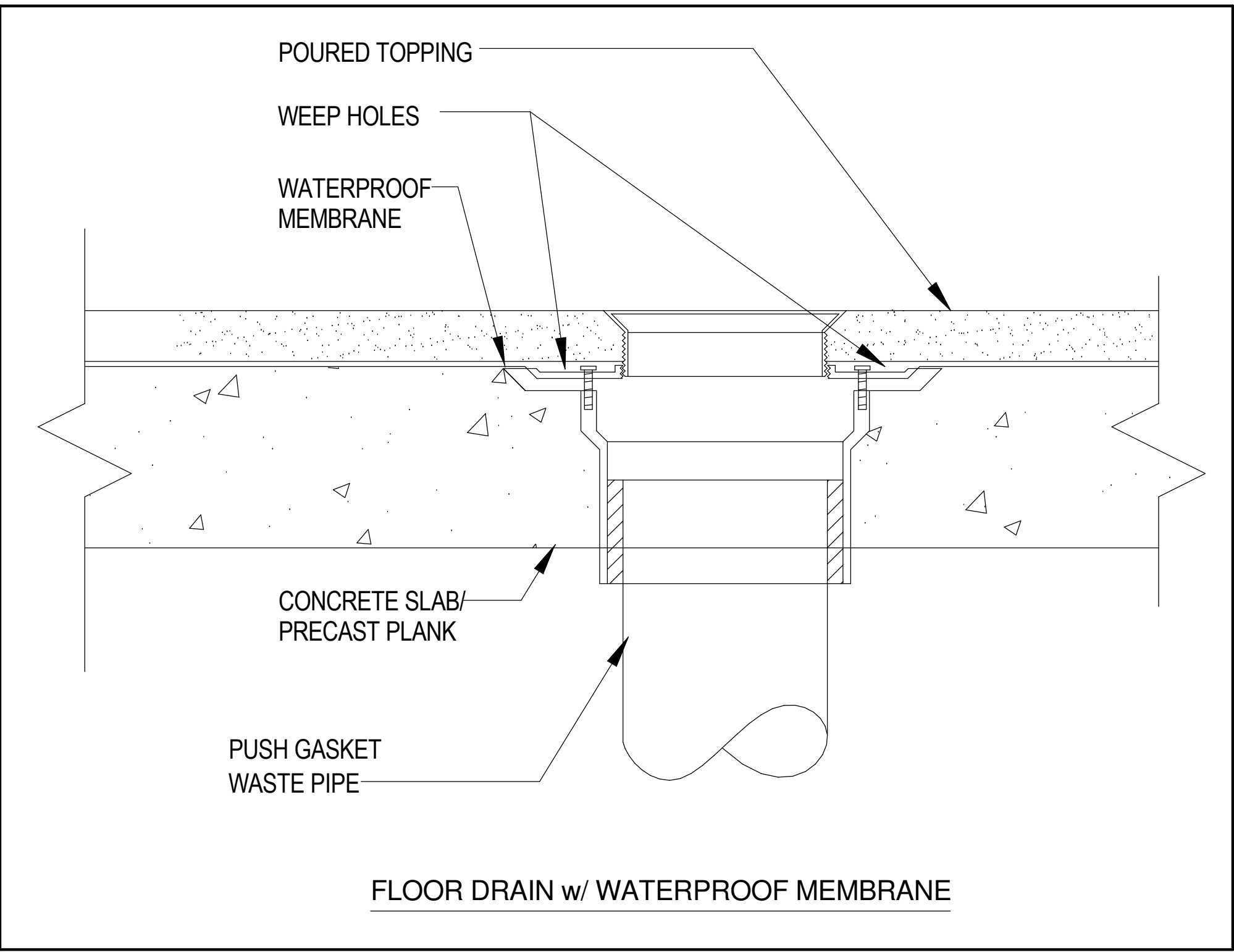
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Issues

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Project No: TT-24-005
Scale: N.T.S.



1

SCALE:N.T.S.

MECHANICAL TYPICAL DETAILS XI

M-810



350 GARFIELD WRIGHT
BOULEVARD
TOWN OF EAST GWILLIMBURY

Key Plan

[illegible]

Issues

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Project No: TT-24-005
Scale:

Sheet
Title:

MECHANICAL SCHEDULES

Drawing
No. **M-900**

IN FLOOR HEATING								
TAG	AREA (M2)	TOTAL LOAD (KW)	FLOW (L/S)	HEAD LOSS (M)	FLUID TYPE	DELTA T	LOOP TYPE/SIZE	SPACING
IF-1	405	45	2	4	100% WATER	11 C	12.7MM UPONO HEPEX	305MM CTRS TUBES



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350 GARFIELD WRIGHT
BOULEVARD
TOWN OF EAST GWILLIMBURY

Key Plan

[illegible]

6	ISSUED FOR ADDENDUM 10	2024-10-15
5	ISSUED FOR ADDENDUM 8	2024-10-07
4	ISSUED FOR ADDENDUM 6	2024-09-30
3	ISSUED FOR ADDENDUM 3	2024-09-23
2	ISSUED FOR TENDER	2024-09-09
1	ISSUED FOR BUILDING PERMIT	2024-07-31
NO.	ISSUED	DATE

Issues

All measurements are to be checked and verified on site by the contractor before proceeding with work

Do not scale drawings

Drawn by: Fizzah Khan/ Iulian Turiga
Checked by: Ali Nakhaei-Zadeh
Original Issue Date: 2024-07-31
Project No: TT-24-005
Scale: N.T.S.

Sheet
Title:

MECHANICAL SCHEDULES II

Drawing
No.
M-901

PUMPS													
TAG	MANUFACTURER	MODEL	DISCHARGE SIZE	VFD	FLOW (GPM)	HEAD (FT)	EFF. (%)	FLUID	POWER (HP)	SPEED @ 100% (RPM)	MCA (A)	MOCP (A)	V/PH/Hz
P-1	ARMSTRONG	SERIES 4380	2 IN.	YES	20	115	18.3	40% PG	10	4209	3.4	10	575/3/60
P-1R	ARMSTRONG	SERIES 4380	2 IN.	YES	20	115	18.3	40% PG	10	4209	3.4	10	575/3/60
P-2	ARMSTRONG	V2A9A-RC	2 IN.	YES	170	180	60.4	40% PG	20	3600	18.6		575/3/60
P-2R	ARMSTRONG	V2A9A-RC	2 IN.	YES	170	180	60.4	40% PG	20	3600	18.6		575/3/60
P-3	ARMSTRONG	V2B7A-CC	4 IN.	YES	130	45	70.2	40% PG	3	1800	3.05		575/3/60
P-4	ARMSTRONG	V2B7A-CC	4 IN.	YES	130	45	70.2	40% PG	3	1800	3.05		575/3/60
P-5	ARMSTRONG	SERIES 4380	2 IN.	YES	20	75	41.4	WATER	2	3326	3.4	10	575/3/60
P-5R	ARMSTRONG	SERIES 4380	2 IN.	YES	20	75	41.4	WATER	2	3326	3.4	10	575/3/60

AIR SOURCE HEAT PUMP														
TAG	MODEL	REFRIGERANT	OUTDOOR AMB. TEMP C (F)	HEAT CAPACITY (KW)	FLUID TYPE	FLOW RATE (L/S)	R. TEMP (C)	S. TEMP (C)	P. DROP (PSI)	POWER (KW)	MCA	FLA	MOCP	V/PH/HZ
ASHP-1	ASB-25	R-507	-23.4 (10)	48.7	40% PG	1.1	38	50	0.3	23	87.6	73.3	125	575/3/60

HEAT EXCHANGER												
TAG	LOCATION	MODEL	HEAT EXCH. (KBTU/H)	HOT SIDE				COLD SIDE				PLATE MATERIAL
				FLOW RATE (L/S)	INLET TEMP (C)	OUTLET TEMP (C)	P. DROP (PSI)	FLOW RATE (L/S)	INLET TEMP (C)	OUTLET TEMP (C)	P. DROP (PSI)	
HEX-1	MECH RM	AQ2T-BFG	233.9	1.6	50	38	4.7	1.5	35	46	3.7	ALLOY 340/0.5 MM

CONDENSERS														
TAG	LOCATION	MODEL	MANUFACTURER	COMB RATIO	AIRFLOW RATE (L/S)	COOLING		HEATING		REFRIGERANT	MOCP (A)	MCA (A)	V/PH/HZ	WEIGHT (KG)
						AMB. TEMP (C)	CAPACITY (KW)	AMB. TEMP (C)	CAPACITY (KW)					
ODU-1	ROOF	RXYQ144XBYCA	DAIKIN	92.6	4475	35	40	-20	29.4	R-410A	30	22.3	575/3/60	360

GRILLES AND DIFFUSERS									
TAG	BASIS OF DESIGN		TYPE	VOLUME CONTROL	DIMENSIONS			MATERIAL	NOTES
	MANUFACTURER	MODEL			LENGTH (mm)	WIDTH (mm)	DIAMETER (mm)		
A	EH PRICE	SPD	SQUARE PLAQUE DIFFUSER	YES	600	600	REFER TO FLOOR PLANS	STEEL	
A1	EH PRICE	SPD	SQUARE PLAQUE DIFFUSER	YES	300	300	REFER TO FLOOR PLANS	STEEL	
B1	EH PRICE	80 DAL	EGG CRATE GRILLE	YES	300	300		ALUMINUM	
B2	EH PRICE	80 DAL	EGG CRATE GRILLE	YES	600	300		ALUMINUM	
D	EH PRICE	620 DAL	LOUVERED FACE SUPPLY GRILLE	YES	300	300		ALUMINUM	
D1	EH PRICE	620 DAL	LOUVERED FACE SUPPLY GRILLE	YES	600	300		ALUMINUM	
E	EH PRICE	630 DAL	LOUVERED FACE RETURN GRILLE	YES	300	300		ALUMINUM	
E3	EH PRICE	630 DAL	LOUVERED FACE RETURN GRILLE	YES	800	750		ALUMINUM	
F	NAILOR	RPLP	ROUND PUNKAH LOUVER/JET NOZZLE		305	213	254		
H	EH PRICE	REGC	EGG CRATE EXHAUST GRILLE				200		

EXPANSION TANKS								
	LOCATION	SERVICE	BASIS OF DESIGN		VOLUME	MAX DESIGN PRESSURE (KPA)	WEIGHT (KG)	REMARKS
			MANUFACTURER	MODEL				
ET-1	MECHANICAL ROOM	GLYCOL SYSTEM	PATTERSON	NLA-400	400	862.0 kPa	136	
ET-2	MECHANICAL ROOM	INFLOOR HEATING	PATTERSON	NLA-85	87	862.0 kPa	41	

OUTDOOR CONDENSERS													
TAG	LOCATION	MODEL	MANUFACTURER	AIRFLOW RATE (L/S)	INDOOR CONDITIONS TEMP. (C)		OUTDOOR CONDITIONS TEMP. (C)						
									REFRIGERANT	MCA	MOCP	V/PH/HZ	WEIGHT (KG)
ODU-2	HANGAR	AURORA WALL...	DAIKIN	1141	26.7 DB/19.4 WB	21.1 DB / 15.6 WB	35 DB/24 WB	8.3DB/6.1 WB	R-410A	18.8	20	208/1/60	60

BUFFER TANK								
TAG	MODEL	PART NUMBER	DESCRIPTION	TANK VOLUME (L)	MAX. DESIGN TEMP. (F)	MAX DESIGN PRES. (PSIG)	WEIGHT (KG)	REMARKS
BT-1	HBT-120	55621200	2-PORT HOT WATER BUFFER TANK	454.2	450	125	0.3	TANK SHOULD BE INSULATED

ELECTRIC BASEBOARD HEATER							
TAG	MANUFACTURER	PART NUMBER	DESCRIPTION	POWER (W)	V/PH/HZ	WEIGHT (KG)	REMARKS
EBBH-1	OUELLET	OPR0500	HEAVY DUTY STEEL DRAFT BARRIER	500	240/1/60	6.4	

[illegible]

NOTES: VALUES IN MM. REFER TO SPECIFICATIONS DWG# M-902 FOR PLUMBING FIXTURE DETAILS.
ALL PLUMBING FIXTURES COMPLETE WITH FAUCET. REFER TO DWG# M-902 FOR MORE DETAILS

ELECTRIC WATER HEATER												
TAG	MODEL	MANUFACTURER	DESCRIPTION	TANK VOLUME (L)	MAX. DESIGN TEMP. (F)	STANDARD INPUT (KW)	MAXIMUM PRESSURE (PSI)	MCA	MOCP	V/PH/HZ	WEIGHT (KG)	REMARKS
EWH-1	DRE-80	AO SMITH	GOLD SERIES	302	100	15	150	41.6	50	208/3/60	127	

