Project Management Initials:

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00-M-001-MECHANICAL STANDARD SYMBOLS AND LEGEND

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ABBREVIATIONS

Symbol	Description
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AG	AIR GAP
AMP	AMPERAGE
AP	ACCESS PANEL
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPE	AMERINCAL SOCIETY OF PLUMBING ENGINEERS
AV	AIR VENT
BDD	BACK DRAFT DAMPER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSE POWER
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTU/H	BRITISH THERMAL UNITS PER HOUR
BWV	BACKWATER VALVE
CA	COMPRESSED AIR-SHOP 690 KPA
CAT	COMPRESSED AIR - TIRE FILL 865 KPA
CAV	CONTROL AIR VOLUME
CBV	CIRCUIT BALANCE VALVE
CC	COOLING COIL
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CO	CLEAN OUT, OR CARBON MONOXIDE
CO2	CARBON DIOXIDE
CTE	CONNECT TO EXISTING
CV	CONTROL VALVE
D	DIESEL FUEL
DB	DRY BULB
dB	DECIBELS
DC	DE-IONIZED COOLANT
DCBP	DOUBLE CHECK BACKFLOW PREVENTER
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROLS
DEF	DIESEL EXHAUST FLUID
DEG	DEGREE
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DIA	DIAMETER
DN	DOWN
DP	DEW POINT TEMPERATURE
DPS	DIFFERENTIAL PRESSURE SENSOR
DWG	DRAWING
DWV	DRAIN WASTE VENT
DX	DIRECT EXPANSION
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ENGINE COOLANT
EER	ENERGY EFFICIENCY RATIO
EL	ELEVATION
EO	ENGINE OIL
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPACT	ENERGY POLICY ACT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EW	EMERGENCY EYEWASH
EWT	ENTERING WATER TEMPERATURE
F/D	FIRE DAMPER
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FLA	FULL LOAD AMPERE
FLT	FILTER
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FT	FEET
FU	FIXTURE UNIT
G	GASOLINE
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	CHASSIS GREASE
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HOA	HAND/OFF/AUTOMATIC
HP	HORSE POWER
HPW	HIGH PRESSURE WASH/ RINSE WATER
HR	HOUR
HYD	HYDRANT
I/O	INPUT/OUTPUT
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
INV	INVERT
KS	KITCHEN SINK
kW	KILOWATT
kWh	KILOWATT HOUR
L	LITER
L/s	LITERS PER SECOND
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUNDS
LB/HR	POUNDS PER HOUR
LWT	LEAVING WATER TEMPERATURE
m	METER
m/s	METERS PER SECOND
MAT	MIXED AIR TEMPERATURE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY

ABBREVIATIONS

Symbol	Description
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MH	MANHOLE
MIN	MINIMUM
mm	MILLIMETER
MOCP	MINIMUM OVER CURRENT PROTECTION
MOD	MOTOR OPERATED DAMPER
N/A	NOT APPLICABLE
NC	NOISE CRITERIA, OR NORMALLY CLOSED
NFWH	NON-FREEZE WATER HYDRANT
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NOx	NITROUS OXIDES
NPW	NON POTABLE WATER
NTS	NOT TO SCALE
O/A	OUTSIDE AIR
OC	ON CENTER
Pa	PASCAL
PD	PRESSURE DROP, AND, PUMP DISCHARGE
PF	PENAL FIXTURE
PG	PRESSURE GAUGE
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING / REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
PTRV	PRESSURE TEMPERATURE RELIEF VALVE
PW	PRESSURE WASHER WATER
R/A	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RD	ROOF DRAIN, AND, RELIEF DAMPER
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RWL	RAIN WATER LEADER
S/A	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SCFM	STANDARD CUBIC FEET PER MINUTE
SL	ACOUSTIC SILENCER
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SP	STATIC PRESSURE
SQ FT	SQUARE FEET
SS	STAINLESS STEEL
SV	SUPERVISED VALVE
SW	SERVICE WATER
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TF	TRANSMISSION FLUID
TMV	THERMOSTATIC MIXING VALVE
TSP	TOTAL STATIC PRESSURE, AND, TRAP SEAL PRIMER
TSTAT	THERMOSTAT
TYP	TYPICAL
U/C	UNDERCUT
U/G	UNDERGROUND
UL / ULC	UNDERWRITERS LABORATORY / CANADA
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W	WATTS
Wb	WET BULB
WC	WATER CLOSET
WC	WASTE COOLANTS
WG	WATER GAUGE
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTER
WO	WASTE OILS
WPD	WATER PRESSURE DROP
WS	WATER SOFTENER
WWF	WINDSHIELD WASHER FLUID
°C	DEGREES CENTIGRADE (CELCIUS)
°F	DEGREES FAHRENHEIT
ø	DIAMETER
∆P	CHANGE IN PRESSURE
∆T	CHANGE IN TEMPERATURE

SYMBOLS

FHV	FIRE HOSE VALVE
ITV	INSPECTOR'S TEST VALVE
	FIRE EXTINGUISHER - RECESSED
	NOVEC DISCHARGE NOZZLE
	2-WAY SIAMESE CONNECTION
	FREE STANDING SIAMESE
AC	AIR COMPRESSOR, C/W RESERVOIR
BV	BALANCING VALVE
GV	GATE VALVE
IV	ISOLATION VALVE
TMV	THERMO STATIC MIXING VALVE
RT-X	RUNNING TRAP
SV	SUPERVISORY VALVE
P	PREACTION VALVE
D	DRY ALARM CHECK VALVE
W	WET ALARM CHECK VALVE
CA/PS	COMBINED CLEAN AGENT AND PREACTION SYSTEM
F.S	FLOW SWITCH
CN	CHEMICAL NEUTRALISER

SYMBOLS

UP DN	SUPPLY / OUTSIDE AIR DUCT (UP & DOWN)
UP DN	EXHAUST DUCT (UP & DOWN)
UP DN	RETURN DUCT (UP & DOWN)
	ROUND AND SQUARE CEILING SUPPLY OUTLET
	ROUND AND SQUARE CEILING RETURN INLET
	ROUND AND SQUARE CEILING EXHAUST INLET
	SQUARE DIRECTIONAL CEILING SUPPLY OUTLET
	WALL SUPPLY OUTLET
	WALL RETURN / EXHAUST INLET
U	INCLINED RISE, IN DIRECTION OF AIR FLOW
D	INCLINED DROP, IN DIRECTION OF AIR FLOW
450x300	NEW DUCT (INSIDE DIMENSIONS: WIDTH x DEPTH)
	FLEXIBLE DUCTWORK
	DUCT WITH ACOUSTIC LINING
T	THERMOSTAT
T	THERMOSTAT WITH COVER
TS	TEMPERATURE SENSOR
H	HUMIDISTAT
DP	DIFFERENTIAL PRESSURE SENSOR
SP	STATIC PRESSURE SENSOR
CO	CARBON MONOXIDE SENSOR
CO_2	CARBON DIOXIDE SENSOR
NO_2	NITROGEN DIOXIDE SENSOR
H_2	HYDROGEN SENSOR
GV	GASOLINE VOC
HC	HYDROCARBON SENSOR
WF/S	WATER FLOW SWITCH
WP/S	WATER PRESSURE SWITCH
AP/S	AIR PRESSURE SWITCH
AP	ALARM PANEL
CP	CONTROL PANEL
	STROBE AND HORN
MD	MOTOR OPERATED DAMPER
F/D	FIRE DAMPER
BDD	BACKDRAFT DAMPER
	BALANCING DAMPER
	DUCT EXPANSION JOINT
	DUCT SILENCER
S/D	SMOKE DAMPER
FS/D	COMBINATION FIRE & SMOKE DAMPER
FE-1	FIRE EXTINGUISHER - ABC TYPE
FE-2	FIRE EXTINGUISHER - CO2 TYPE
FHC	FIRE HOSE CABINET
FHC-01	FIRE HOSE CABINET TYPE-III
FHR	FIRE HOSE RACK
W	ALARM CHECK VALVE, WET SPRINKLER SYSTEM
D	ALARM CHECK VALVE, DRY SPRINKLER SYSTEM
	VIBRATION ISOLATOR
	PIPE/DUCT FLEXIBLE CONNECTION
	ELECTRIC HEAT TRACING
DCVA	DOUBLE CHECK BACKFLOW PREVENTER
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
FD FD FD	DRAINS ABOVE
FCO	FLOOR CLEANOUT
CO	CLEANOUT PLUG
	FLOOR DRAIN
	ROOF DRAIN
	HOSEBIBB, WALL HYDRANT
E	ENERGY METER
W	WATER METER
G	GAS METER
FFD	FUNNEL FLOOR DRAIN
FLT	FILTER

SYMBOLS

DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
TW	TEMPERED WATER
SAN	SANITARY WASTE
SAN U/G	SANITARY WASTE UNDERGROUND
STM	STORM WATER
GR	RADON GAS
SSD	SUBSOIL DRAINAGE
NPW	NOMINALLY POTABLE WATER
PWS	WASH DOWN WATER
V	VENT
CD	GRAVITY FED CONDENSATE DRAIN
PD	PUMPED DISCHARGE
G	NATURAL GAS
FO	FUEL OIL
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HWRR	HEATING WATER REVERSE RETURN
HGS	HEATING GLYCOL SUPPLY
HGR	HEATING GLYCOL RETURN
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CHGS	CHILLED GLYCOL SUPPLY
CHGR	CHILLED GLYCOL RETURN
RG	REFRIGERANT GAS
RL	REFRIGERANT LIQUID
F	FIRE
FDC	FIRE DEPARTMENT CONNECTION
SP	SPRINKLER PIPING
DSP	DRY SPRINKLER PIPING
STP	STANDPIPE PIPING
	DIRECTION OF FLOW
	CONCENTRIC REDUCER OR INCREASER
	ECCENTRIC REDUCER OR INCREASER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	RISER DOWN (ELBOW)
	RISER UP (ELBOW)
	RISER DOWN (IN PIPE)
	RISER UP (IN PIPE)
	RISE OR DROP IN PIPE
	ELBOW
	PIPE BREAK
	CAP ON END OF PIPE
	UNION
MV	MANUAL AIR VENT
AAV	AUTOMATIC AIR VENT
	GATE VALVE OR GENERIC VALVE REFER TO SPECIFICATIONS
	BALL VALVE
	DRAIN VALVE WITH THREADED HOSE END CONNECTION
	GATE VALVE, O.S.&Y.
	BUTTERFLY VALVE
N	2-WAY BUTTERFLY VALVE
CV,NRV	CHECK VALVE/NON RETURN VALVE
	ANGLE GLOBE VALVE
	PLUG VALVE
	GAS COCK
	PRESSURE REGULATING VALVE
S	SOLENOID VALVE
	TEMPERATURE AND PRESSURE RELIEF VALVE
	Y STRAINER
	VALVE IN RISE
	VALVE IN DROP
	THERMOMETER
	PRESSURE GAUGE
	PRESSURE GAUGE W/ STOPCOCK
	PLUGGED PRESSURE GAUGE CONNECTION
	TWO WAY CONTROL VALVE
	THREE WAY CONTROL VALVE
	CIRCUIT BALANCING VALVE
	PIPE EXPANSION LOOP
	EXPANSION JOINT
	PIPE ANCHOR
	PIPE GUIDE
	MOTORIZED VALVE

SYMBOLS

WC-x WC	WATER CLOSET - LETTER DENOTES TYPE
UR-x UR	URINAL - LETTER DENOTES TYPE
WF-x	WASH FOUNTAIN - LETTER DENOTES TYPE
ESH-x	EMERGENCY SHOWER WITH EYE WASH - LETTER DENOTES TYPE
EW-x	EYE / FACE WASH - LETTER DENOTES TYPE
LAV-x LAV	LAVATORY - LETTER DENOTES TYPE
SH-x SH-x	SHOWER STALLS - LETTER DENOTES TYPE
J.S-x JS	JANITOR SINK - LETTER DENOTES TYPE
K.S-x	KITCHEN SINK - LETTER DENOTES TYPE
D.F-x	DRINKING FOUNTAIN - LETTER DENOTES TYPE
FD-x	FLOOR DRAIN - LETTER DENOTES TYPE
RD-x	ROOF DRAIN - LETTER DENOTES TYPE
TD	DRAIN CHANNEL
V	VENT
1%	DIRECTION OF SLOPE DOWN
xx.xx	PIPE INVERT ELEVATION
FD	DRAIN CONNECTION c/w TRAP
CO	RUNNING TRAP WITH C.O.
	PLUMBING VENT AT ROOF
F/A	PIPE FROM ABOVE
T/B	PIPE TO BELOW
H/L	PIPE AT HIGH LEVEL
U/G	PIPE AT AT UNDERGROUND
H/L-U/G	PIPE HIGH LEVEL TO UNDERGROUND
H/L-D/N	PIPE HIGH LEVEL TO DOWN
D/N	PIPE DOWN
B/S	BELOW SLAB
TSP-x	120V TRAP SEAL PRIMER LETTER DENOTES TYPE
IO	OIL INTERCEPTOR
WHA	WATER HAMMER ARRESTOR
SMH	STORM MANHOLE
MH	SANITARY CIRCULAR MANHOLE
CB-1	600w X 600mm DEEP CATCHBSIN 300mm HIGH BASE EXTENSION
CB-2	300w X 600mm DEEP CATCHBSIN

ANNOTATION

TAGS	DESCRIPTION
5 10 120 RHC-C-04	VAV BOX SIZE MIN. AIR FLOW [L/s] MAX. AIR FLOW [L/s] REHEAT COIL
RHC-C-04	EQUIPMENT TAG SEQUENTIAL NUMBER BUILDING
S-1 150ø 115 3@ S-5 1200x300 950	DIFFUSER TYPE NECK SIZE [mm] AIR FLOW [L/s] TYPICAL QUANTITY GRILLE TYPE GRILLE SIZE [mmxmm] AIR FLOW [L/s]
XX-X 1007 2.05	HEATER TYPE/TAG HEATING CAPACITY [W] FLUID FLOW [L/s]
FFH-01	EQUIPMENT TAG SEQUENTIAL NUMBER
1 ME-401	CALLOUT HEAD DETAIL NUMBER REFERENCING SHEET

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REGISTRATION

ISSUE/REVISION

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MECHANICAL STANDARD SYMBOLS AND LEGEND

SHEET NUMBER

00-M-001

Project Management Initials: Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

GENERAL NOTES:

1. FOR ALL ELECTRICAL POWER SUPPLY, HEAT TRACING AND ELECTRICAL CLASSIFICATION REFER TO ELECTRICAL DIVISION AND/ OR MECHANICAL SUPPLEMENTAL INFORMATION.

2. MATERIALS AND DEBRIS SHALL NOT BE STACKED IN BUILDING TO PREVENT OVERLOADING OF ANY PART OF STRUCTURE.

3. INSTALL BURIED AND CONCRETE ENCASED COPPER PIPING WITH A PROTECTIVE SLEEVE OR WRAP FOR IT'S ENTIRE LENGTH. SLEEVE OR WRAP SHALL BE FLEXIBLE POLYETHYLENE MANUFACTURED FOR CONTINUOUS PIPE COVER APPLICATION. EXTEND SLEEVE OR WRAP 50mm ABOVE FINISHED FLOOR.

4. THE CONTRACTOR SHALL PROVIDE OFFSETS AND FITTINGS IN THE PIPING RUNS WHERE REQUIRED TO CLEAR ELECTRICAL SYSTEMS AND EQUIPMENT, MECHANICAL SYSTEMS AND EQUIPMENT, PROCESS SYSTEMS AND EQUIPMENT, DUCTWORK, STRUCTURE, CRANE, HOISTS AND OTHER FACILITY SYSTEMS.

5. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF LOUVERS AND ROOF OPENINGS.

6. FLOOR PLANS SHALL BE READ IN CONJUNCTION WITH SCHEMATICS, DETAILS AND SPECIFICATIONS. NEITHER THE DRAWINGS NOR THE SPECIFICATIONS SHALL BE USED ALONE. MISINTERPRETATION OF ANY REQUIREMENTS OF EITHER PLANS OR SPECIFICATIONS SHALL NOT CHANGE THE REQUIREMENTS OR INTENT OF THE SPECIFICATIONS FOR PROPER COMPLETION OF THE WORK TO THE FULL APPROVAL OF THE ENGINEER AND THE OWNER/ CITY.

7. INFORMATION SHOWN ON THE FLOOR PLANS SHALL BE ASSUMED TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND DETAIL AND VICE-VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

8. SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS AND SPECIFICATIONS TO CAUSE DOUBT AS TO THE TRUE MEANING AND INTENT OF THE DRAWINGS AND SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER BEFORE SUBMITTING THE TENDER. IF THIS IS NOT DONE, IT IS ASSUMED THAT THE MORE EXPENSIVE ALTERNATIVE HAS BEEN INCLUDED IN THE CONTRACT.

9. DUCT AND PIPING ELEVATIONS SHOWN ARE APPROXIMATE AND ARE DEPENDENT ON FINAL STRUCTURAL ELEMENTS. VERIFY ELEVATIONS ON SITE WITH EXISTING CONDITIONS PRIOR TO INSTALLATION. EXCEPT WHERE DIMENSIONS ARE SPECIFICALLY INDICATED, MECHANICAL DRAWINGS ARE GENERALLY DIAGRAMMATIC AND SHALL NOT BE SCALED. SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHERE POSSIBLE. DRAWINGS INDICATE THE REQUIRED SIZE AND ROUTES OF SYSTEM ELEMENTS. IT IS NOT INTENDED TO INDICATE ALL OFFSETS, RISERS, OR FITTINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL ADDITIONAL SYSTEM ELEMENTS IN A MANNER TO ACCOMMODATE TO BUILDING STRUCTURE, OTHER SYSTEMS AND TO AVOID OBSTRUCTIONS.

10. FITTINGS, ELBOWS, CONNECTIONS AND TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.

11. ARRANGE EQUIPMENT INTO THE AVAILABLE SPACE IN A MANNER TO MAKE ALL WORKING PARTS ACCESSIBLE FOR MAINTENANCE AND SERVICE.

12. FINAL PIPE AND DUCT LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATIONS AND INSTALLATION BY CONTRACTOR.

13. ALL PIPES, HANGERS, FITTINGS AND INSTALLATION METHODS TO CONFORM TO CSA, ULC, NBC AND LOCAL CODES AND BY-LAW.

14. PROVIDE CLEANOUTS IN ROOF DRAIN PIPING AND SANITARY WASTE PIPING AS SHOWN ON THE DRAWINGS. PROVIDE AND INSTALL ADDITIONAL CLEANOUTS AS REQUIRED BY CODE.

15. COORDINATE FINAL LOCATIONS OF FLOOR AND FUNNEL FLOOR DRAINS THAT RECEIVE CONDENSATE DRAINAGE FROM HVAC, PLUMBING AND FIRE PROTECTION EQUIPMENT.

16. CONTRACTOR TO PROVIDE VENT PIPES IN ACCORDANCE WITH NBC. NO ATTEMPT HAS BEEN MADE TO SHOW VENT PIPE ROUTING. PLUMBING VENTS THROUGH ROOF SHALL BE OFFSET AT ROOF TO PROVIDE MINIMUM DISTANCE OF 2m FROM EXTERIOR WALL.

17. PROVIDE MANUAL BALANCING DAMPERS AT ALL LOCATIONS AS INDICATED IN THE SPECIFICATIONS.

18. ALL PIPES PENETRATING EXTERIOR WALLS HAVE TO BE INSTALLED AS PER DETAILS.

19. UPON CONSTRUCTION WORKS COMPLETION, FLUSH AND CLEAN ALL NEW AND EXISTING DRAINAGE SYSTEMS TO OBTAIN OPTIMUM PERFORMANCE. PROVIDE WRITTEN REPORT.

20. ALL DIMENSIONS SHOWN ON DRAWINGS ARE “FREE AIR FLOW AREA” DIMENSIONS, INCREASE DUCTWORK SIZE TO ACCOMMODATE ACOUSTICAL LINING.

21. PIPING INSIDE ELECTRICAL ROOMS AND UPS ROOMS SHALL BE INSTALLED ABOVE DRIP PAN SLOPED AWAY FROM THE ELECTRICAL EQUIPMENT AND TERMINATED OUTSIDE THE ROOMS TO NEAREST FLOOR/ FUNNEL FLOOR DRAIN.

22. SUSPENDED AIR INTAKE / EXHAUST PLENUMS SHALL BE PROVIDED WITH VALVED AND CAPPED DRAIN PIPE AT THE BOTTOM, DRAINED TO A NEAREST FLOOR/ FUNNEL FLOOR DRAIN.

23. VERIFY STRUCTURAL INTEGRITY OF ALL TEMPORARY AND PERMANENT OPENINGS. ADDITIONAL FRAMING TO ENSURE STRUCTURAL INTEGRITY SHALL BE PROVIDED UNDER THIS CONTRACT.

24. PRIOR TO COMMENCEMENT OF WORK, ORDERING OF EQUIPMENT AND/OR FABRICATING MATERIALS, THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS. THIS SHALL BE DONE IN ORDER TO CONFIRM THAT EQUIPMENT AND SERVICES CAN BE INSTALLED AS SHOWN ON DRAWINGS OR SPECIFIED. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS. IT IS THE CONTRACTOR’S RESPONSIBILITY TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES, OMISSIONS, AND/OR INTERFERENCES PRIOR TO COMMENCEMENT OF WORK. PROVIDE 3D INTERFERENCE DRAWINGS BASED ON THE CONTRACTOR’S SELECTED AND APPROVED EQUIPMENT AND SYSTEM LAYOUTS PRIOR TO PURCHASE OR FABRICATION TO THE FULL APPROVAL OF THE ENGINEER AND THE OWNER/ CITY.

GENERAL PLUMBING AND DRAINAGE NOTES:

1. THE ENTIRE PLUMBING INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL PLUMBING CODE AND ALL LOCAL BYLAWS AND REGULATIONS IN EFFECT AT THE TIME OF CONSTRUCTION.

2. ALL SANITARY DRAINAGE BELOW GRADE SHALL BE MINIMUM OF 100 MM (4 IN.) UNLESS INDICATED OTHERWISE.

3. ALL FLOOR DRAINS SHALL BE COMPLETE WITH TRAPS AND TRAP PRIMERS.

4. ALL STORM DRAINAGE BELOW GRADE SHALL BE MINIMUM 100 MM (4 IN.) UNLESS INDICATED OTHERWISE.

5. ALL DOMESTIC COLD WATER AND DOMESTIC HOT WATER PIPES SHALL BE MINIMUM 19 mm (3/4 IN.) UNLESS INDICATED OTHERWISE.

6. CONTRACTOR TO SIZE AND ROUTE ALL SANITARY VENTING TO NATIONAL PLUMBING CODE. ALL VENTS SHALL TERMINATE AT MINIMUM 3,000 mm AWAY FROM ANY OUTDOOR AIR INTAKE AND/ OR BUILDING OPENING.

7. COORDINATE FINAL LOCATION WITH FLOOR DRAINS, AND HUB DRAINS THAT RECEIVE CONDENSATE DRAINAGE FROM HVAC AND OTHER EQUIPMENT.

GENERAL FIRE PROTECTION NOTES:

1. INSTALL AUTOMATIC SPRINKLERS BELOW DUCTWORK, EQUIPMENT AND OTHER OBSTRUCTIONS 1,200mm IN WIDTH AND LARGER IN ACCORDANCE WITH NFPA 13. COORDINATE WITH ALL OTHER TRADES PRIOR TO SYSTEM INSTALLATION.

2. OFFSET SPRINKLER PIPING AROUND VERTICAL DUCTWORK AND OTHER OBSTRUCTIONS. PROVIDE CLEAR ACCESS UNDER OBSTRUCTIONS FOR ALL AUTOMATIC SPRINKLERS IN ACCORDANCE WITH VARIOUS NFPA REQUIREMENTS.

3. PROVIDE SPRINKLER PROTECTION UNDER STAIRWAYS PER NFPA 13.

4. FIRE PROTECTION CONTRACTOR TO PROVIDE VENTS AND DRAINAGE CONNECTION FOR COMMISSIONING TO NEAREST FLOOR/ FUNNEL FLOOR DRAIN.

5. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SPRINKLER LAYOUT, INCLUDING MAINS AND HEADS TO SUIT ARCHITECTURAL CEILING PLANS. PROPOSED LAYOUTS SHALL BE PROVIDED AS SHOP DRAWINGS FOR REVIEW BY ENGINEER, ARCHITECT AND OWNER/ CITY PRIOR TO INSTALLATION.

6. PROVIDE HIGH TEMPERATURE HEADS IN ELECTRICAL, MECHANICAL AND COMMUNICATIONS ROOMS.

7. FLOW INDICATION, SUPERVISED VALVES AND PRESSURE SWITCHES ARE SHOWN ON SCHEMATICS FOR CLARITY AND ARE CONSIDERED PART OF A COMPLETE LISTED ALARM CHECK VALVE ASSEMBLY.

8. FIRE PROTECTION CONTRACTOR TO PROVIDE ENGINEER STAMPED FIRE PROTECTION, SUPPRESSION DRAWINGS AND HYDRAULIC CALCULATIONS.

9. AT THE COMPLETION OF THE PROJECT, FIRE PROTECTION CONTRACTOR SHALL PROVIDE AN ENGINEER SIGNED AND SEALED LETTER CONFIRMING THE INSTALLATION COMPLIES WITH NFPA AND NATIONAL FIRE CODE

GENERAL HYDRONIC SYSTEM NOTES:

1. ALL HYDRONIC PIPING SHALL BE MINIMUM OF 19 mm (3/4 IN.) UNLESS INDICATED OTHERWISE.

2. TEMPERATURE SENSORS AND GAS DETECTION SYSTEM ARE LOCATED TO AID IN PRICING ONLY AND ALL REQUIRED SENSORS MAY NOT BE SHOWN. COORDINATE FINAL LOCATION WITH THE ARCHITECTS WITHIN 1000 mm (40 IN.) OF THE SHOWN LOCATION.

3. TEMPERATURE SENSORS SHALL BE 1200 mm (48 IN.) ABOVE THE FINISHED FLOOR UNLESS INDICATED OTHERWISE.

GENERAL HVAC SYSTEM NOTES:

1. ALL TRANSFER AIR DUCTS SHALL BE ACOUSTICALLY LINED DOUBLE ELBOWED DUCTS WITH STRAIGHT SECTIONS MINIMUM 600mm IN LENGTH,

2. UNLESS INDICATED OTHERWISE. TRANSFER AIR DUCTS SHALL NOT BE USED IN LIEU OF SILENCERS.

3. ALL DUCTWORK DOWNSTREAM OF VAV BOXES, AND FAN POWERED BOXES SHALL BE EQUAL TO THE BOX OUTLET SIZE (MINIMUM) OR LARGER AS INDICATED. WHERE OUTLET SIZES ARE ODD SIZES, THE DUCT SIZES SHALL BE ROUNDED UP TO THE NEAREST EVEN SIZE. PROVIDE TRANSITION DUCTS AS REQUIRED.

4. COORDINATE LOCATIONS OF GRILLES, REGISTERS AND DIFFUSERS WITH REFLECTED CEILING PLANS, IF IN CASE OF ANY DISCREPANCY, NOTIFY ENGINEER AND ARCHITECT PRIOR TO PROCEEDING.

5. DIFFUSER DUCT RUN-OUTS SHALL BE THE SAME SIZE AS THE DIFFUSER INLETS UNLESS INDICATED OTHERWISE.

6. MAINTAIN A MINIMUM OF 2,400 mm CLEARANCE TO THE UNDERSIDE OF ALL OVERHEAD SERVICES AND EQUIPMENT THROUGHOUT ACCESS ROUTES, UNLESS INDICATED OTHERWISE.

7. ARRANGE EQUIPMENT INTO THE AVAILABLE SPACE IN A MANNER TO MAKE ALL WORKING PARTS ACCESSIBLE FOR MAINTENANCE AND SERVICE, AND TO REDUCE AMOUNT OF ACCESS PANELS REQUIRED.

8. BOTTOM OF FRESH AIR INTAKES SHALL BE NOT LESS THAN 500 mm ABOVE FINISHED ROOF LEVEL.

9. ALL MECHANICAL DEVICES SUCH AS THERMOSTATS, SWITCHES, PANELS AND SENSORS LOCATED IN VEHICLE TRAVEL AREAS ARE TO BE LOCATED IN COLUMN WEBS WHERE POSSIBLE TO ENSURE PROTECTION FROM VEHICLE IMPACT.

10. ALL MECHANICAL THERMAL INSULATION AND DEVICES SUCH AS THERMOSTATS, SWITCHES, PANELS AND SENSORS LOCATED IN BUS WASH AREAS, STEAM BAYS AREAS, POWER WASHER AREAS INCLUDING 3,000 mm BEYOND EACH AREA ARE TO BE WATERTIGHT NEMA 4X. INSULATION JACKETING SHALL BE AS PER OUTDOOR PIPING REQUIREMENTS.

GENERAL INDUSTRIAL NOTES:

NOTE: INDUSTRIAL SYSTEM INTERACTIONS:
THE INDUSTRIAL / MECHANICAL CONTRACTOR SHALL SUPPLY, INSTALL AND TEST/COMMISSION THE REQUIRED SYSTEM(S) TO PERFORM THE FOLLOWING COMPONENT INTERFACES AND SYSTEM SHUTDOWNS

1. FIRE ALARM:
   UPON ACTIVATION, THE BUILDING FIRE ALARM WILL PROVIDE SIGNAL TO SHUT DOWN THE FOLLOWING SYSTEMS
   1.1. DIESEL FUEL PUMP POWER (PUMPHOUSE)
   1.2. DIESEL FUEL DISPENSER POWER (INTERIOR)
   1.3. DIESEL FUEL DISPENSER POWER (EXTERIOR)
   1.4. GASOLINE DISPENSER/PUMP (EXTERIOR)
   1.5. WINDSHIELD WASHER DISPENSING PUMP POWER
   1.6. GREASE DISTRIBUTION PUMP COMPRESSED AIR
   1.7. ENGINE OIL DISTRIBUTION PUMP COMPRESSED AIR
   1.8. HYDRAULIC OIL DISTRIBUTION PUMP COMPRESSED AIR

2. SERVICE LANE VENTILATION
   UPON LOSS OF AIR FLOW WILL PROVIDE SIGNAL TO SHUT DOWN THE FOLLOWING SYSTEM:
   2.1. WINDSHIELD WASHER FLUID DISPENSING PUMP POWER.

3. FUELING SYSTEMS:
   3.1. EMERGENCY SHUT DOWN OF ALL DIESEL AND GASOLINE SYSTEMS FROM EMERGENCY BUTTON:
      3.1.1. AT INTERIOR SERVICE LANE AREA, AND
      3.1.2. AT EXTERIOR FUELING ISLAND AREA.
4. BAS:
   4.1. INTERFACE FOR BAS TO RECEIVE INFORMATION FROM THE FOLLOWING SYSTEMS:
   4.2. FUEL MANAGEMENT SYSTEM
   4.3. DEF AND FUEL TANK LEVEL MONITORING SYSTEM.

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

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CONSULTANT

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REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

MECHANICAL AND INDUSTRIAL GENERAL NOTES

SHEET NUMBER

00-M-002

00-M-002-MECHANICAL AND INDUSTRIAL GENERAL NOTES
Last Plotted: 14-02-2025 22:31:21
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Printed on ___% Post-Consumer Recycled Content Paper

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

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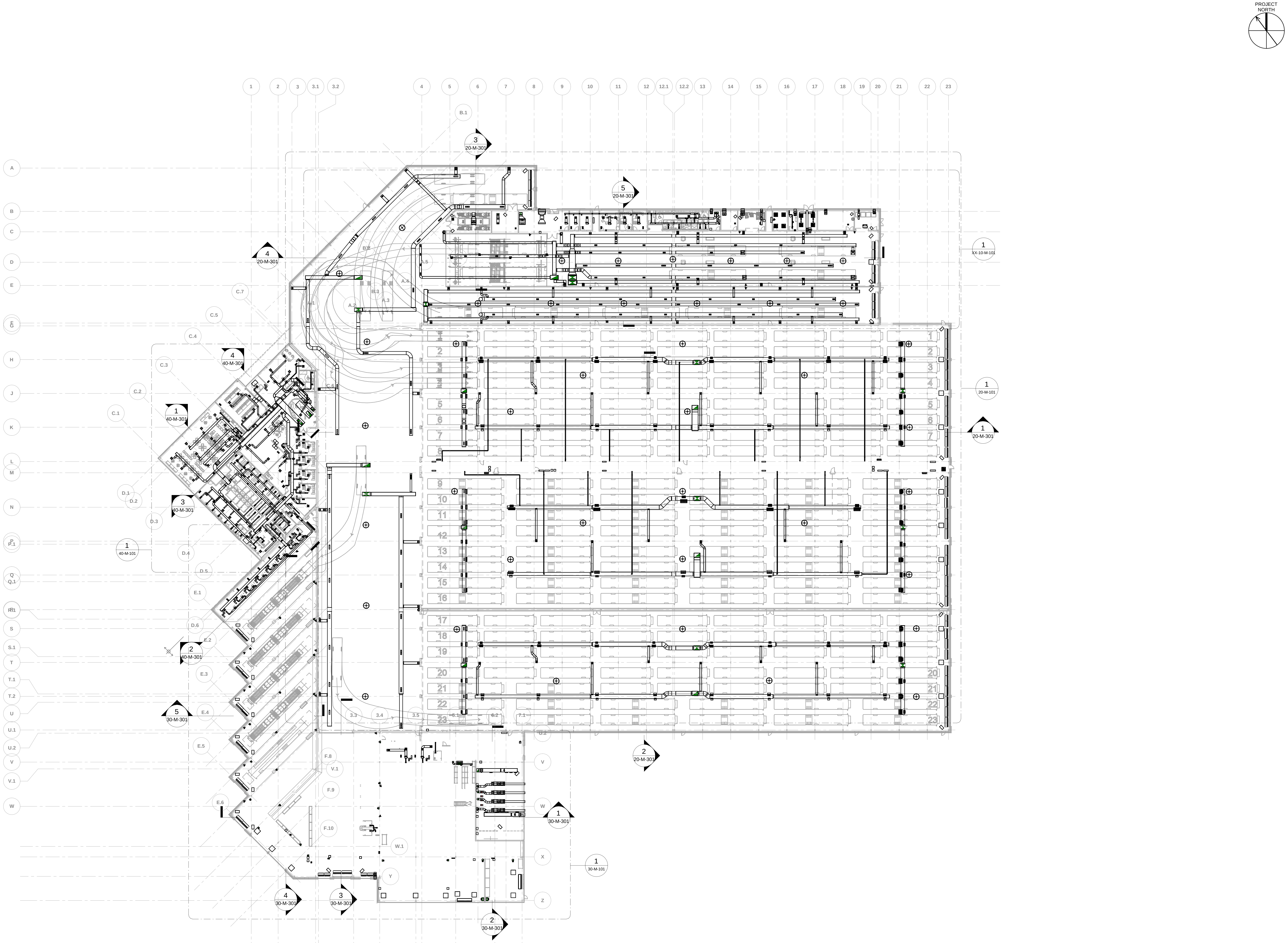

1 GROUND FLOOR PLAN-HVAC
00-M-101 1 : 350

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

GROUND FLOOR PLAN-HVAC

SHEET NUMBER

00-M-101

00-M-101-GROUND FLOOR PLAN-HVAC

Last Plotted: 14-02-2025 22:31:53
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Project Management Initials:

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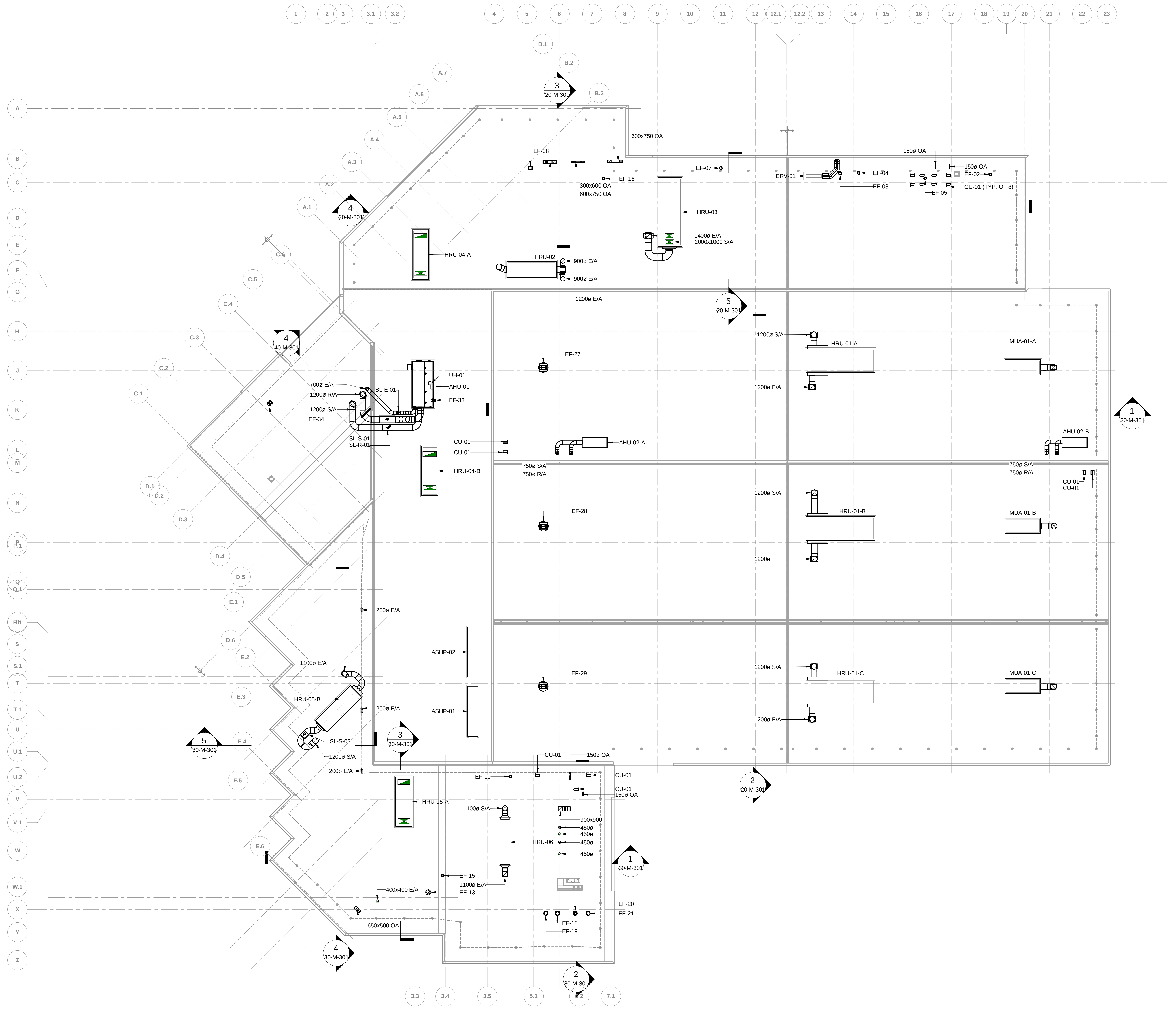
PROJECT
NORTH

GENERAL NOTES:

1. THESE DRAWING ARE JUST DEPICTING LOCATION OF UNITS. FOR DUCTWORK AND PIPING CONNECTIONS REFER TO GENERAL ARRANGEMENT DRAWINGS OF THE UNIT.



1 **ROOF FLOOR PLAN-HVAC**
00-M-102 1 : 350

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

ROOF FLOOR PLAN-HVAC

SHEET NUMBER

00-M-102

00-M-102-ROOF FLOOR PLAN-HVAC
Last Plotted: 14-02-2025 22:31:58
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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Project Management Initials:

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00-M-103-GROUND FLOOR PLAN-HVAC PIPING

Last Plotted: 14-02-2025 22:32:36

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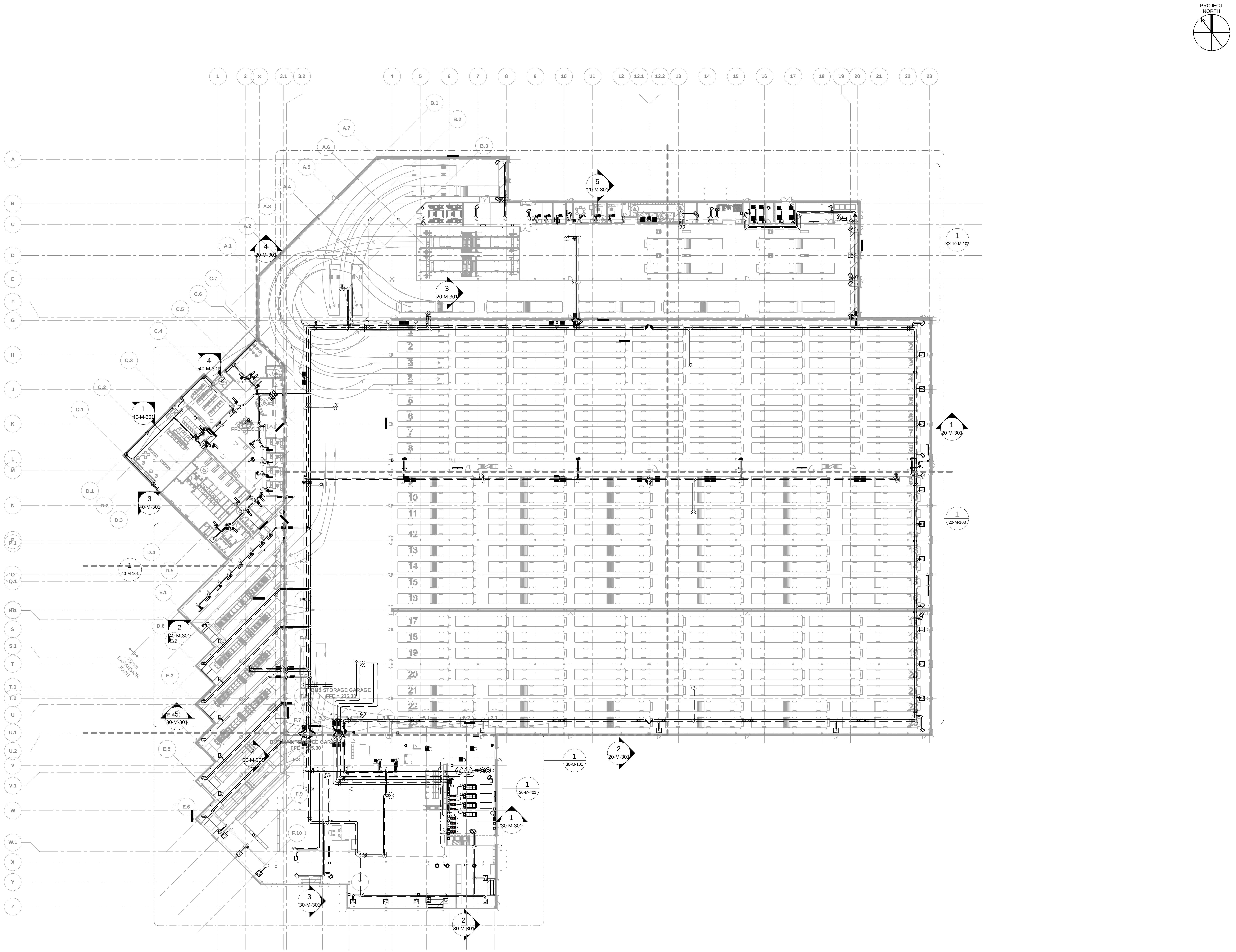

1 **GROUND FLOOR PLAN-HVAC PIPING**
00-M-103 1 : 350

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

GROUND FLOOR PLAN-HVAC PIPING

SHEET NUMBER

00-M-103

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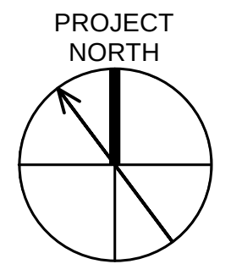

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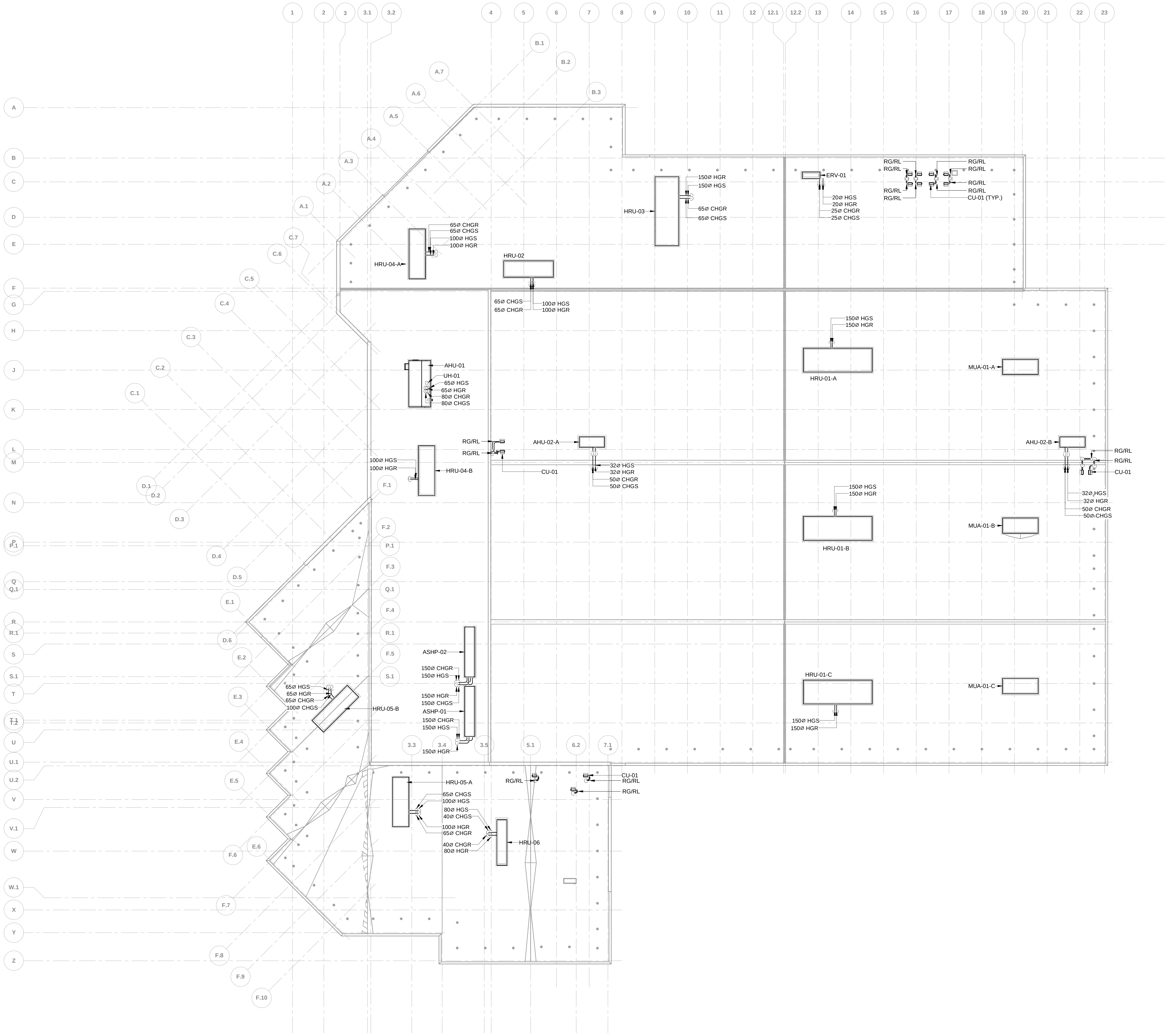

1 **ROOF FLOOR PLAN-HVAC PIPING**
00-M-104 1 : 350

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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PROJECT NUMBER

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SHEET TITLE

ROOF FLOOR PLAN-HVAC PIPING

SHEET NUMBER

00-M-104

00-M-104-ROOF FLOOR PLAN-HVAC PIPING

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00-M-105-GROUND FLOOR PLAN-HVAC ZONING
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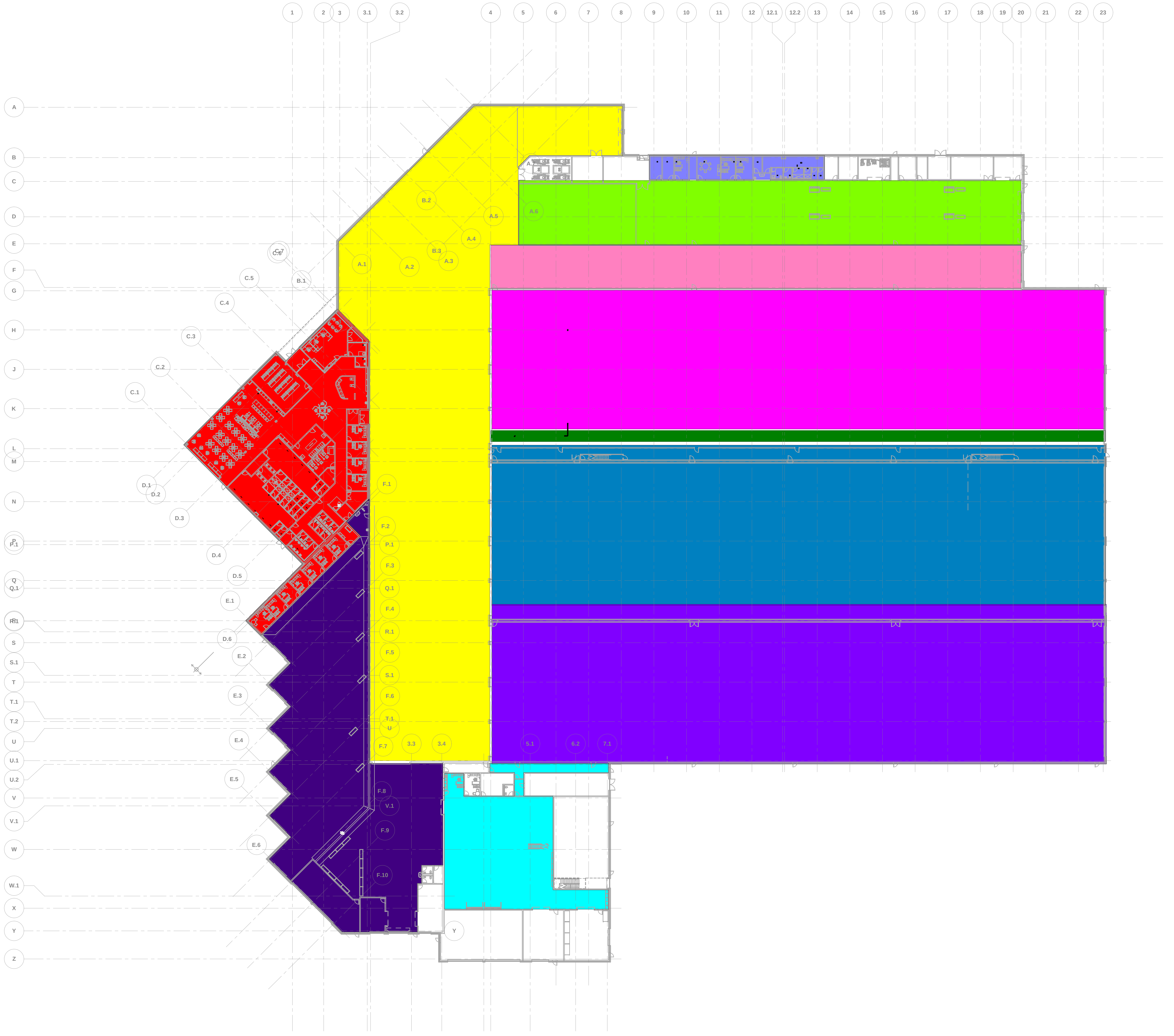

PROJECT NORTH
1 2 3 3.1 3.2 4 5 6 7 8 9 10 11 12 12.1 12.2 13 14 15 16 17 18 19 20 21 22 23
A B C D E F G H J K L M N P P.1 Q Q.1 R R1 S S.1 T T.1 T.2 U U.1 U.2 V V.1 W W.1 X Y Z
A.1 A.2 A.3 A.4 A.5 A.6 B.1 B.2 B.3 C.1 C.2 C.3 C.4 C.5 D.1 D.2 D.3 D.4 D.5 D.6 E.1 E.2 E.3 E.4 E.5 E.6
F.1 F.2 F.3 F.4 F.5 F.6 F.7 F.8 F.9 F.10 P.1 Q.1 R.1 S.1 T.1 U V.1 3.3 3.4 5.1 6.2 7.1

🟪	HRU-01-A
🟦	HRU-01-B
🟪	HRU-01-C
🟨	HRU-04-A, B
🟥	HRU-02
🟩	HRU-03
🟦	HRU-06
🟥	AHU-01
🟪	HRU-05-A, B
🟩	AHU-02-A, B
🟦	ERV-1 ZONE
⬜	GENERAL VENTILATION

1 GROUND FLOOR PLAN-HVAC ZONING
00-M-105 1 : 350

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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PROJECT NUMBER

60721079

SHEET TITLE

GROUND FLOOR PLAN-HVAC ZONING

SHEET NUMBER

00-M-105

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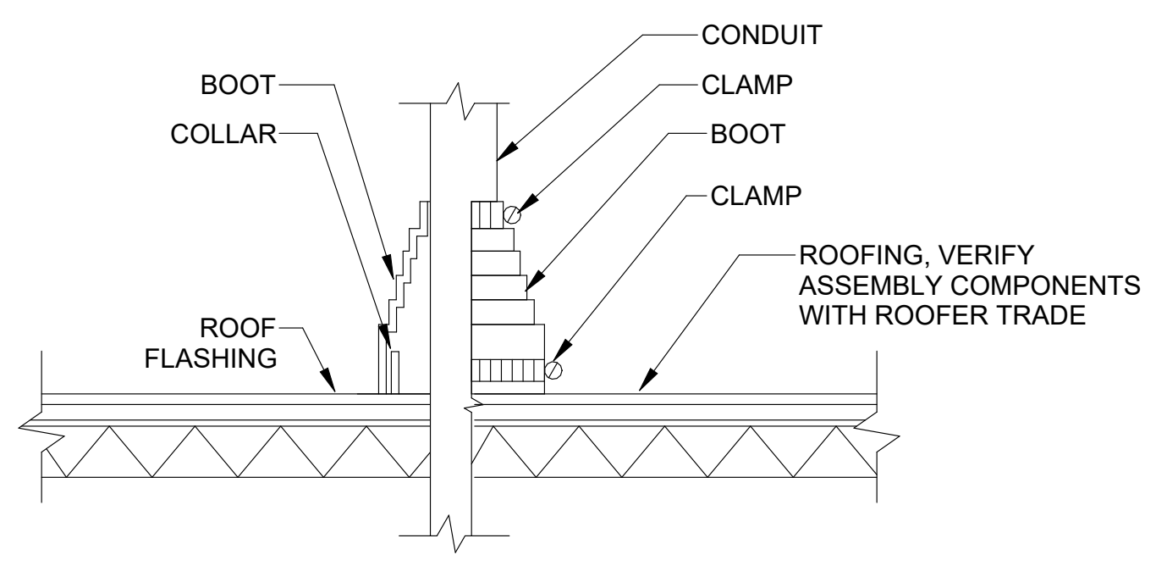
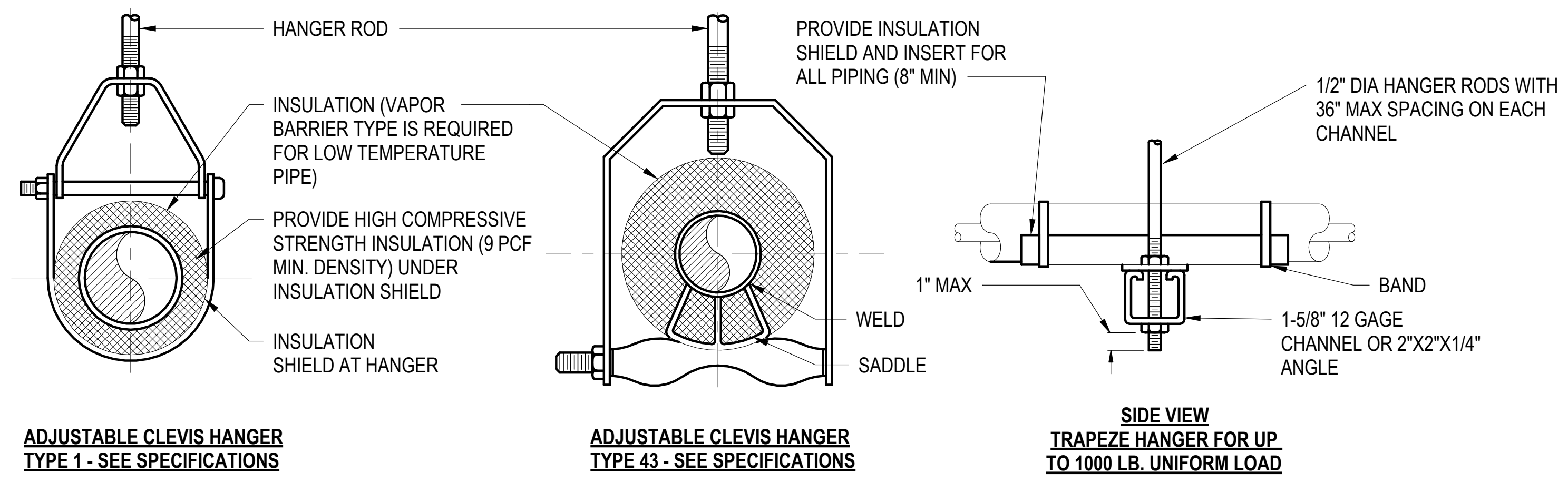


NOTE:
1. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS.

1 PIPE/CONDUIT CURB DETAIL2
NTS

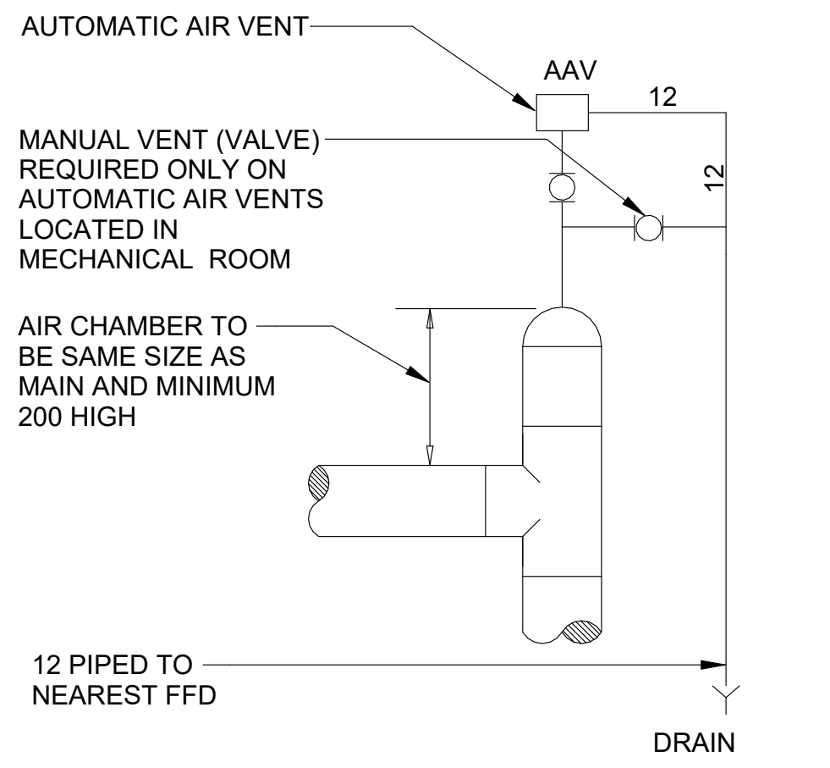

HANGER ROD
INSULATION (VAPOR BARRIER TYPE IS REQUIRED FOR LOW TEMPERATURE PIPE)
PROVIDE HIGH COMPRESSIVE STRENGTH INSULATION (9 PCF MIN. DENSITY) UNDER INSULATION SHIELD
INSULATION SHIELD AT HANGER
PROVIDE INSULATION SHIELD AND INSERT FOR ALL PIPING (8" MIN)
WELD
SADDLE
1/2" DIA HANGER RODS WITH 36" MAX SPACING ON EACH CHANNEL
1" MAX
BAND
1-5/8" 12 GAGE CHANNEL OR 2"X2"X1/4" ANGLE

ADJUSTABLE CLEVIS HANGER TYPE 1 - SEE SPECIFICATIONS

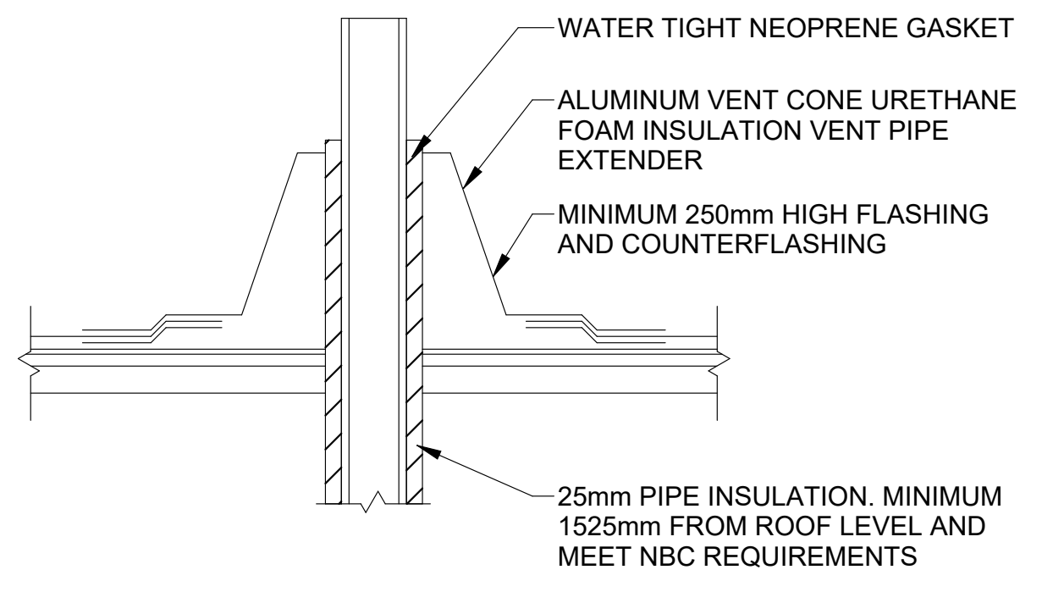
ADJUSTABLE CLEVIS HANGER TYPE 43 - SEE SPECIFICATIONS

SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. UNIFORM LOAD

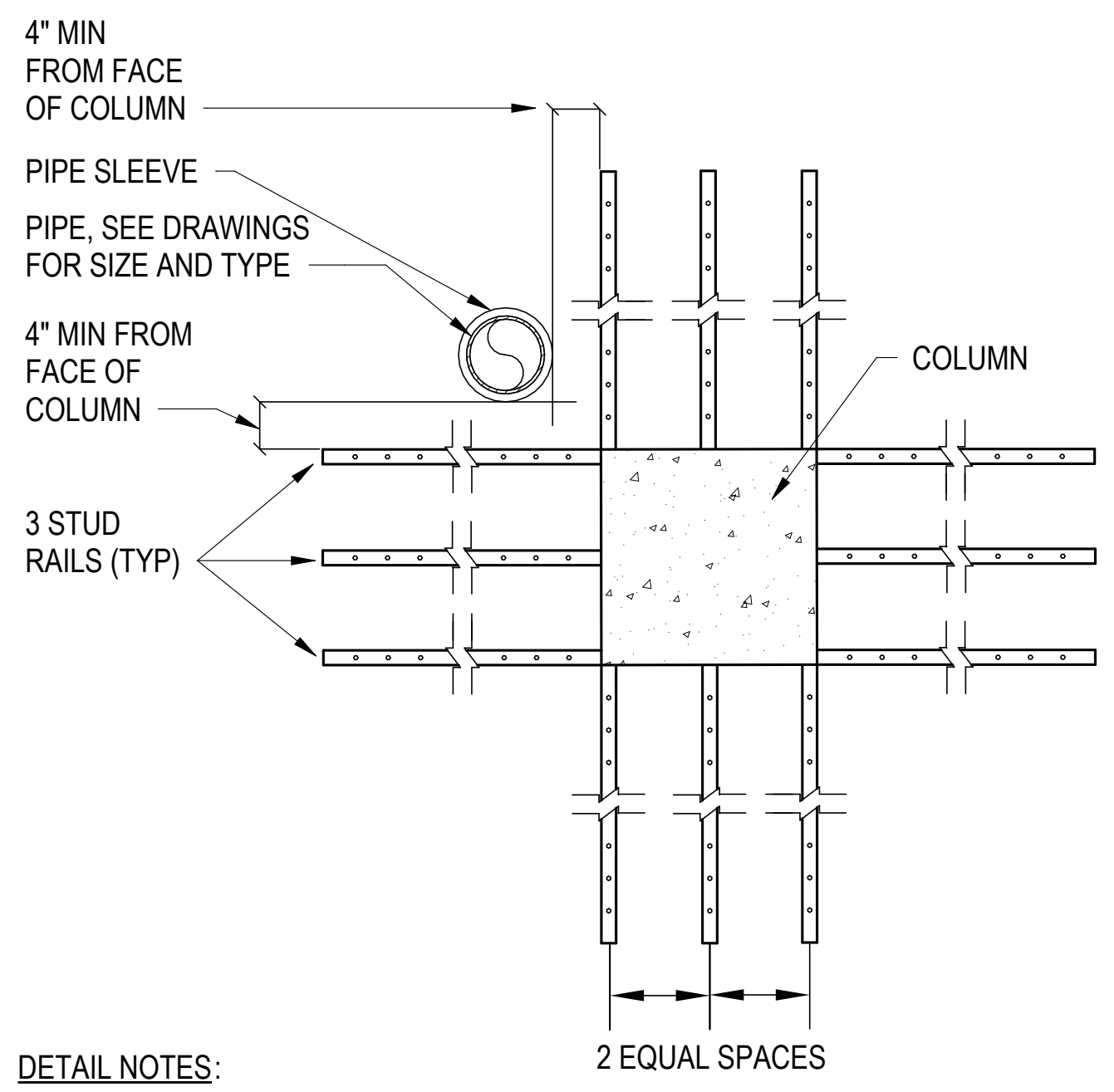
2 TYPICAL PIPE HANGERS1
NTS


AUTOMATIC AIR VENT
AAV
12
12
MANUAL VENT (VALVE) REQUIRED ONLY ON AUTOMATIC AIR VENTS LOCATED IN MECHANICAL ROOM
AIR CHAMBER TO BE SAME SIZE AS MAIN AND MINIMUM 200 HIGH
12 PIPED TO NEAREST FFD
DRAIN

3 AUTOMATIC AIR VENT INSTALLATION DETAIL1
NTS

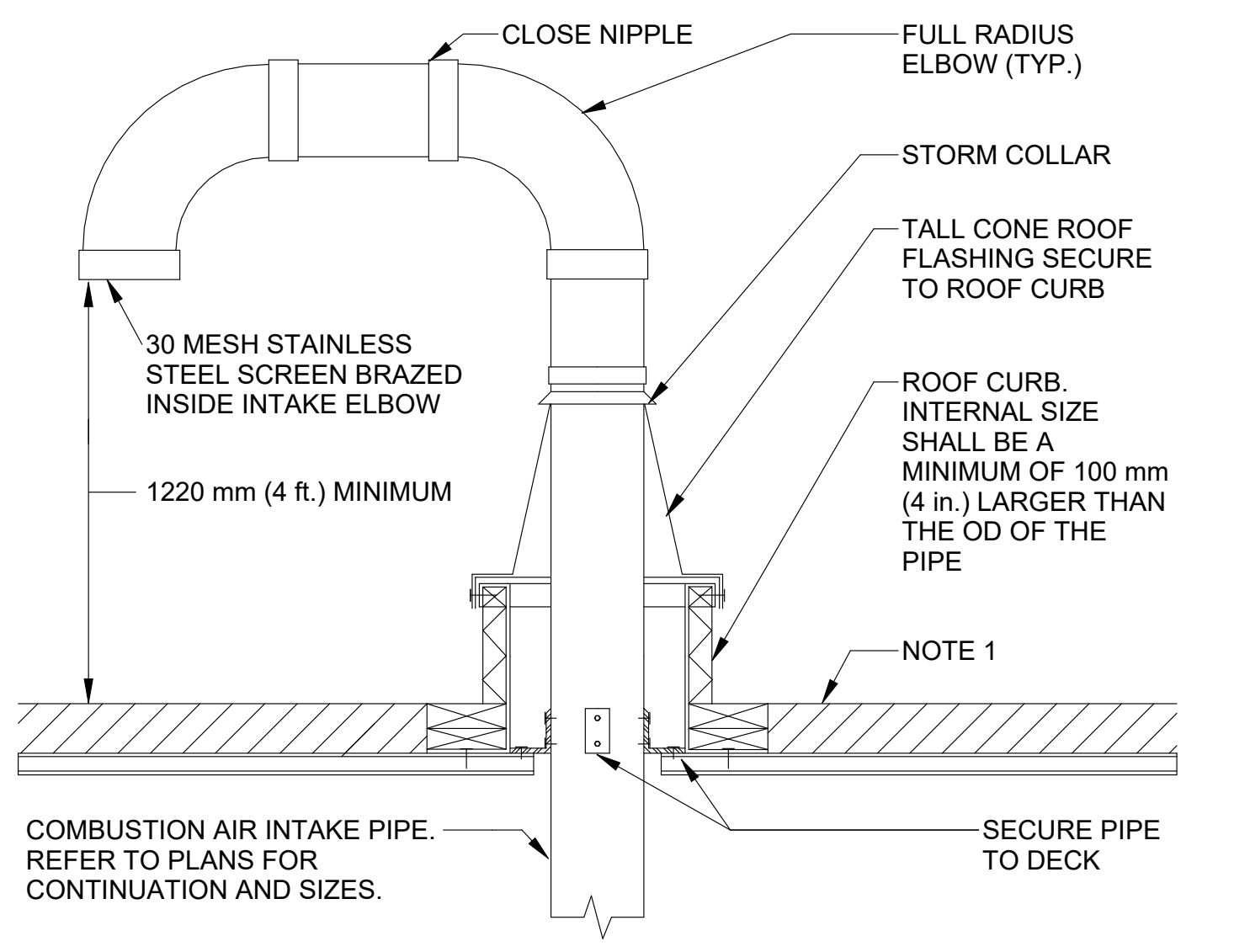

WATER TIGHT NEOPRENE GASKET
ALUMINUM VENT CONE URETHANE FOAM INSULATION VENT PIPE EXTENDER
MINIMUM 250mm HIGH FLASHING AND COUNTERFLASHING
25mm PIPE INSULATION. MINIMUM 1525mm FROM ROOF LEVEL AND MEET NBC REQUIREMENTS

4 PLUMBING VENT THROUGH ROOF DETAIL2
NTS


4" MIN FROM FACE OF COLUMN
PIPE SLEEVE
PIPE, SEE DRAWINGS FOR SIZE AND TYPE
4" MIN FROM FACE OF COLUMN
COLUMN
3 STUD RAILS (TYP)
2 EQUAL SPACES

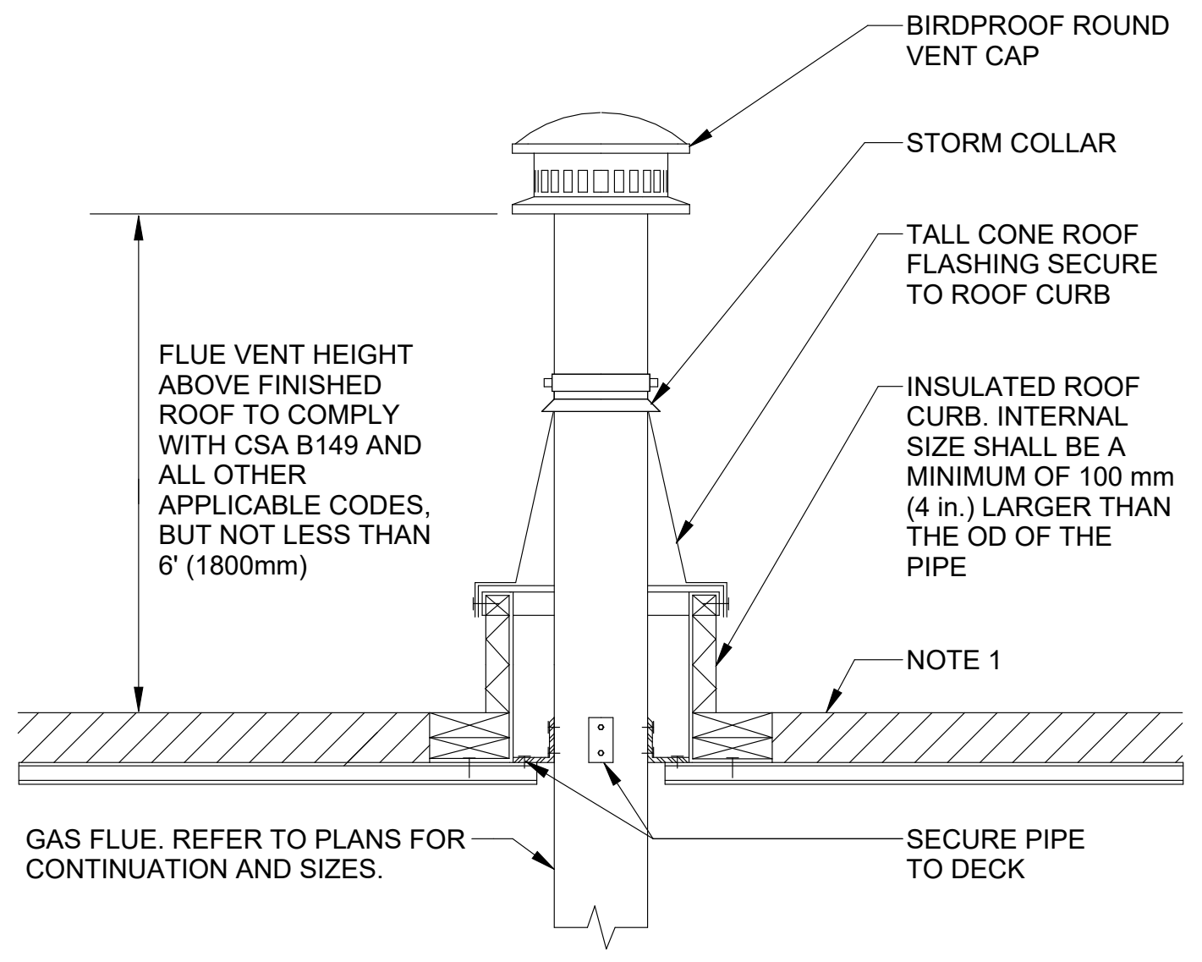
DETAIL NOTES:
1. REFER TO STRUCTURAL DRAWINGS FOR STUD RAIL SPACING AND PENETRATION SIZE.

5 PIPE PENETRATION THRU SLAB1
NTS


CLOSE NIPPLE
FULL RADIUS ELBOW (TYP.)
STORM COLLAR
TALL CONE ROOF FLASHING SECURE TO ROOF CURB
30 MESH STAINLESS STEEL SCREEN BRAZED INSIDE INTAKE ELBOW
1220 mm (4 ft.) MINIMUM
ROOF CURB. INTERNAL SIZE SHALL BE A MINIMUM OF 100 mm (4 in.) LARGER THAN THE OD OF THE PIPE
NOTE 1
COMBUSTION AIR INTAKE PIPE. REFER TO PLANS FOR CONTINUATION AND SIZES.
SECURE PIPE TO DECK

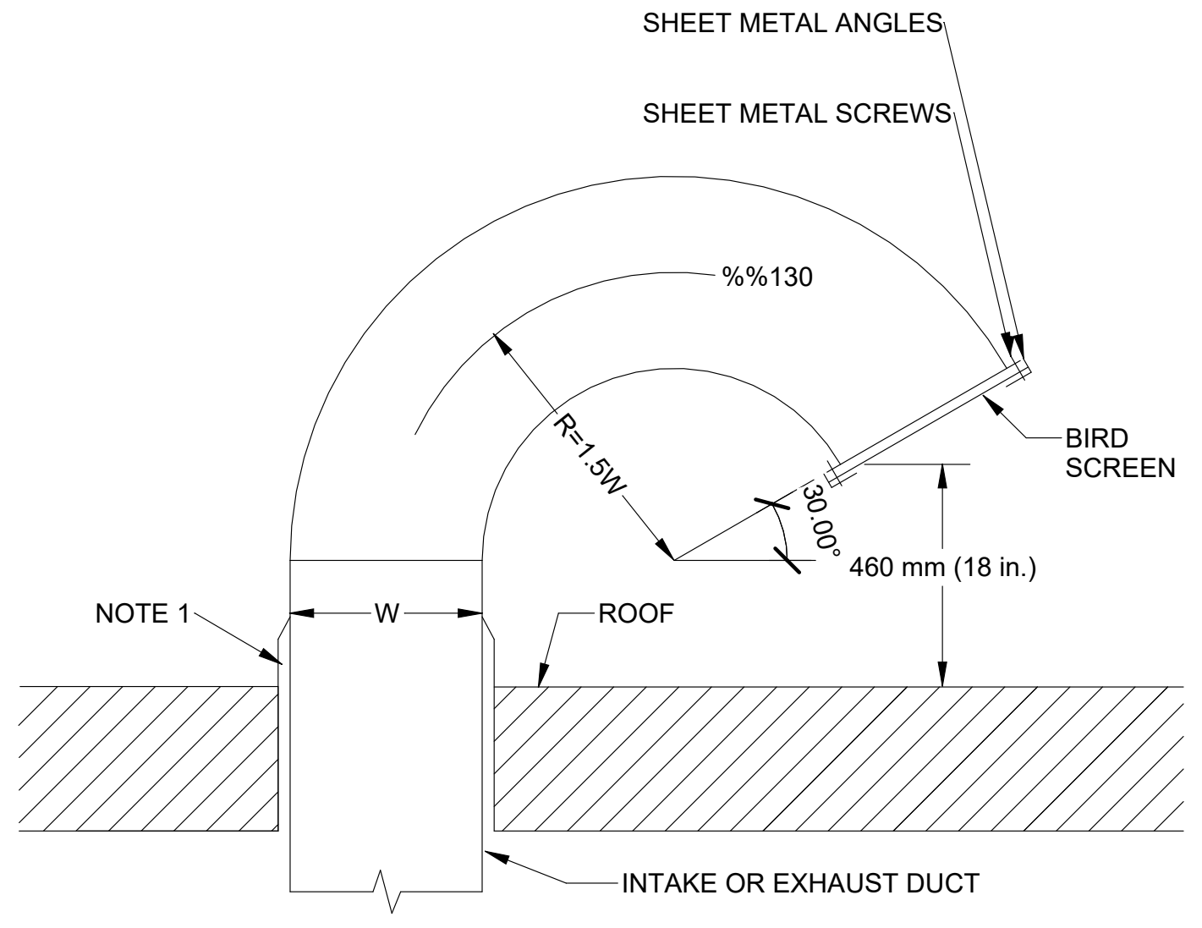
NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ROOF DETAILS.
2. LOCATE COMBUSTION AIR INTAKE A MINIMUM OF 1200 mm (4 ft.) ABOVE ROOF AND A MINIMUM OF 3000mm (10 ft.) FROM ANY VERTICAL SURFACES OR AIR INTAKE OPENINGS.

6 COMBUSTION AIR PIPE THROUGH ROOF2
NTS


BIRDPROOF ROUND VENT CAP
STORM COLLAR
TALL CONE ROOF FLASHING SECURE TO ROOF CURB
FLUE VENT HEIGHT ABOVE FINISHED ROOF TO COMPLY WITH CSA B149 AND ALL OTHER APPLICABLE CODES, BUT NOT LESS THAN 6' (1800mm)
INSULATED ROOF CURB. INTERNAL SIZE SHALL BE A MINIMUM OF 100 mm (4 in.) LARGER THAN THE OD OF THE PIPE
NOTE 1
GAS FLUE. REFER TO PLANS FOR CONTINUATION AND SIZES.
SECURE PIPE TO DECK

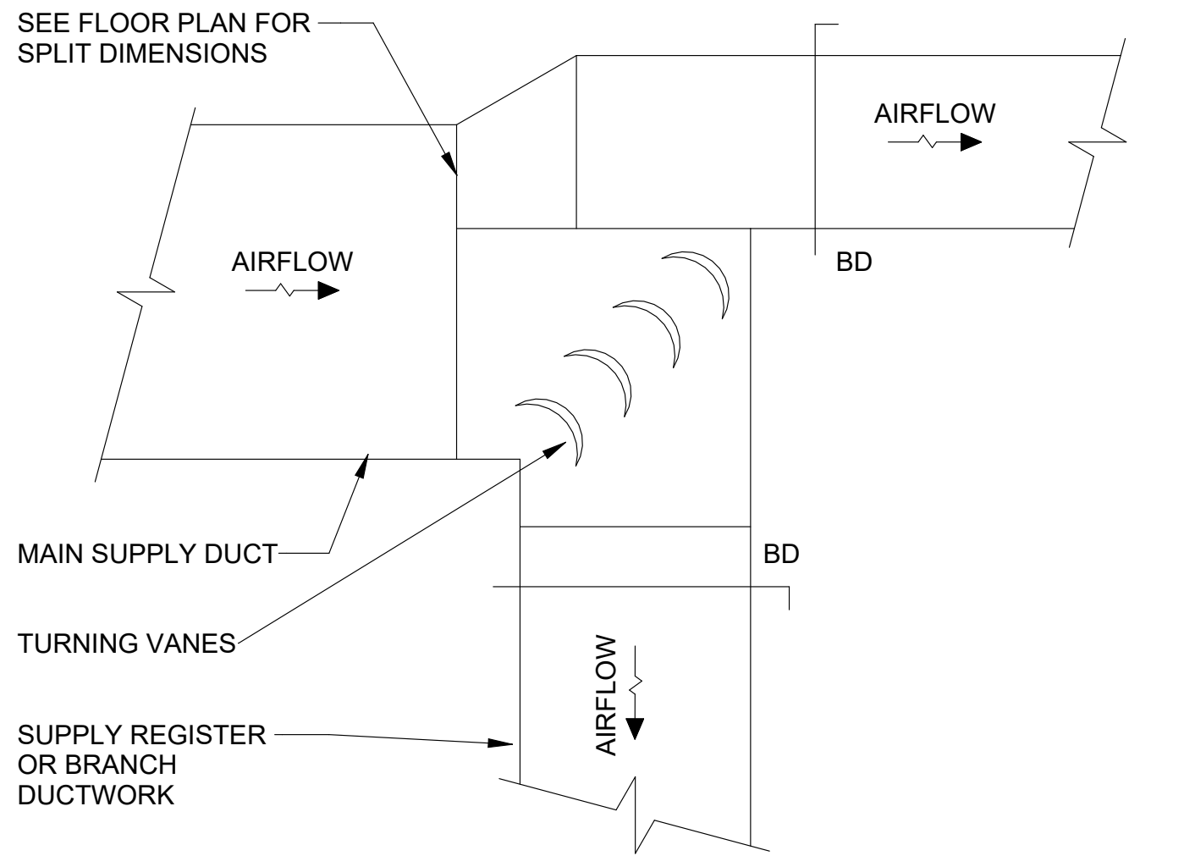
NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ROOF DETAILS.
2. LOCATE FLUE A MIN. OF 1200 mm (4 ft.) ABOVE ROOF AND A MIN. OF 3000 mm (10 ft.) FROM ANY VERTICAL SURFACES OR VENTS.

7 GAS FLUE THROUGH ROOF2
NTS



NOTES:
1. ALL JOINTS SHALL BE WATERTIGHT.
2. SEE DUCT ROOF PENETRATION DETAIL.
3. FOLLOW SMACNA FOR ACCEPTABLE TYPE AND CONTRUCTION STANDARDS.

8 TYPICAL GOOSENECK2
NTS


SEE FLOOR PLAN FOR SPLIT DIMENSIONS
AIRFLOW
AIRFLOW
BD
MAIN SUPPLY DUCT
BD
TURNING VANES
AIRFLOW
SUPPLY REGISTER OR BRANCH DUCTWORK

9 AIR SPLIT DUCT TAKEOFF1
NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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REGISTRATION

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PROJECT NUMBER

60721079

SHEET TITLE

TYPICAL DETAILS (1 OF 8)

SHEET NUMBER

00-M-501

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A0 33.1"x46.8"
Approved: JG
Checked: RS
Designer: TE
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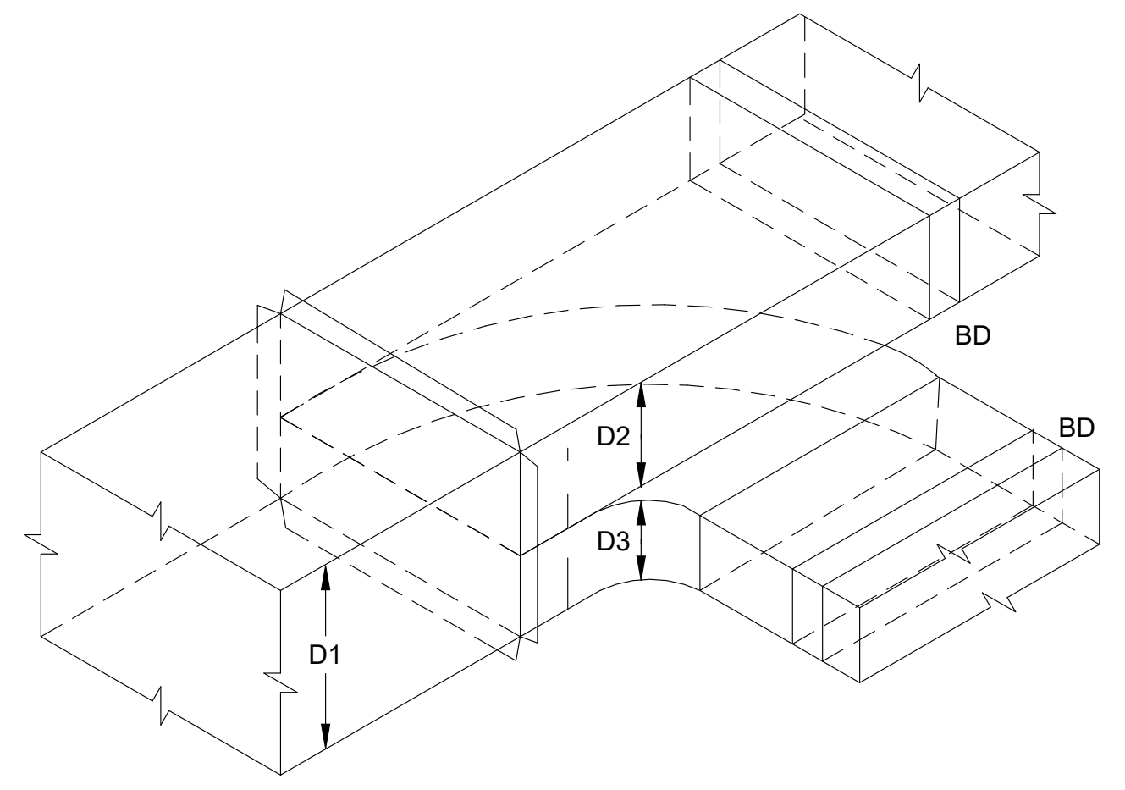
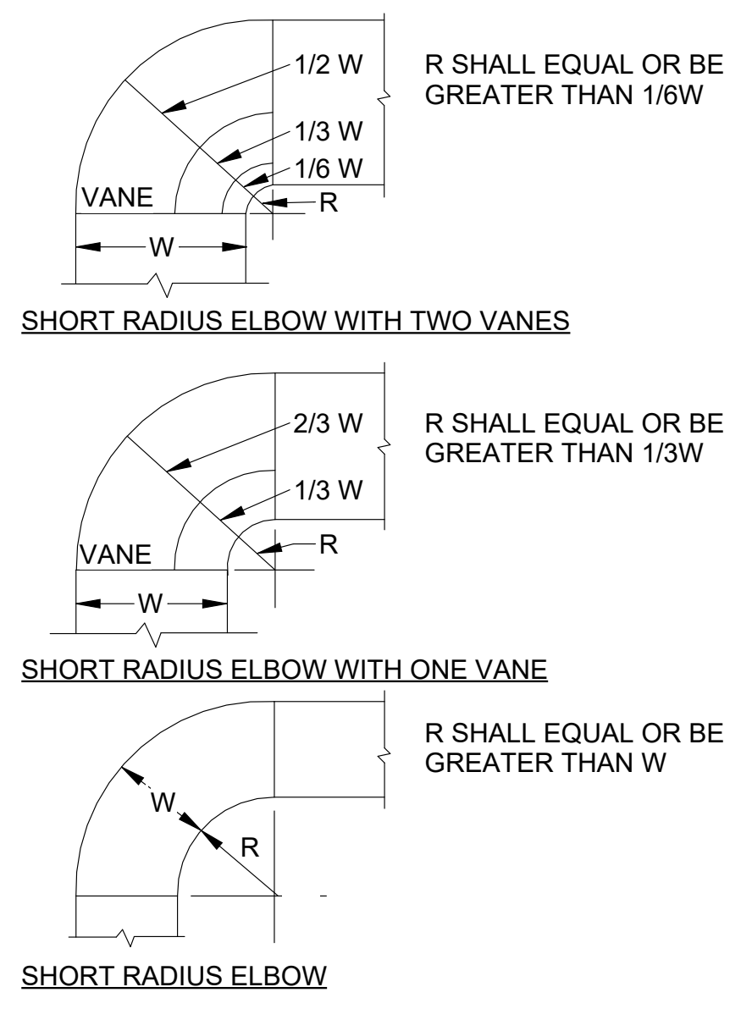


NOTES:
1. D2 = 4" [100mm] MINIMUM
2. D3 = 4" [100mm] MINIMUM
ALL BRANCHES FROM THE MAIN DUCT SHOULD BE INSTALLED AS DIVIDED FLOW BRANCHES.

1 DIVIDED FLOW BRANCH TYPE 2
NTS


1/2 W
R SHALL EQUAL OR BE GREATER THAN 1/6W
1/3 W
1/6 W
VANE
R
W
2/3 W
R SHALL EQUAL OR BE GREATER THAN 1/3W
1/3 W
VANE
R
W
R SHALL EQUAL OR BE GREATER THAN W
W
R

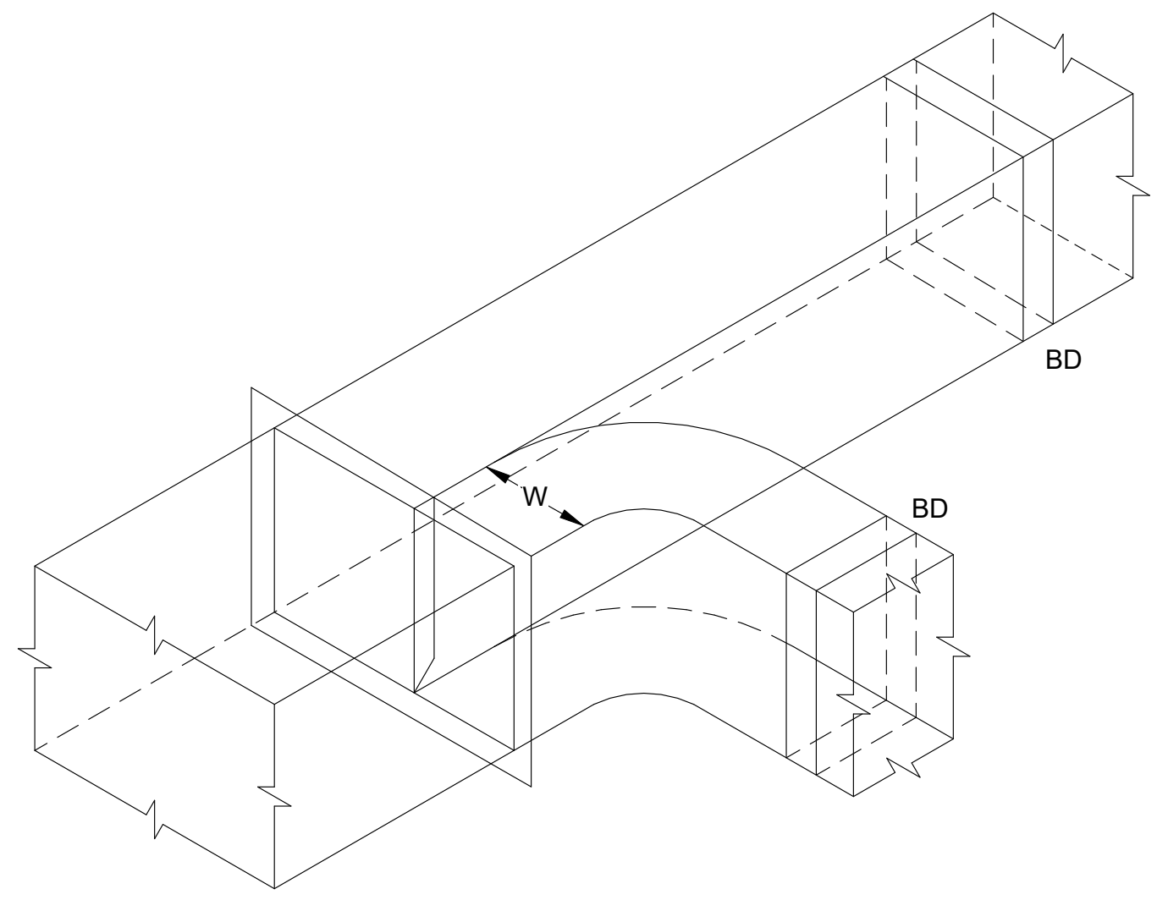
SHORT RADIUS ELBOW WITH TWO VANES

SHORT RADIUS ELBOW WITH ONE VANE

SHORT RADIUS ELBOW

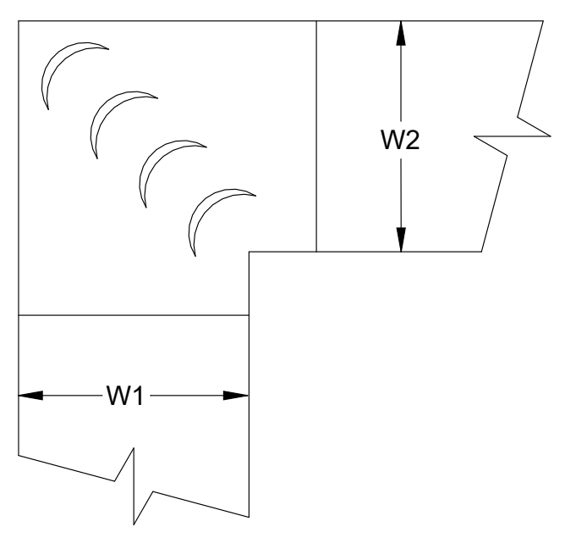
NOTES:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

2 DUCTWORK RADIUS ELBOW1
NTS



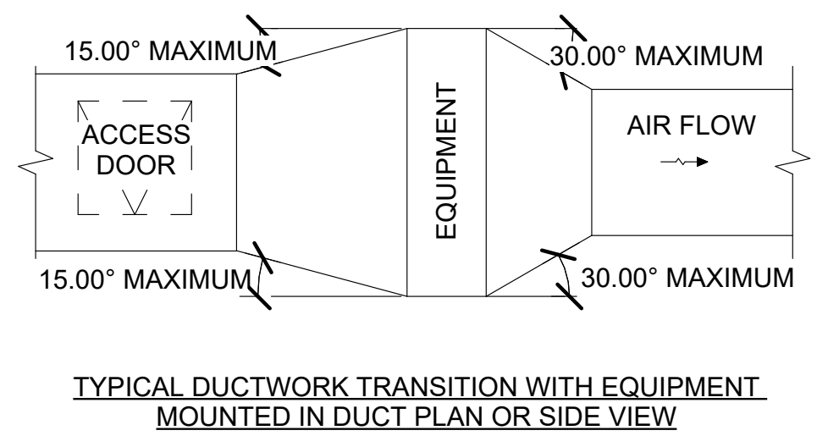
NOTES:
1. W = 100 mm (4 in.) MINIMUM.
2. ALL BRANCHES FROM THE MAIN DUCT SHOULD BE INSTALLED AS DIVIDED FLOW BRANCHES.

3 DIVIDED FLOW BRANCH TYPE 1
NTS



NOTES:
1. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS TYPE REGARDLESS OF DIMENSIONS OF W1 OR W2.
2. ALL SINGLE THICKNESS VANES SHALL HAVE A 50 mm (2 in.) as per SMACNA, 38 mm (1-1/2 in.) MAXIMUM SPACING BETWEEN VANES, AND A 19 mm (3/4 in.) TRAILING EDGE.
3. WHEN W EQUALS W2 AND W1 IS GREATER THAN 500 mm (20 in.), VANES SHALL BE DOUBLE VANE TYPE.

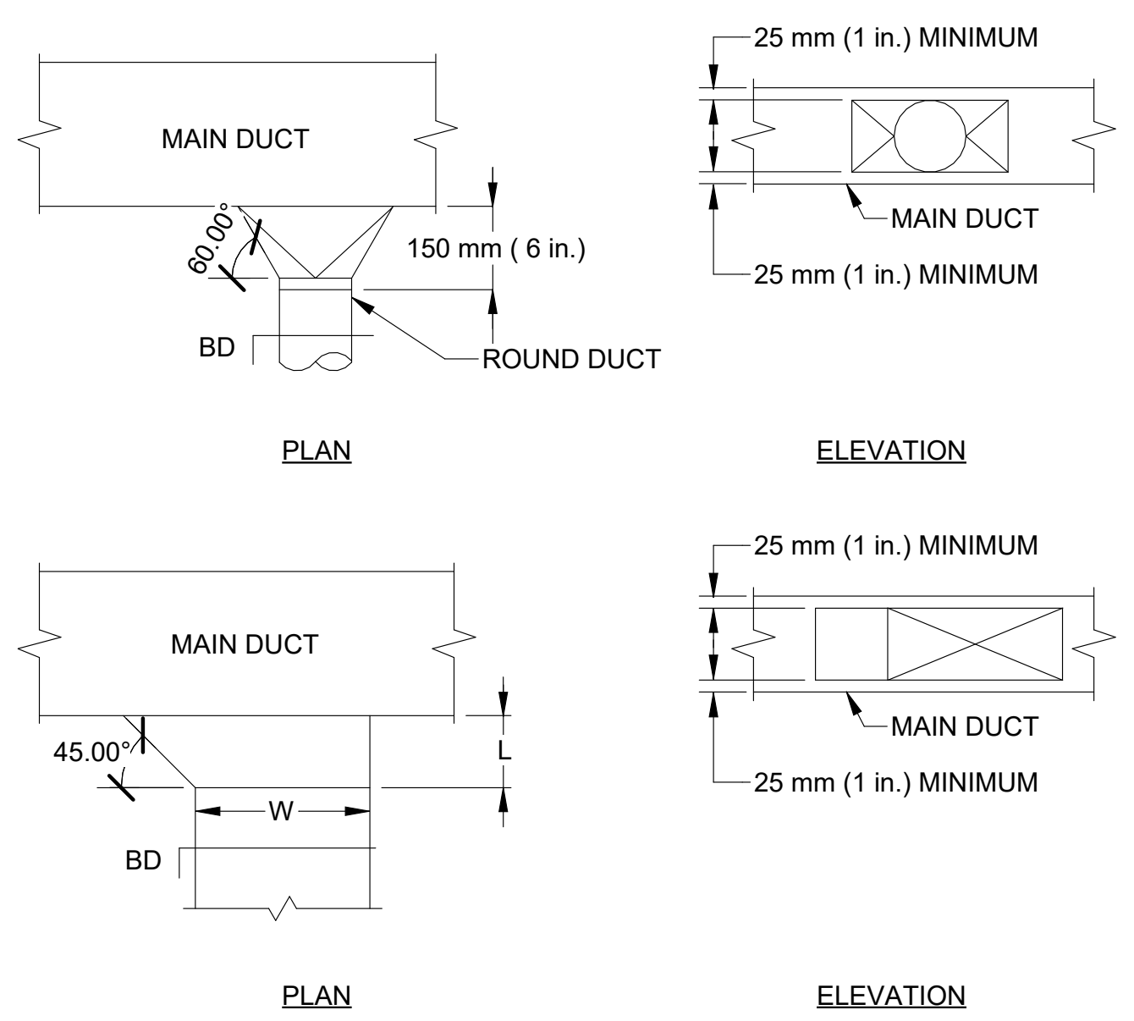
4 DUCTWORK SQUARE VANE ELBOWS1
NTS



TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW

NOTES:
1. UNLESS EXPLICITLY INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

5 DUCT TRANSITION - EQUIPMENT IN DUCT1
NTS



PLAN

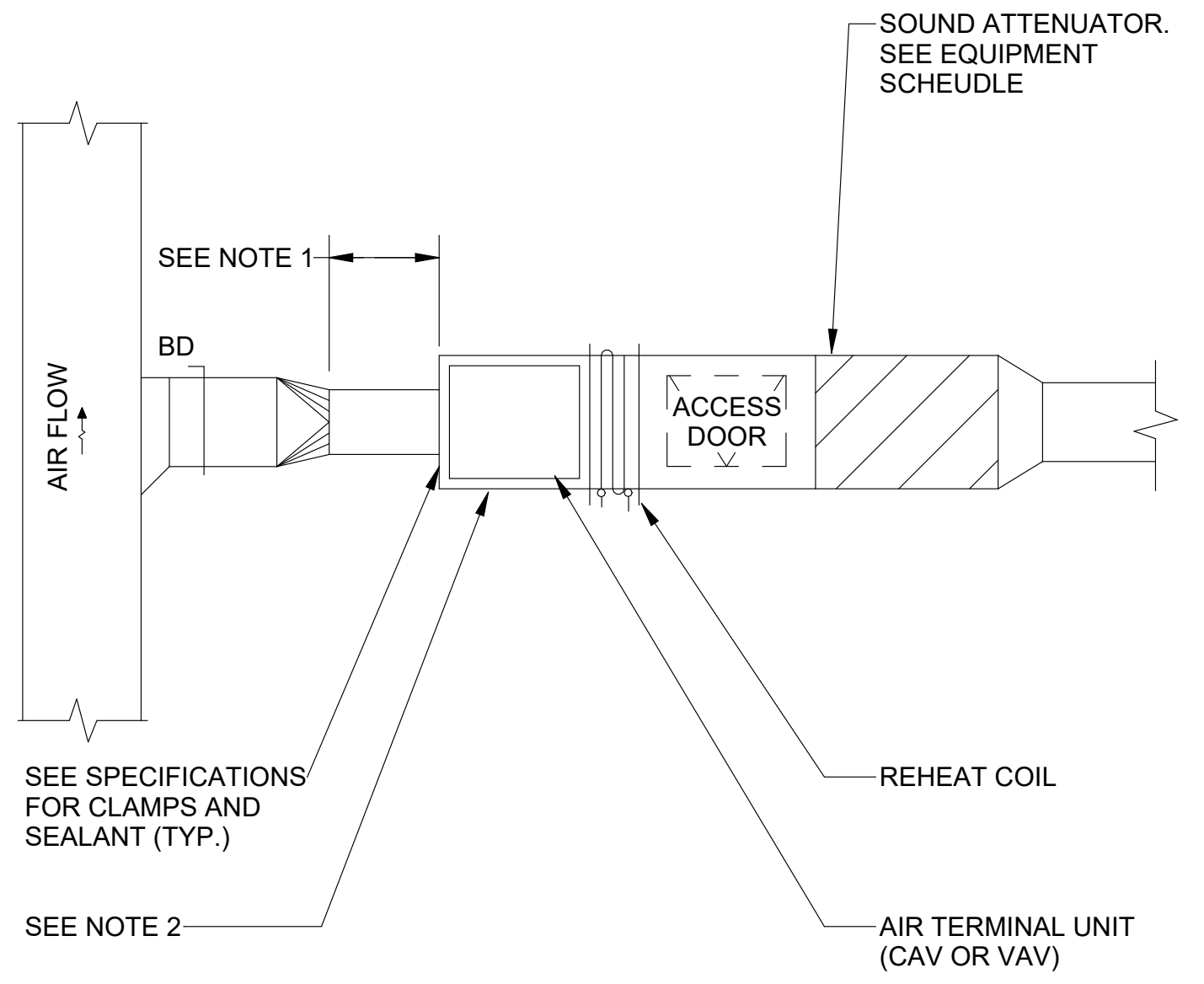
ELEVATION

PLAN

ELEVATION

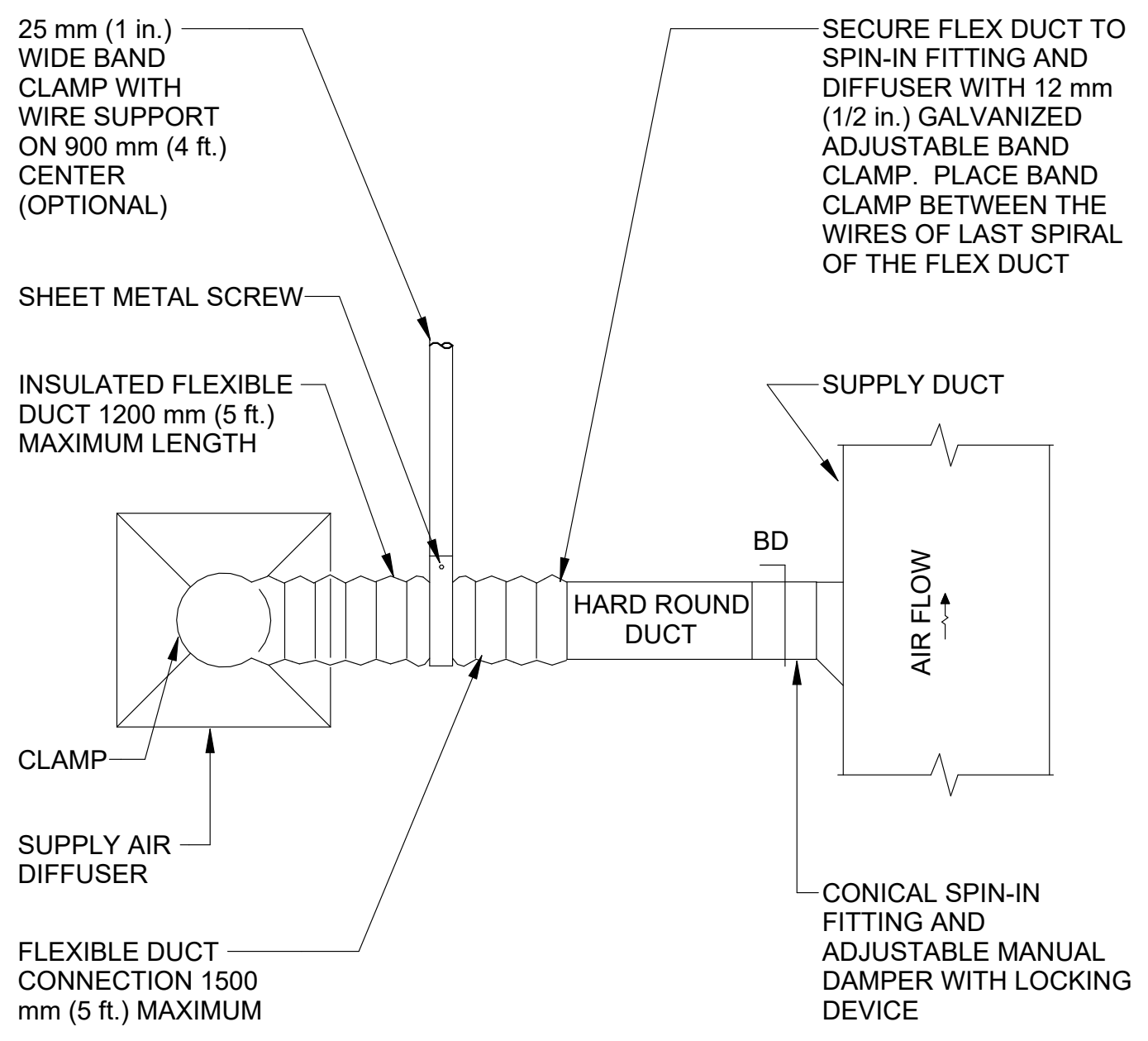
NOTES:
1. TRANSITION AS REQUIRED WHEN BRANCH OR RUNOUT DUCT DEPTH IS SAME OR LARGER THAN THE MAIN DUCT.
2. L = 1/4 W, 100 mm (4 in.) MINIMUM.

6 DUCT TAKE-OFF1
NTS


SOUND ATTENUATOR. SEE EQUIPMENT SCHEUDLE
SEE NOTE 1
BD
AIR FLOW
ACCESS DOOR
SEE SPECIFICATIONS FOR CLAMPS AND SEALANT (TYP.)
REHEAT COIL
SEE NOTE 2
AIR TERMINAL UNIT (CAV OR VAV)

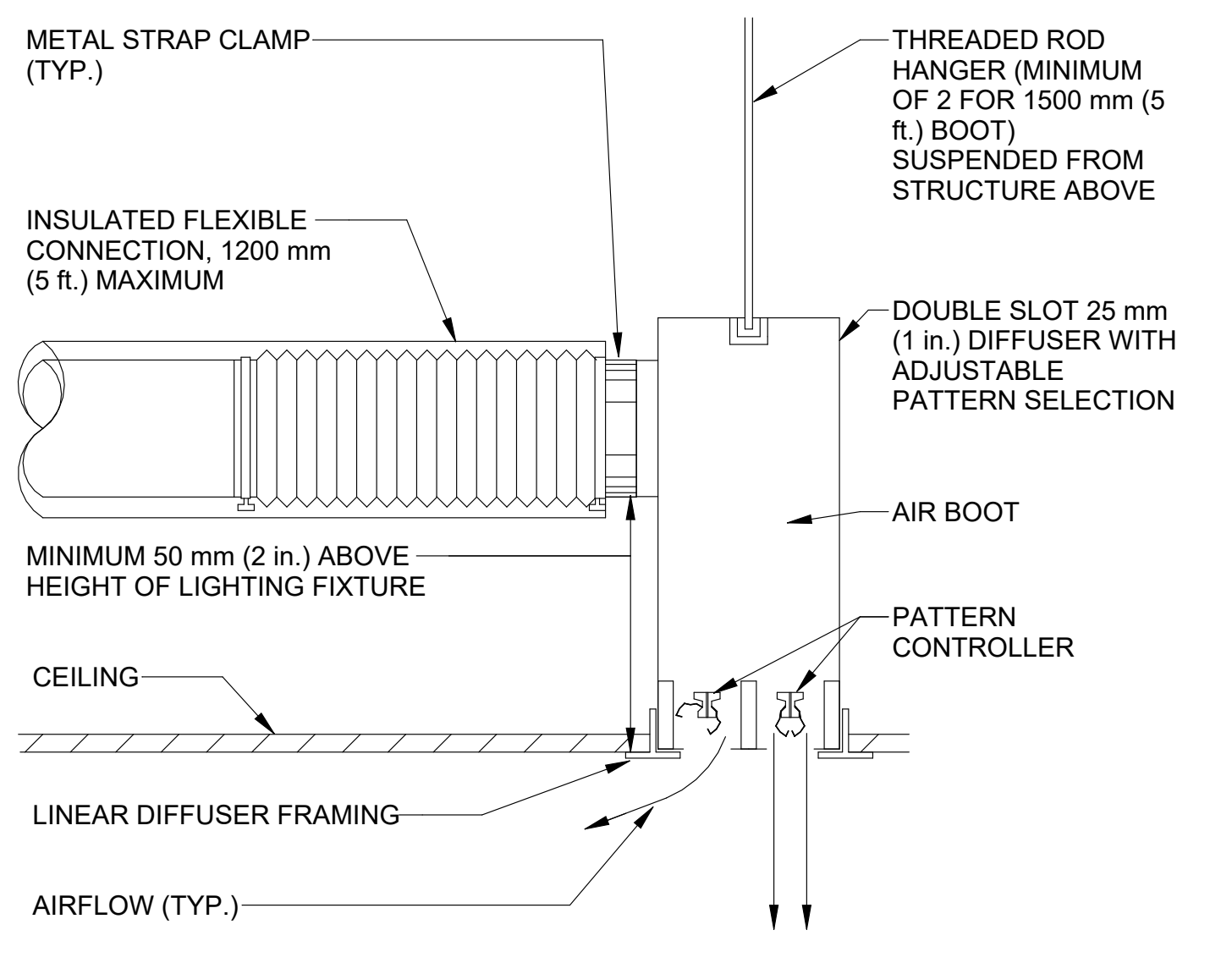
NOTES:
1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 4 TIMES THE DIAMETER OF INLET.
2. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/ VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.

7 DUCT CONNECTION - AIR TERMINAL UNITS2
NTS


25 mm (1 in.) WIDE BAND CLAMP WITH WIRE SUPPORT ON 900 mm (4 ft.) CENTER (OPTIONAL)
SECURE FLEX DUCT TO SPIN-IN FITTING AND DIFFUSER WITH 12 mm (1/2 in.) GALVANIZED ADJUSTABLE BAND CLAMP. PLACE BAND CLAMP BETWEEN THE WIRES OF LAST SPIRAL OF THE FLEX DUCT
SHEET METAL SCREW
INSULATED FLEXIBLE DUCT 1200 mm (5 ft.) MAXIMUM LENGTH
SUPPLY DUCT
BD
HARD ROUND DUCT
AIR FLOW
CLAMP
SUPPLY AIR DIFFUSER
FLEXIBLE DUCT CONNECTION 1500 mm (5 ft.) MAXIMUM
CONICAL SPIN-IN FITTING AND ADJUSTABLE MANUAL DAMPER WITH LOCKING DEVICE

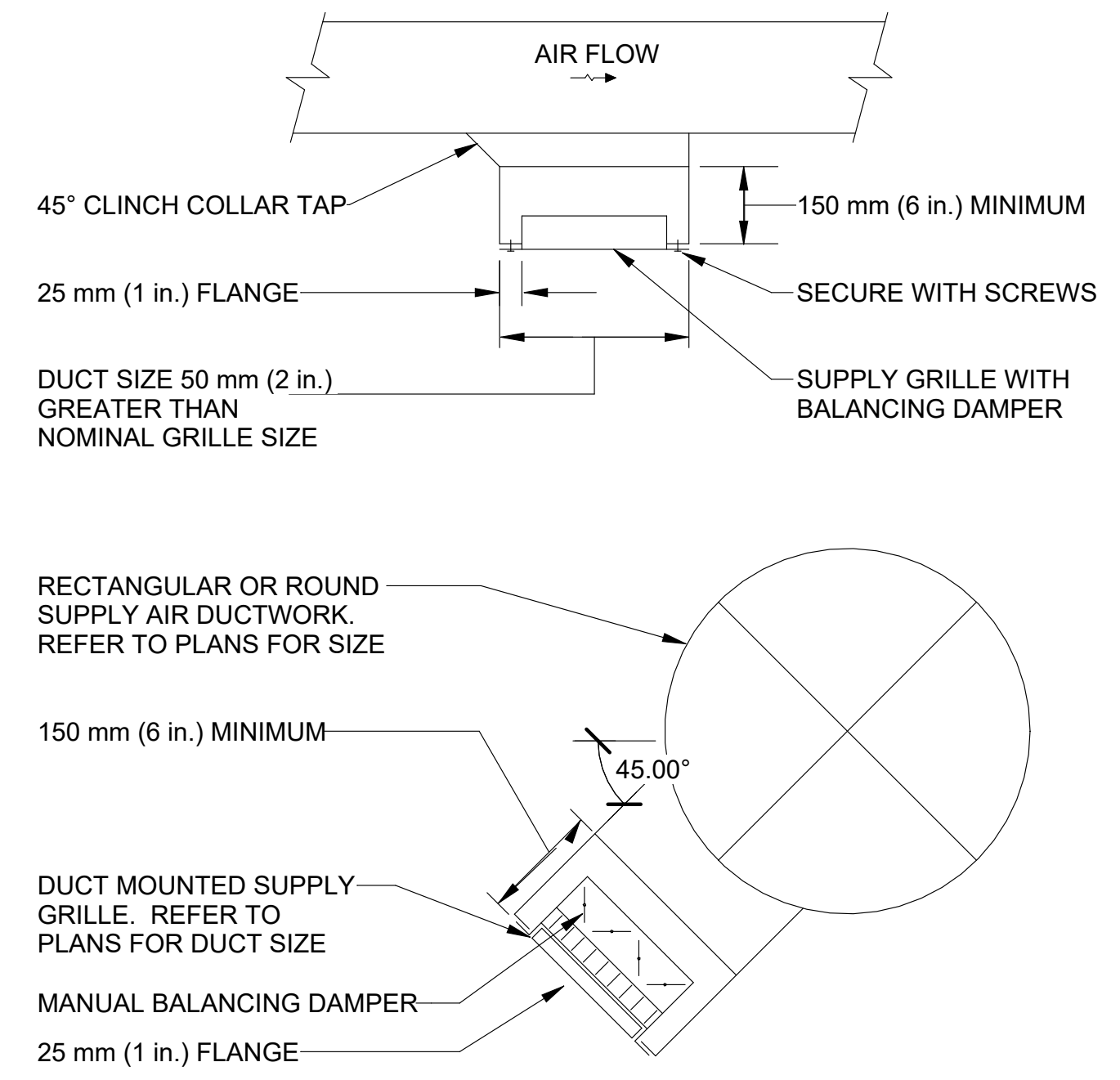
NOTES:
1. MAXIMUM SAG 42 mm PER METER (1/2 in. PER FOOT) BETWEEN SUPPORT BRACING.

8 DIFFUSER CONNECTION DETAIL2
NTS

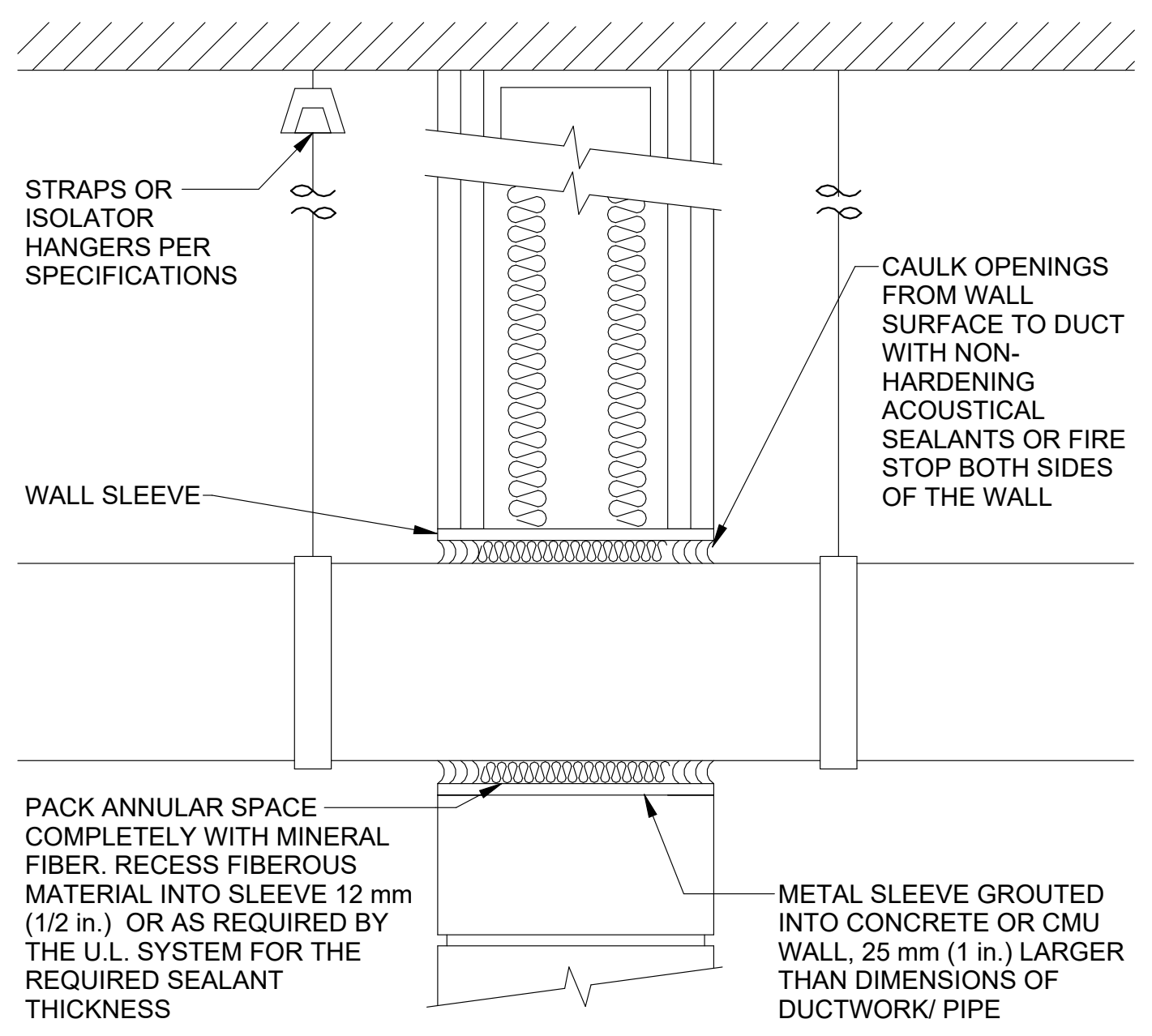

METAL STRAP CLAMP (TYP.)
THREADED ROD HANGER (MINIMUM OF 2 FOR 1500 mm (5 ft.) BOOT) SUSPENDED FROM STRUCTURE ABOVE
INSULATED FLEXIBLE CONNECTION, 1200 mm (5 ft.) MAXIMUM
DOUBLE SLOT 25 mm (1 in.) DIFFUSER WITH ADJUSTABLE PATTERN SELECTION
AIR BOOT
MINIMUM 50 mm (2 in.) ABOVE HEIGHT OF LIGHTING FIXTURE
PATTERN CONTROLLER
CEILING
LINEAR DIFFUSER FRAMING
AIRFLOW (TYP.)

NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING OPENING IN CEILING.

9 LINEAR DIFFUSER AIRFLOW PATTERN1
NTS

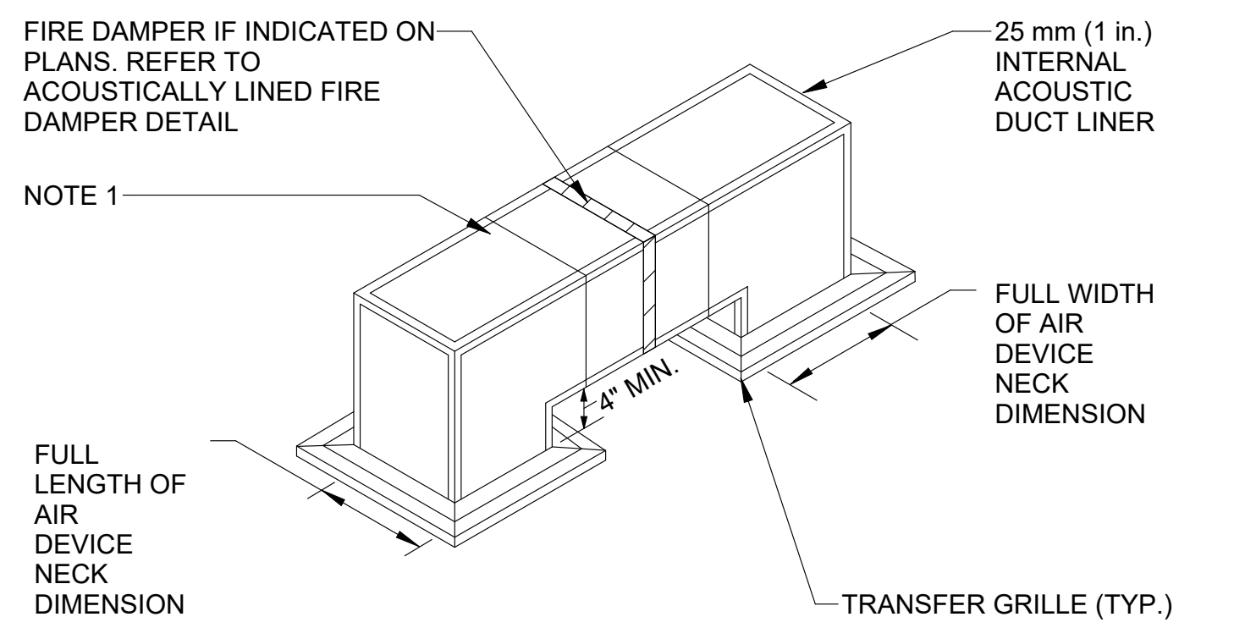

AIR FLOW
45° CLINCH COLLAR TAP
150 mm (6 in.) MINIMUM
25 mm (1 in.) FLANGE
SECURE WITH SCREWS
DUCT SIZE 50 mm (2 in.) GREATER THAN NOMINAL GRILLE SIZE
SUPPLY GRILLE WITH BALANCING DAMPER
RECTANGULAR OR ROUND SUPPLY AIR DUCTWORK. REFER TO PLANS FOR SIZE
150 mm (6 in.) MINIMUM
45.00°
DUCT MOUNTED SUPPLY GRILLE. REFER TO PLANS FOR DUCT SIZE
MANUAL BALANCING DAMPER
25 mm (1 in.) FLANGE

10 EXPOSED SUPPLY GRILLE2
NTS


STRAPS OR ISOLATOR HANGERS PER SPECIFICATIONS
CAULK OPENINGS FROM WALL SURFACE TO DUCT WITH NON-HARDENING ACOUSTICAL SEALANTS OR FIRE STOP BOTH SIDES OF THE WALL
WALL SLEEVE
PACK ANNULAR SPACE COMPLETELY WITH MINERAL FIBER. RECESS FIBEROUS MATERIAL INTO SLEEVE 12 mm (1/2 in.) OR AS REQUIRED BY THE U.L. SYSTEM FOR THE REQUIRED SEALANT THICKNESS
METAL SLEEVE GROUTED INTO CONCRETE OR CMU WALL, 25 mm (1 in.) LARGER THAN DIMENSIONS OF DUCTWORK/ PIPE

NOTES:
1. CONFIRM FIRE STOPPING REQUIREMENTS WITH WALL CONSTRUCTION TYPE AND SPECIFICATIONS.

11 DUCT/PIPE NON-FIRE RATED WALL PENETRATION2
NTS


FIRE DAMPER IF INDICATED ON PLANS. REFER TO ACOUSTICALLY LINED FIRE DAMPER DETAIL
25 mm (1 in.) INTERNAL ACOUSTIC DUCT LINER
NOTE 1
FULL WIDTH OF AIR DEVICE NECK DIMENSION
4" MIN.
FULL LENGTH OF AIR DEVICE NECK DIMENSION
TRANSFER GRILLE (TYP.)

NOTES:
1. DUCT DIMENSIONS = TRANSFER GRILLE NECK DIMENSION + 50 mm (2 in.) ALLOWANCE FOR DUCT LINER.

12 DUCTED RETURN AIR TRANSFER DUCT2
NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/09/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

TYPICAL DETAILS (2 OF 8)

SHEET NUMBER

00-M-502

SORT: 550-Enlarged Details-14.03-00-M-502-TYPICAL DETAILS (2 OF 8)
Last Plotted: 2/14/2025 11:47:58 PM
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-P.rvt

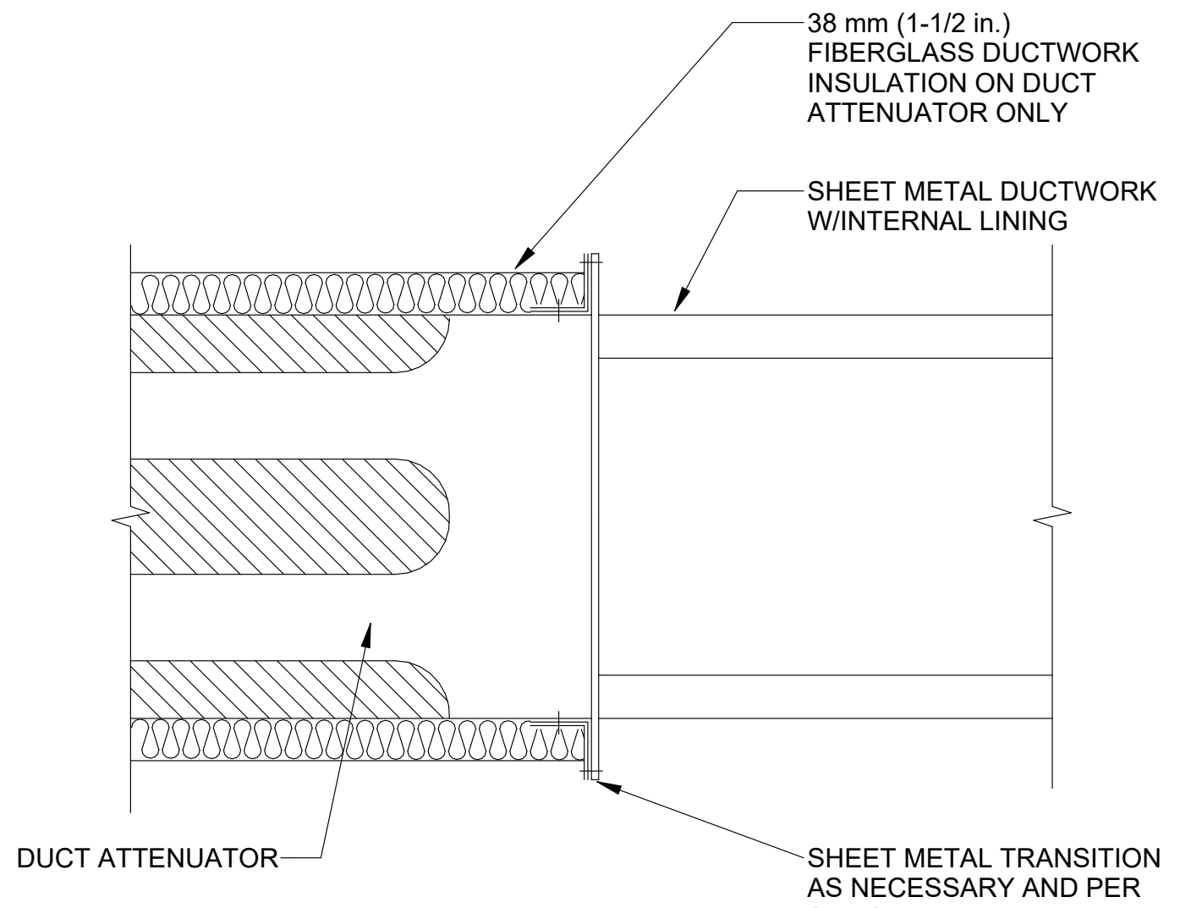
A0 33.1"x46.8"

Approved: JG

Checked: RS

Designer: TE

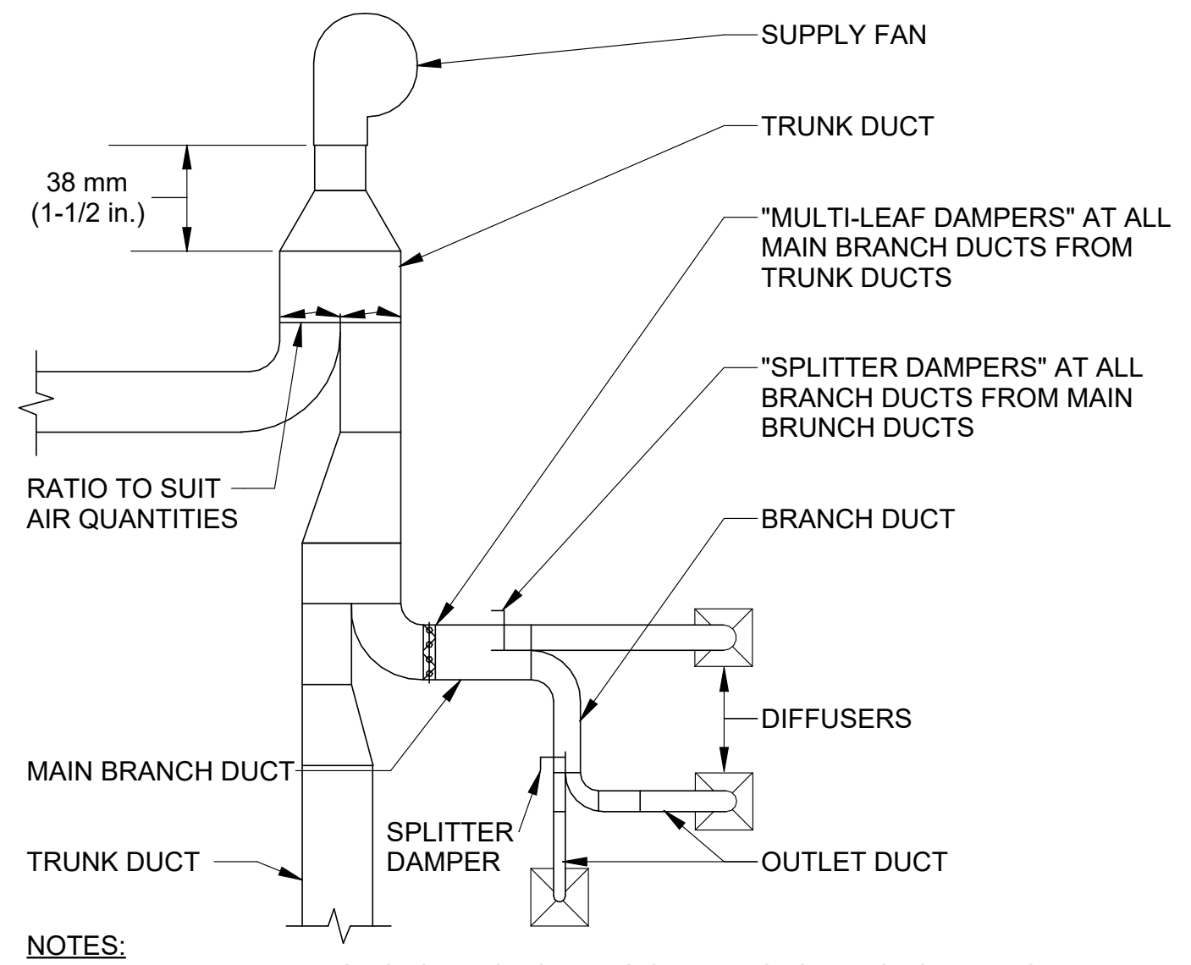
Project Management Initials:


38 mm (1-1/2 in.) FIBERGLASS DUCTWORK INSULATION ON DUCT ATTENUATOR ONLY
SHEET METAL DUCTWORK W/INTERNAL LINING
DUCT ATTENUATOR
SHEET METAL TRANSITION AS NECESSARY AND PER SMACNA

NOTES:
1. CONSTRUCT JUNCTION WITH INTERNAL DIMENSIONS OF LINING AND ATTENUATOR BEING EQUAL TO CREATE SMOOTH AIRFLOW SURFACES WITH NO OBSTRUCTIONS AND NO EXPOSED EDGES OF LINING.

1 DUCTWORK/ATTENUATOR CONNECTION DETAIL2

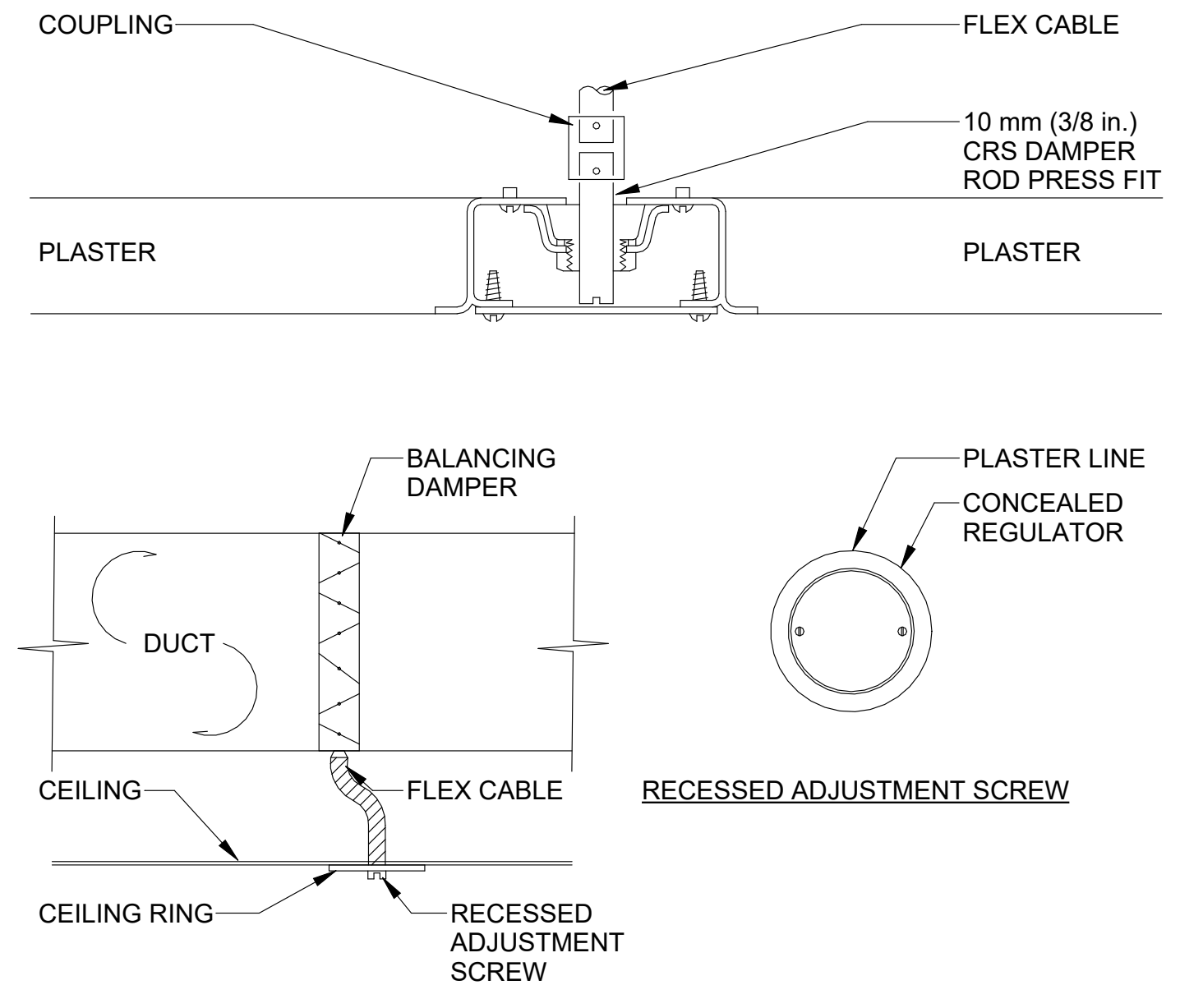
NTS


SUPPLY FAN
TRUNK DUCT
38 mm (1-1/2 in.)
"MULTI-LEAF DAMPERS" AT ALL MAIN BRANCH DUCTS FROM TRUNK DUCTS
"SPLITTER DAMPERS" AT ALL BRANCH DUCTS FROM MAIN BRUNCH DUCTS
RATIO TO SUIT AIR QUANTITIES
BRANCH DUCT
DIFFUSERS
MAIN BRANCH DUCT
SPLITTER DAMPER
TRUNK DUCT
OUTLET DUCT

NOTES:
1. RETURN AND EXHAUST SYSTEMS TO BE AS SUPPLY SYSTEM SHOWN EXCEPT ALL SPLITTER DAMPER TO BE REPLACED BY MULTI-LEAF VOLUME CONTROL DAMPERS IN BRANCH DUCTS.
2. TRUNK DUCT - SERVING TWO OR MORE MAIN BRANCH DUCTS.
3. MAIN BRANCH - SERVING TWO OR MORE BRANCH DUCTS.
4. BRANCH DUCTS - SERVING TWO OR MORE DIFFUSERS.
5. OUTLET DUCTS - SERVING ONE DIFFUSER.

2 BALANCING DAMPERS1

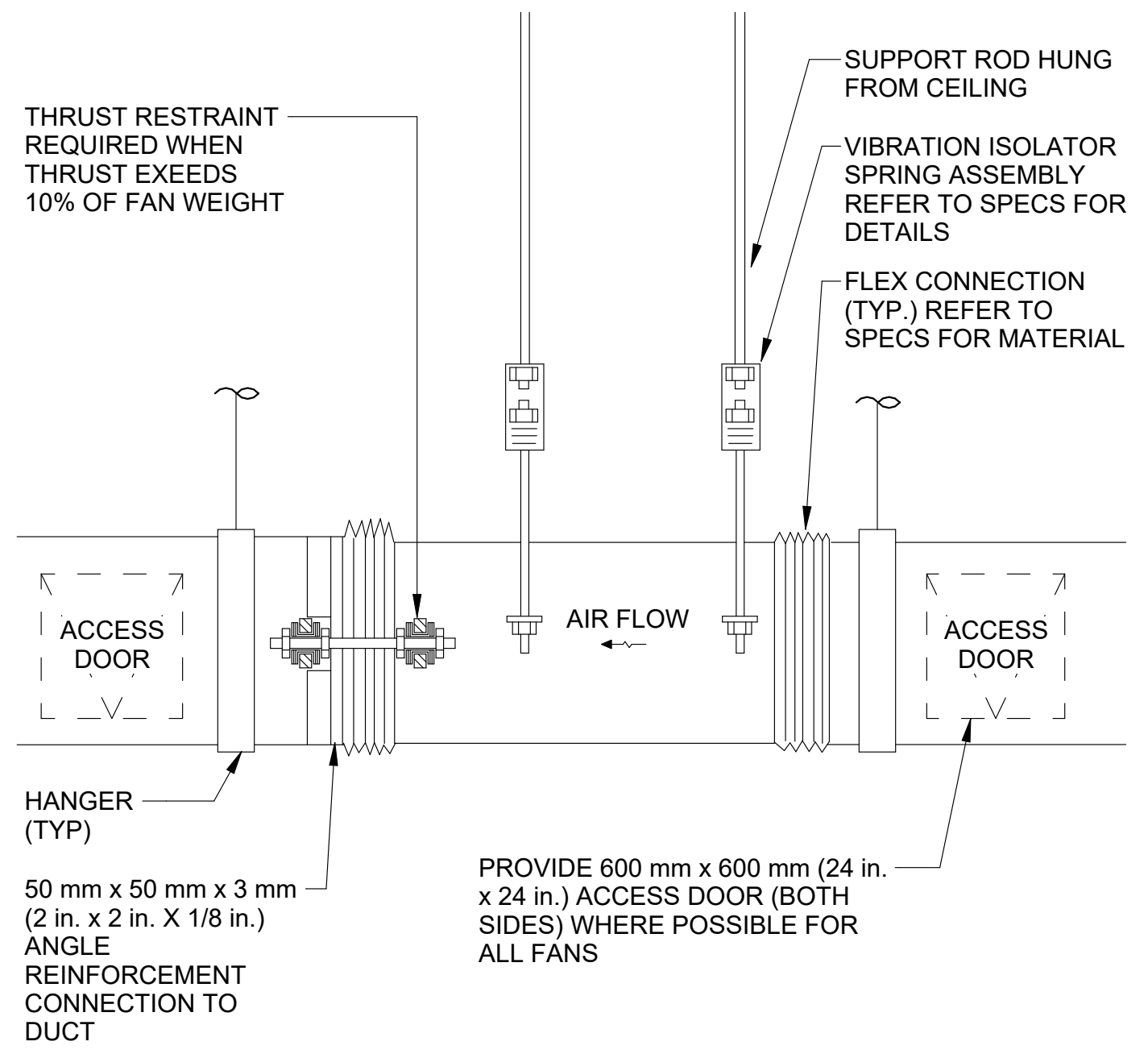
NTS



NOTES:
1. THIS DETAIL APPLIES TO ALL BRANCH RUNOUTS ABOVE HARD CEILINGS.

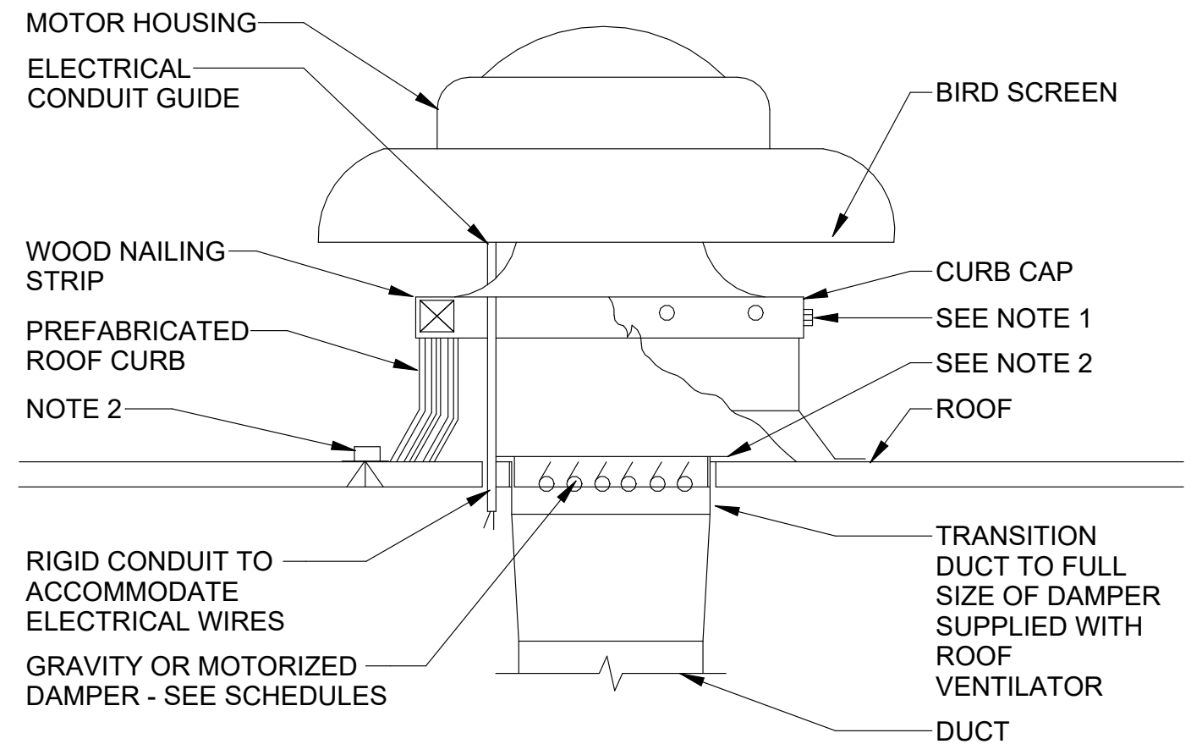
3 REMOTELY ADJUSTABLE BALANCING DAMPER2

NTS


THRUST RESTRAINT REQUIRED WHEN THRUST EXEEDS 10% OF FAN WEIGHT
SUPPORT ROD HUNG FROM CEILING
VIBRATION ISOLATOR SPRING ASSEMBLY REFER TO SPECS FOR DETAILS
FLEX CONNECTION (TYP.) REFER TO SPECS FOR MATERIAL
ACCESS DOOR
AIR FLOW
ACCESS DOOR
HANGER (TYP)
50 mm x 50 mm x 3 mm (2 in. x 2 in. X 1/8 in.) ANGLE REINFORCEMENT CONNECTION TO DUCT
PROVIDE 600 mm x 600 mm (24 in. x 24 in.) ACCESS DOOR (BOTH SIDES) WHERE POSSIBLE FOR ALL FANS

4 INLINE FAN1

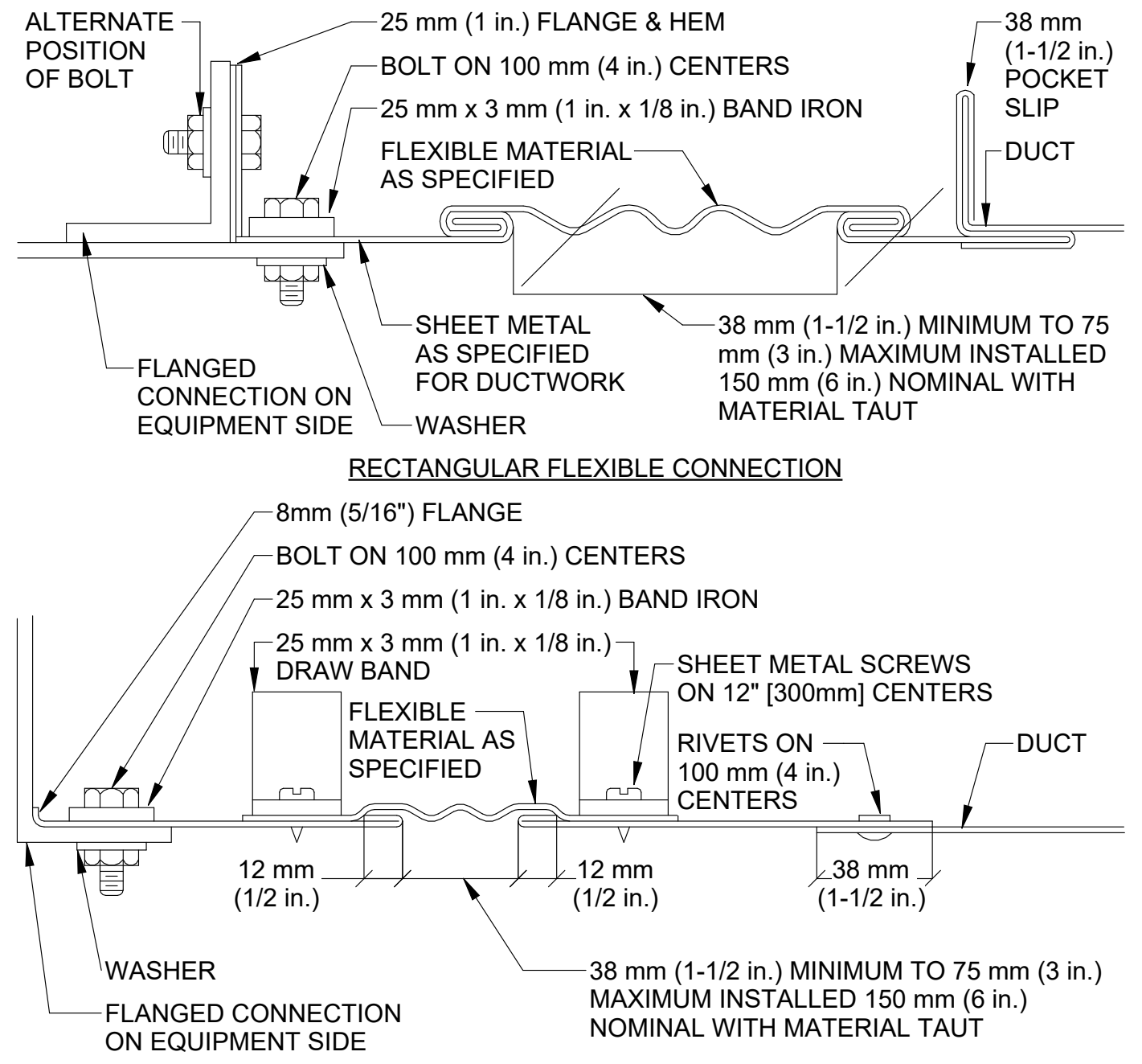
NTS


MOTOR HOUSING
ELECTRICAL CONDUIT GUIDE
BIRD SCREEN
WOOD NAILING STRIP
CURB CAP
SEE NOTE 1
PREFABRICATED ROOF CURB
SEE NOTE 2
NOTE 2
ROOF
RIGID CONDUIT TO ACCOMMODATE ELECTRICAL WIRES
TRANSITION DUCT TO FULL SIZE OF DAMPER SUPPLIED WITH ROOF VENTILATOR
GRAVITY OR MOTORIZED DAMPER - SEE SCHEDULES
DUCT

NOTES:
1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 10 mm (3/8 in.) CADMIUM PLATED LAG BOLTS NOT OVER 300 mm (12 in.) ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
3. RUN ELECTRICAL LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

5 ROOF TOP VENTILATOR1

NTS

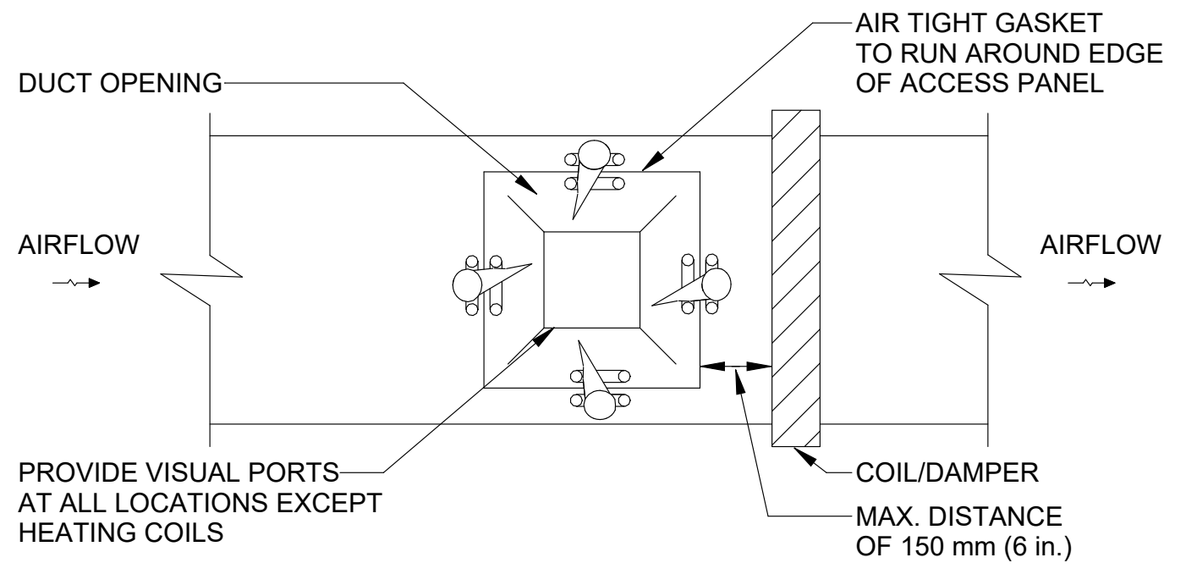

ALTERNATE POSITION OF BOLT
25 mm (1 in.) FLANGE & HEM
BOLT ON 100 mm (4 in.) CENTERS
25 mm x 3 mm (1 in. x 1/8 in.) BAND IRON
FLEXIBLE MATERIAL AS SPECIFIED
38 mm (1-1/2 in.) POCKET SLIP
DUCT
SHEET METAL AS SPECIFIED FOR DUCTWORK
38 mm (1-1/2 in.) MINIMUM TO 75 mm (3 in.) MAXIMUM INSTALLED 150 mm (6 in.) NOMINAL WITH MATERIAL TAUT
FLANGED CONNECTION ON EQUIPMENT SIDE
WASHER
8mm (5/16") FLANGE
BOLT ON 100 mm (4 in.) CENTERS
25 mm x 3 mm (1 in. x 1/8 in.) BAND IRON
25 mm x 3 mm (1 in. x 1/8 in.) DRAW BAND
SHEET METAL SCREWS ON 12" [300mm] CENTERS
FLEXIBLE MATERIAL AS SPECIFIED
RIVETS ON 100 mm (4 in.) CENTERS
DUCT
12 mm (1/2 in.)
12 mm (1/2 in.)
38 mm (1-1/2 in.)
WASHER
38 mm (1-1/2 in.) MINIMUM TO 75 mm (3 in.) MAXIMUM INSTALLED 150 mm (6 in.) NOMINAL WITH MATERIAL TAUT
FLANGED CONNECTION ON EQUIPMENT SIDE

RECTANGULAR FLEXIBLE CONNECTION

ROUND FLEXIBLE CONNECTION

6 FLEXIBLE DUCT CONNECTIONS1

NTS


DUCT OPENING
AIR TIGHT GASKET TO RUN AROUND EDGE OF ACCESS PANEL
AIRFLOW
AIRFLOW
PROVIDE VISUAL PORTS AT ALL LOCATIONS EXCEPT HEATING COILS
COIL/DAMPER
MAX. DISTANCE OF 150 mm (6 in.)

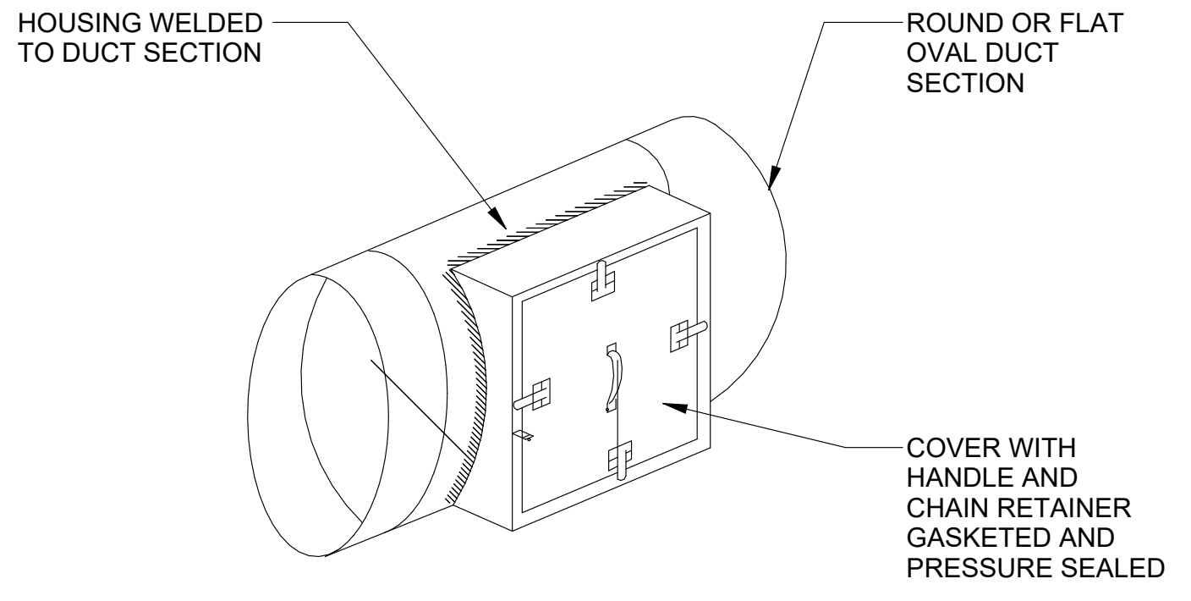
ACCESS PANEL SIZE SCHEDULE

DUCT DEPTH	ACCESS PANEL SIZE
150 mm (6 in.) TO 375 mm (15 in.)	250 mm (10 in.) W x (DUCT DEPTH - 50 mm (2 in.))D
375 mm (15 in.) TO 525 mm (21 in.)	300 mm (12 in.) W x (DUCT DEPTH - 50 mm (2 in.))D
525 mm (21 in.) AND ABOVE	450 mm (18 in.) W x (DUCT DEPTH - 50 mm(2 in.))D

NOTES:
1. MAXIMUM ACCESS PANEL DIMENSION OF 600 mm (24 in.).
2. USE CAM LATCHES ON ACCESS PANELS
3. FOLLOW SMACNA FOR ACCEPTABLE TYPE AND CONTRUCTION STANDARDS

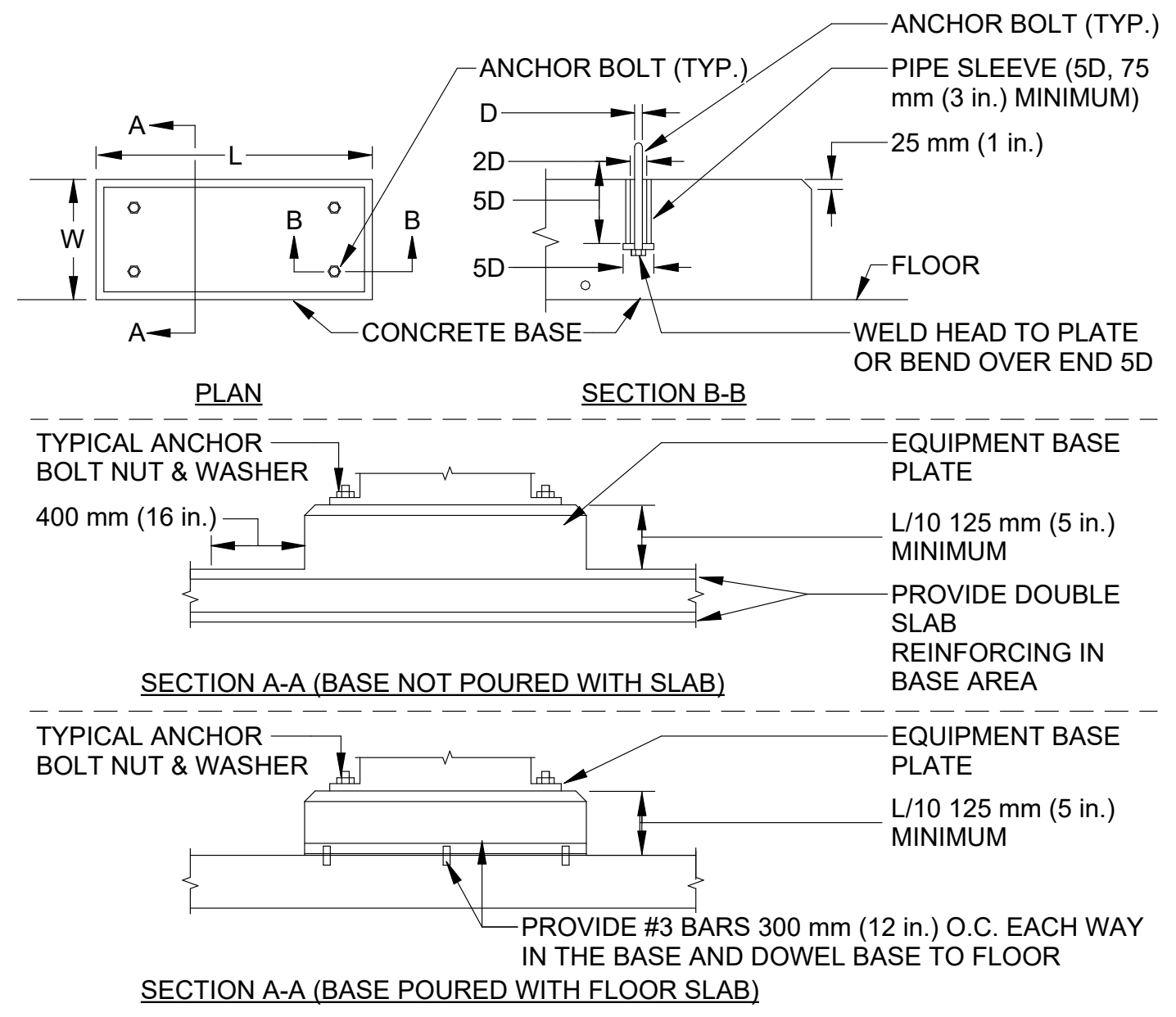
7 DUCT ACCESS PANEL SIZING2

NTS


HOUSING WELDED TO DUCT SECTION
ROUND OR FLAT OVAL DUCT SECTION
COVER WITH HANDLE AND CHAIN RETAINER GASKETED AND PRESSURE SEALED

8 ACCESS SECTION FOR ROUND/OVAL DUCT1

NTS


ANCHOR BOLT (TYP.)
ANCHOR BOLT (TYP.)
PIPE SLEEVE (5D, 75 mm (3 in.) MINIMUM)
A
L
D
2D
25 mm (1 in.)
W
B
B
5D
5D
FLOOR
A
CONCRETE BASE
WELD HEAD TO PLATE OR BEND OVER END 5D
TYPICAL ANCHOR BOLT NUT & WASHER
EQUIPMENT BASE PLATE
400 mm (16 in.)
L/10 125 mm (5 in.) MINIMUM
PROVIDE DOUBLE SLAB REINFORCING IN BASE AREA
TYPICAL ANCHOR BOLT NUT & WASHER
EQUIPMENT BASE PLATE
L/10 125 mm (5 in.) MINIMUM
PROVIDE #3 BARS 300 mm (12 in.) O.C. EACH WAY IN THE BASE AND DOWEL BASE TO FLOOR

PLAN

SECTION B-B

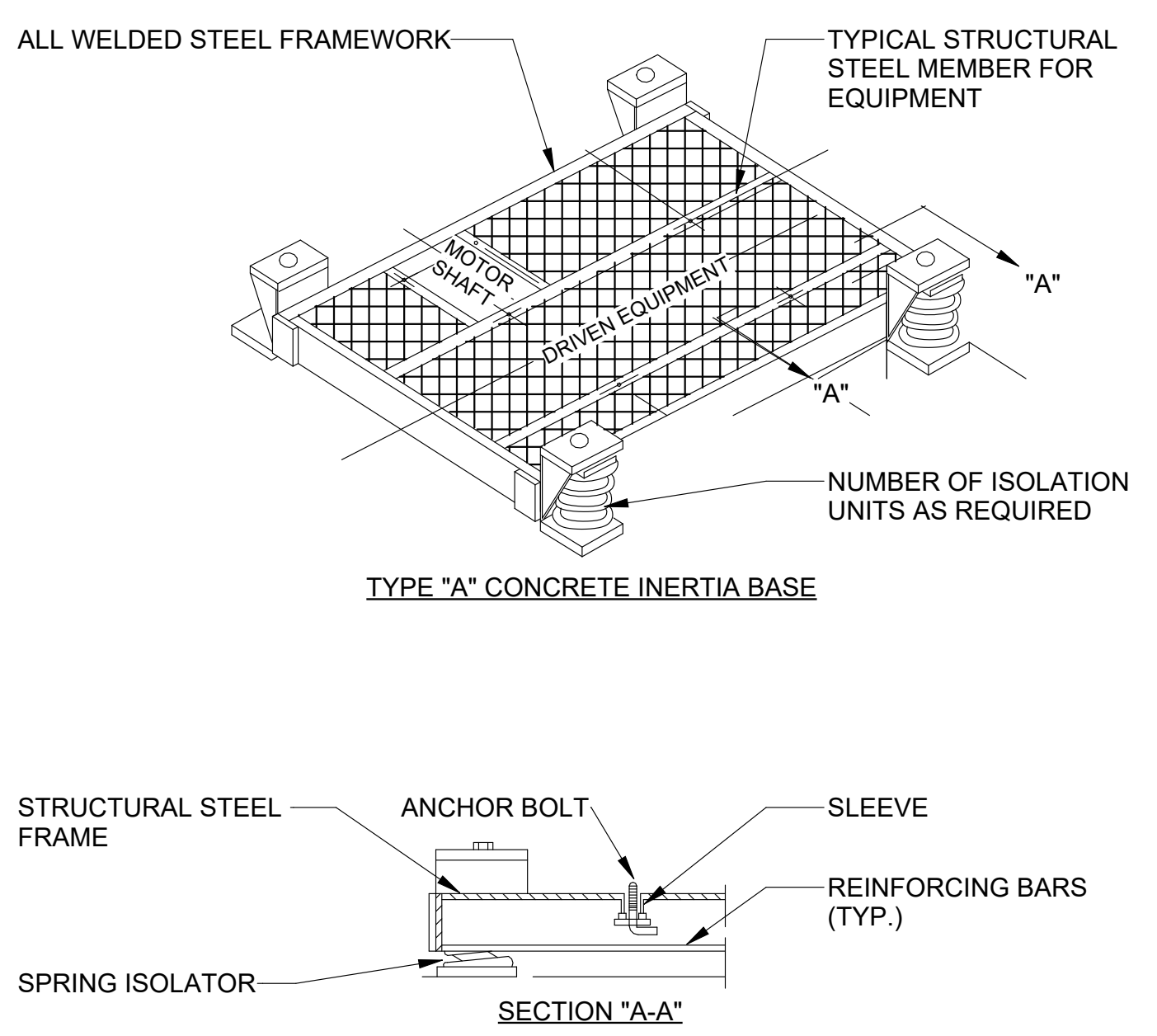
SECTION A-A (BASE NOT POURED WITH SLAB)

SECTION A-A (BASE POURED WITH FLOOR SLAB)

NOTES:
1. L AND W DIMENSIONS SHALL BE 150 mm (6 in.) GREATER THAN THE EQUIPMENT BASE PLATE.

9 CONCRETE EQUIPMENT BASES1

NTS

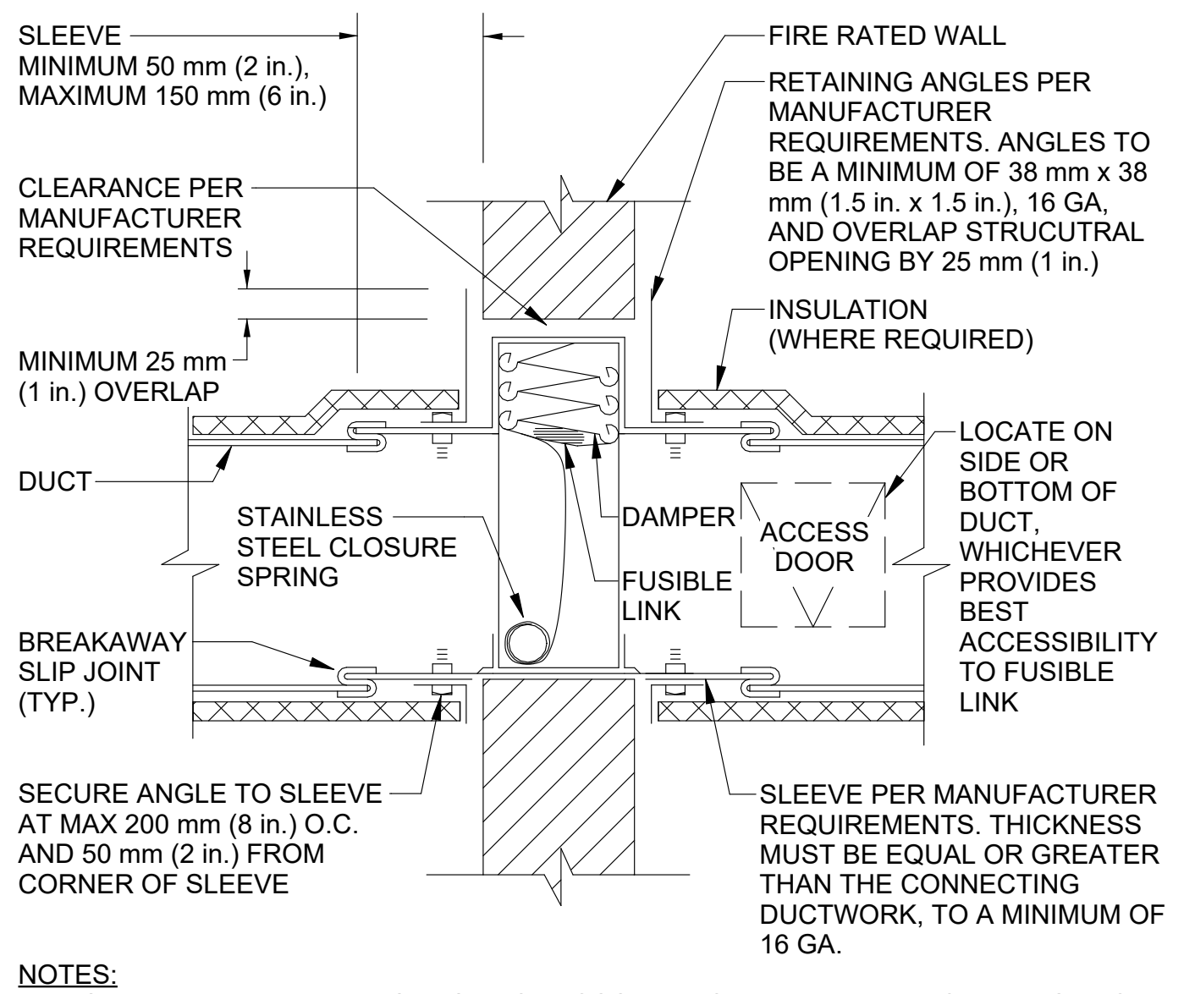


TYPE "A" CONCRETE INERTIA BASE

SECTION "A-A"

10 VIBRATION ISOLATION BASES TYPE "A"1

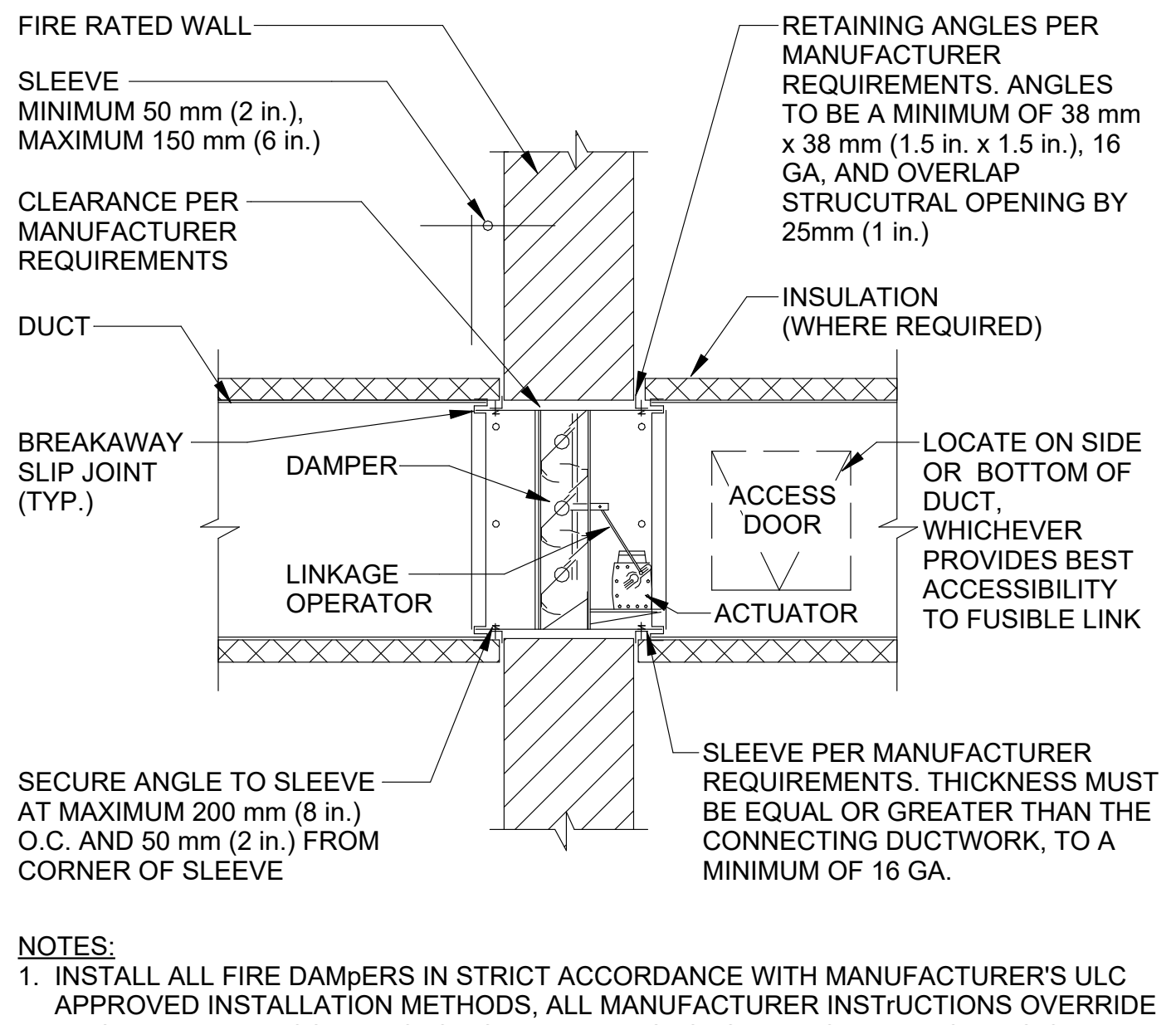
NTS


SLEEVE MINIMUM 50 mm (2 in.), MAXIMUM 150 mm (6 in.)
FIRE RATED WALL
RETAINING ANGLES PER MANUFACTURER REQUIREMENTS. ANGLES TO BE A MINIMUM OF 38 mm x 38 mm (1.5 in. x 1.5 in.), 16 GA, AND OVERLAP STRUCUTRAL OPENING BY 25 mm (1 in.)
CLEARANCE PER MANUFACTURER REQUIREMENTS
MINIMUM 25 mm (1 in.) OVERLAP
INSULATION (WHERE REQUIRED)
DUCT
STAINLESS STEEL CLOSURE SPRING
DAMPER
ACCESS DOOR
FUSIBLE LINK
LOCATE ON SIDE OR BOTTOM OF DUCT, WHICHEVER PROVIDES BEST ACCESSIBILITY TO FUSIBLE LINK
BREAKAWAY SLIP JOINT (TYP.)
SECURE ANGLE TO SLEEVE AT MAX 200 mm (8 in.) O.C. AND 50 mm (2 in.) FROM CORNER OF SLEEVE
SLEEVE PER MANUFACTURER REQUIREMENTS. THICKNESS MUST BE EQUAL OR GREATER THAN THE CONNECTING DUCTWORK, TO A MINIMUM OF 16 GA.

NOTES:
1. INSTALL ALL FIRE DAMERS IN STRICT ACCORDANCE WITH MANUFACTURERS ULC APPROVED INSTALLATION METHODS, ALL MANUFACTURER INSTUCTIONS OVERRIDE THIS DETAIL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VOIDLING OF ANY ULC RATING.
2. DYNAMIC CURTAIN DAMPER (TYPE B) SHOWN, OTHER CURTAIN STYLES AND MUTI-BLADE DAMERS INSTALLATIONS TO BE SIMILAR.

11 TYPICAL VERTICAL FIRE DAMPER2

NTS


FIRE RATED WALL
SLEEVE MINIMUM 50 mm (2 in.), MAXIMUM 150 mm (6 in.)
RETAINING ANGLES PER MANUFACTURER REQUIREMENTS. ANGLES TO BE A MINIMUM OF 38 mm x 38 mm (1.5 in. x 1.5 in.), 16 GA, AND OVERLAP STRUCUTRAL OPENING BY 25mm (1 in.)
CLEARANCE PER MANUFACTURER REQUIREMENTS
DUCT
INSULATION (WHERE REQUIRED)
BREAKAWAY SLIP JOINT (TYP.)
DAMPER
ACCESS DOOR
LOCATE ON SIDE OR BOTTOM OF DUCT, WHICHEVER PROVIDES BEST ACCESSIBILITY TO FUSIBLE LINK
LINKAGE OPERATOR
ACTUATOR
SECURE ANGLE TO SLEEVE AT MAXIMUM 200 mm (8 in.) O.C. AND 50 mm (2 in.) FROM CORNER OF SLEEVE
SLEEVE PER MANUFACTURER REQUIREMENTS. THICKNESS MUST BE EQUAL OR GREATER THAN THE CONNECTING DUCTWORK, TO A MINIMUM OF 16 GA.

NOTES:
1. INSTALL ALL FIRE DAMpERS IN STRICT ACCORDANCE WITH MANUFACTURER'S ULC APPROVED INSTALLATION METHODS, ALL MANUFACTURER INSTrUCTIONS OVERRIDE THIS DETAIL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VOIDING OF ANY ULC RATING.
2. DYNAMIC CURTAIN DAMPER (TYPE B) SHOWN, OTHER CURTAIN STYLES AND MUTI-BLADE DAMpERS INSTALLATIONS TO BE SIMILAR.

12 TYPICAL VERTICAL FIRE & SMOKE DAMPER2

NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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Winnipeg Transit
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CONSULTANT

AECOM CANADA ULC
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Winnipeg, MB R3P 0Y7

REGISTRATION

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C	12/09/2024	ISSUED FOR 66% DESIGN RESUBMISSION
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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

TYPICAL DETAILS (3 OF 8)

SHEET NUMBER

00-M-503

SORT: 550-Enlarged Details-14.03-00-M-503-TYPICAL DETAILS (3 OF 8)

Last Plotted: 2/14/2025 11:48:55 PM
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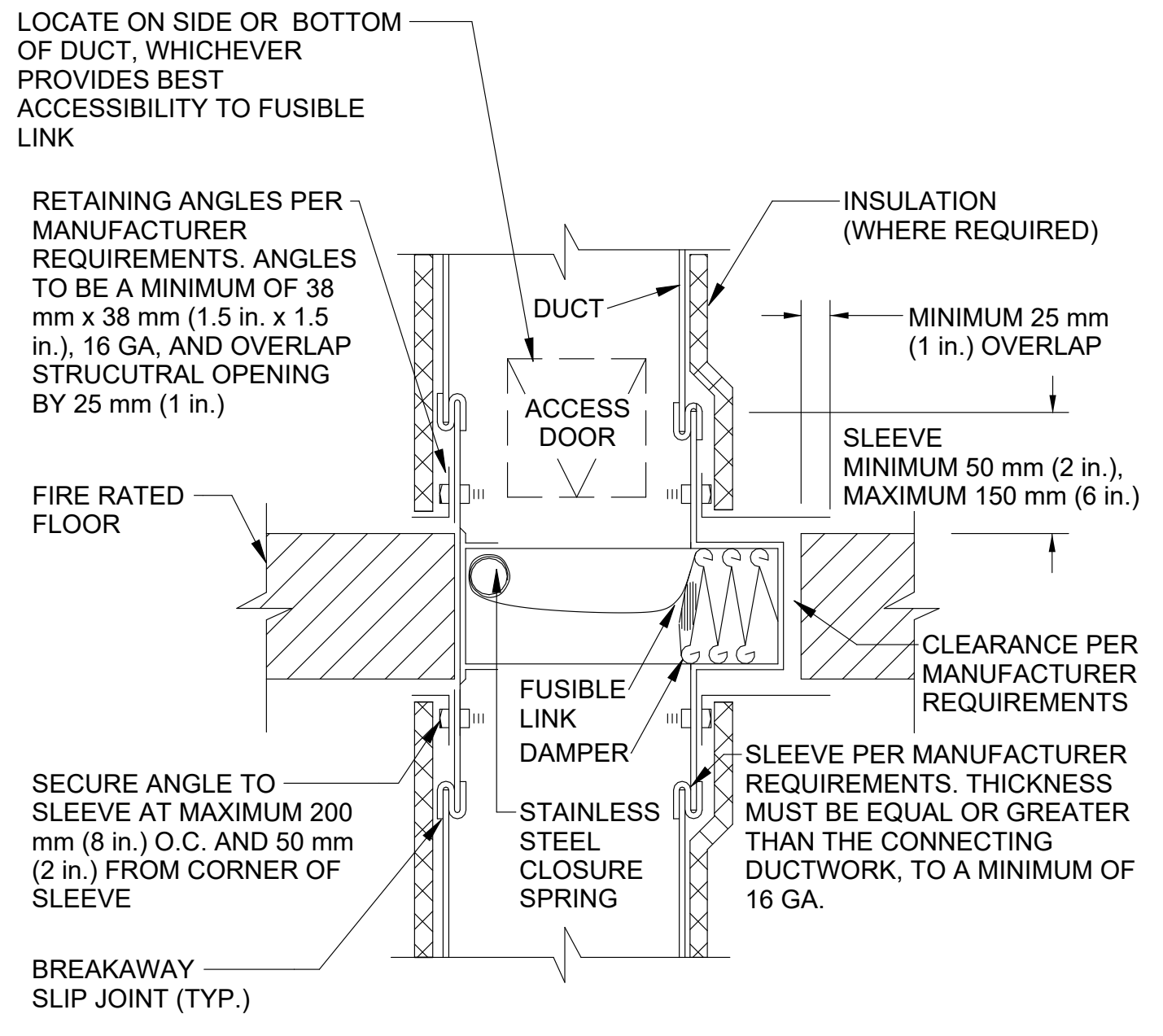
Printed on ___% Post-Consumer Recycled Content Paper

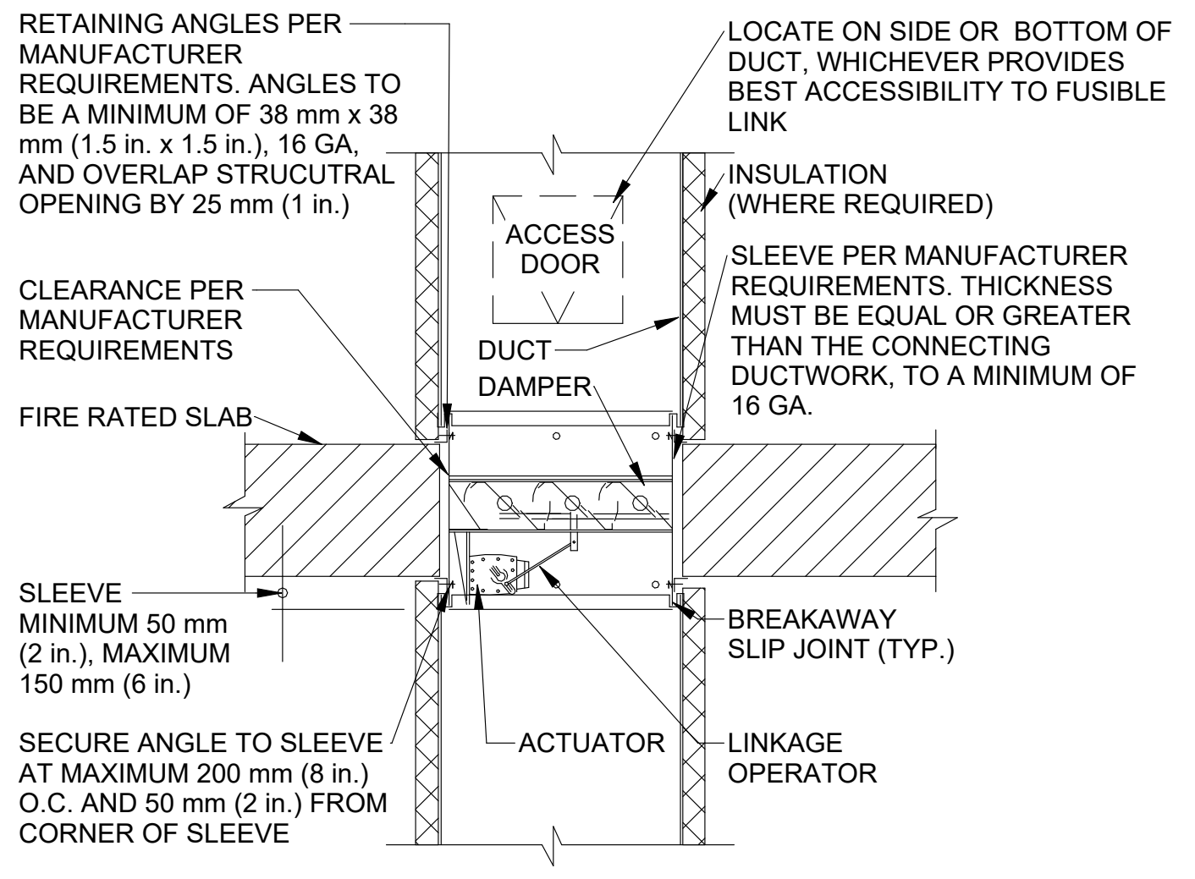
A0 33.1"x46.8"
Approved: JG
Checked: RS
Designer: TE
Project Management Initials:


LOCATE ON SIDE OR BOTTOM OF DUCT, WHICHEVER PROVIDES BEST ACCESSIBILITY TO FUSIBLE LINK
RETAINING ANGLES PER MANUFACTURER REQUIREMENTS. ANGLES TO BE A MINIMUM OF 38 mm x 38 mm (1.5 in. x 1.5 in.), 16 GA, AND OVERLAP STRUCUTRAL OPENING BY 25 mm (1 in.)
INSULATION (WHERE REQUIRED)
DUCT
MINIMUM 25 mm (1 in.) OVERLAP
ACCESS DOOR
SLEEVE MINIMUM 50 mm (2 in.), MAXIMUM 150 mm (6 in.)
FIRE RATED FLOOR
CLEARANCE PER MANUFACTURER REQUIREMENTS
FUSIBLE LINK
DAMPER
SECURE ANGLE TO SLEEVE AT MAXIMUM 200 mm (8 in.) O.C. AND 50 mm (2 in.) FROM CORNER OF SLEEVE
STAINLESS STEEL CLOSURE SPRING
SLEEVE PER MANUFACTURER REQUIREMENTS. THICKNESS MUST BE EQUAL OR GREATER THAN THE CONNECTING DUCTWORK, TO A MINIMUM OF 16 GA.
BREAKAWAY SLIP JOINT (TYP.)

NOTES:
1. INSTALL ALL FIRE DAMERS IN STRICT ACCORDANCE WITH MANUFACTURERS ULC APPROVED INSTALLATION METHODS, ALL MANUFACTURER INSTUCTIONS OVERRIDE THIS DETAIL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VOIDLING OF ANY ULC RATING.
2. DYNAMIC CURTAIN DAMPER (TYPE B) SHOWN, OTHER CURTAIN STYLES AND MUTI-BLADE DAMERS INSTALLATIONS TO BE SIMILAR.

1 TYPICAL HORIZONTAL FIRE DAMPER2

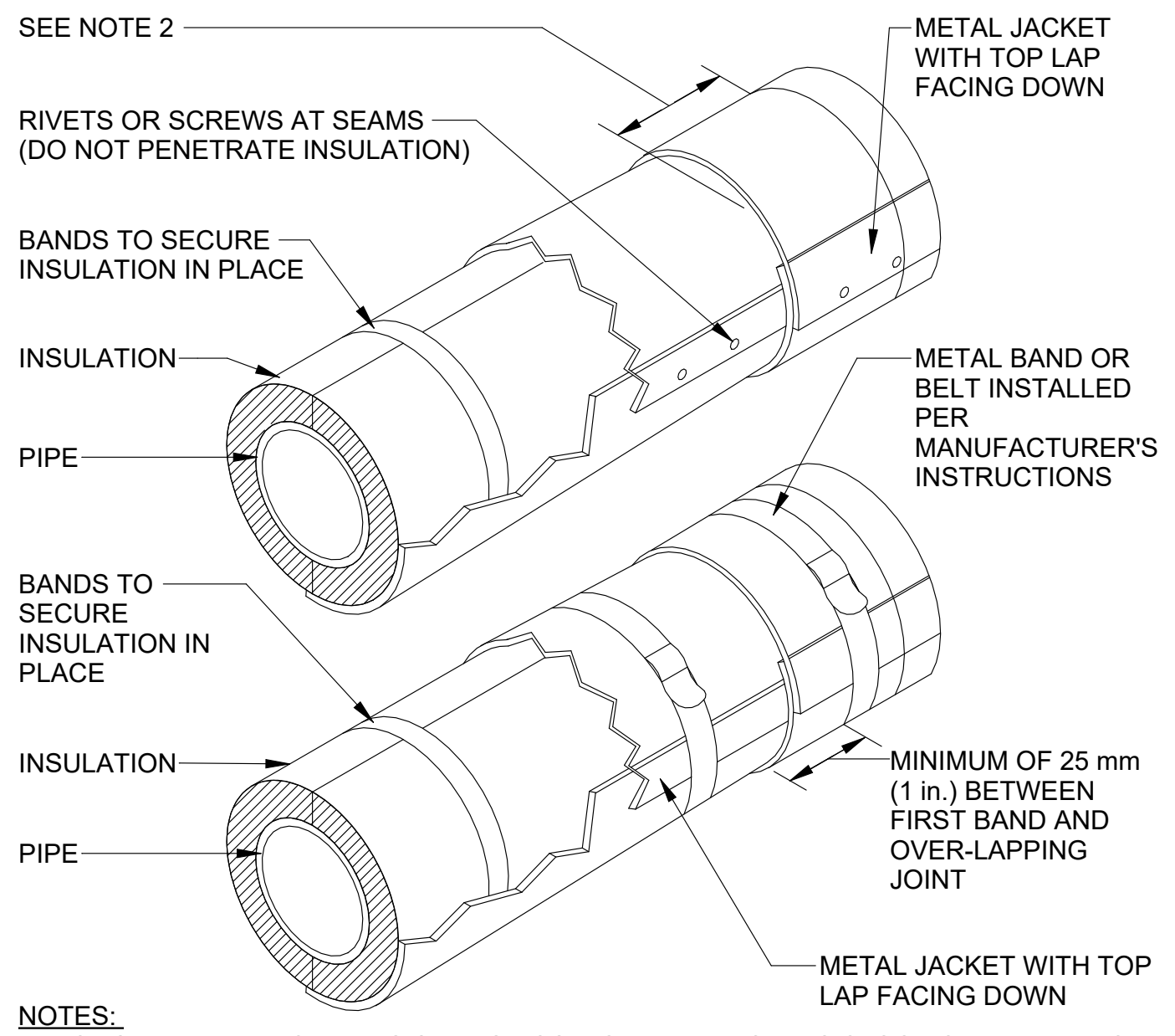
NTS


RETAINING ANGLES PER MANUFACTURER REQUIREMENTS. ANGLES TO BE A MINIMUM OF 38 mm x 38 mm (1.5 in. x 1.5 in.), 16 GA, AND OVERLAP STRUCUTRAL OPENING BY 25 mm (1 in.)
LOCATE ON SIDE OR BOTTOM OF DUCT, WHICHEVER PROVIDES BEST ACCESSIBILITY TO FUSIBLE LINK
INSULATION (WHERE REQUIRED)
ACCESS DOOR
CLEARANCE PER MANUFACTURER REQUIREMENTS
SLEEVE PER MANUFACTURER REQUIREMENTS. THICKNESS MUST BE EQUAL OR GREATER THAN THE CONNECTING DUCTWORK, TO A MINIMUM OF 16 GA.
DUCT
DAMPER
FIRE RATED SLAB
SLEEVE MINIMUM 50 mm (2 in.), MAXIMUM 150 mm (6 in.)
BREAKAWAY SLIP JOINT (TYP.)
SECURE ANGLE TO SLEEVE AT MAXIMUM 200 mm (8 in.) O.C. AND 50 mm (2 in.) FROM CORNER OF SLEEVE
ACTUATOR
LINKAGE OPERATOR

NOTES:
1. INSTALL ALL FIRE DAMERS IN STRICT ACCORDANCE WITH MANUFACTURERS ULC APPROVED INSTALLATION METHODS, ALL MANUFACTURER INSTUCTIONS OVERRIDE THIS DETAIL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VOIDLING OF ANY ULC RATING.
2. DYNAMIC CURTAIN DAMPER (TYPE B) SHOWN, OTHER CURTAIN STYLES AND MUTI-BLADE DAMERS INSTALLATIONS TO BE SIMILAR.

2 TYPICAL HORIZONTAL FIRE & SMOKE DAMPER2

NTS

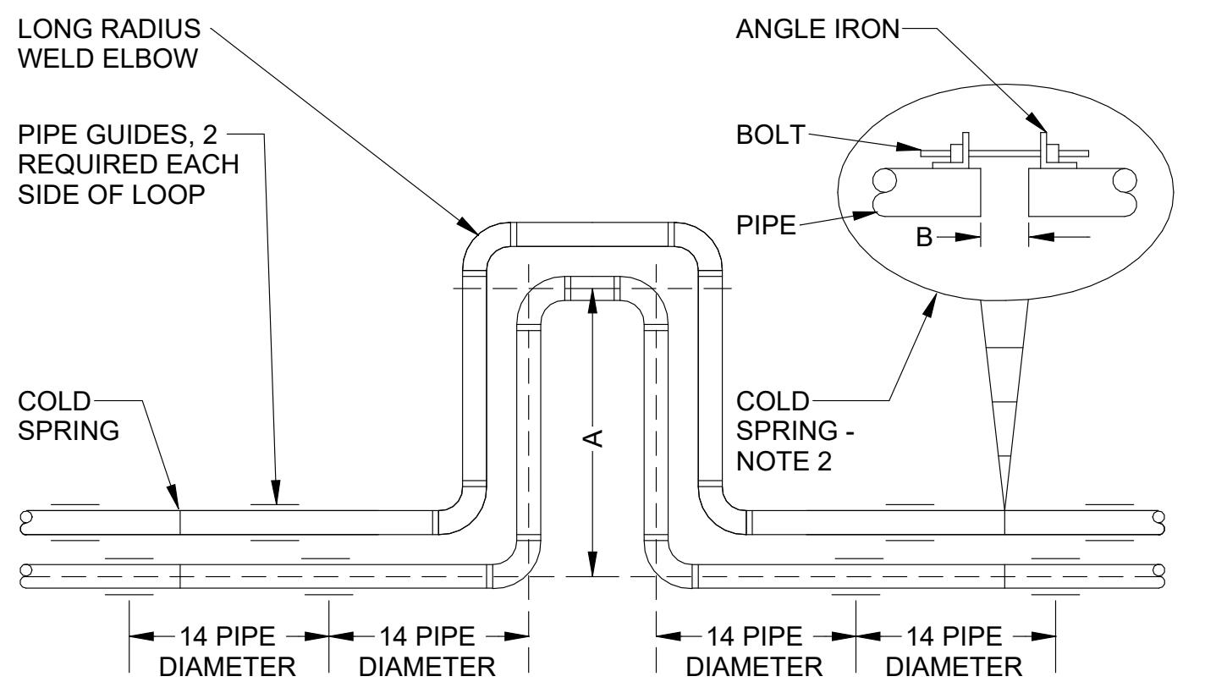

SEE NOTE 2
METAL JACKET WITH TOP LAP FACING DOWN
RIVETS OR SCREWS AT SEAMS (DO NOT PENETRATE INSULATION)
BANDS TO SECURE INSULATION IN PLACE
INSULATION
PIPE
METAL BAND OR BELT INSTALLED PER MANUFACTURER'S INSTRUCTIONS
BANDS TO SECURE INSULATION IN PLACE
INSULATION
MINIMUM OF 25 mm (1 in.) BETWEEN FIRST BAND AND OVER-LAPPING JOINT
PIPE
METAL JACKET WITH TOP LAP FACING DOWN

NOTES:
1. LONGITUDINAL JACKETING SEAMS POSITIONED AT 3 OR 9 O'CLOCK ONLY WITH TOP LAP FACING DOWN FOR WEATER PROOFING.
2. OVERLAP JACKETING A MINIMUM OF 38 mm (1-1/2 in.).
3. INSTALL HEAT TRACE PER MANUFACTURER'S RECOMMENDATIONS.

3 FIELD APPLIED METAL JACKETING OVER PIPE INSULATION1

NTS

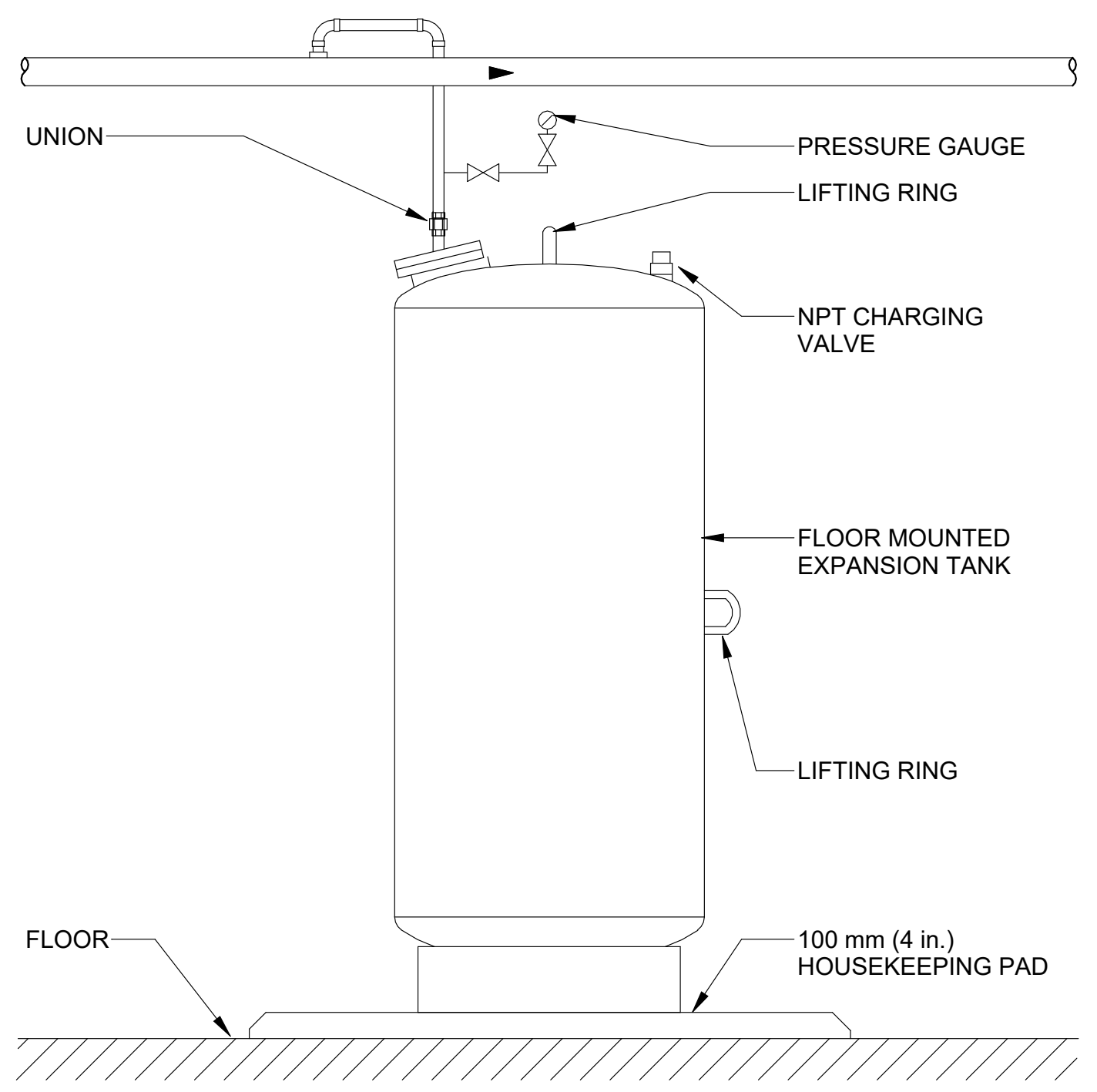
SERVICE	SIZE "A" FOR PIPES 75 mm (3 in.) AND SMALLER	SIZE "B" FOR COLD SPRINGING
HEATING WATER	1200 mm (4 ft.)	0.4 mm/m (1/2 in./ft.)
LOW PRESSURE SYSTEM	1350 mm (4 ft. 6 in.)	0.6 mm/m (3/4 in./ft.)



NOTES:
1. ALL EXPANSION LOOPS SHALL BE AS STATED IN SCHEDULE ABOVE UNLESS OTHERWISE SHOWN ON PLAN.
2. INSTALL ALL PIPE, LEAVING SPACE AT COLD SPRING LOCATION.

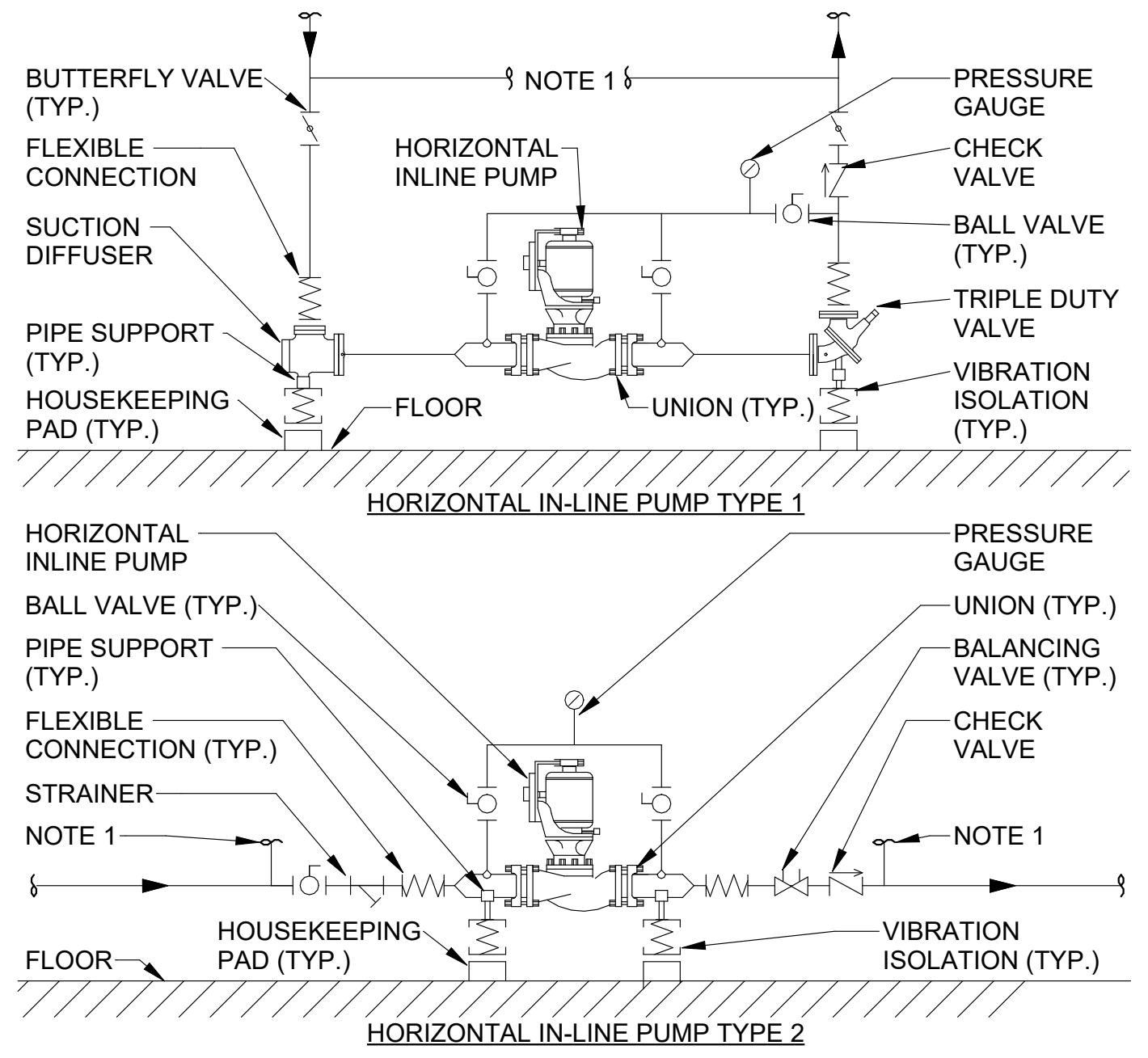
4 HEATING PIPING EXPANSION LOOP DETAIL1

NTS



5 EXPANSION TANK (FLOOR MOUNTED)1

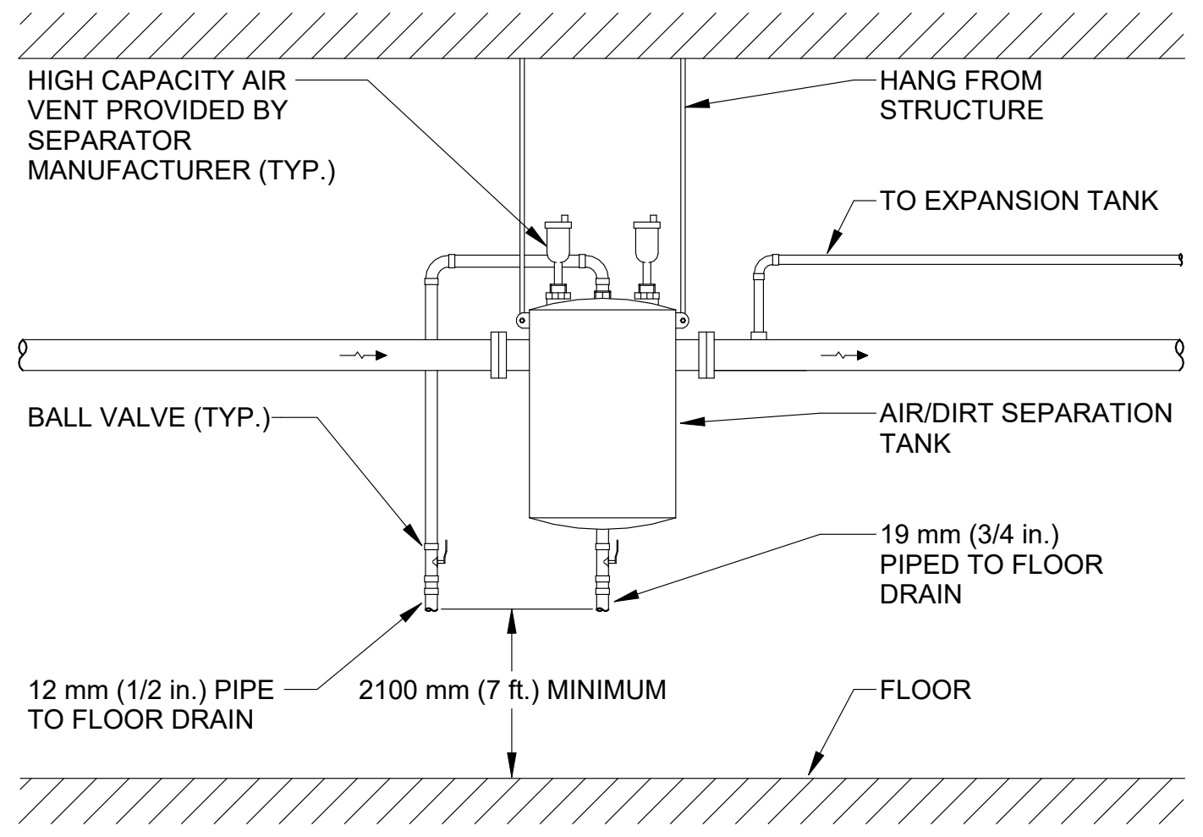
NTS



NOTES:
1. REFER TO BYPASS SHOT FEEDER & FILTER ARRANGEMENT DETAIL

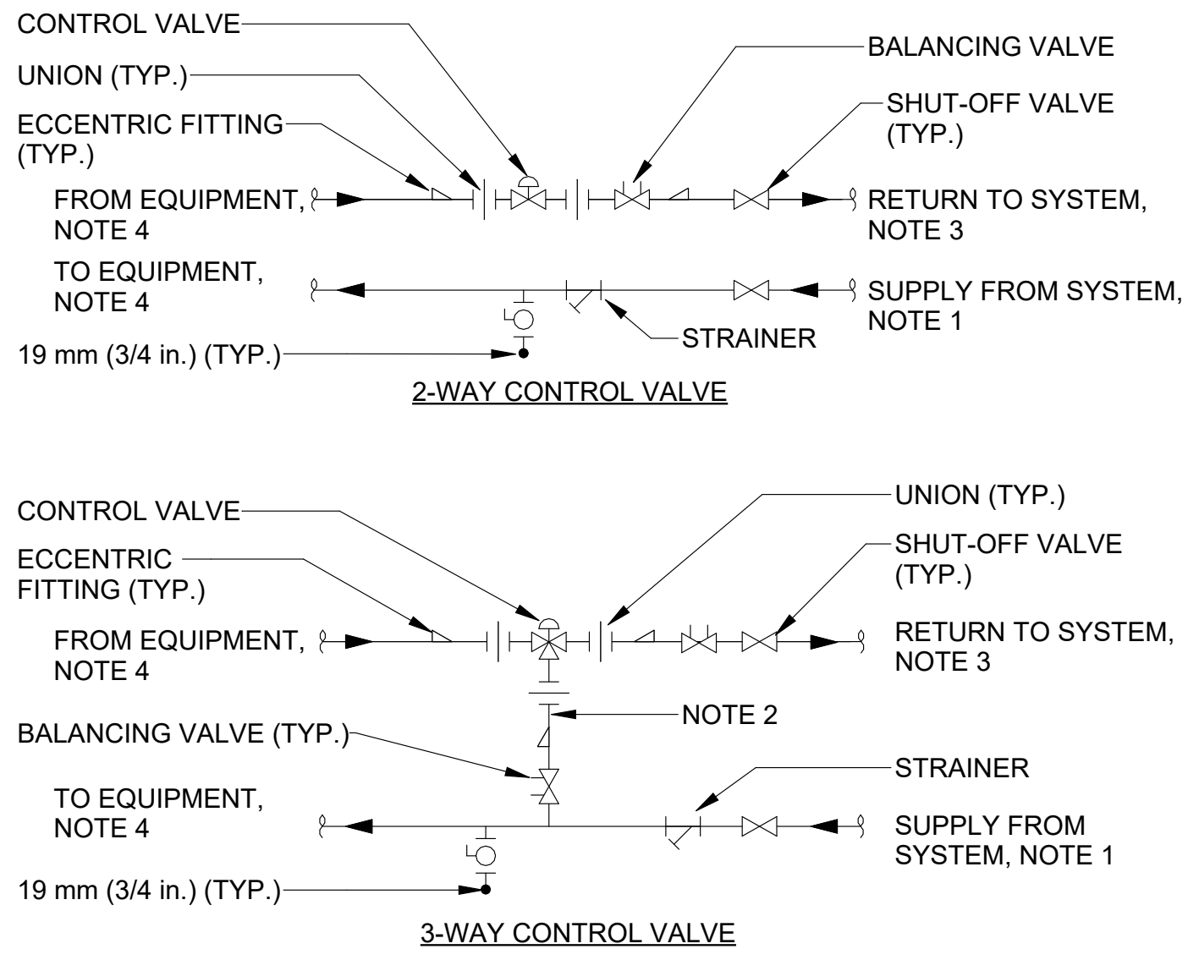
6 HORIZONTAL IN-LINE PUMP TYPE 1 & 1

NTS


HIGH CAPACITY AIR VENT PROVIDED BY SEPARATOR MANUFACTURER (TYP.)
HANG FROM STRUCTURE
TO EXPANSION TANK
BALL VALVE (TYP.)
AIR/DIRT SEPARATION TANK
19 mm (3/4 in.) PIPED TO FLOOR DRAIN
12 mm (1/2 in.) PIPE TO FLOOR DRAIN
2100 mm (7 ft.) MINIMUM
FLOOR

7 AIR SEPARATOR1

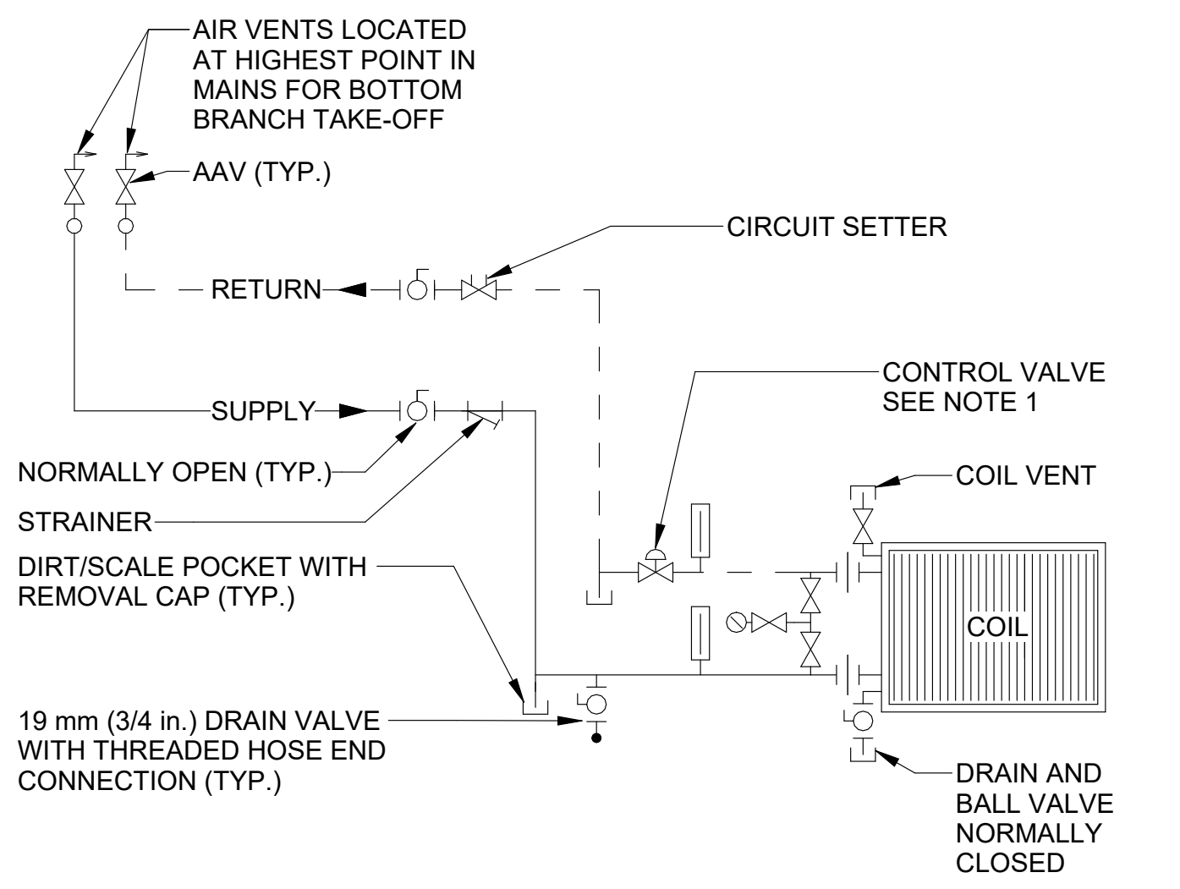
NTS



NOTES:
1. SUPPLY PIPE SIZE AS SHOWN ON PLANS.
2. BY-PASS FULL SIZE OF SUPPLY PIPE.
3. RETURN PIPE AS SHOWN ON PLANS.
4. PIPING TO EQUIPMENT SAME SIZE AS SUPPLY AND/OR RETURN PIPE.

8 CONTROL VALVE PIPING ARRANGMENTS2

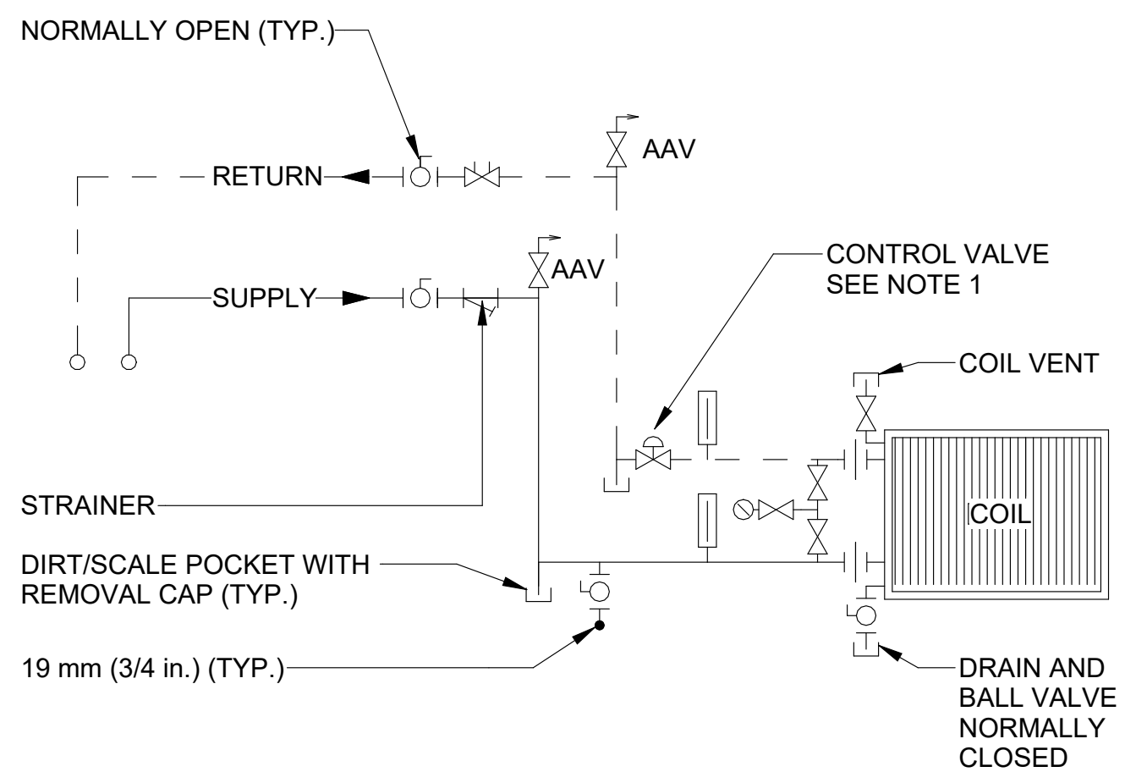
NTS


AIR VENTS LOCATED AT HIGHEST POINT IN MAINS FOR BOTTOM BRANCH TAKE-OFF
AAV (TYP.)
CIRCUIT SETTER
RETURN
SUPPLY
CONTROL VALVE SEE NOTE 1
NORMALLY OPEN (TYP.)
COIL VENT
STRAINER
DIRT/SCALE POCKET WITH REMOVAL CAP (TYP.)
COIL
19 mm (3/4 in.) DRAIN VALVE WITH THREADED HOSE END CONNECTION (TYP.)
DRAIN AND BALL VALVE NORMALLY CLOSED

NOTES:
1. REFER TO DRAWINGS FOR CONTROL VALVE TYPE AND CONTROL VALVE DETAIL FOR ADDITIONAL INFORMATION.
2. SLOPE ALL PIPING TO DRAIN LEG.

9 BOTTOM BRANCH TAKE-OFF2

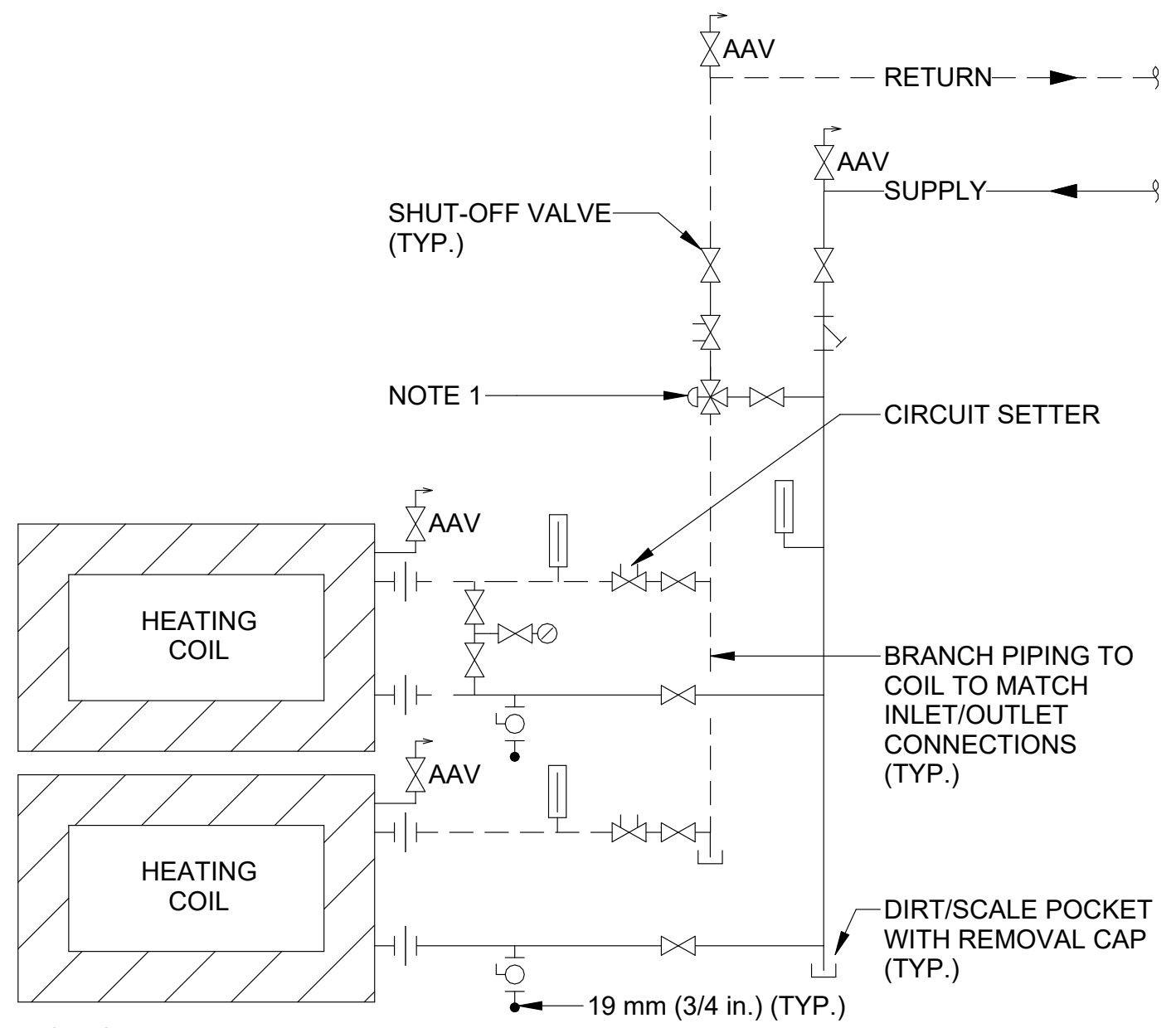
NTS



NOTES:
1. REFER TO DRAWINGS FOR CONTROL VALVE TYPE AND CONTROL VALVE PIPING ARRANGEMENTS DETAIL FOR ADDITIONAL INFORMATION.
2. SLOPE ALL PIPING TO DRAIN LEG.

10 TOP BRANCH TAKE-OFF2

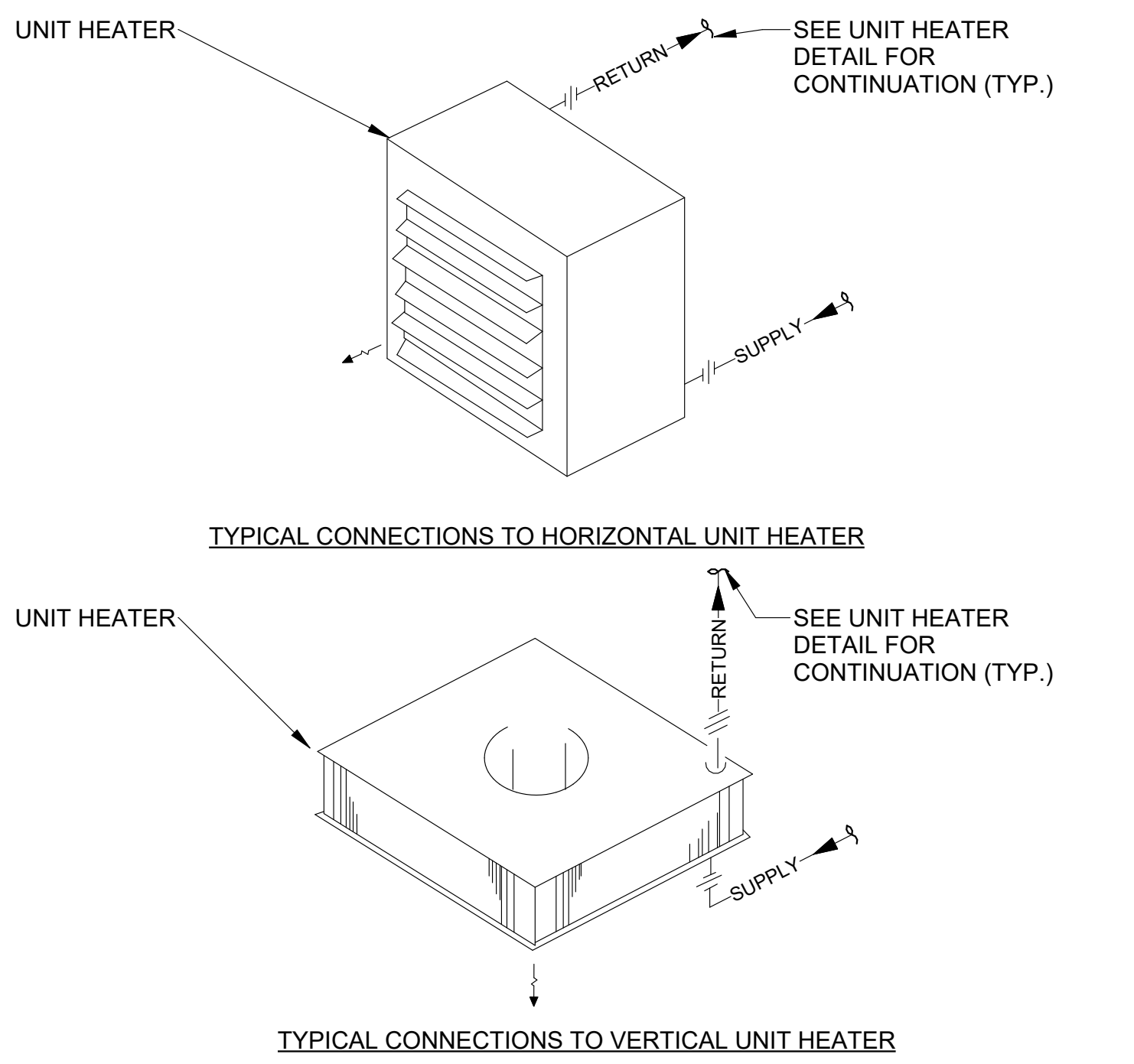
NTS



NOTES:
1. DEPENDING ON SIZE OF AHU COILS ONE OR TWO CONTROL VALVES SHALL BE PROVIDED. REFER TO CONTROL DRAWINGS FOR MORE INFORMATION. FOR ILLUSTRAION PURPOSES ONLY ONE CONTROL VALVE HAS BEEN SHOWN.

11 MULTI HW PREHEAT COIL PIPING DETAIL (3-WAY)1

NTS


UNIT HEATER
RETURN
SEE UNIT HEATER DETAIL FOR CONTINUATION (TYP.)
SUPPLY
TYPICAL CONNECTIONS TO HORIZONTAL UNIT HEATER
UNIT HEATER
RETURN
SEE UNIT HEATER DETAIL FOR CONTINUATION (TYP.)
SUPPLY
TYPICAL CONNECTIONS TO VERTICAL UNIT HEATER

12 UNIT HEATER ORIENTATION2

NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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REGISTRATION

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0	02/19/2025	ISSUED FOR TENDER
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B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

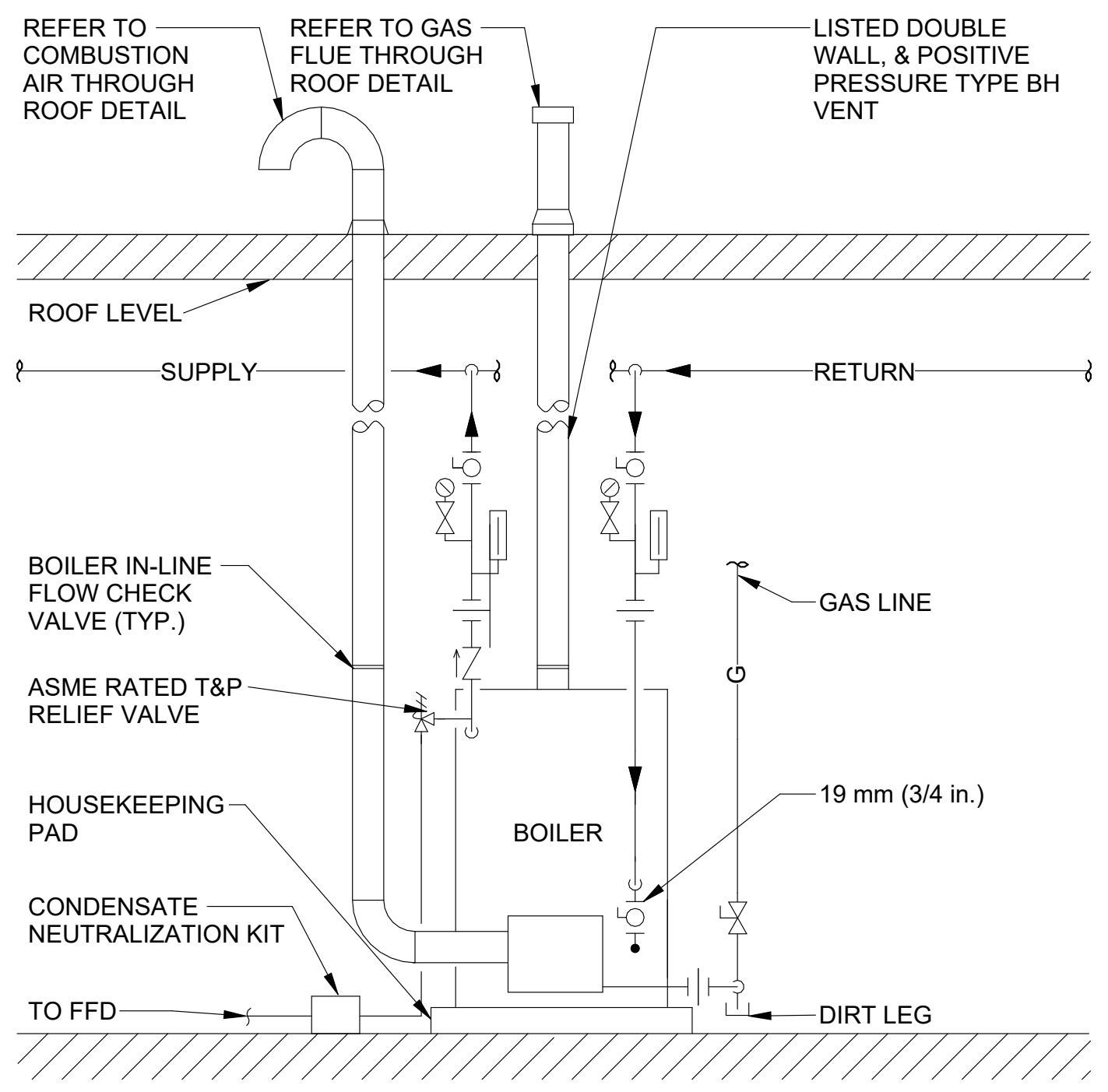
SHEET TITLE

TYPICAL DETAILS (4 OF 8)

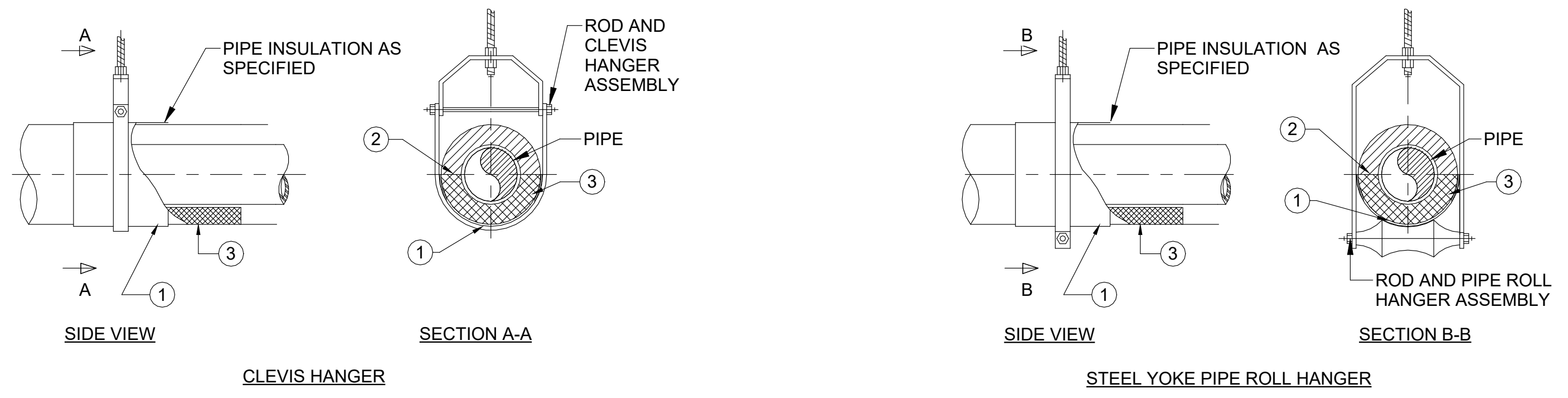
SHEET NUMBER

00-M-504

SORT: 550-Enlarged Details-14.03-00-M-504-TYPICAL DETAILS (4 OF 8)
Last Plotted: 2/14/2025 11:49:20 PM
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-P.rvt


REFER TO COMBUSTION AIR THROUGH ROOF DETAIL
REFER TO GAS FLUE THROUGH ROOF DETAIL
LISTED DOUBLE WALL, & POSITIVE PRESSURE TYPE BH VENT
ROOF LEVEL
SUPPLY
RETURN
BOILER IN-LINE FLOW CHECK VALVE (TYP.)
GAS LINE
G
ASME RATED T&P RELIEF VALVE
HOUSEKEEPING PAD
BOILER
19 mm (3/4 in.)
CONDENSATE NEUTRALIZATION KIT
TO FFD
DIRT LEG

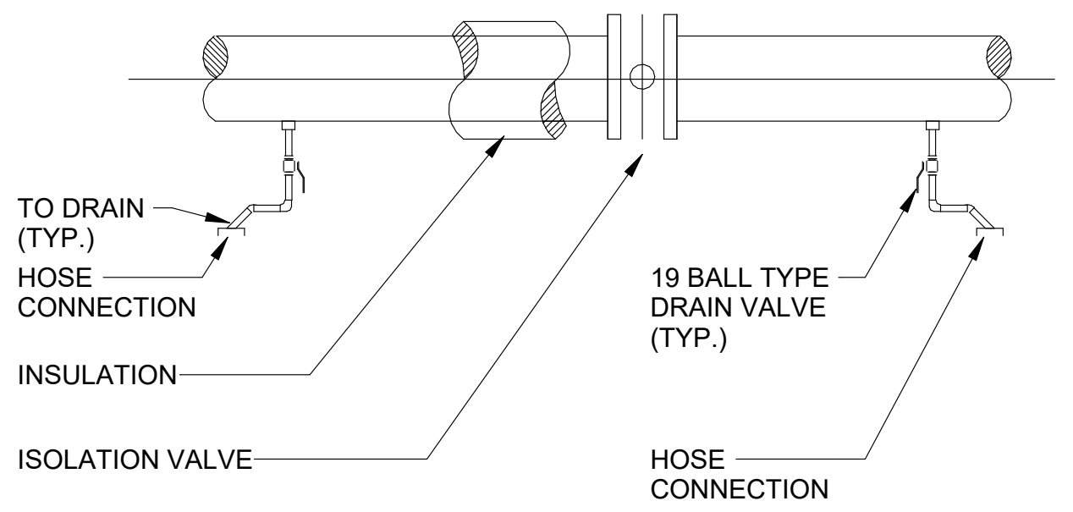
1 GAS-FIRED BOILER DETAIL1
NTS


A
PIPE INSULATION AS SPECIFIED
ROD AND CLEVIS HANGER ASSEMBLY
2
PIPE
3
1
A
SIDE VIEW
SECTION A-A
CLEVIS HANGER
B
PIPE INSULATION AS SPECIFIED
2
PIPE
3
1
ROD AND PIPE ROLL HANGER ASSEMBLY
B
SIDE VIEW
SECTION B-B
STEEL YOKE PIPE ROLL HANGER

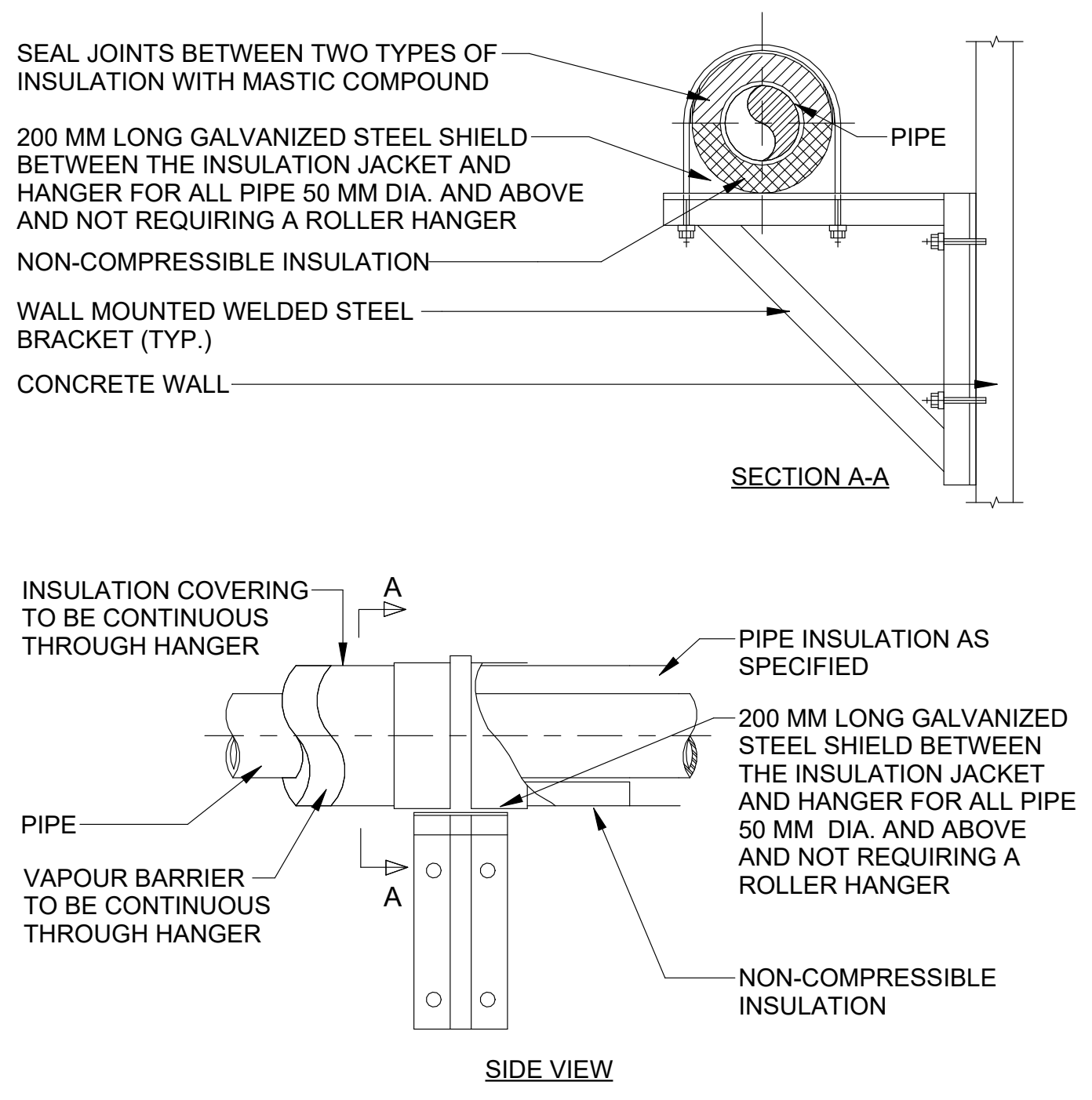
DETAIL NOTES

1. 200 mm LONG GALVANIZED STEEL SHIELD ON THE OUTSIDE OF THE INSULATION JACKET BETWEEN THE INSULATION JACKET AND HANGER FOR ALL PIPE 50 MM DIA. AND ABOVE AND NOT REQUIRING A ROLLER HANGER
2. SEAL JOINTS BETWEEN 2 TYPES OF INSULATION WITH MASTIC COMPOUND.
3. NON-COMPRESSIBLE INSULATION

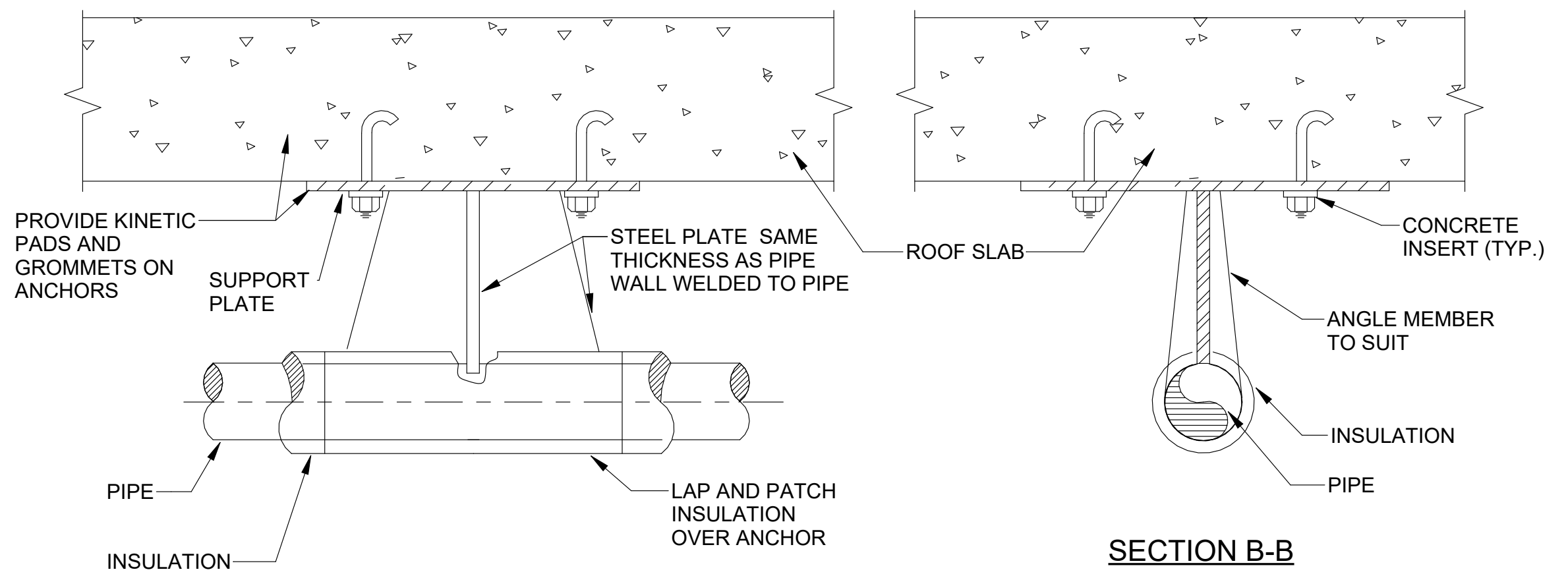
4 TYPICAL PIPE HANGER DETAIL1
NTS



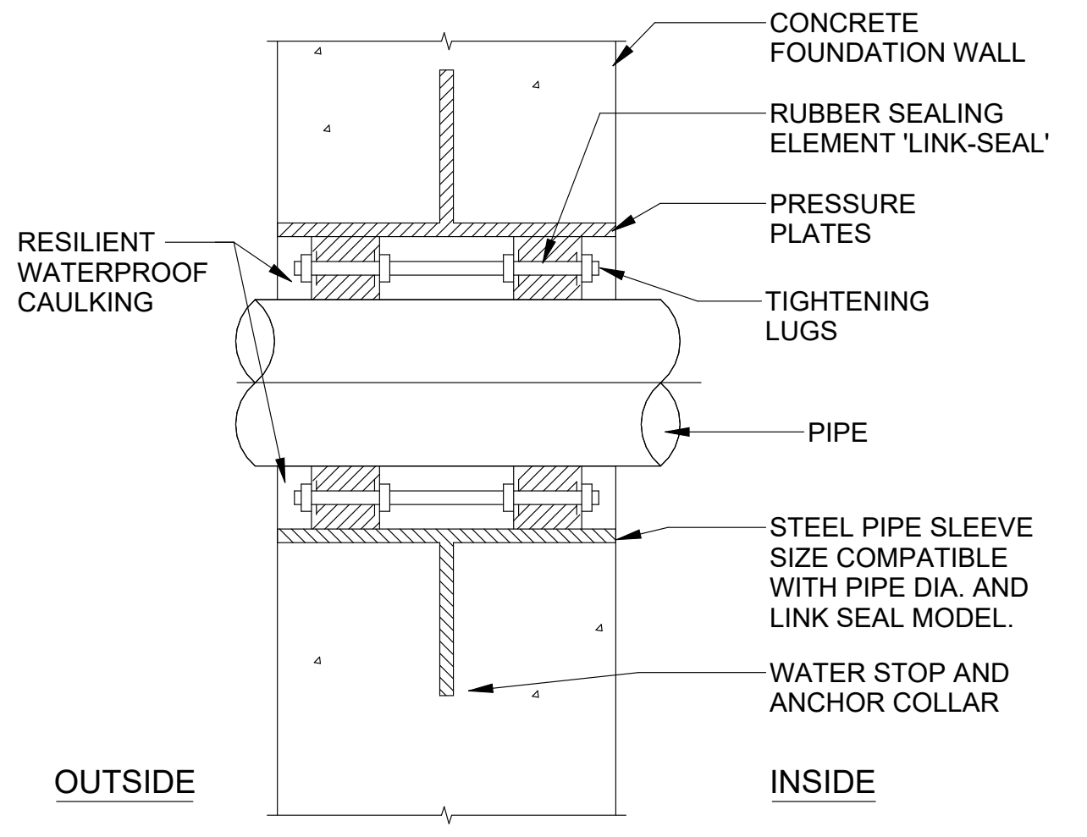
7 ISOLATION VALVE DETAIL1
NTS


SEAL JOINTS BETWEEN TWO TYPES OF INSULATION WITH MASTIC COMPOUND
200 MM LONG GALVANIZED STEEL SHIELD BETWEEN THE INSULATION JACKET AND HANGER FOR ALL PIPE 50 MM DIA. AND ABOVE AND NOT REQUIRING A ROLLER HANGER
NON-COMPRESSIBLE INSULATION
WALL MOUNTED WELDED STEEL BRACKET (TYP.)
CONCRETE WALL
PIPE
SECTION A-A
INSULATION COVERING TO BE CONTINUOUS THROUGH HANGER
A
PIPE INSULATION AS SPECIFIED
200 MM LONG GALVANIZED STEEL SHIELD BETWEEN THE INSULATION JACKET AND HANGER FOR ALL PIPE 50 MM DIA. AND ABOVE AND NOT REQUIRING A ROLLER HANGER
PIPE
VAPOUR BARRIER TO BE CONTINUOUS THROUGH HANGER
A
NON-COMPRESSIBLE INSULATION
SIDE VIEW

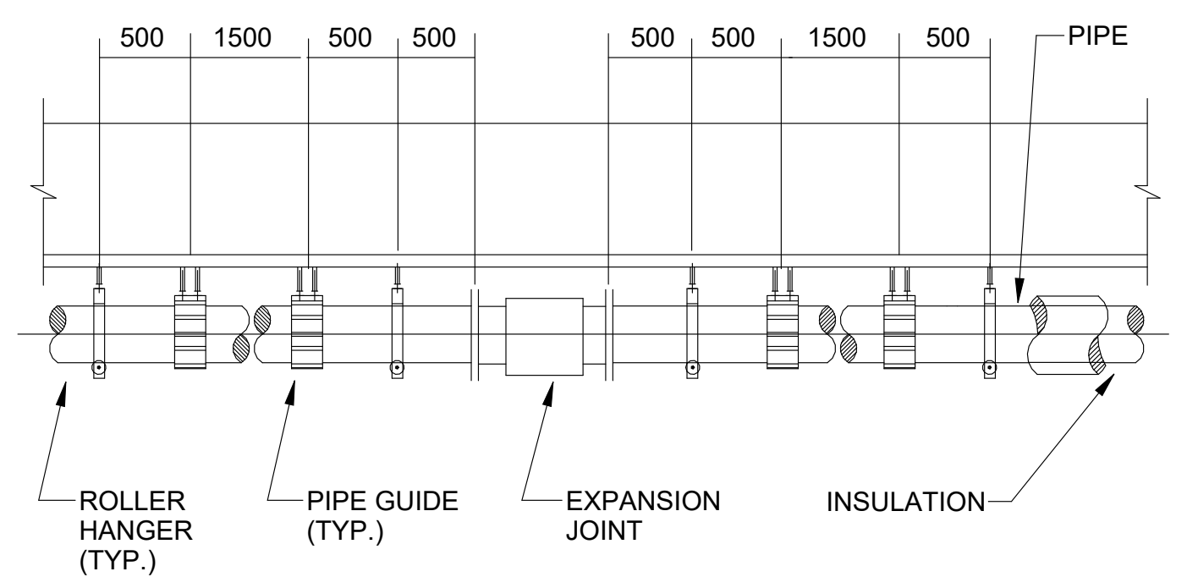
2 TYPICAL PIPE INSULATION DETAIL (BRACKET)1
NTS


PROVIDE KINETIC PADS AND GROMMETS ON ANCHORS
SUPPORT PLATE
STEEL PLATE SAME THICKNESS AS PIPE WALL WELDED TO PIPE
ROOF SLAB
CONCRETE INSERT (TYP.)
ANGLE MEMBER TO SUIT
INSULATION
PIPE
PIPE
INSULATION
LAP AND PATCH INSULATION OVER ANCHOR
SECTION B-B

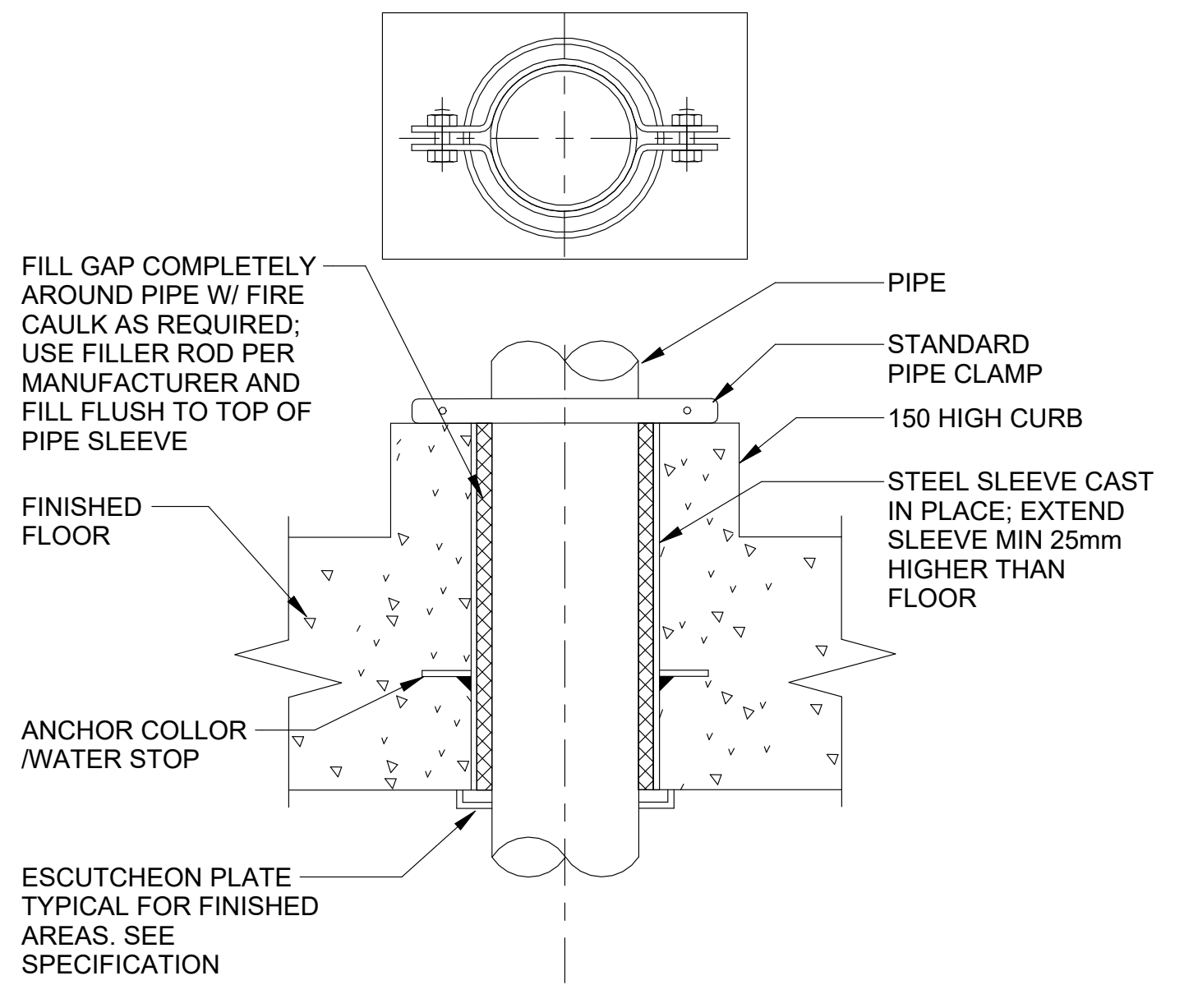
5 PIPE ANCHOR DETAIL1
NTS


CONCRETE FOUNDATION WALL
RUBBER SEALING ELEMENT 'LINK-SEAL'
PRESSURE PLATES
RESILIENT WATERPROOF CAULKING
TIGHTENING LUGS
PIPE
STEEL PIPE SLEEVE SIZE COMPATIBLE WITH PIPE DIA. AND LINK SEAL MODEL.
WATER STOP AND ANCHOR COLLAR
OUTSIDE
INSIDE

8 PIPE PENETRATION (EXTERIOR WALL)1
NTS

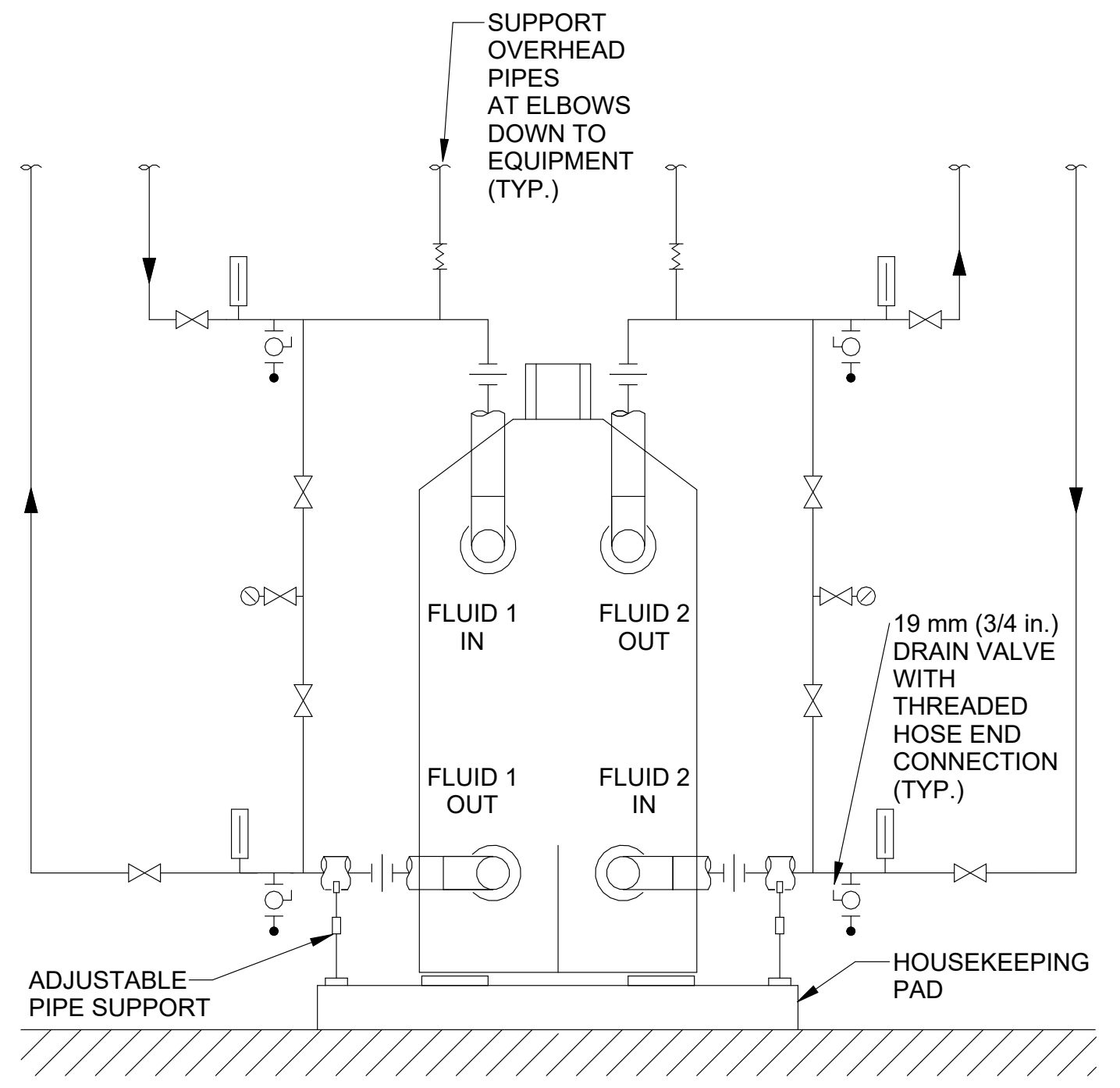


3 EXPANSION JOINT DETAIL (SUSPENDED)1
NTS


FILL GAP COMPLETELY AROUND PIPE W/ FIRE CAULK AS REQUIRED; USE FILLER ROD PER MANUFACTURER AND FILL FLUSH TO TOP OF PIPE SLEEVE
PIPE
STANDARD PIPE CLAMP
150 HIGH CURB
FINISHED FLOOR
STEEL SLEEVE CAST IN PLACE; EXTEND SLEEVE MIN 25mm HIGHER THAN FLOOR
ANCHOR COLLOR /WATER STOP
ESCUTCHEON PLATE TYPICAL FOR FINISHED AREAS. SEE SPECIFICATION

NOTE:
FOR CLARITY ONLY PIPE SHOWN.

6 PIPE/DUCT SLEEVE THROUGH FLOOR DETAIL1
NTS


SUPPORT OVERHEAD PIPES AT ELBOWS DOWN TO EQUIPMENT (TYP.)
FLUID 1 IN
FLUID 2 OUT
FLUID 1 OUT
FLUID 2 IN
19 mm (3/4 in.) DRAIN VALVE WITH THREADED HOSE END CONNECTION (TYP.)
ADJUSTABLE PIPE SUPPORT
HOUSEKEEPING PAD

9 MECHANICAL EQUIPMENT CONNECTION
NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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CONSULTANT

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SHEET TITLE

TYPICAL DETAILS (5 OF 8)

SHEET NUMBER

00-M-505

A0 33.1"x46.8"
Approved: JG
Checked: RS
Designer: TE
Project Management Initials:

SORT: 550-Enlarged Details-14.03-00-M-505-TYPICAL DETAILS (5 OF 8)
Last Plotted: 2/14/2025 11:49:40 PM
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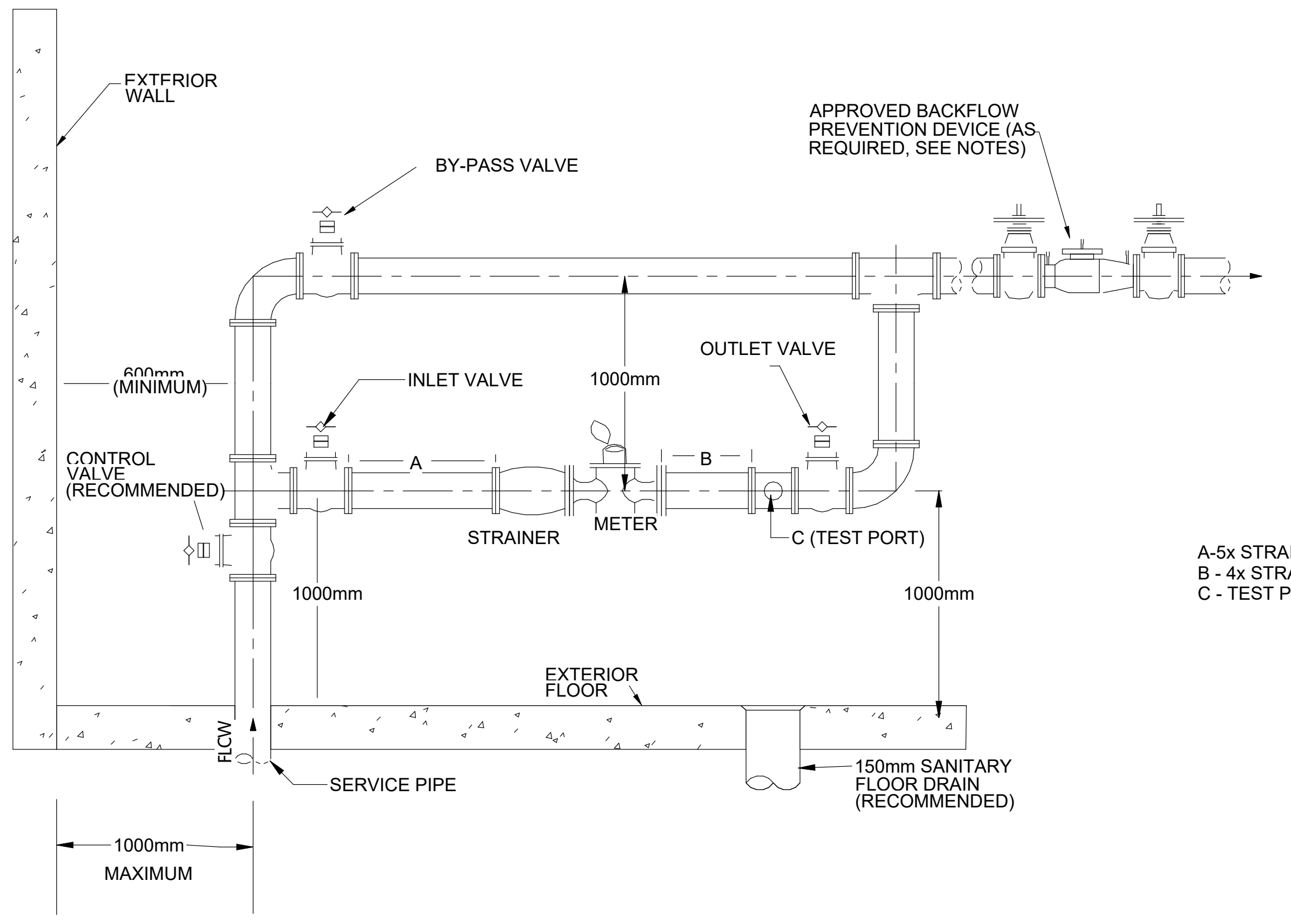
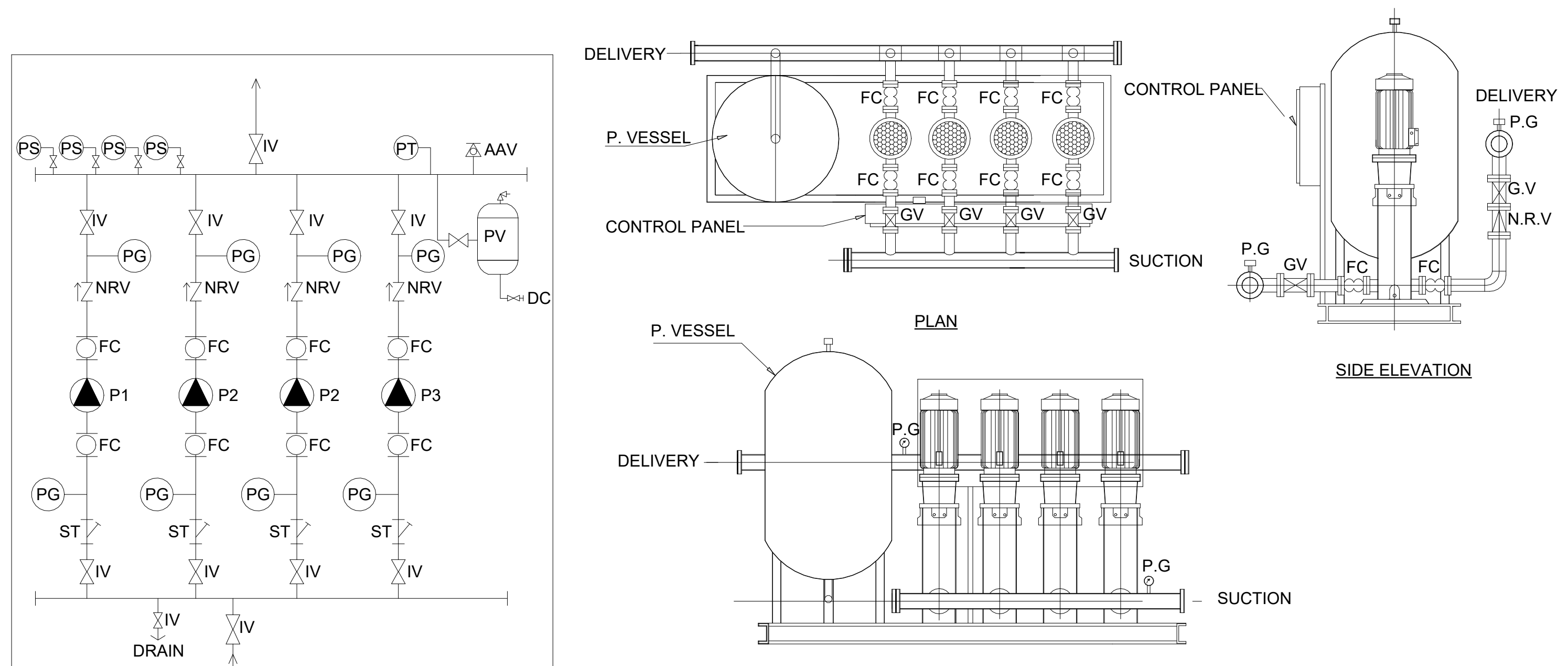


A-5x STRAIGHT PIPE DIAMETER
B - 4x STRAIGHT PIPE DIAMETER
C - TEST PORT

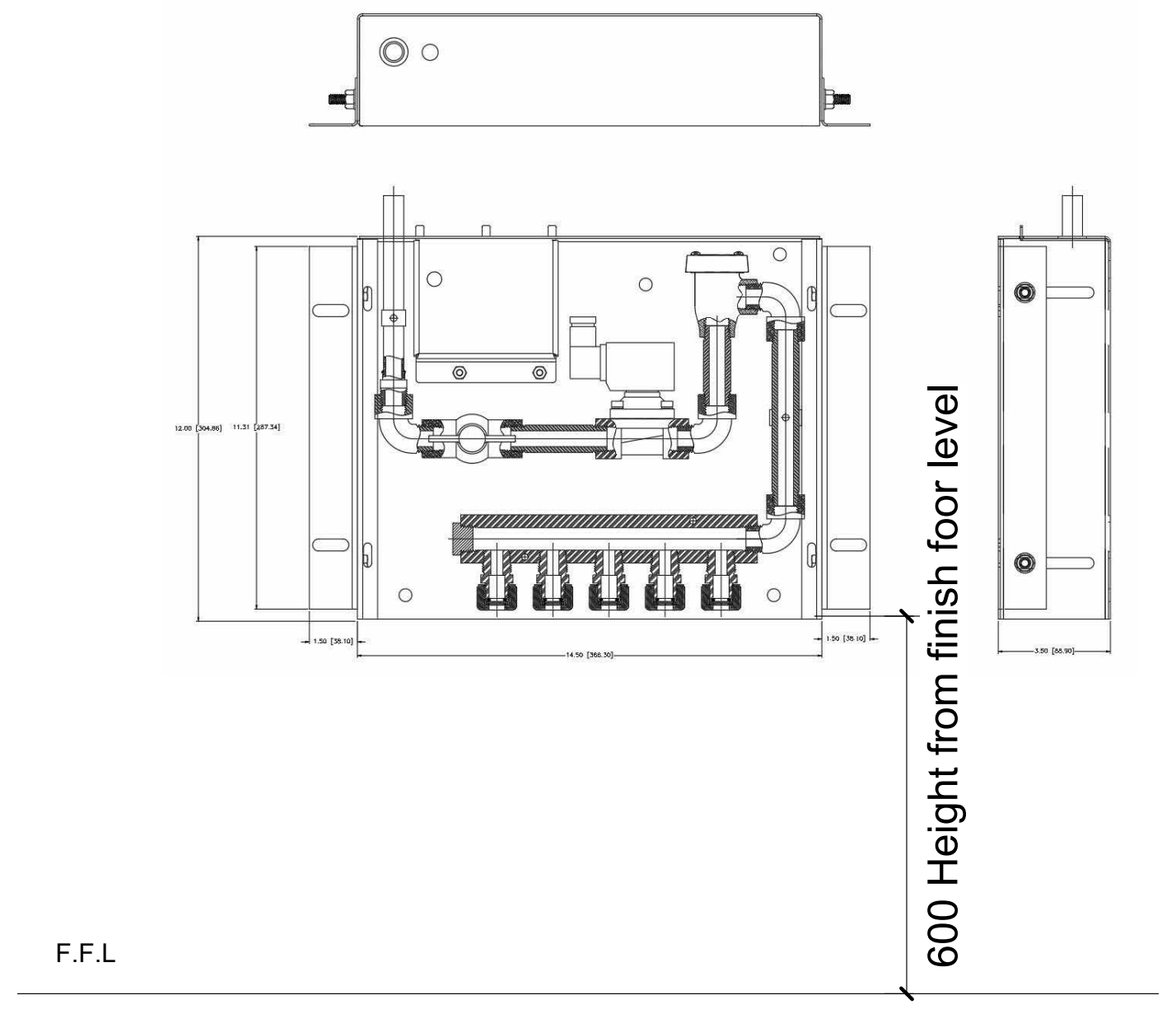
1 CITY WATER METER ASSEMBLY DETAIL
NTS



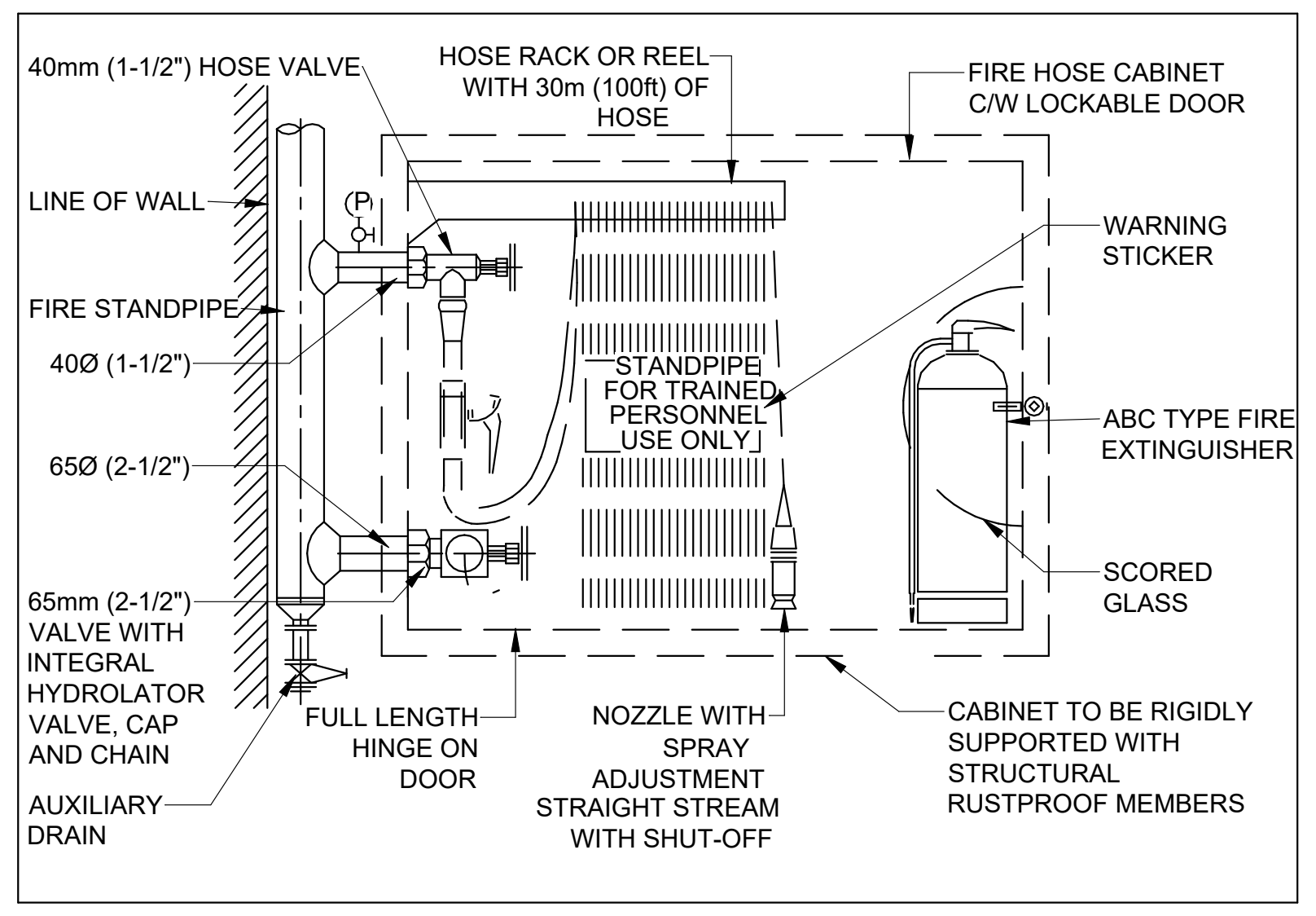
01 DOMESTIC WATER SUPPLY BOOSTER PUMP DETAIL
(NOT TO SCALE)

-THIS DETAIL IS FOR GUIDANCE ONLY.
-FOR NUMBER OF PUMPS AND ITS ASSOCIATED ASSEMBLY AND ACCESSORIES REFER TO SCHEDULE OF EQUIPMENT.
-PRESSURE VESSEL SHALL BE SIZED BY THE CONTRACTOR AND PUMP MANUFACTURER.
-PUMP HEAD AND MOTOR SIZE TO BE VALIDATED BY CONTRACTOR BASED ON FINAL PRESSURE LOSS CALCULATION.

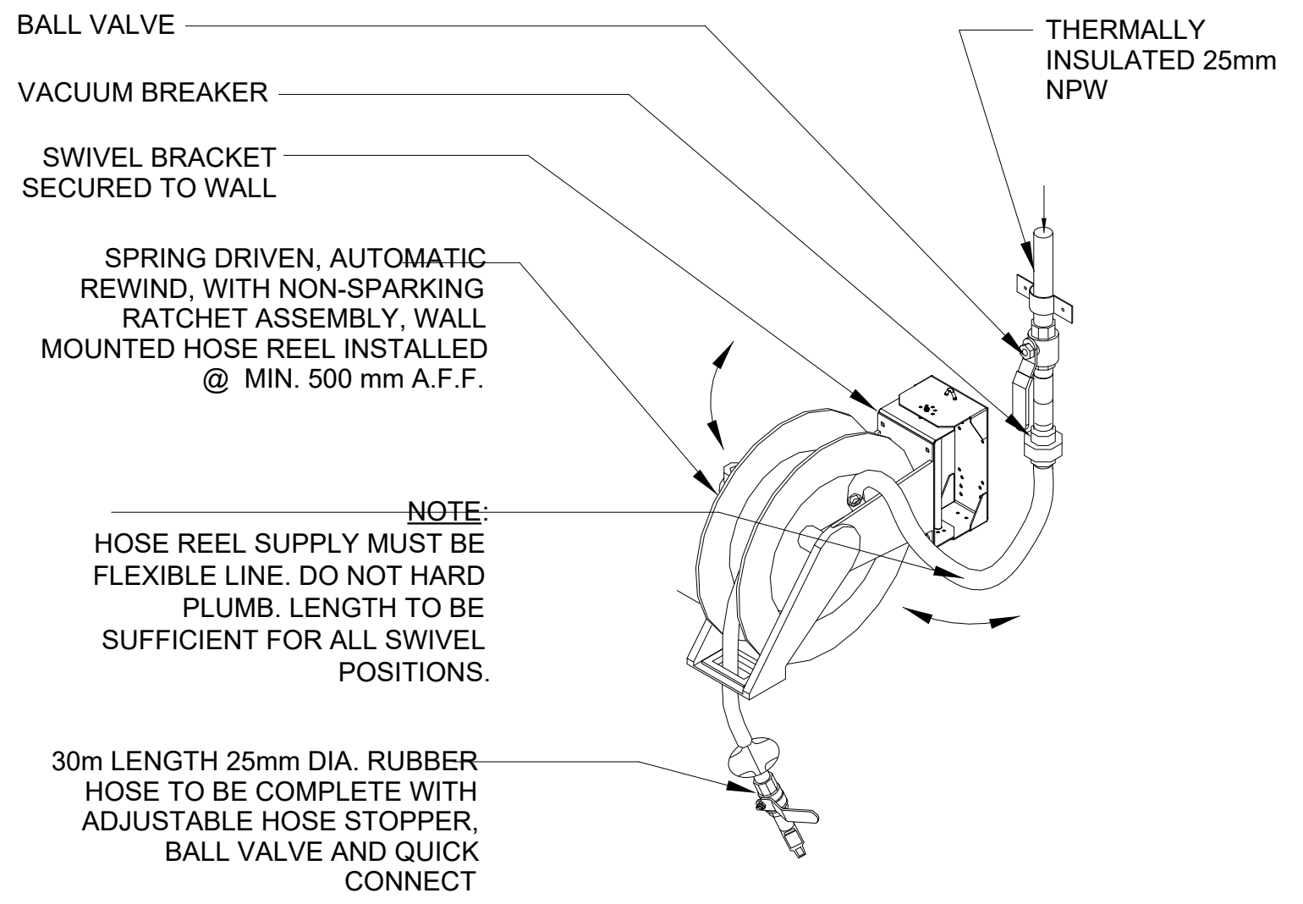
2 DOMESTIC BOOSTER PUMP DETAILS
1 : 80



3 TRAP SEAL PRIMER
NTS

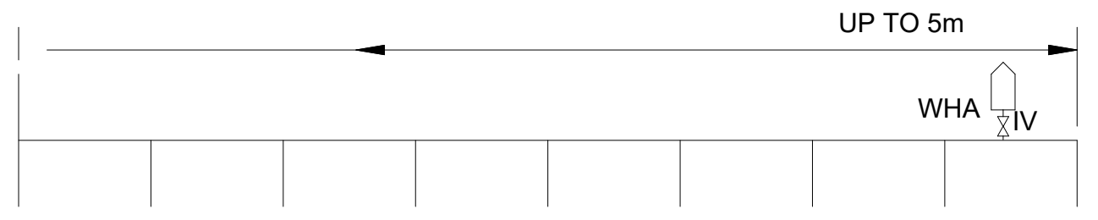

40mm (1-1/2") HOSE VALVE
HOSE RACK OR REEL WITH 30m (100ft) OF HOSE
FIRE HOSE CABINET C/W LOCKABLE DOOR
LINE OF WALL
WARNING STICKER
FIRE STANDPIPE
40Ø (1-1/2")
STANDPIPE FOR TRAINED PERSONNEL USE ONLY
ABC TYPE FIRE EXTINGUISHER
65Ø (2-1/2")
SCORED GLASS
65mm (2-1/2") VALVE WITH INTEGRAL HYDROLATOR VALVE, CAP AND CHAIN
FULL LENGTH HINGE ON DOOR
NOZZLE WITH SPRAY ADJUSTMENT STRAIGHT STREAM WITH SHUT-OFF
CABINET TO BE RIGIDLY SUPPORTED WITH STRUCTURAL RUSTPROOF MEMBERS
AUXILIARY DRAIN

4 TYPICAL FIRE HOSE CABINET DETAIL
NTS

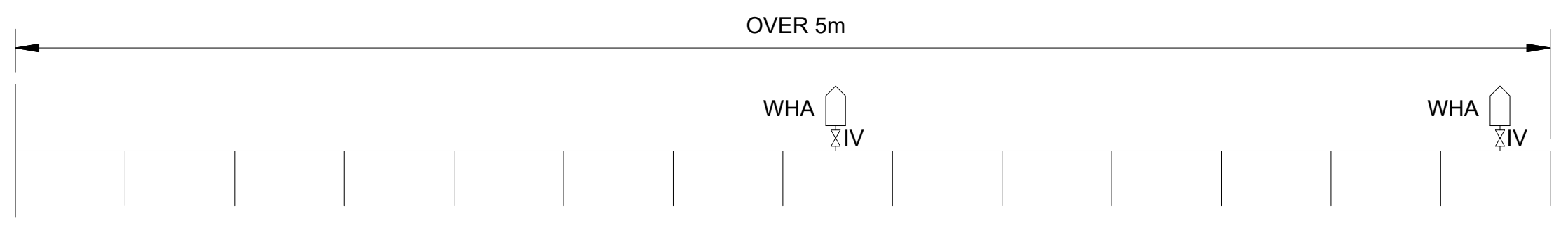

BALL VALVE
VACUUM BREAKER
SWIVEL BRACKET SECURED TO WALL
SPRING DRIVEN, AUTOMATIC REWIND, WITH NON-SPARKING RATCHET ASSEMBLY, WALL MOUNTED HOSE REEL INSTALLED @ MIN. 500 mm A.F.F.
THERMALLY INSULATED 25mm NPW
NOTE:
HOSE REEL SUPPLY MUST BE FLEXIBLE LINE. DO NOT HARD PLUMB. LENGTH TO BE SUFFICIENT FOR ALL SWIVEL POSITIONS.
30m LENGTH 25mm DIA. RUBBER HOSE TO BE COMPLETE WITH ADJUSTABLE HOSE STOPPER, BALL VALVE AND QUICK CONNECT

5 CLEAN- AGENT FIRE SUPPRESSION SYSTEM
1 : 80

RULE 1
RULE 1, COVERS MULTIPLE FIXTURE BRANCH LINES WHICH DO NOT EXCEED 5m IN LENGTH

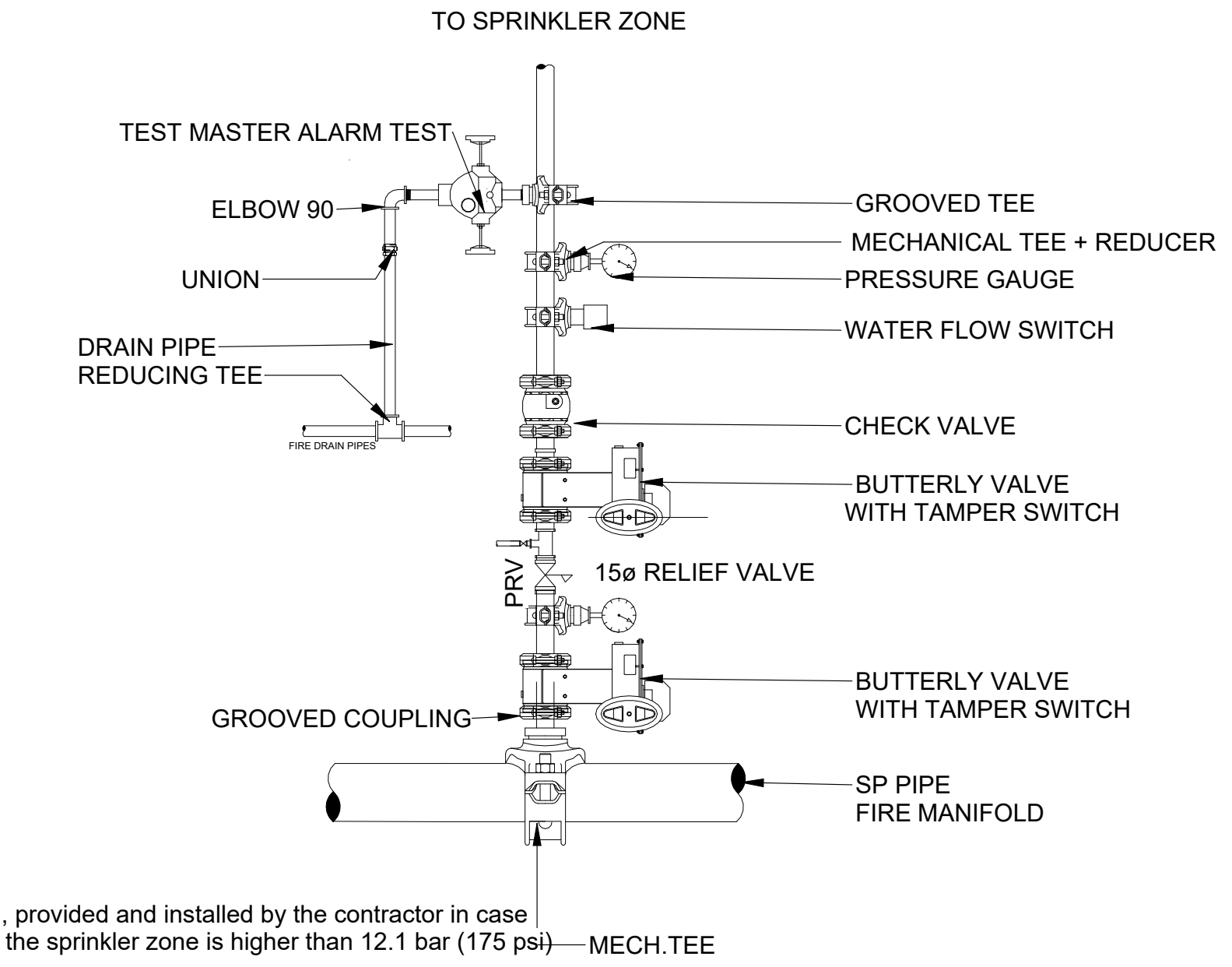


RULE 2
RULE 2, COVERS MULTIPLE FIXTURE BRANCH LINES WHICH DO EXCEED 5m IN LENGTH



THIS DETAIL IS FOR GUIDANCE ONLY.
SPECIFIC CONTRACTOR SHALL SIZE WHA AND PLACED WHEREVER REQUIRED.

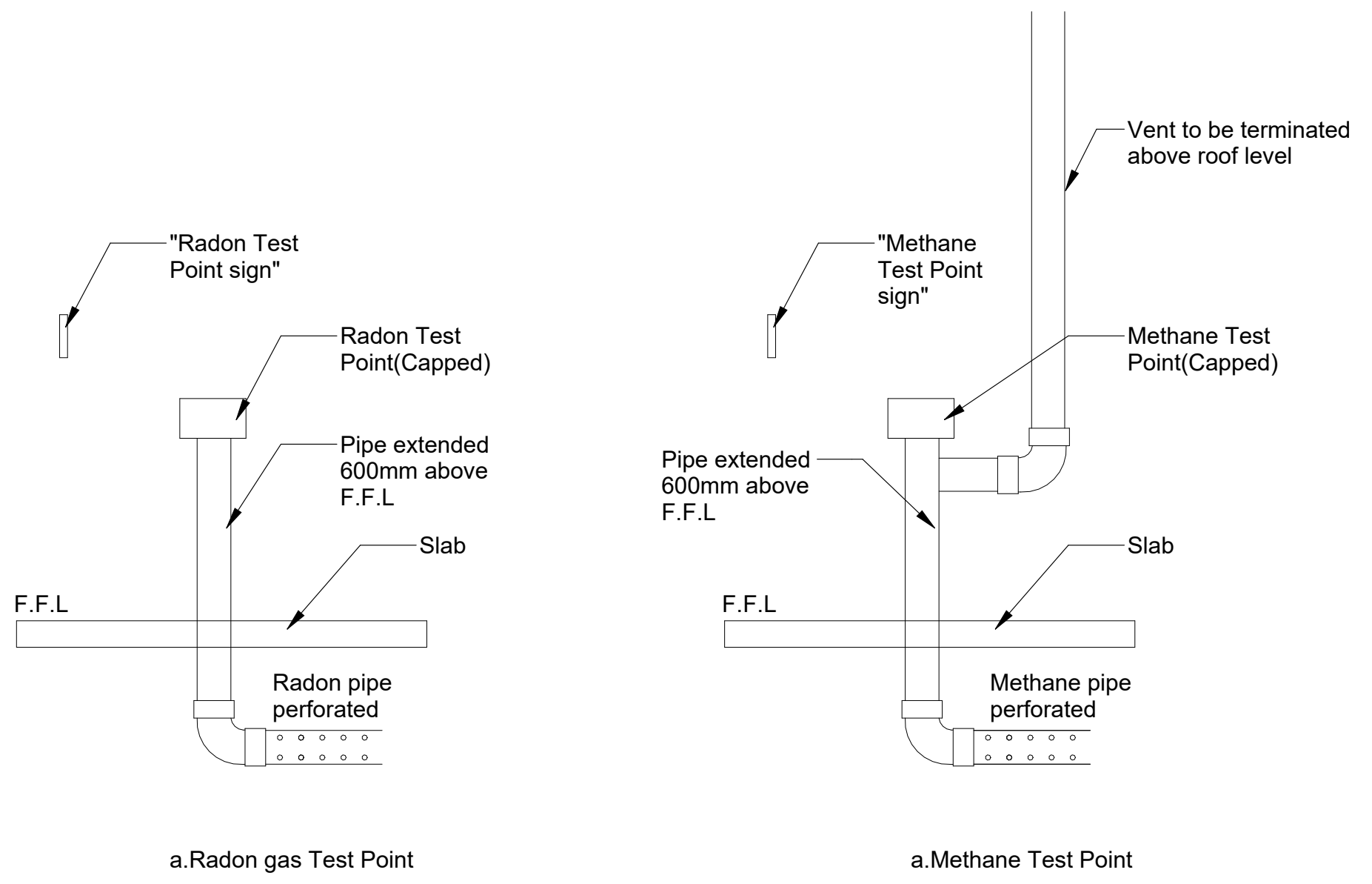
6 WATER HAMMER ARRESTOR DETAILS
1 : 80



PRV shall be required, provided and installed by the contractor in case the pressure in any of the sprinkler zone is higher than 12.1 bar (175 psi)

CONTRACTOR ENSURE THAT ALL ZCV ARE WITH 3 M FROM FFL & SHALL BE PLACED IN ACCESIBLE LOCATION

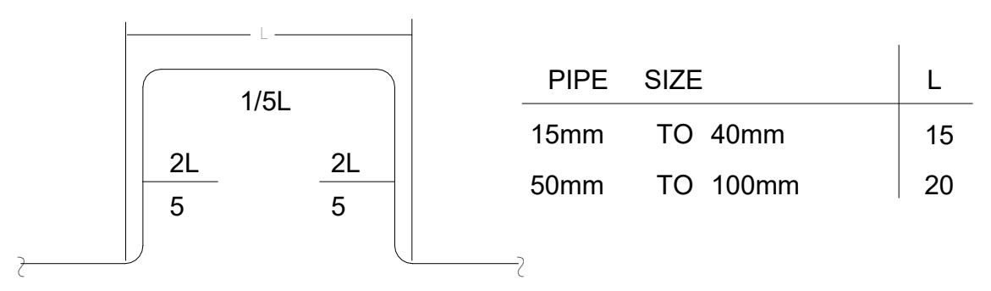
7 ZONE CONTROL VALVE SET DETAIL WITH PRV
1 : 200


"Radon Test Point sign"
Radon Test Point(Capped)
Pipe extended 600mm above F.F.L
Slab
F.F.L
Radon pipe perforated
"Methane Test Point sign"
Vent to be terminated above roof level
Methane Test Point(Capped)
Pipe extended 600mm above F.F.L
Slab
F.F.L
Methane pipe perforated

a.Radon gas Test Point

a.Methane Test Point

8 CLEAN- AGENT FIRE SUPPRESSION SYSTEM
1 : 100



PIPE	SIZE	L
15mm	TO 40mm	15
50mm	TO 100mm	20

11 HORIZONTAL EXPANSION LOOPS FOR DOMESTIC HOT WATER PIPING SYSTEM
(NOT TO SCALE)

*DETAIL IS INDICATIVE ONLY. CONTRACTOR TO ENSURE THAT THE PIPE EXPANSTION LOOP IS MADE AS PER THE APPROVED PIPE MANUFACTURE.

9 HORIZONTAL EXPANSION LOOPS FOR DOMESTIC WATER PIPING SYSTEM
1 : 80

AECOM

PROJECT
WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
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Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT
AECOM CANADA ULC
99 Commerce Dr.
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
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A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60721079

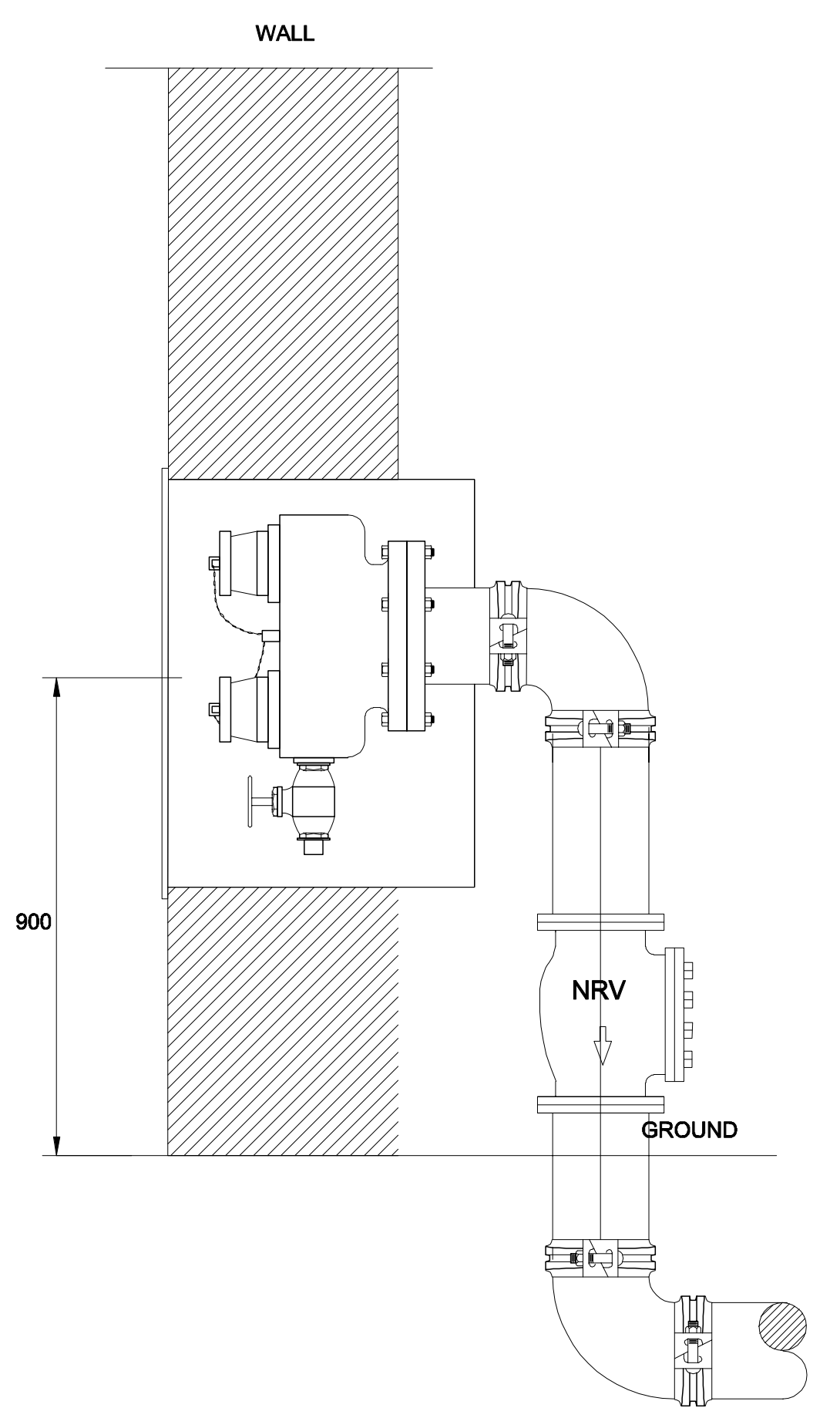
SHEET TITLE
TYPICAL DETAILS (6 OF 8)

SHEET NUMBER
00-M-506

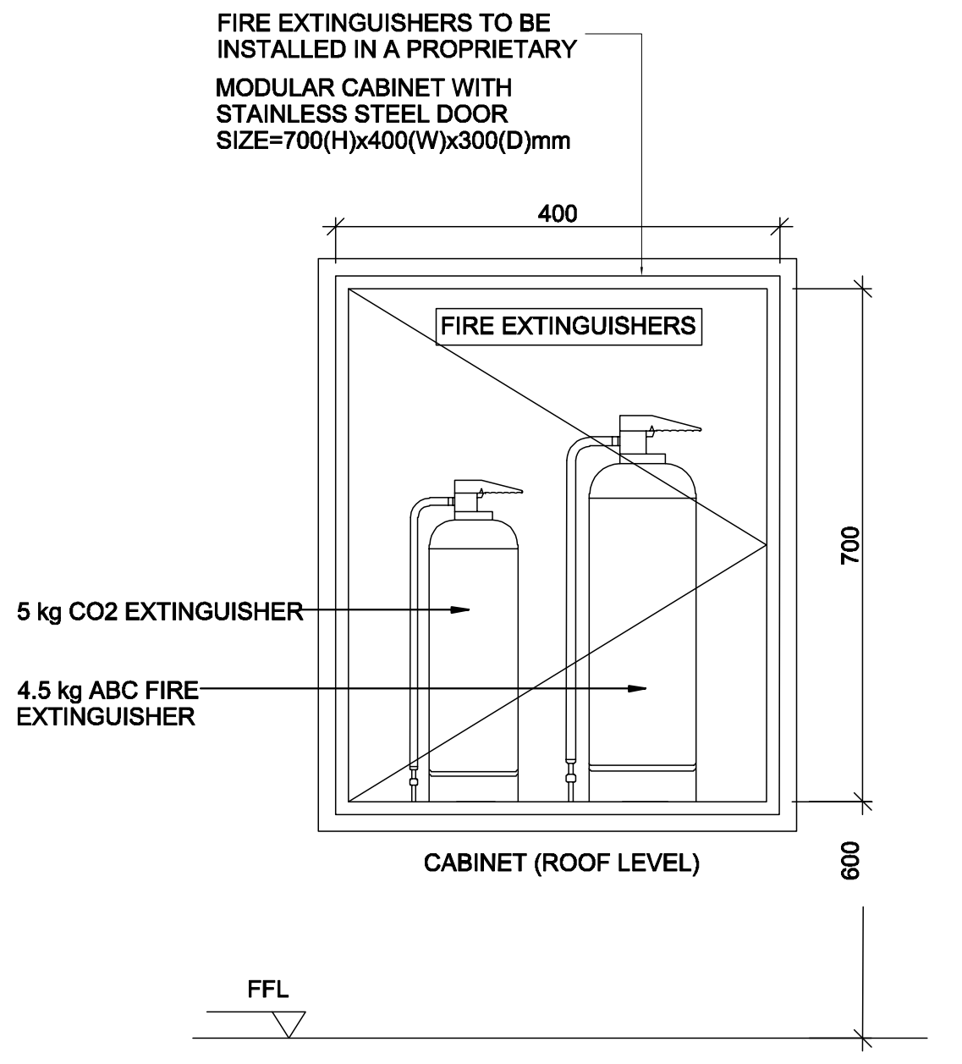
SORT: 550-Enlarged Details-14.03-00-M-506-TYPICAL DETAILS (6 OF 8)
Last Plotted: 2/14/2025 11:50:05 PM
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-P.rvt

Printed on ___% Post-Consumer Recycled Content Paper

Project Management Initials:
Designer: TE
Checked: RS
Approved: JG
A0 33.1"x46.8"



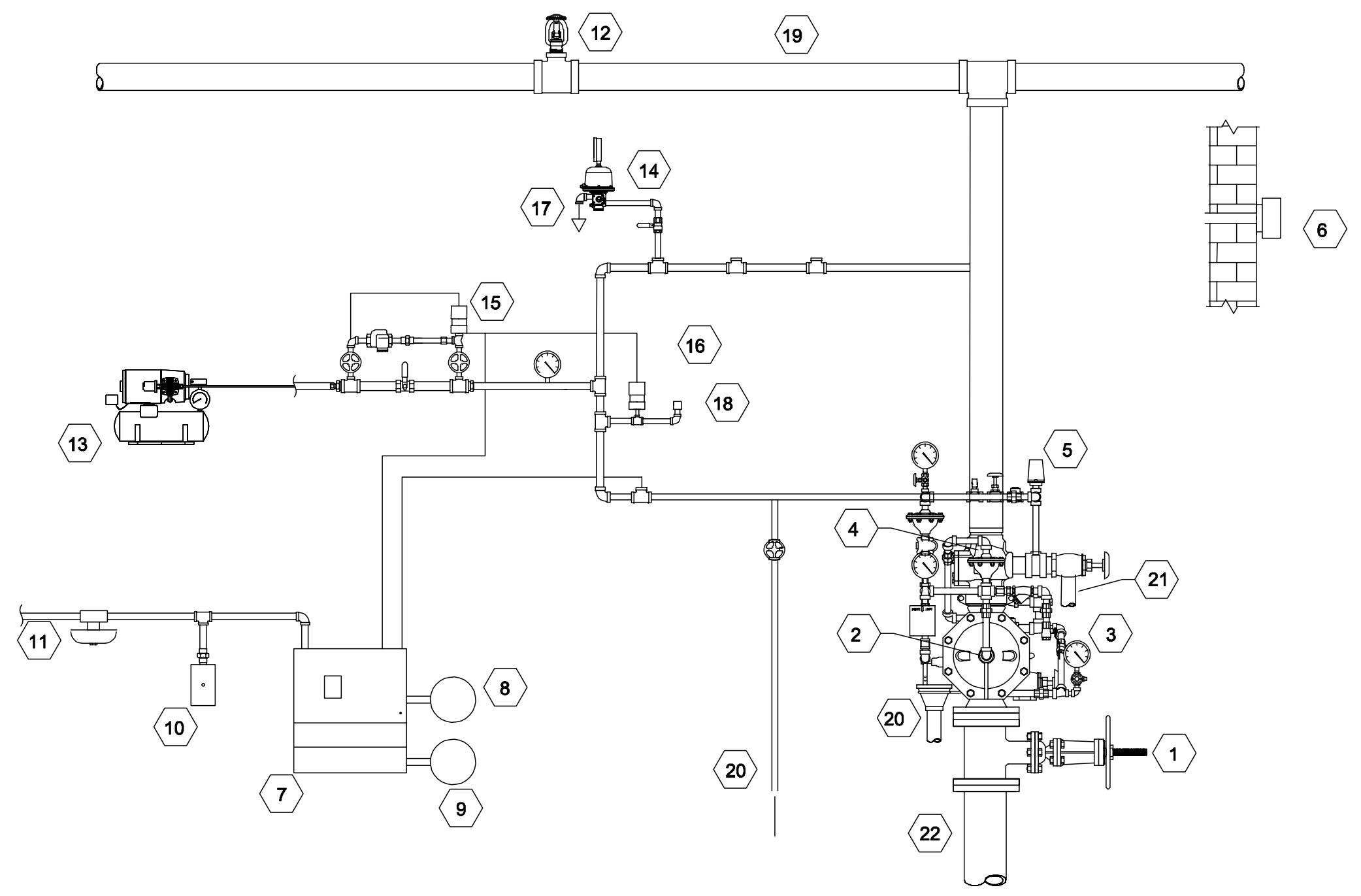
WALL TYPE - 2 WAY BREECHING INLET CABINET
NTS


FIRE EXTINGUISHERS TO BE INSTALLED IN A PROPRIETARY
MODULAR CABINET WITH STAINLESS STEEL DOOR SIZE=700(H)x400(W)x300(D)mm
400
FIRE EXTINGUISHERS
5 kg CO2 EXTINGUISHER
4.5 kg ABC FIRE EXTINGUISHER
700
CABINET (ROOF LEVEL)
600
FFL

NOTE:FOR TYPE OF EXTINGUISHERS REFER EACH ZONE REQUIREMENT

FIRE EXTINGUISHER CABINET DETAIL
NTS

(CABINET DETAIL IS SUBJECT TO THE
NO OF FIRE EXTINGUISHER PROVIDED
IT WILL BE FURTHER DETAILED WITH
ARCH)



1. OS&Y CONTROL VALVE WITH TAMPER SWITCH
2. DELUGE VALVE
3. BASIC DELUGE VALVE TRIM KIT.
4. PRE-ACTION CHECK VALVE.
5. WATER FLOW PRESSURE SWITCH. SIGNAL ACTIVATES W.P. HORN/STROBE.
6. WEATHER-PROOF HORN/STROBE COMPATIBLE WITH FIRE ALARM SYSTEM.
7. RELEASING CONTROL PANEL.
8. ALARM SIGNAL TO MAIN FIRE ALARM PANEL.
9. TROUBLE SIGNAL TO MAIN FIRE ALARM PANEL.
10. MANUAL EMERGENCY PULL STATION.
11. PHOTOELECTRIC SMOKE DETECTORS.
12. AUTOMATIC SPRINKLER HEADS.
13. AIR COMPRESSOR (1/3 HP, 2 CFM @ 40 PSI.
14. ACCELERATOR.
15. PRESSURE MAINTENANCE DEVICE.
16. AIR PRESSURE SWITCH.
17. VENT TO DRAIN.
18. VENT.
19. DRY SPRINKLER PIPING WITH SUPERVISING AIR PRESSURE.
20. DRAIN TO EXTERIOR.
21. MAIN DRAIN TO EXTERIOR
22. PRE-ACTION SYSTEM WATER SUPPLY FROM FIRE HEADER.

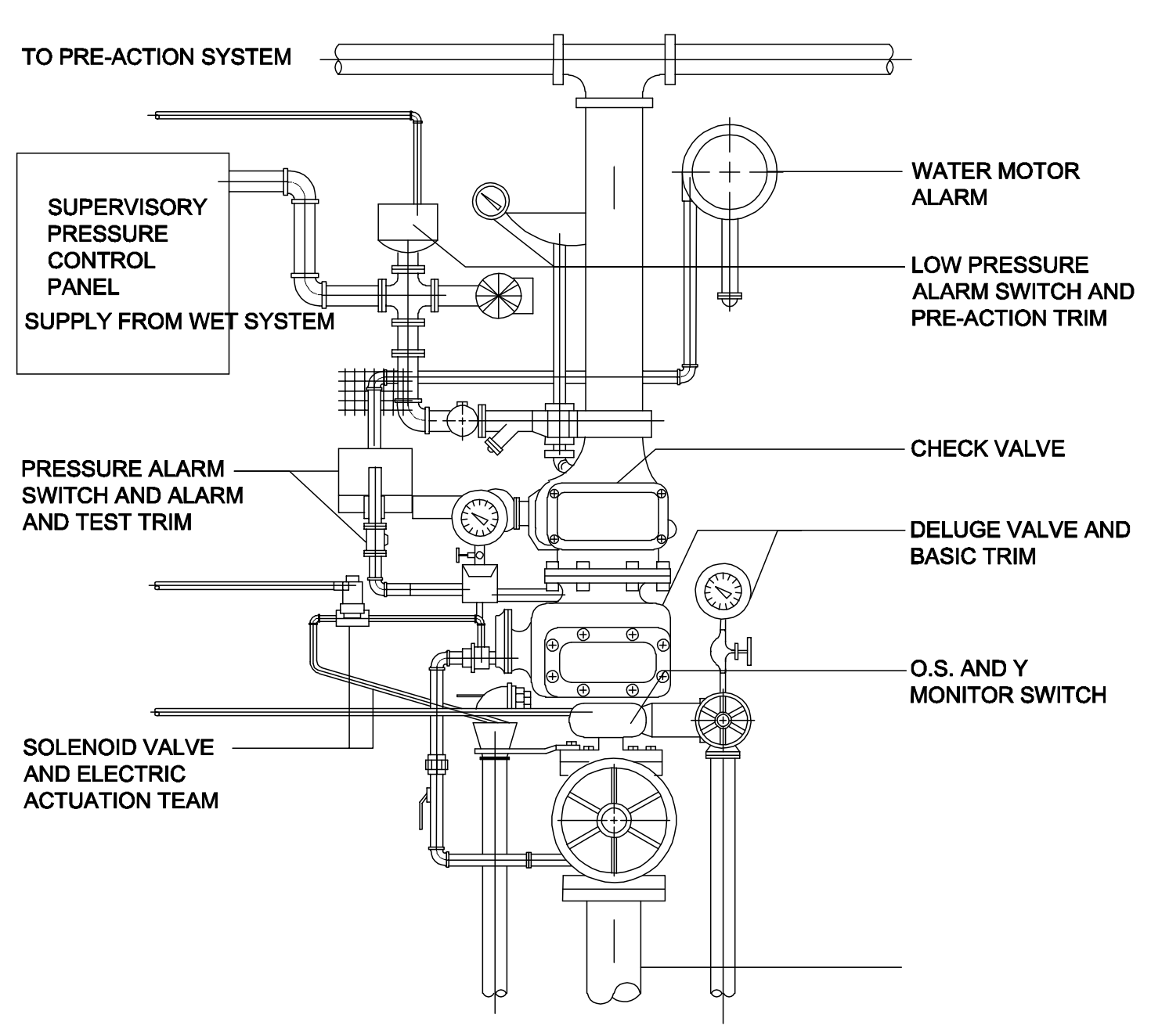
SEQUENCE OF OPERATION

1. SPRINKLER PIPING IS PRESSURIZED WITH SUPERVISING AIR.
2. LEAK OF AIR WILL SEND "LOW AIR PRESSURE" SIGNAL TO RELEASING PANEL AND SEND SUPERVISORY SIGNAL TO MAIN FIRE ALARM PANEL.
3. SPRINKLER HEAD OPENED WILL CAUSE ALARM SIGNAL AT RELEASING PANEL AND MAIN FIRE ALARM PANEL. NO WATER RELEASED.
4. ANALOG ADDRESSABLE HEAT DETECTOR ACTIVATES.
5. RELEASE PANEL SENDS SIGNAL TO SOLENOID AT DELUGE VALVE AND WATER IS RELEASED TO SPRINKLER PIPING SYSTEM.
6. WATER IS ONLY RELEASED TO THE SPRINKLER PIPING SYSTEM WHEN A SIGNAL FROM BOTH A RELEASE DEVICE AND THE LOW AIR PRESSURE SWITCH ARE RECEIVED AT THE PRE-PROGRAMMED RELEASING PANEL. FIRE ALARM SIGNAL IS THEN SENT TO MAIN FIRE ALARM PANEL.

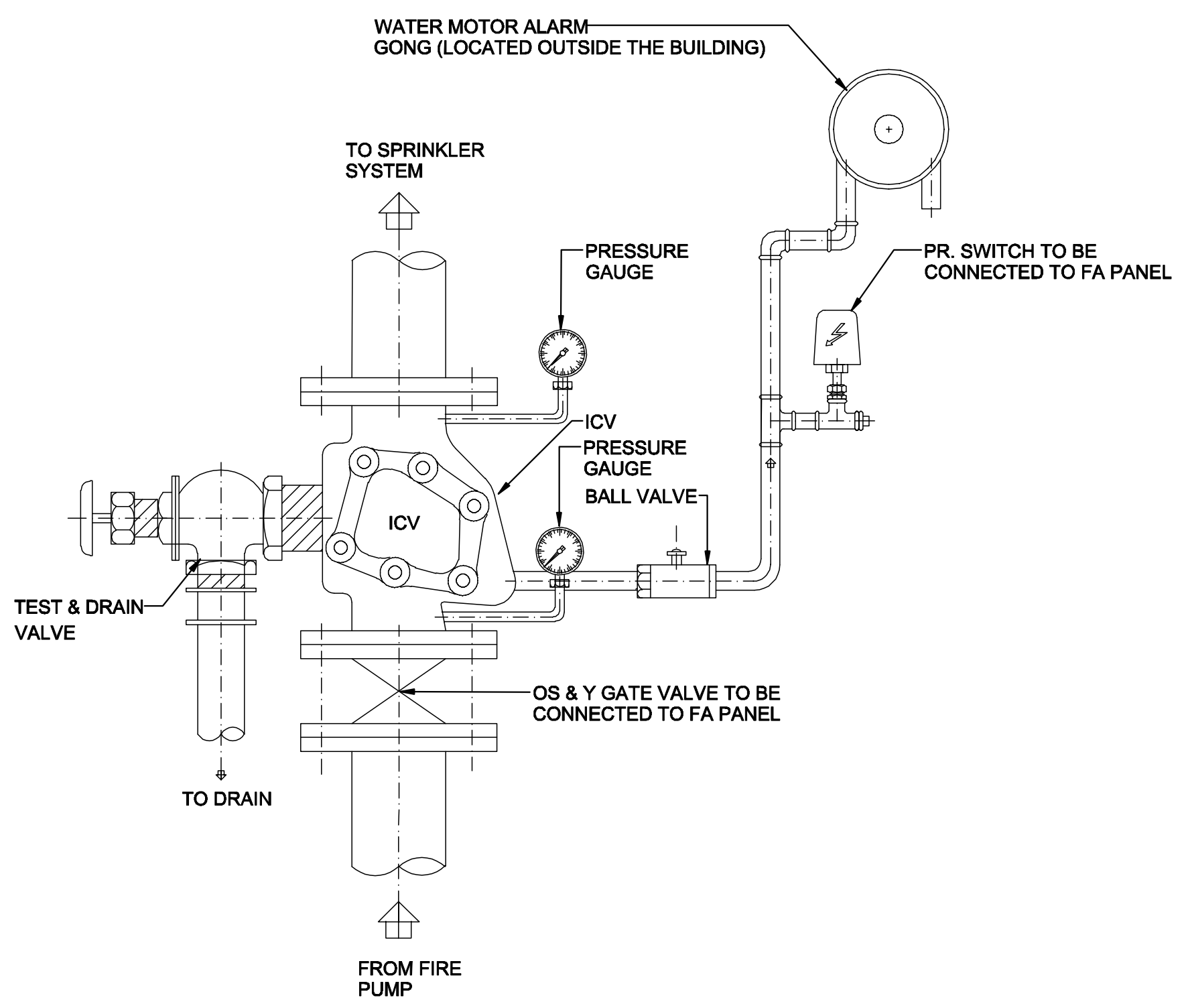
AIR COMPRESSOR/RISER MOUNTED

AIR COMPRESSOR ON:	30 PSI (2.1 BAR)
AIR COMPRESSOR OFF:	40 PSI (2.8 BAR)
SUPERVISORY SWITCH:	25 PSI (1.7 BAR)
LOW AIR ALARM SWITCH:	20 PSI (1.4 BAR)
SIZE:	1/3 HP/ 2 CFM @ 40 PSI (2.8 BAR)

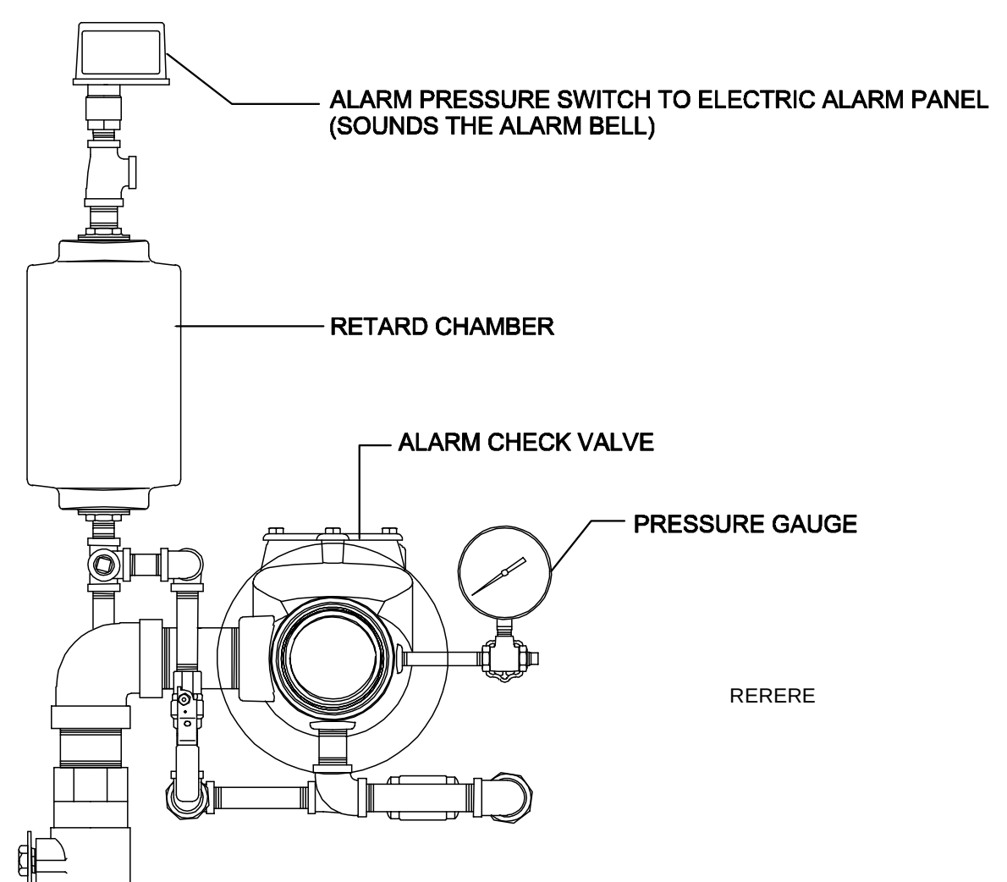
DOUBLE-INTERLOCKED PRE-ACTION SPRINKLER SYSTEM
NTS


TO PRE-ACTION SYSTEM
SUPERVISORY PRESSURE CONTROL PANEL
SUPPLY FROM WET SYSTEM
PRESSURE ALARM SWITCH AND ALARM AND TEST TRIM
SOLENOID VALVE AND ELECTRIC ACTUATION TEAM
WATER MOTOR ALARM
LOW PRESSURE ALARM SWITCH AND PRE-ACTION TRIM
CHECK VALVE
DELUGE VALVE AND BASIC TRIM
O.S. AND Y MONITOR SWITCH

PRE-ACTION VALVE
NTS


WATER MOTOR ALARM GONG (LOCATED OUTSIDE THE BUILDING)
TO SPRINKLER SYSTEM
PRESSURE GAUGE
PR. SWITCH TO BE CONNECTED TO FA PANEL
ICV
PRESSURE GAUGE
BALL VALVE
ICV
TEST & DRAIN VALVE
OS & Y GATE VALVE TO BE CONNECTED TO FA PANEL
TO DRAIN
FROM FIRE PUMP

ARRANGEMENT OF SPRINKLER INSTALLATION CONTROL VALVE (ACV)
NTS


ALARM PRESSURE SWITCH TO ELECTRIC ALARM PANEL (SOUNDS THE ALARM BELL)
RETARD CHAMBER
ALARM CHECK VALVE
PRESSURE GAUGE
RERERE

ALARM CHECK VALVE WITH RETARD CHAMBER
NTS

NOTES:-

1.THE SAFETY CAP MUST BE INSTALLED ON THE VALVE OUTLET AT ALL TIMES EXCEPT WHEN THE CYLINDERS ARE CONNECTED TO THE SYSTEM PIPING OR BEING FILLED. THE SAFETY CAP MUST NOT BE REMOVED FROM ITS CHAIN.

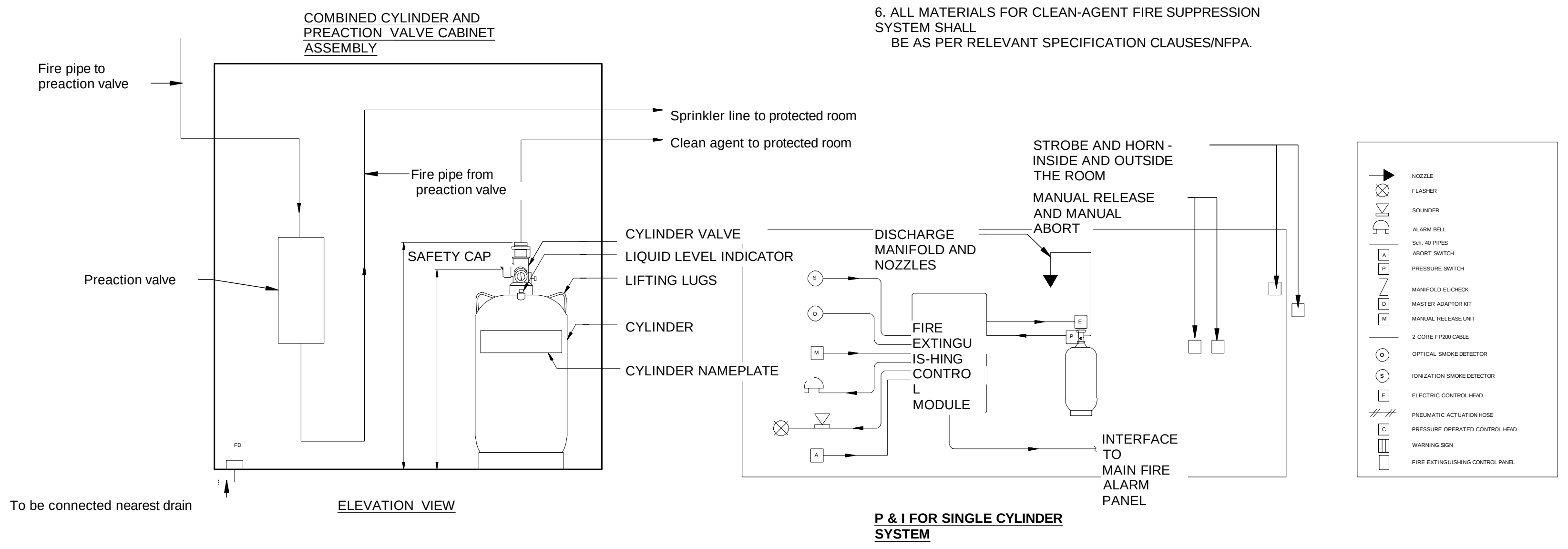
2. CYLINDER SHALL BE IN STEEL AND PAINTED RED.

3. VALVE BODY IN BASS.

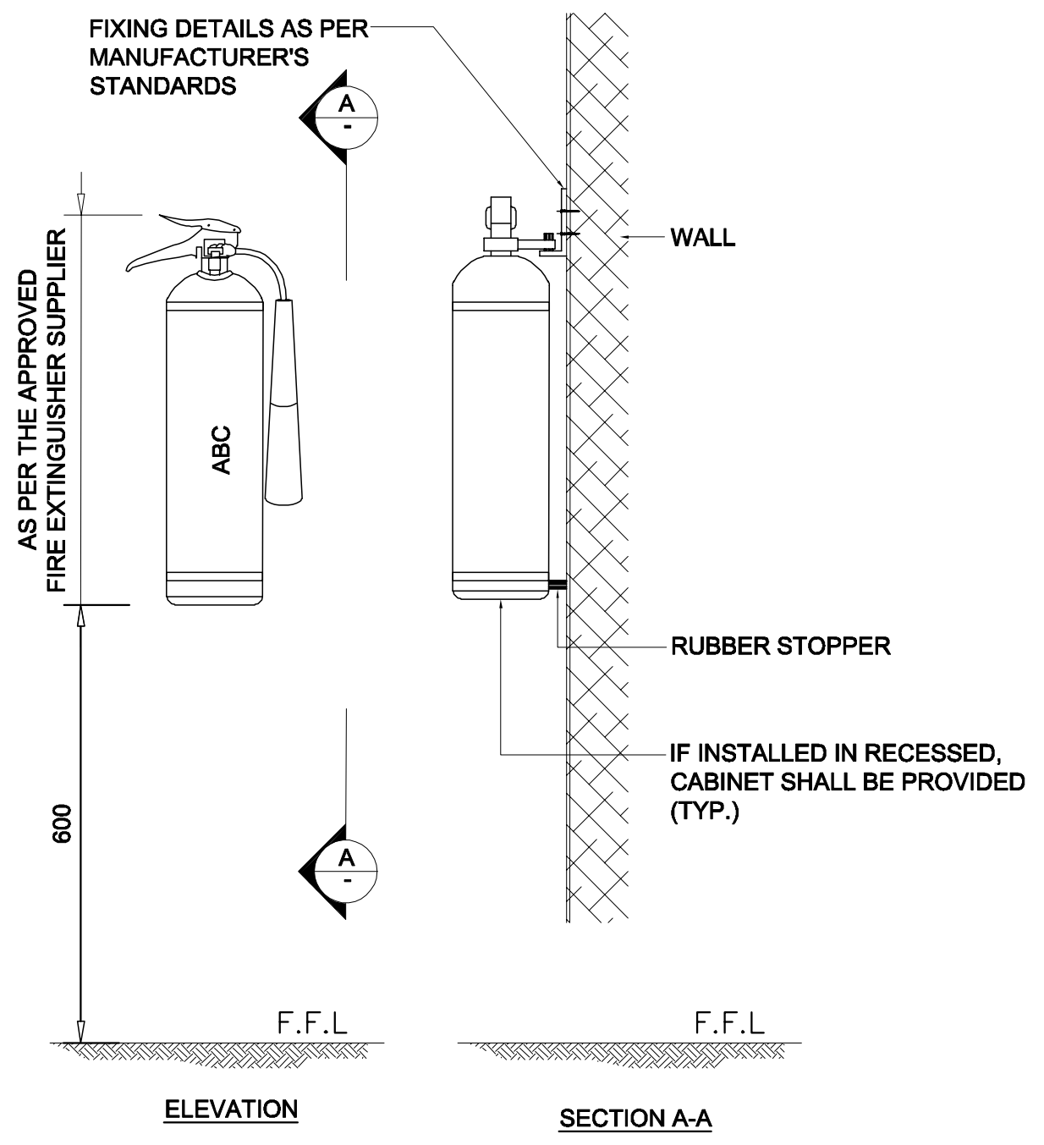
4. SHOWN DIMENSIONS ARE APPROXIMATE.

5. SCHEME SHOWN ON DRAWINGS GOOD FOR TENDER ONLY. SPECIALIST CONTRACTOR SHALL CONSIDER ALL REQUIRED COMPONENTS ETC (IF NOT SHOWN ON DRAWING ALSO) IN TENDER QUOTE WHICH ARE NECESSARY FOR THE SATISFACTORY FUNCTIONING OF CLEAN-AGENT FIRE SUPPRESSION SYSTEM.

6. ALL MATERIALS FOR CLEAN-AGENT FIRE SUPPRESSION SYSTEM SHALL BE AS PER RELEVANT SPECIFICATION CLAUSES/NFPA.


COMBINED CYLINDER AND PREACTION VALVE CABINET ASSEMBLY
Fire pipe to preaction valve
Sprinkler line to protected room
Clean agent to protected room
Fire pipe from preaction valve
SAFETY CAP
CYLINDER VALVE
LIQUID LEVEL INDICATOR
LIFTING LUGS
CYLINDER
CYLINDER NAMEPLATE
Preaction valve
FD
To be connected nearest drain
ELEVATION VIEW
STROBE AND HORN - INSIDE AND OUTSIDE THE ROOM
MANUAL RELEASE AND MANUAL ABORT
DISCHARGE MANIFOLD AND NOZZLES
S
O
M
A
E
P
FIRE EXTINGU IS-HING CONTRO L MODULE
INTERFACE TO MAIN FIRE ALARM PANEL
P & I FOR SINGLE CYLINDER SYSTEM
NOZZLE
FLASHER
SOUNDER
ALARM BELL
Sch. 40 PIPES
ABORT SWITCH
PRESSURE SWITCH
MANIFOLD EL-CHECK
MASTER ADAPTOR KIT
MANUAL RELEASE UNIT
2 CORE FP200 CABLE
OPTICAL SMOKE DETECTOR
IONIZATION SMOKE DETECTOR
ELECTRIC CONTROL HEAD
PNEUMATIC ACTUATION HOSE
PRESSURE OPERATED CONTROL HEAD
WARNING SIGN
FIRE EXTINGUISHING CONTROL PANEL

8 CLEAN- AGENT FIRE SUPPRESSION SYSTEM
00-M-507
1 : 150


FIXING DETAILS AS PER MANUFACTURER'S STANDARDS
A
AS PER THE APPROVED FIRE EXTINGUISHER SUPPLIER
ABC
600
WALL
RUBBER STOPPER
IF INSTALLED IN RECESSED, CABINET SHALL BE PROVIDED (TYP.)
F.F.L
F.F.L
ELEVATION
SECTION A-A

TYPICAL ARRANGEMENT PORTABLE FIRE EXTINGUISHER
NTS

1 FIRE DETAIL
00-M-507
NTS

AECOM

PROJECT
WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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Winnipeg, MB R3P 0Y7

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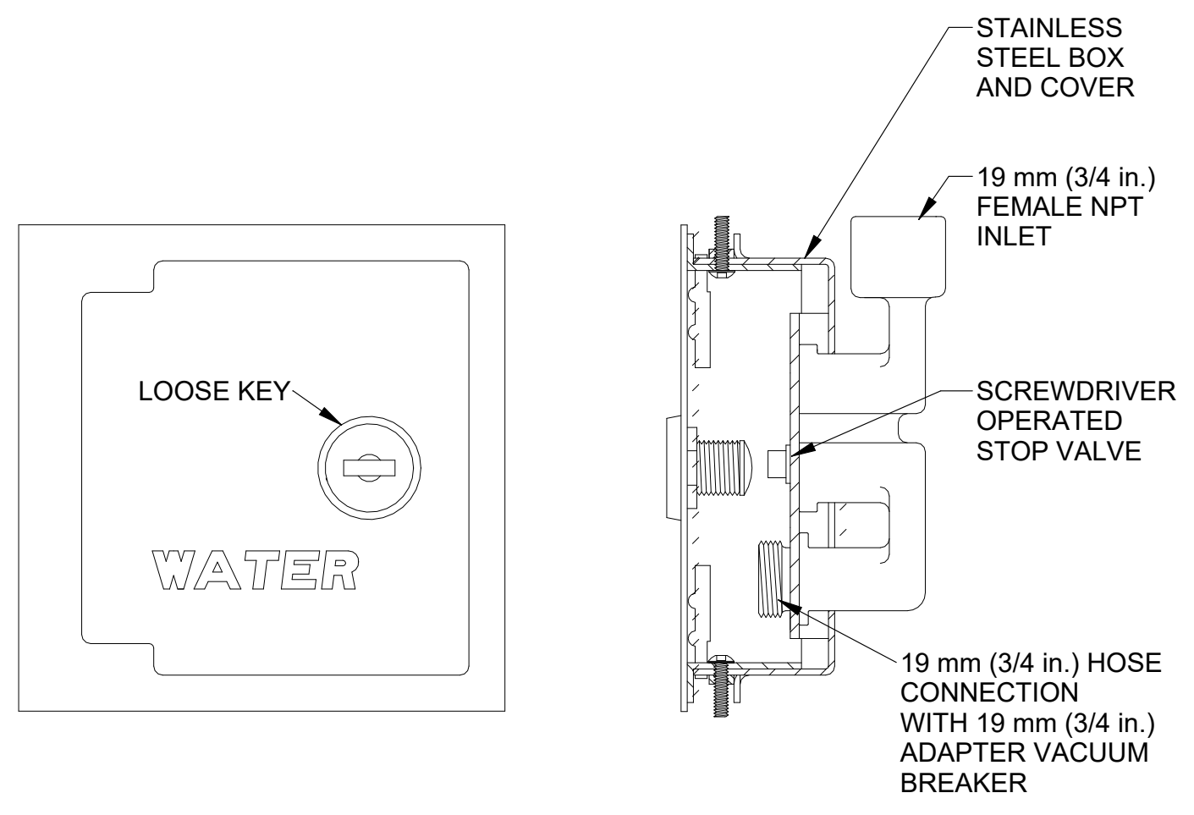
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60721079

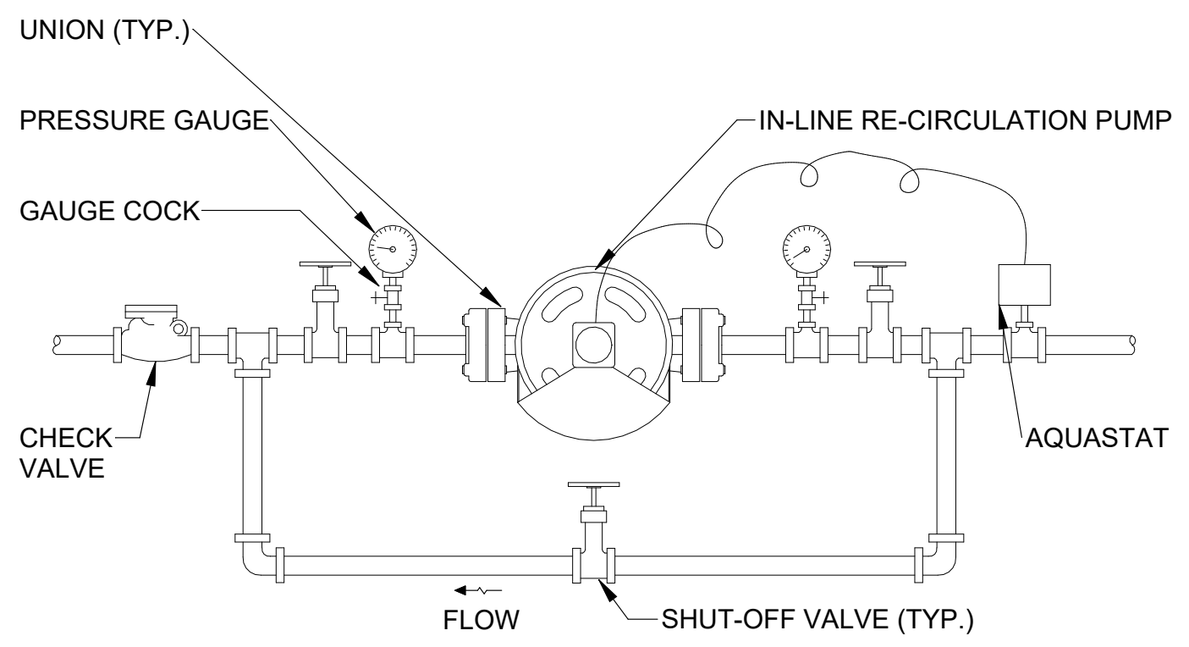
SHEET TITLE
TYPICAL DETAILS (7 OF 8)

SHEET NUMBER
00-M-507

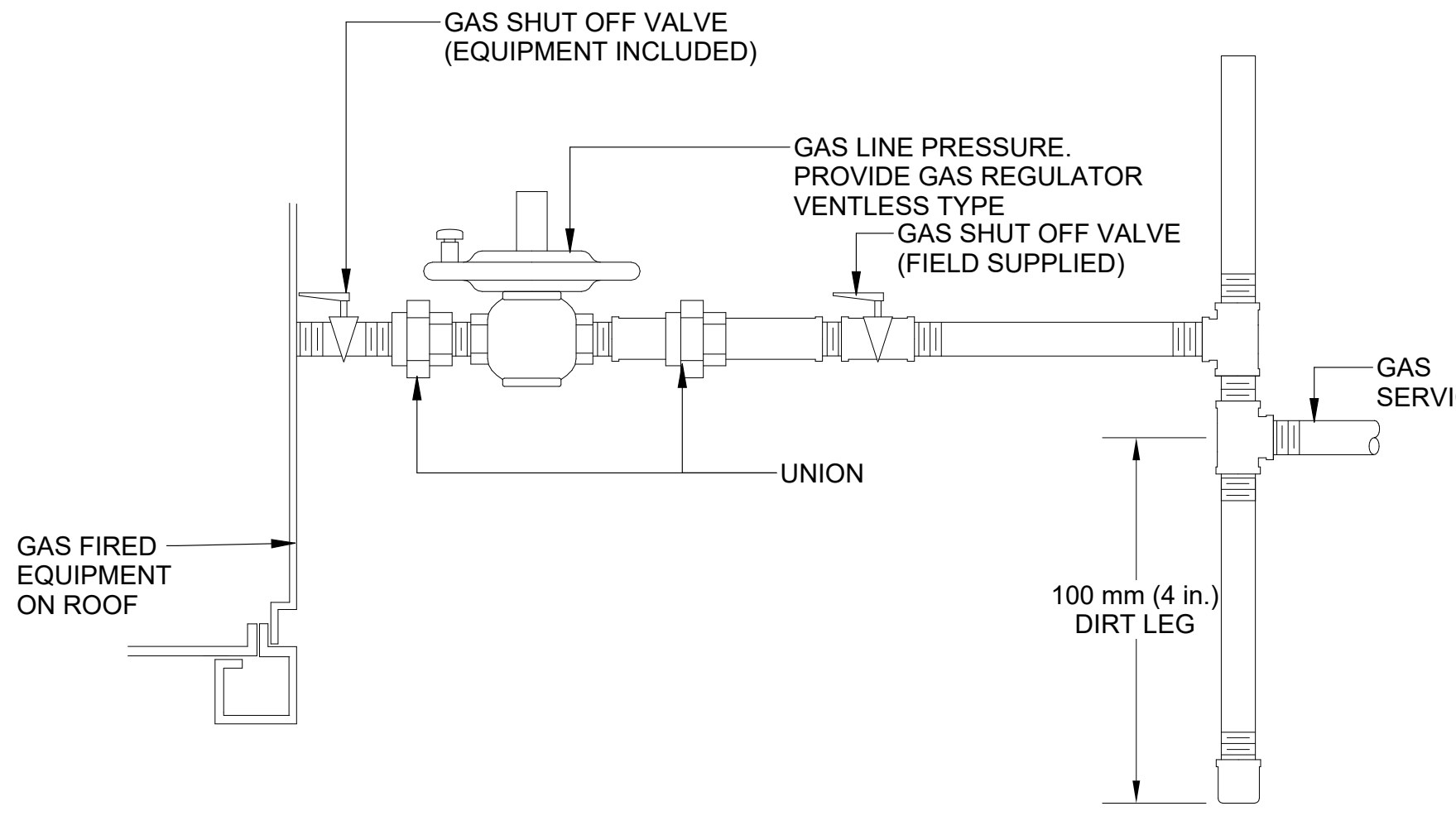
SORT: 550-Enlarged Details-14.03-00-M-507-TYPICAL DETAILS (7 OF 8)
Last Plotted: 15/02/2025 00:13:38
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North


STAINLESS STEEL BOX AND COVER
19 mm (3/4 in.) FEMALE NPT INLET
LOOSE KEY
SCREWDRIVER OPERATED STOP VALVE
WATER
19 mm (3/4 in.) HOSE CONNECTION WITH 19 mm (3/4 in.) ADAPTER VACUUM BREAKER

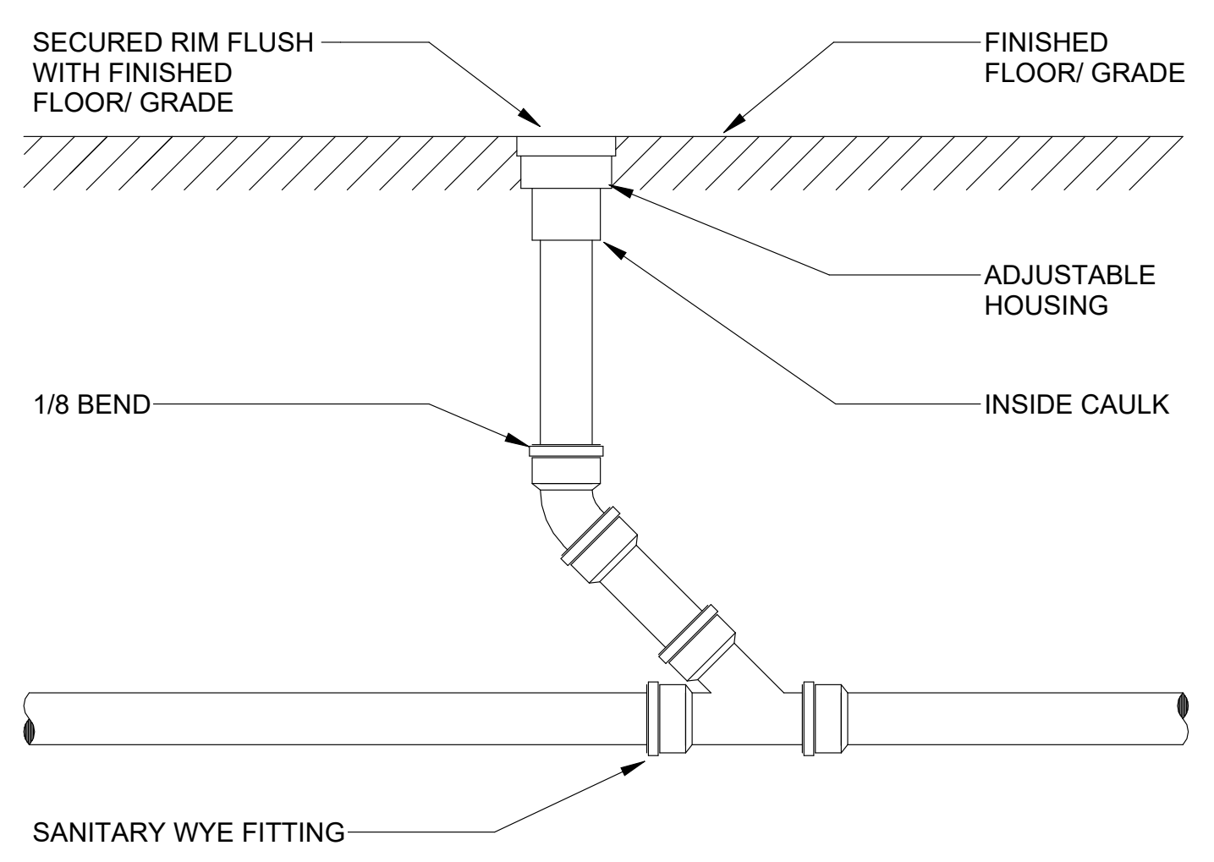
1 HOSE-BIBB DETAIL1
NTS



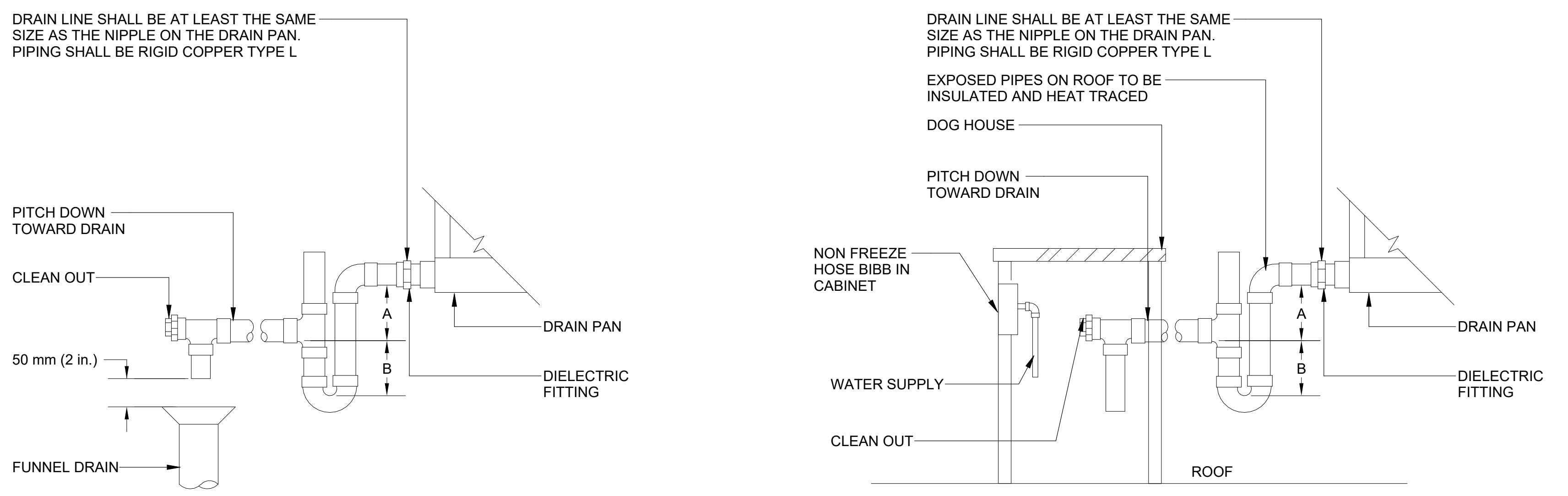
2 HOT WATER RECIRCULATION PUMP1
NTS


GAS SHUT OFF VALVE (EQUIPMENT INCLUDED)
GAS LINE PRESSURE. PROVIDE GAS REGULATOR VENTLESS TYPE
GAS SHUT OFF VALVE (FIELD SUPPLIED)
GAS SERVICE
UNION
GAS FIRED EQUIPMENT ON ROOF
100 mm (4 in.) DIRT LEG

3 GAS CONNECTION TO EQUIPMENT ON ROOF1
NTS



4 FLOOR CLEANOUT1
NTS


DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE DRAIN PAN. PIPING SHALL BE RIGID COPPER TYPE L
PITCH DOWN TOWARD DRAIN
CLEAN OUT
50 mm (2 in.)
FUNNEL DRAIN
A
B
DRAIN PAN
DIELECTRIC FITTING
DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE DRAIN PAN. PIPING SHALL BE RIGID COPPER TYPE L
EXPOSED PIPES ON ROOF TO BE INSULATED AND HEAT TRACED
DOG HOUSE
PITCH DOWN TOWARD DRAIN
NON FREEZE HOSE BIBB IN CABINET
WATER SUPPLY
CLEAN OUT
ROOF
A
B
DRAIN PAN
DIELECTRIC FITTING

UNIT TYPE	A	B
DRAW THROUGH	50 mm (2 in.) PLUS X	X
BLOW THROUGH	25 mm (1 in.) MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

1.CONDENSATE CONNECTION TO DRAIN DETAILS

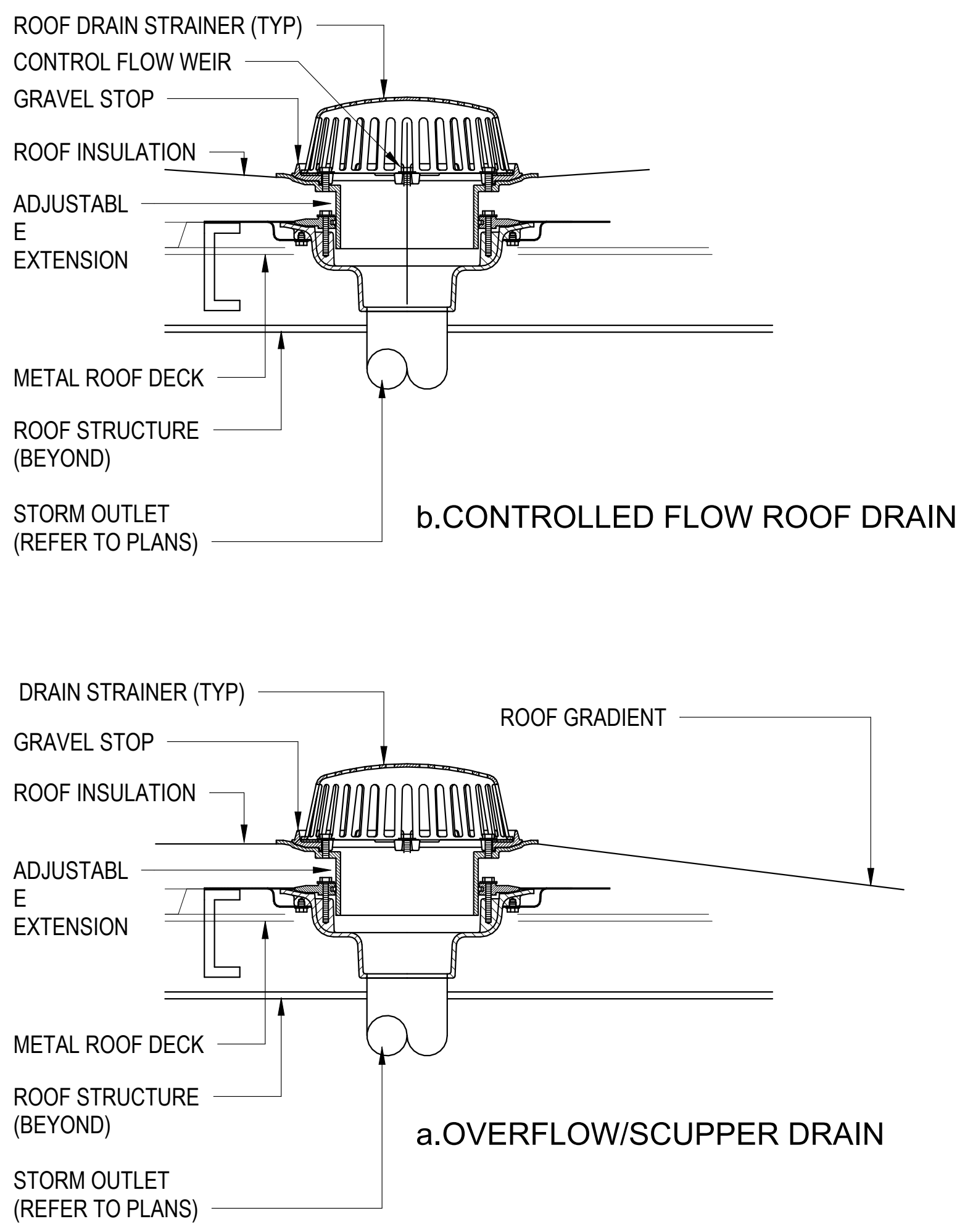
UNIT TYPE	A	B
DRAW THROUGH	50 mm (2 in.) PLUS X	X
BLOW THROUGH	25 mm (1 in.) MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

2.CONDENSATE CONNECTION DETAILS ON ROOF

NOTES:
1. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

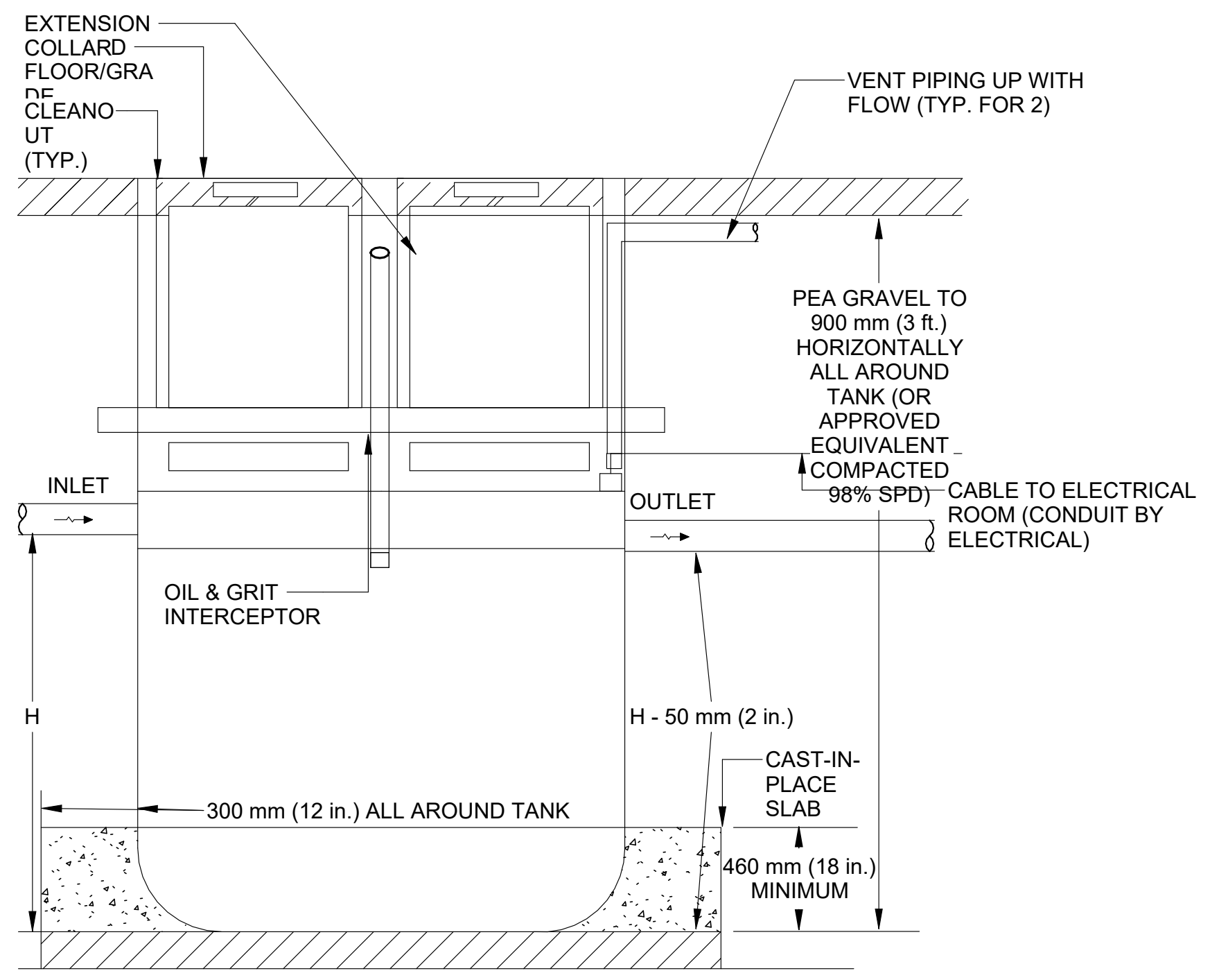
5 CONDENSATE DRAIN TRAP1
NTS



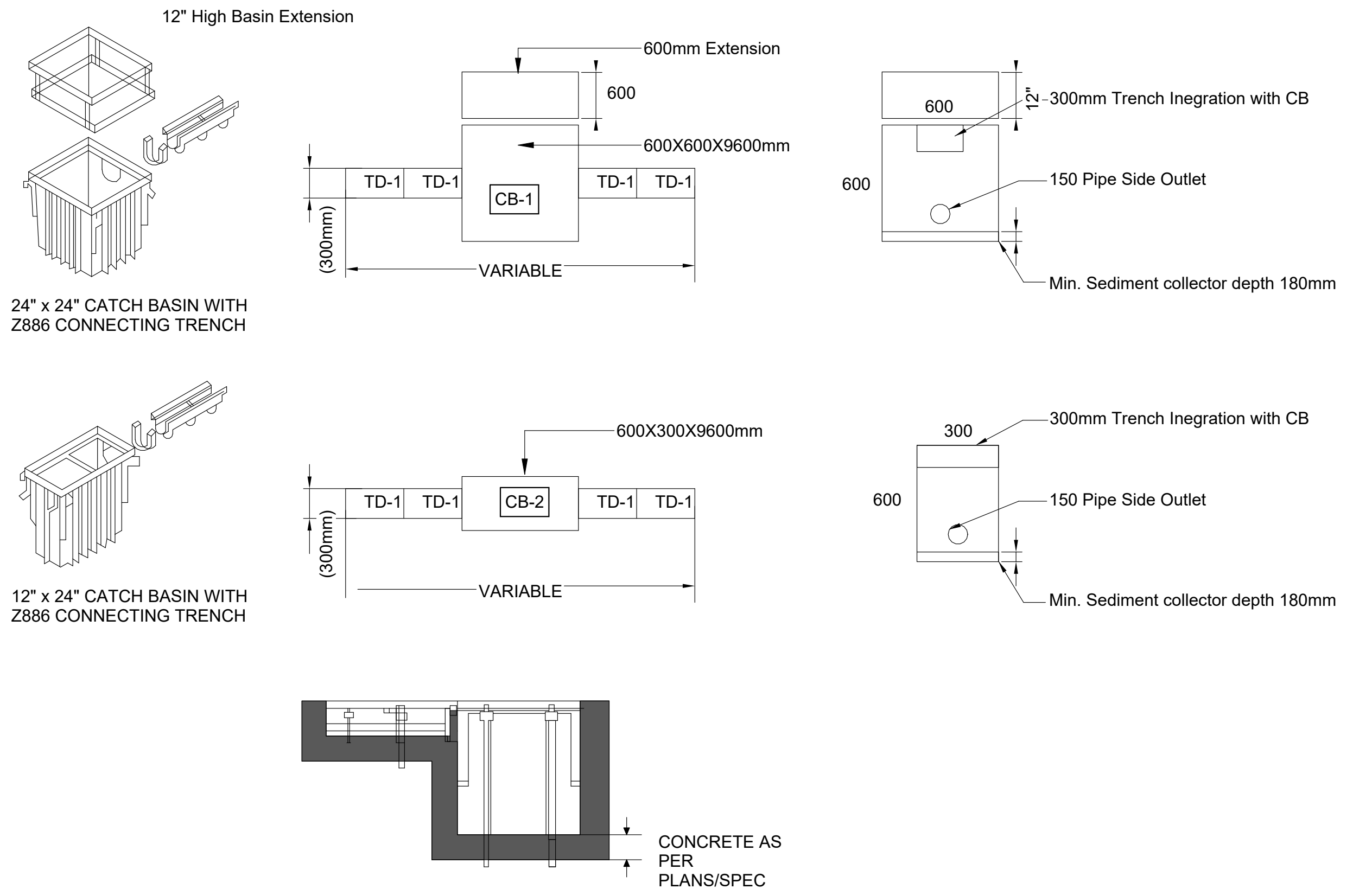
b.CONTROLLED FLOW ROOF DRAIN

a.OVERFLOW/SCUPPER DRAIN

6 ROOF DRAIN DETAILS1
NTS


EXTENSION
COLLARD FLOOR/GRADE
CLEANOUT (TYP.)
VENT PIPING UP WITH FLOW (TYP. FOR 2)
PEA GRAVEL TO 900 mm (3 ft.) HORIZONTALLY ALL AROUND TANK (OR APPROVED EQUIVALENT COMPACTED 98% SPD)
INLET
OUTLET
CABLE TO ELECTRICAL ROOM (CONDUIT BY ELECTRICAL)
OIL & GRIT INTERCEPTOR
H
H - 50 mm (2 in.)
CAST-IN-PLACE SLAB
300 mm (12 in.) ALL AROUND TANK
460 mm (18 in.) MINIMUM

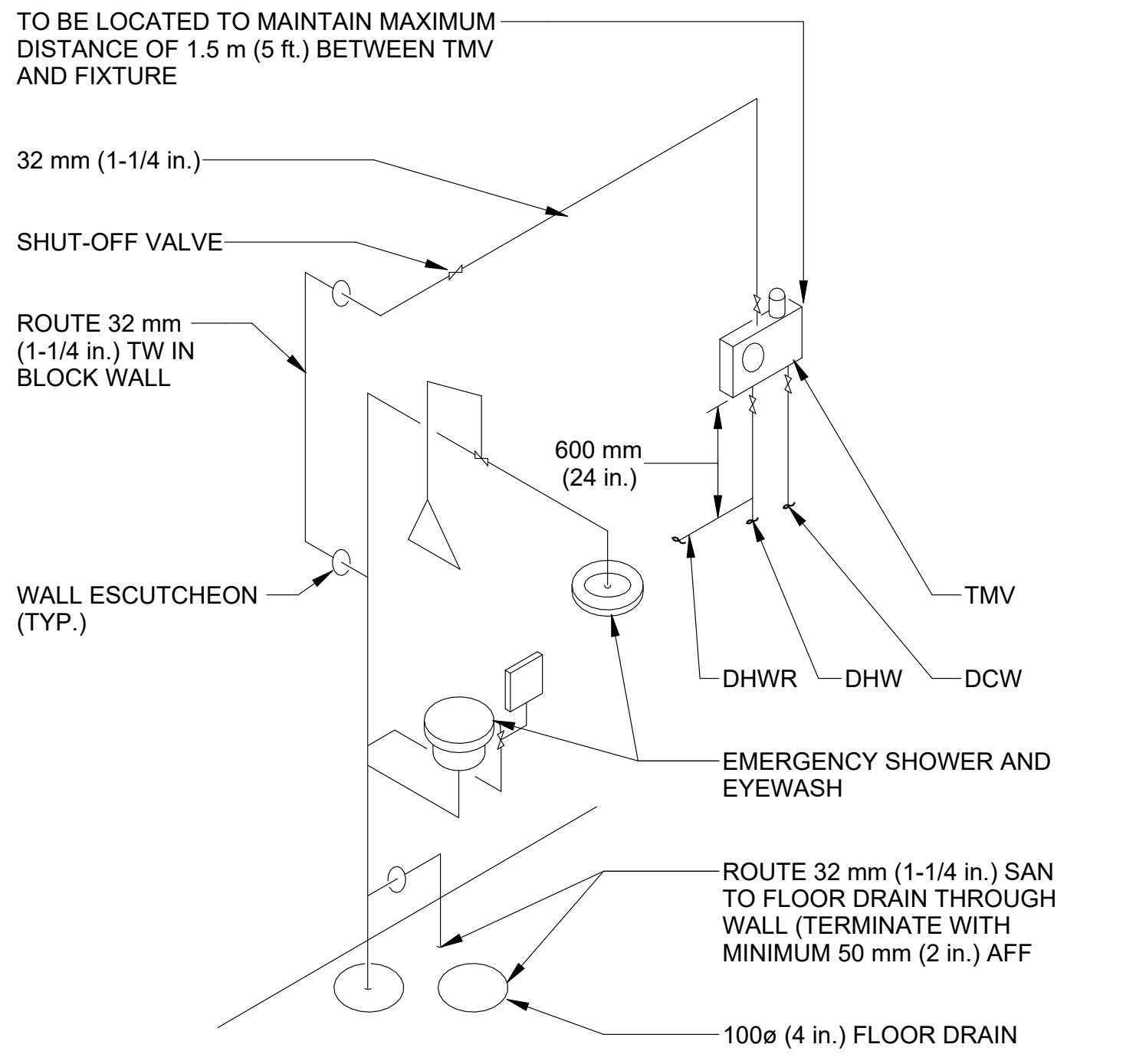
7 OIL INTERCEPTOR DETAIL
NTS



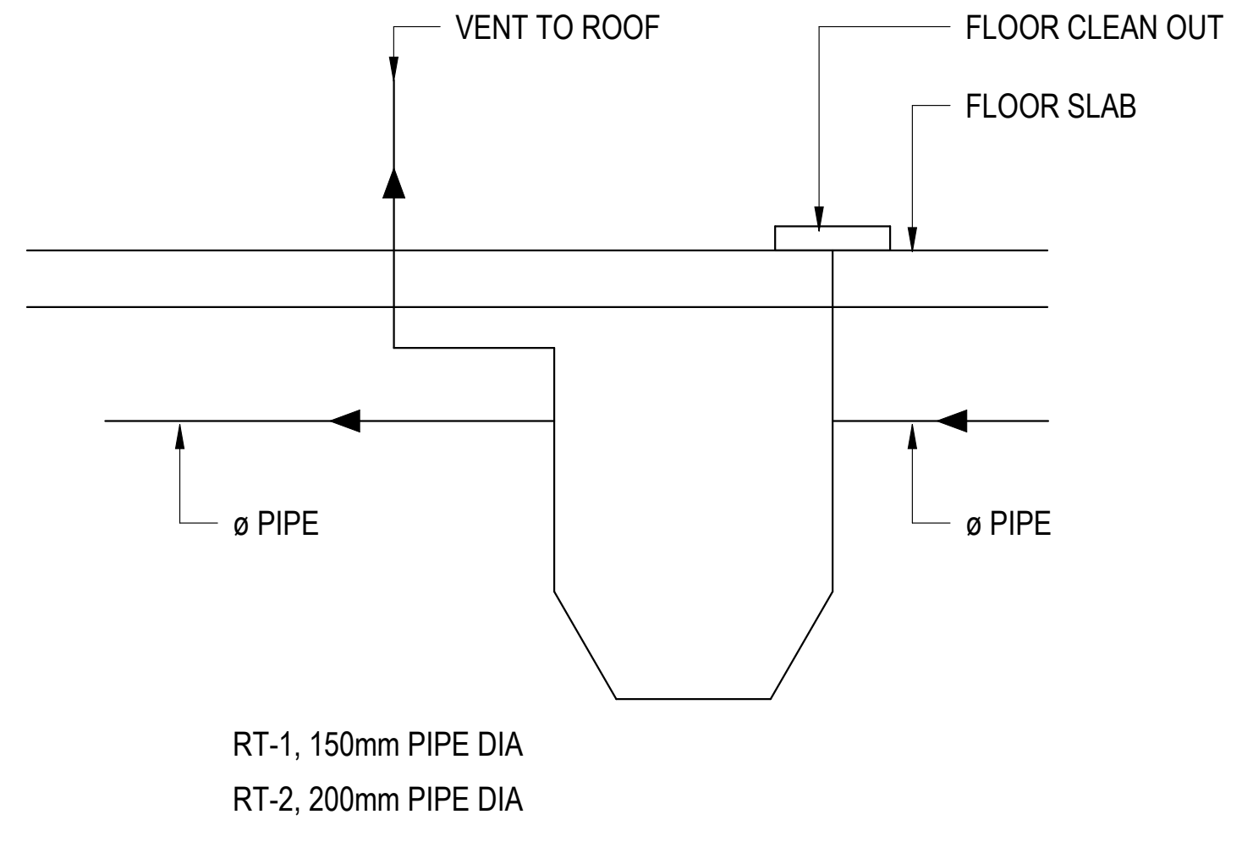
24" x 24" CATCH BASIN WITH Z886 CONNECTING TRENCH

12" x 24" CATCH BASIN WITH Z886 CONNECTING TRENCH

8 Floor Drain Detail
NTS


TO BE LOCATED TO MAINTAIN MAXIMUM DISTANCE OF 1.5 m (5 ft.) BETWEEN TMV AND FIXTURE
32 mm (1-1/4 in.)
SHUT-OFF VALVE
ROUTE 32 mm (1-1/4 in.) TW IN BLOCK WALL
600 mm (24 in.)
WALL ESCUTCHEON (TYP.)
TMV
DHWR
DHW
DCW
EMERGENCY SHOWER AND EYEWASH
ROUTE 32 mm (1-1/4 in.) SAN TO FLOOR DRAIN THROUGH WALL (TERMINATE WITH MINIMUM 50 mm (2 in.) AFF
100ø (4 in.) FLOOR DRAIN

9 EMERGENCY SHOWER / EYEWASH DETAIL1
NTS



RT-1, 150mm PIPE DIA
RT-2, 200mm PIPE DIA

10 RUNNING TRAP DETAIL
NTS

AECOM

PROJECT
WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
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Winnipeg Transit
B-414 Osborne St.
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CONSULTANT
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REGISTRATION

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A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

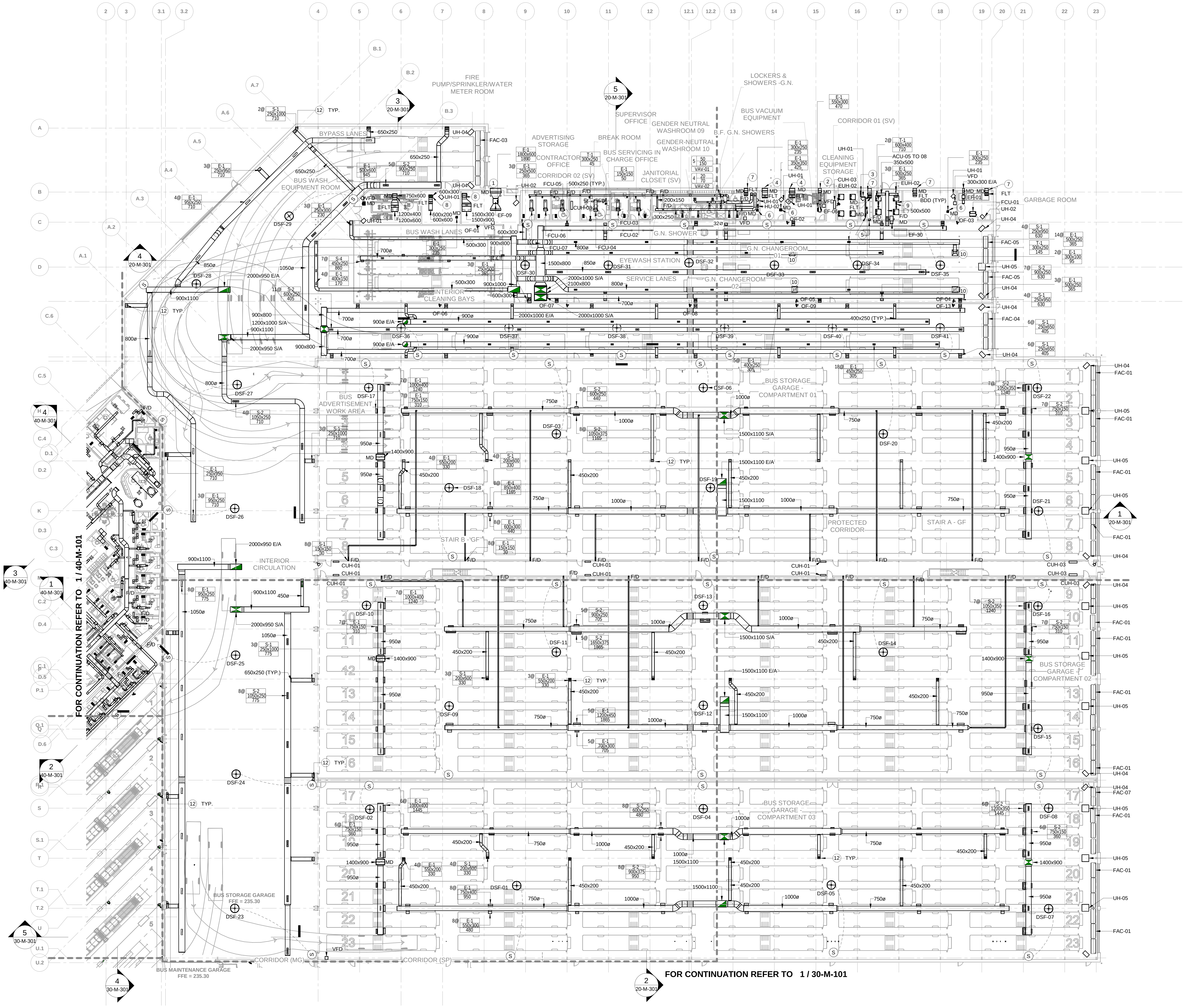
PROJECT NUMBER
60721079

SHEET TITLE
TYPICAL DETAILS (8 OF 8)

SHEET NUMBER
00-M-508

Printed on ___% Post-Consumer Recycled Content Paper

Project Management Initials: Designer: Designer   Checked: Checker   Approved: Approver   A0 33.1"x46.8"


PROJECT NORTH
FIRE PUMP/SPRINKLER/WATER METER ROOM
BYPASS LANES
BUS WASH EQUIPMENT ROOM
BUS WASH LANES
INTERIOR CLEANING BAYS
ADVERTISING STORAGE
CONTRACTOR OFFICE
CORRIDOR 02 (SV)
SUPERVISOR OFFICE
BREAK ROOM
BUS SERVICING IN CHARGE OFFICE
JANITORIAL CLOSET (SV)
GENDER NEUTRAL WASHROOM 09
GENDER-NEUTRAL WASHROOM 10
LOCKERS & SHOWERS -G.N.
BUS VACUUM EQUIPMENT
B.F. G.N. SHOWERS
CORRIDOR 01 (SV)
CLEANING EQUIPMENT STORAGE
GARBAGE ROOM
G.N. SHOWER
G.N. CHANGEROOM
EYEWASH STATION
SERVICE LANES
BUS ADVERTISEMENT WORK AREA
BUS STORAGE GARAGE - COMPARTMENT 01
BUS STORAGE GARAGE - COMPARTMENT 02
BUS STORAGE GARAGE - COMPARTMENT 03
STAIR B - GF
STAIR A - GF
PROTECTED CORRIDOR
INTERIOR CIRCULATION
BUS STORAGE GARAGE FFE = 235.30
BUS MAINTENANCE GARAGE FFE = 235.30
CORRIDOR (MG)
CORRIDOR (SP)
FOR CONTINUATION REFER TO 1 / 40-M-101
FOR CONTINUATION REFER TO 1 / 30-M-101

1	STORAGE GARAGE - GROUND FLOOR PLAN-HVAC
20-M-101	1 : 250

GENERAL NOTES:

1. PROVIDE DOOR UNDERCUT FOR ALL WASHROOMS, CHANGE ROOMS AND SHOWER ROOMS FOR AIR TRANSFER.

LAYOUT NOTES:

① PROVIDE EXHAUST AIR LOUVER OF 1800(W)x1200(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF. THERMALLY BLANK-OFF UNUSED WALL OPENING. PROVIDE REMOVABLE INSECT SCREEN ON INTERIOR SIDE OF LOUVER AND FULL OPENING SIZE MOTORIZED DAMPER.

② PROVIDE EXHAUST AIR LOUVER OF 500(W)x500(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF. THERMALLY BLANK-OFF UNUSED WALL OPENING. PROVIDE REMOVABLE INSECT SCREEN ON INTERIOR SIDE OF LOUVER AND FULL OPENING SIZE MOTORIZED DAMPER.

③ 150x150 E/A DUCT DOWN. TERMINATE DUCT 300mm ABOVE FINISHED FLOOR C/W E/A GRILLE.

④ PROVIDE AIR INTAKE AIR LOUVER OF 900(W)x600(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF. THERMALLY BLANK-OFF UNUSED WALL OPENING. PROVIDE REMOVABLE INSECT SCREEN ON INTERIOR SIDE OF LOUVER AND FULL OPENING SIZE MOTORIZED DAMPER.

⑤ 300x200 E/A DUCT AT HIGH LEVEL C/W E/A GRILLE.

⑥ 350x350 E/A DUCT THROUGH ROOM CEILING SLAB C/W MOTORIZED DAMPER AND GRILLE.

⑦ PROVIDE AIR INTAKE AIR LOUVER OF 600(W)x600(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF. THERMALLY BLANK-OFF UNUSED WALL OPENING. PROVIDE REMOVABLE INSECT SCREEN ON INTERIOR SIDE OF LOUVER AND FULL OPENING SIZE MOTORIZED DAMPER.

⑧ 750x600 O/A DUCT UP TO GOOSENECK ON ROOF C/W MOTORISED DAMPER.

⑨ DUCT DROPPED AND TERMINATED AT 0.3m AFF. C/W GRILLE/DIFFUSER.

⑩ EXHAUST HOOD

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

STORAGE GARAGE - GROUND FLOOR PLAN-HVAC

SHEET NUMBER

20-M-101

20-M-101-STORAGE GARAGE - GROUND FLOOR PLAN-HVAC
Last Plotted: 14-02-2025 22:33:18
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Printed on ___% Post-Consumer
Recycled Content Paper

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

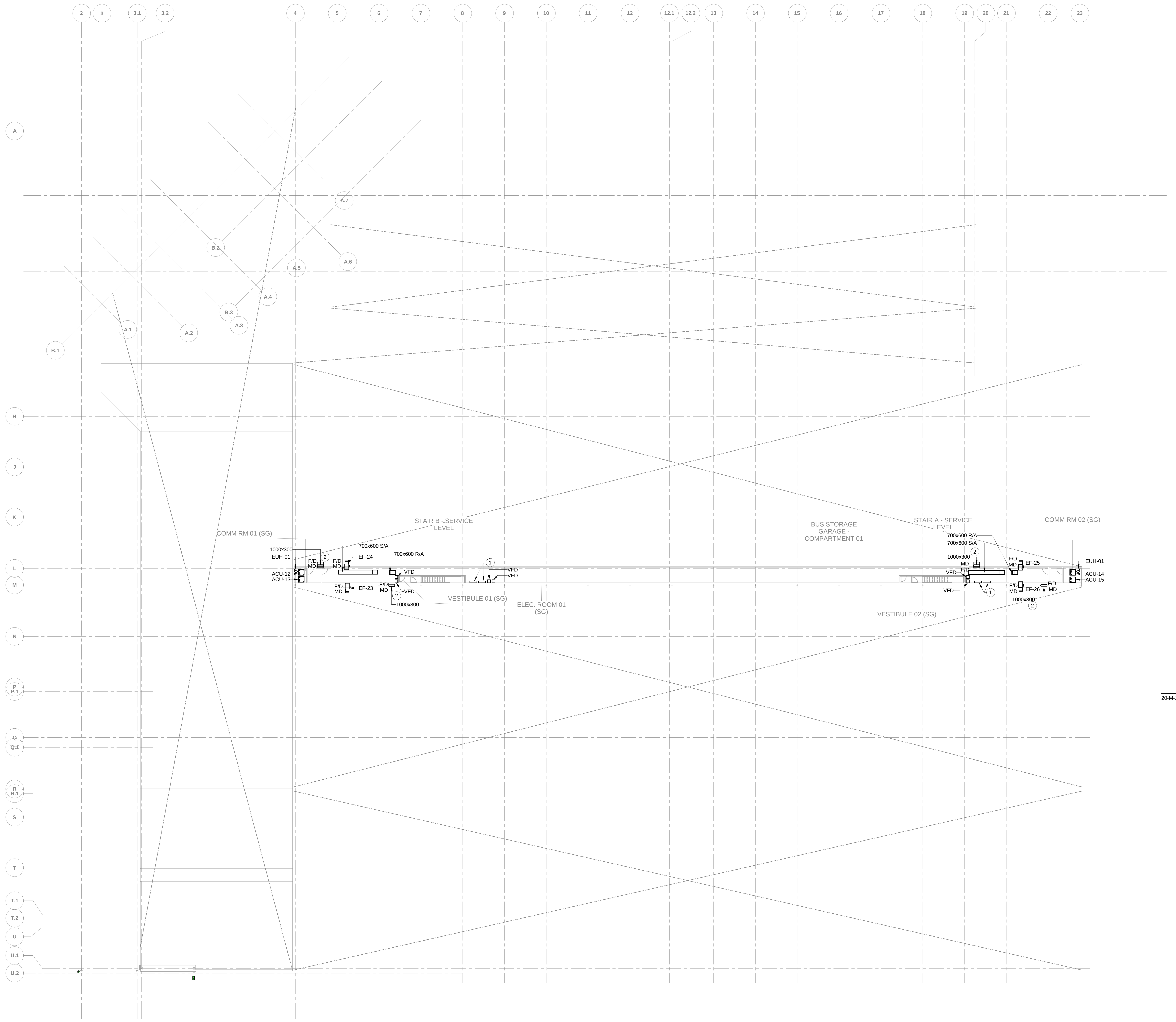
Project Management Initials:

LAYOUT NOTES:

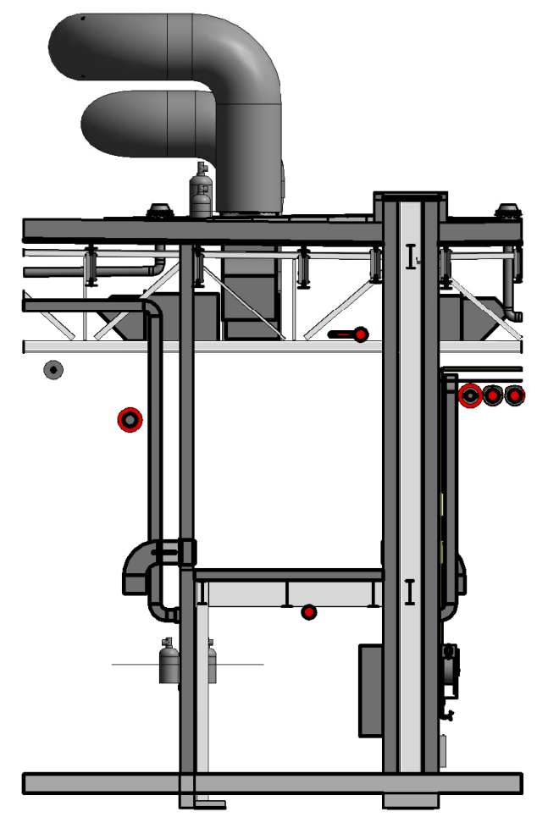
① BAS PANEL 120v POWER

② 1000X300 DUCT FROM THE BUS STORAGE GARAGES TO ELECTRICAL ROOM ON SECOND FLOOR FOR HEAT RECOVERY FROM THE BUS ELECTRICAL CHARGERS TO THE BUS STORAGE GARAGES.

PROJECT NORTH



1 STORAGE GARAGE - SECOND FLOOR PLAN-HVAC
20-M-102 1 : 250



2 STORAGE GARAGE 2ND FLOOR-3D VIEW
20-M-102

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
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Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

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B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

STORAGE GARAGE - SECOND FLOOR PLAN-HVAC

SHEET NUMBER

20-M-102

20-M-102-STORAGE GARAGE - SECOND FLOOR PLAN-HVAC
Last Plotted: 14-02-2025 22:33:21
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

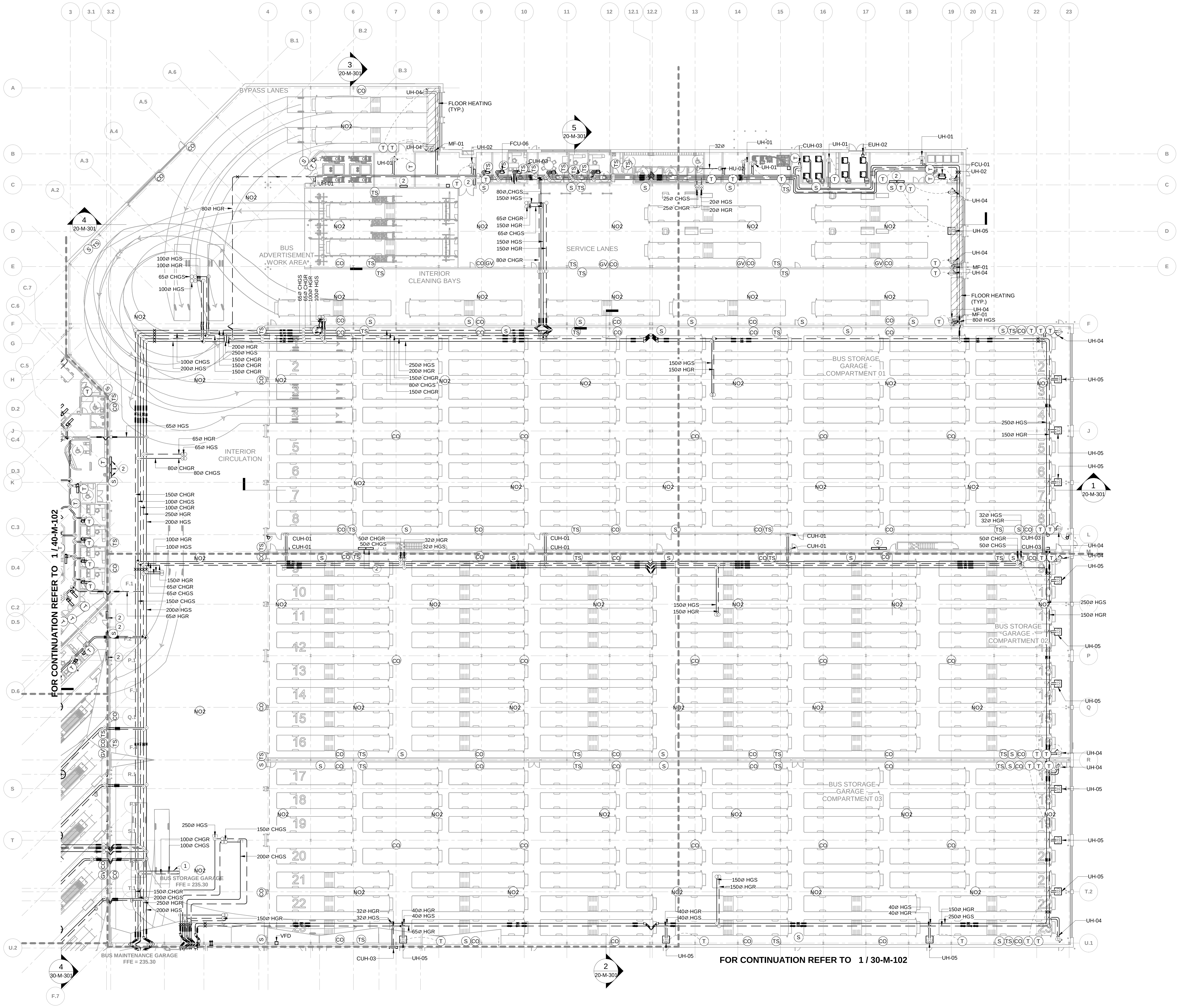
Printed on ___% Post-Consumer
Recycled Content Paper

Project Management Initials:
Designer: Designer
Checked: Checker
Approved: Approver
A0 33.1"x46.8"

LAYOUT NOTES:

① RESERVED FOR FUTURE REVERSE RETURN PIPING CONNECTION FOR COOLING OF STORAGE GARAGE AND ELECTRICAL CHARGER ROOMS

② BAS PANEL 120v POWER



1	STORAGE GARAGE - GROUND FLOOR PLAN-HVAC PIPING
20-M-103	1 : 250

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

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Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

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0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

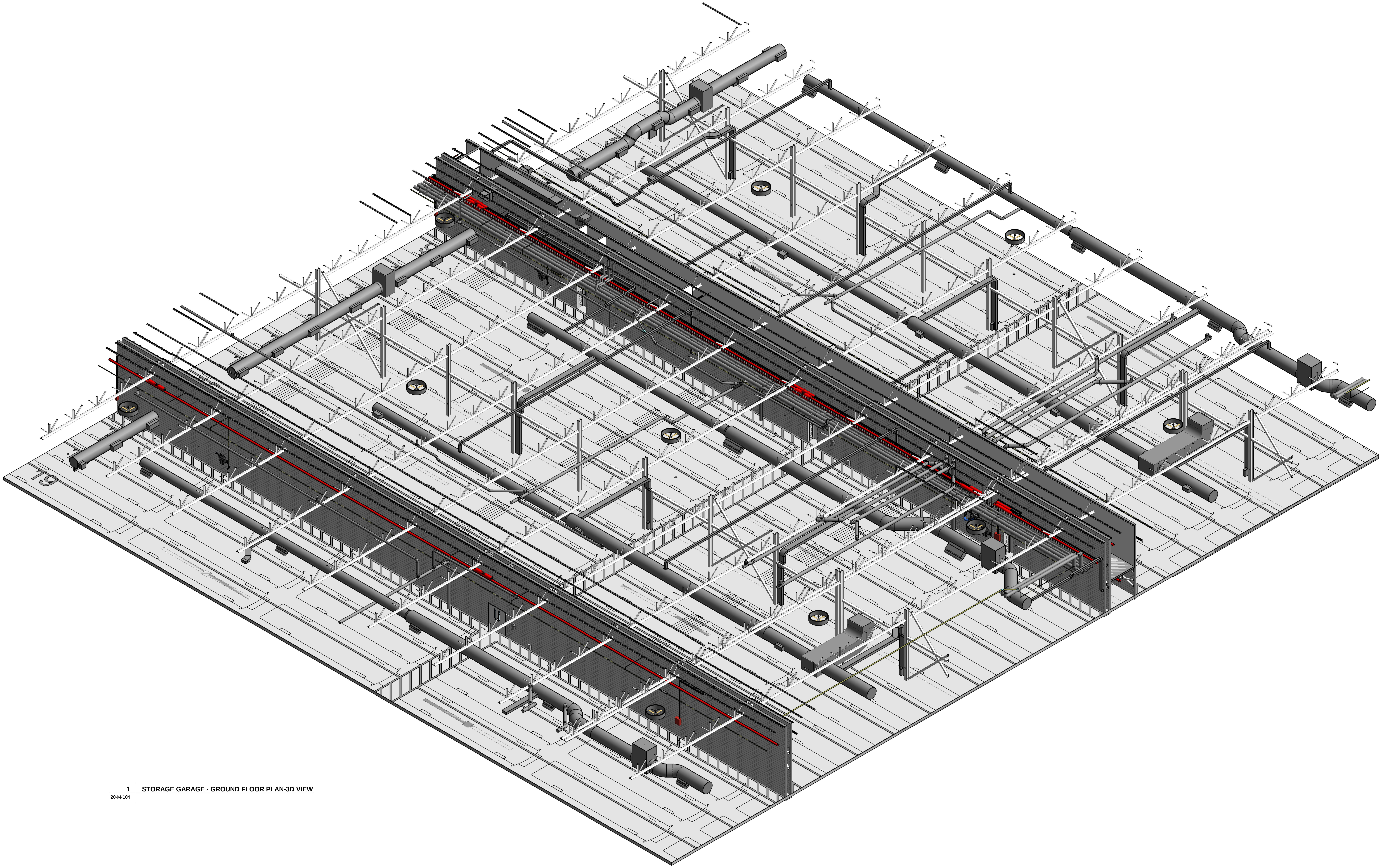
SHEET TITLE

STORAGE GARAGE - GROUND FLOOR PLAN-HVAC PIPING

SHEET NUMBER

20-M-103

20-M-103-STORAGE GARAGE - GROUND FLOOR PLAN-HVAC PIPING
Last Plotted: 14-02-2025 22:34:37
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt



1 **STORAGE GARAGE - GROUND FLOOR PLAN-3D VIEW**
20-M-104

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
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CONSULTANT

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Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

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B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

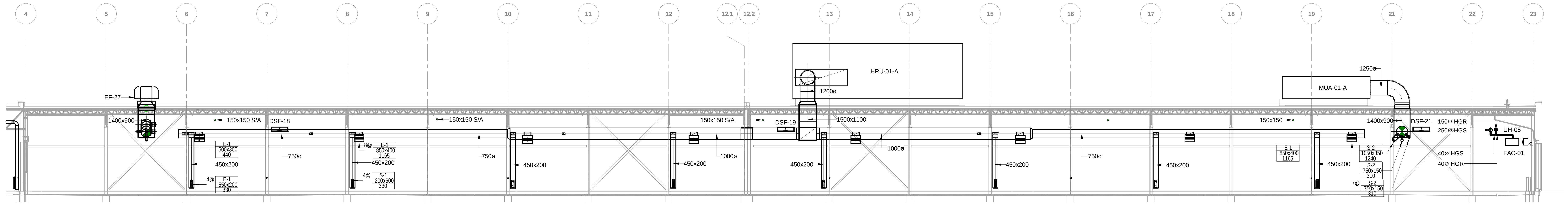
STORAGE GARAGE - GROUND FLOOR PLAN-3D VIEW

SHEET NUMBER

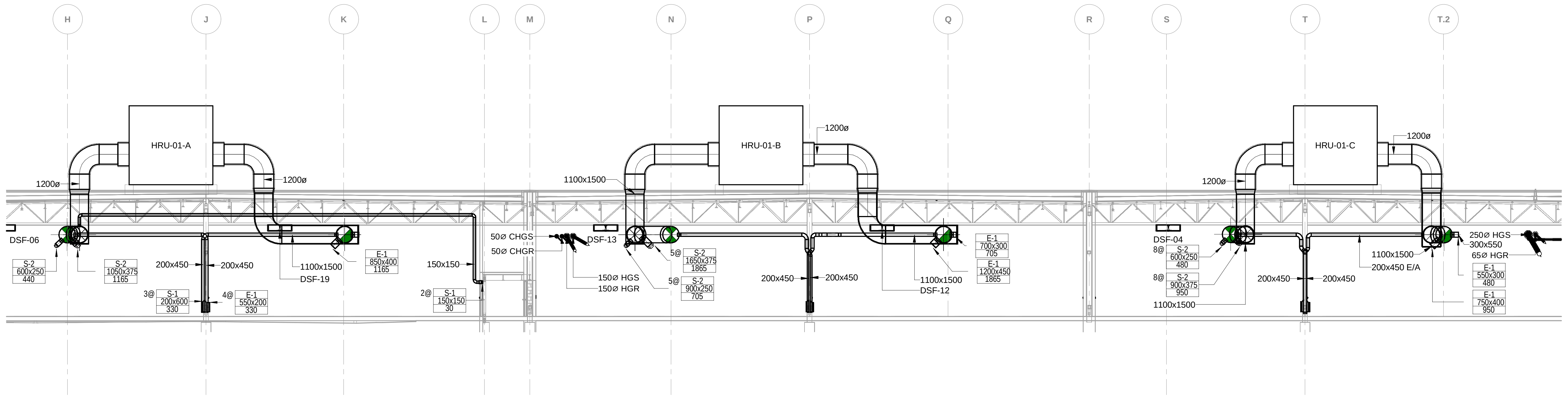
20-M-104

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

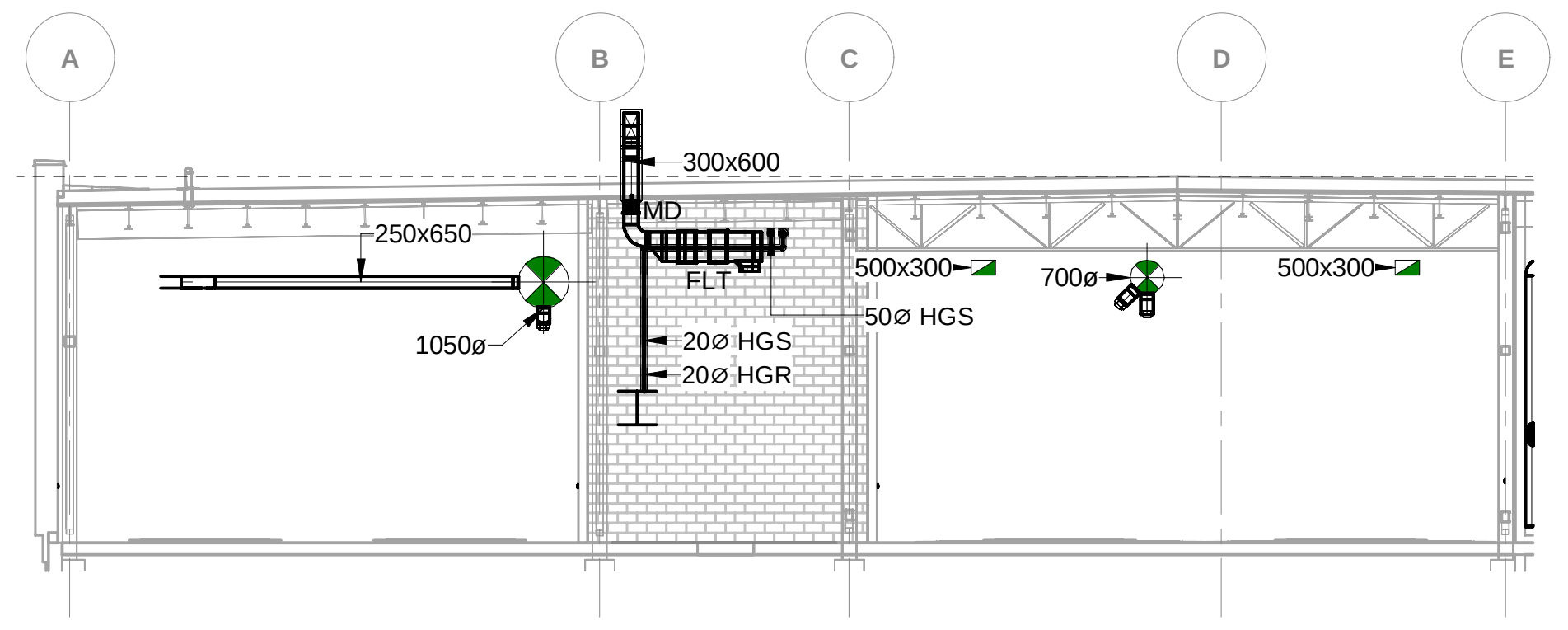
Project Management Initials:



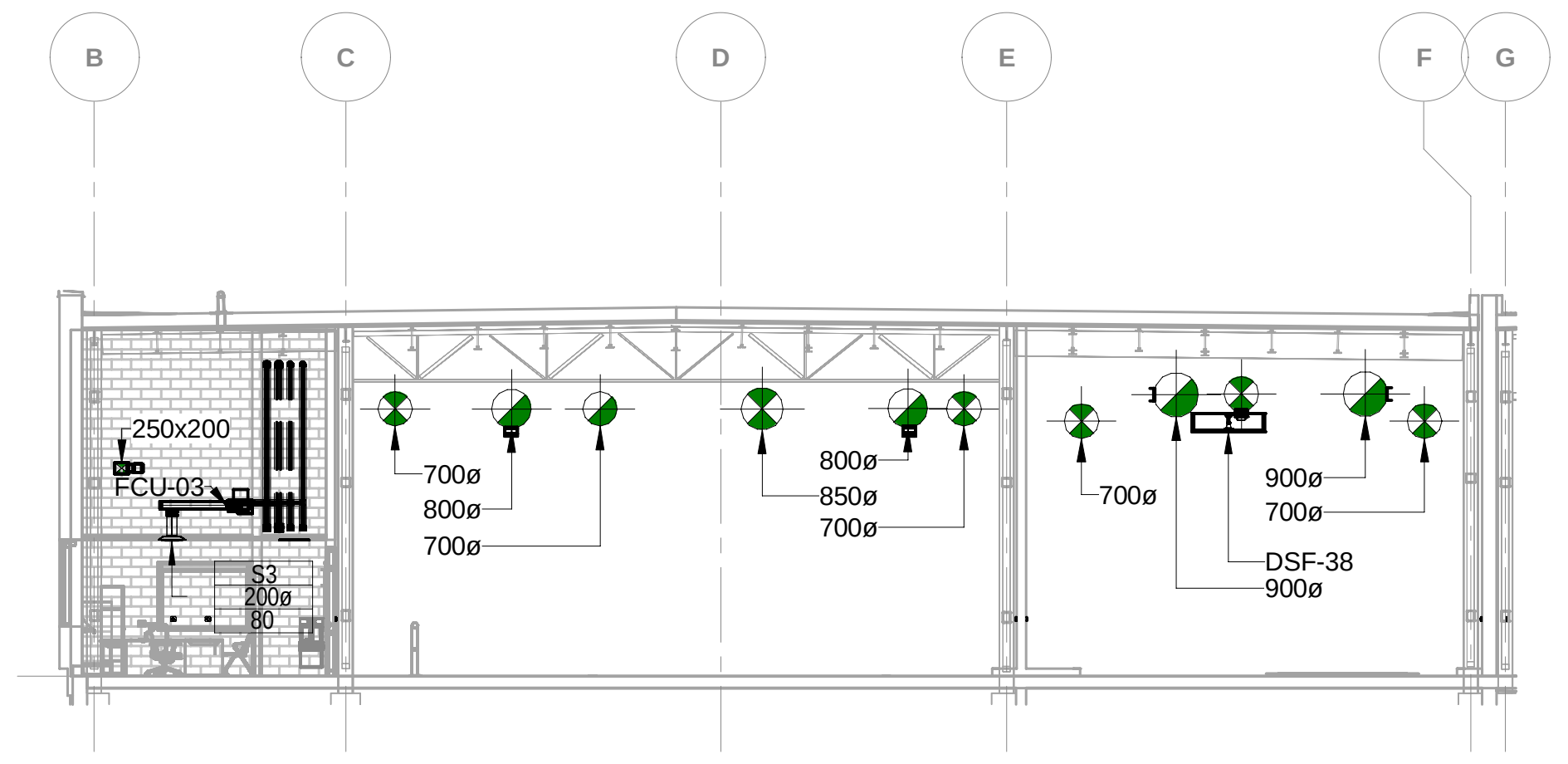
1 **SECTION 01**
20-M-301 1 : 150



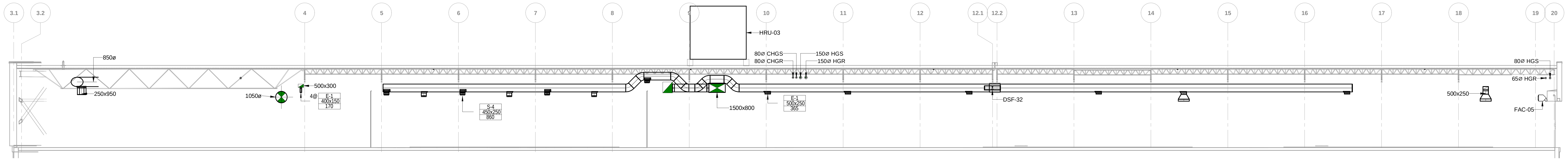
2 **SECTION 02**
20-M-301 1 : 150



3 **SECTION 03**
20-M-301 1 : 150



5 **SECTION 05**
20-M-301 1 : 150



4 **SECTION 04**
20-M-301 1 : 150

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
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Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

STORAGE GARAGE - BUILDING SECTIONS

SHEET NUMBER

20-M-301

20-M-301-STORAGE GARAGE - BUILDING SECTIONS
Last Plotted: 14-02-2025 22:35:05
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

GENERAL NOTES:

1. PROVIDE DOOR UNDERCUT FOR ALL WASHROOMS, CHANGE ROOMS AND SHOWER ROOMS FOR AIR TRANSFER.

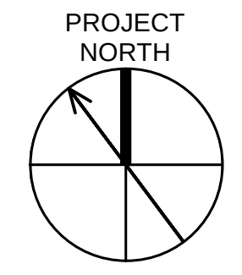
LAYOUT NOTES:

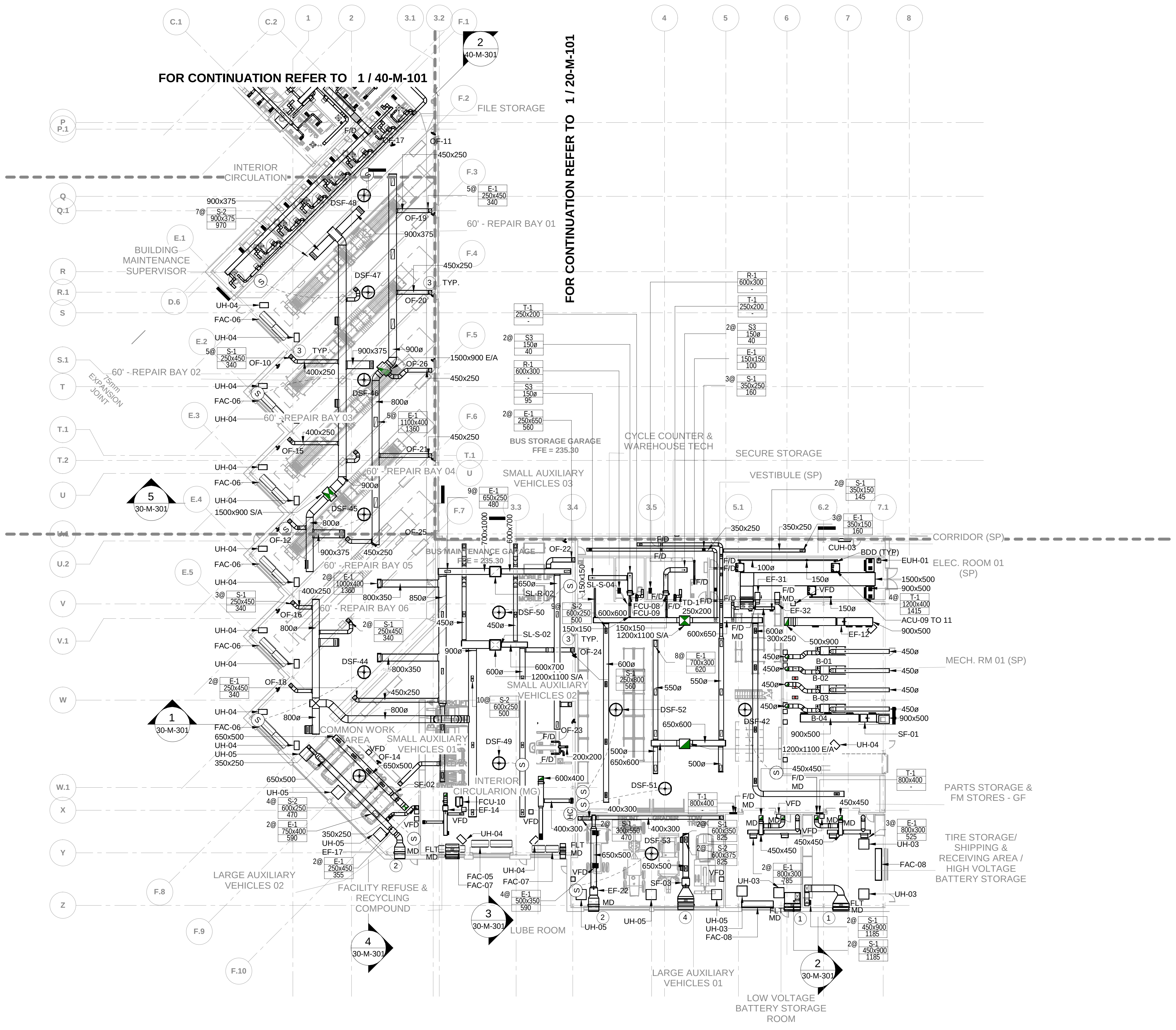
① PROVIDE EXHAUST AIR LOUVER OF 1800(W)x1200(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF. THERMALLY BLANK-OFF UNUSED WALL OPENING. PROVIDE REMOVABLE INSECT SCREEN ON INTERIOR SIDE OF LOUVER AND FULL OPENING SIZE MOTORIZED DAMPER.

② PROVIDE EXHAUST AIR LOUVER OF 1200(W)x600(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF. THERMALLY BLANK-OFF UNUSED WALL OPENING. PROVIDE REMOVABLE INSECT SCREEN ON INTERIOR SIDE OF LOUVER AND FULL OPENING SIZE MOTORIZED DAMPER.

③ DUCT DROPPED AND TERMINATED AT 0.3m AFF. C/W GRILLE/DIFFUSER.

④ PROVIDE INTAKE AIR LOUVER OF 1800(W)x1200(H) SIZE, WITH BOTTOM OF OPENING APPROX. 2.4m AFF
THERMALLY BLANK-OFF UNUSED WALL OPENING.





1 MAINTENANCE GARAGE - GROUND FLOOR PLAN-HVAC
30-M-101 1 : 250

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

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B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

MAINTENANCE GARAGE - GROUND FLOOR PLAN-HVAC

SHEET NUMBER

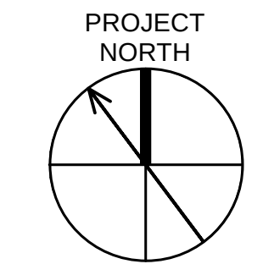
30-M-101

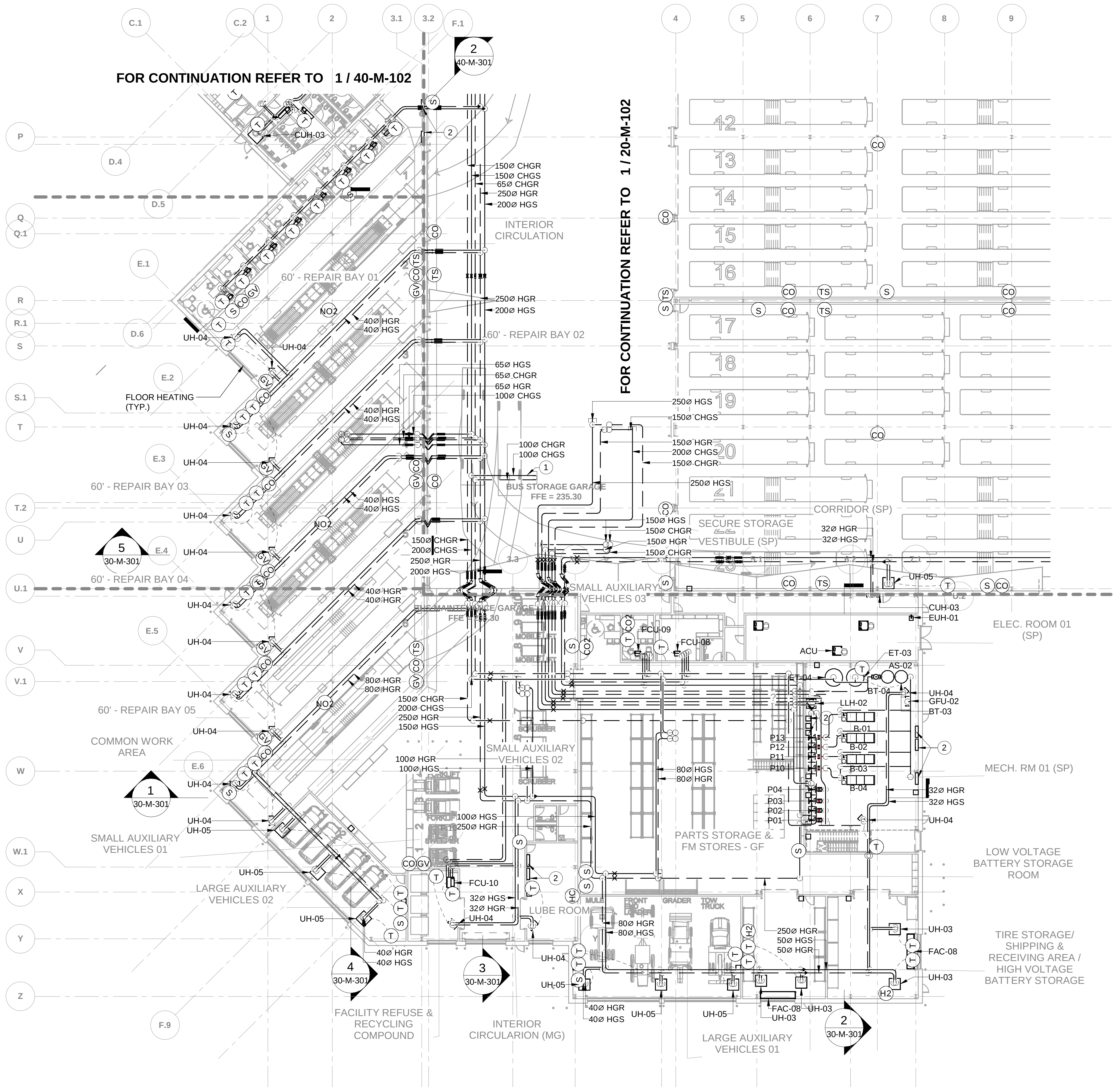
Project Management Initials: Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

30-M-101-MAINTENANCE GARAGE - GROUND FLOOR PLAN-HVAC
Last Plotted: 14-02-2025 22:35:30
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

LAYOUT NOTES:

1. RESERVED FOR FUTURE REVERSE RETURN PIPING CONNECTION FOR COOLING OF STORAGE GARAGE AND ELECTRICAL CHARGER ROOMS
2. BAS PANEL 120v POWER





1 MAINTENANCE GARAGE - GROUND FLOOR PLAN-HVAC PIPING
30-M-102 1 : 250

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

30-M-102-MAINTENANCE GARAGE - GROUND FLOOR PLAN-HVAC PIPING
Last Plotted: 14-02-2025 22:36:08
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

MAINTENANCE GARAGE - GROUND FLOOR PLAN-HVAC PIPING

SHEET NUMBER

30-M-102

Project Management Initials:

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

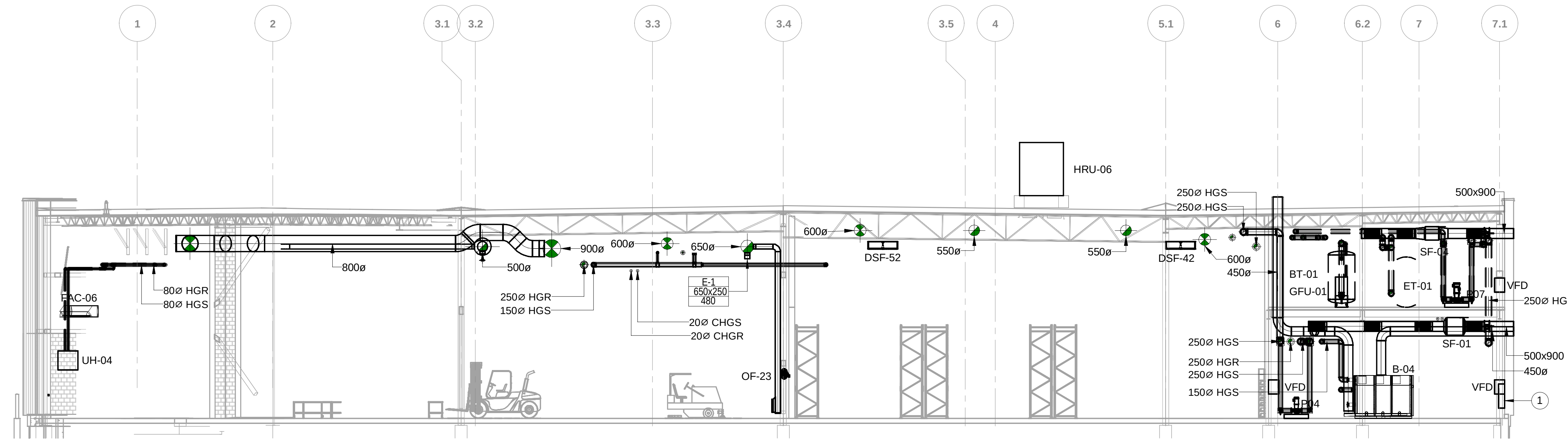
30-M-301-MAINTENANCE GARAGE - BUILDING SECTIONS

Last Plotted: 14-02-2025 22:36:24

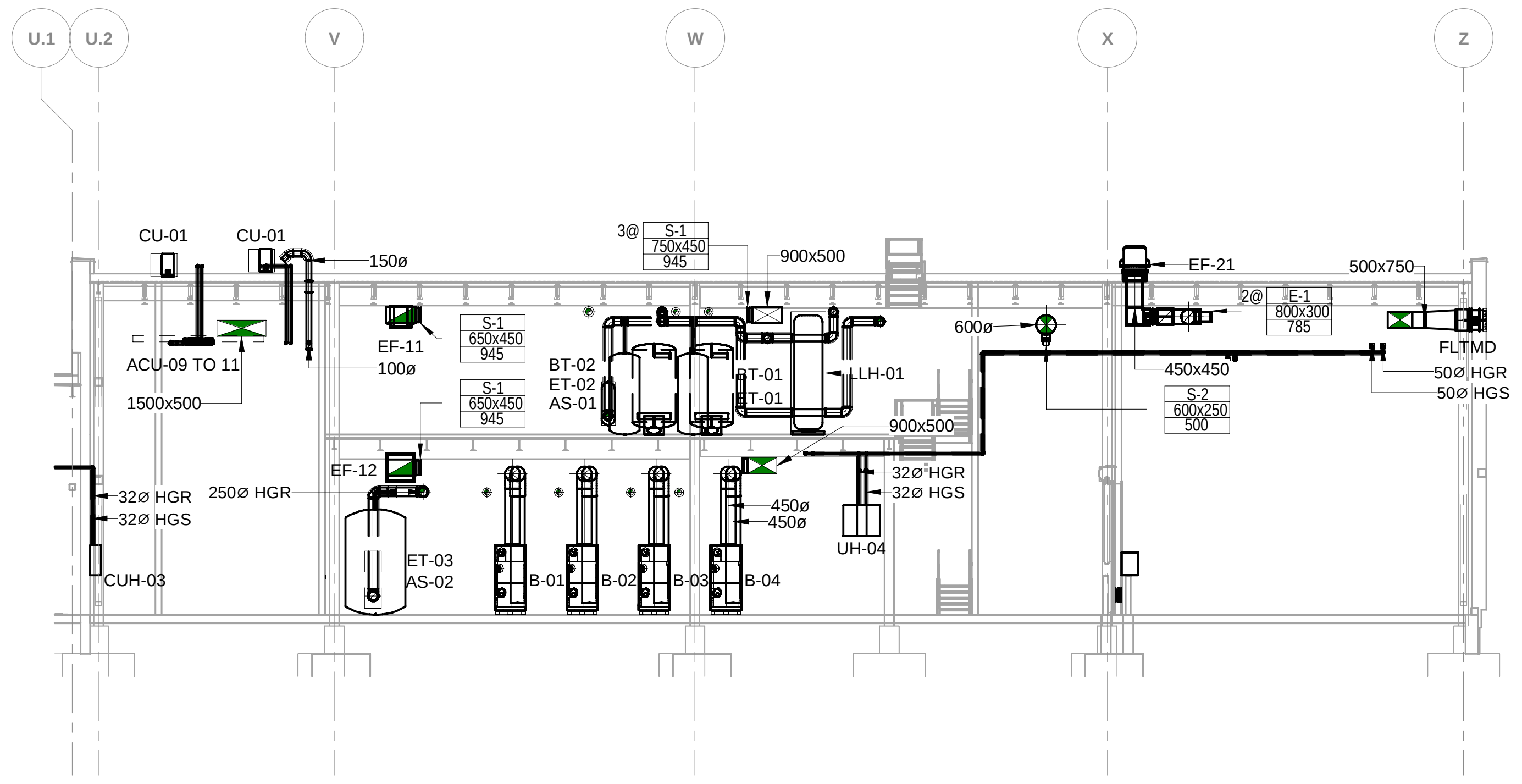
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

LAYOUT NOTES:

① BAS PANEL 120v POWER



1 **SECTION 01**
30-M-301 1 : 150



2 **SECTION 02**
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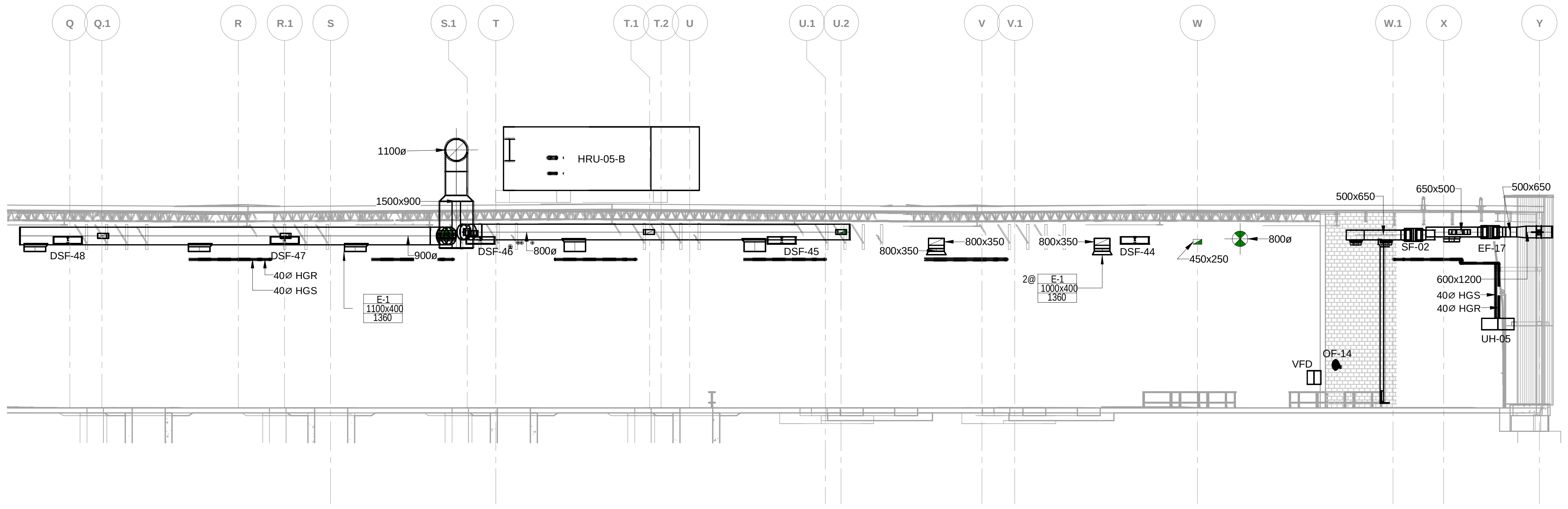
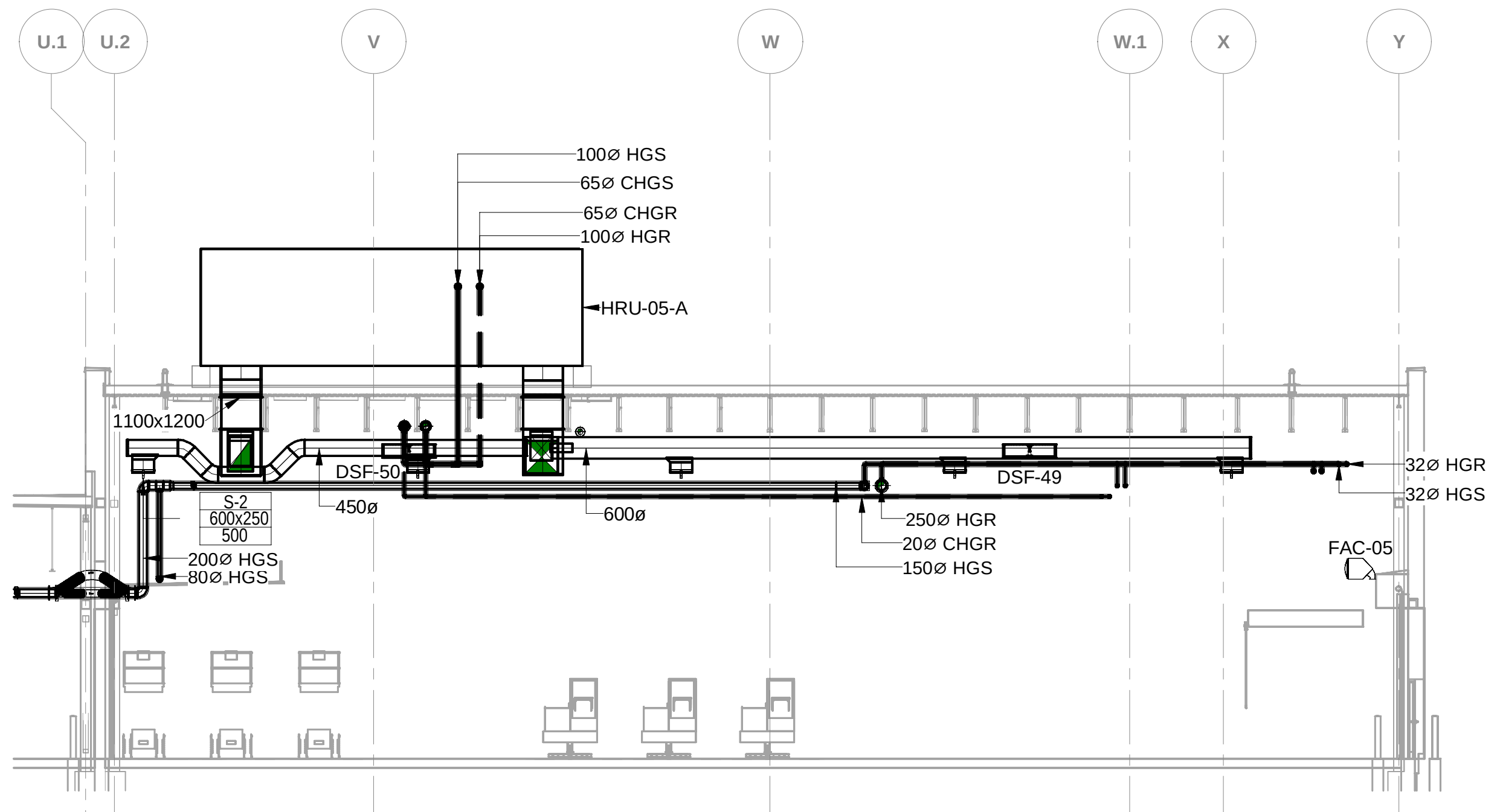
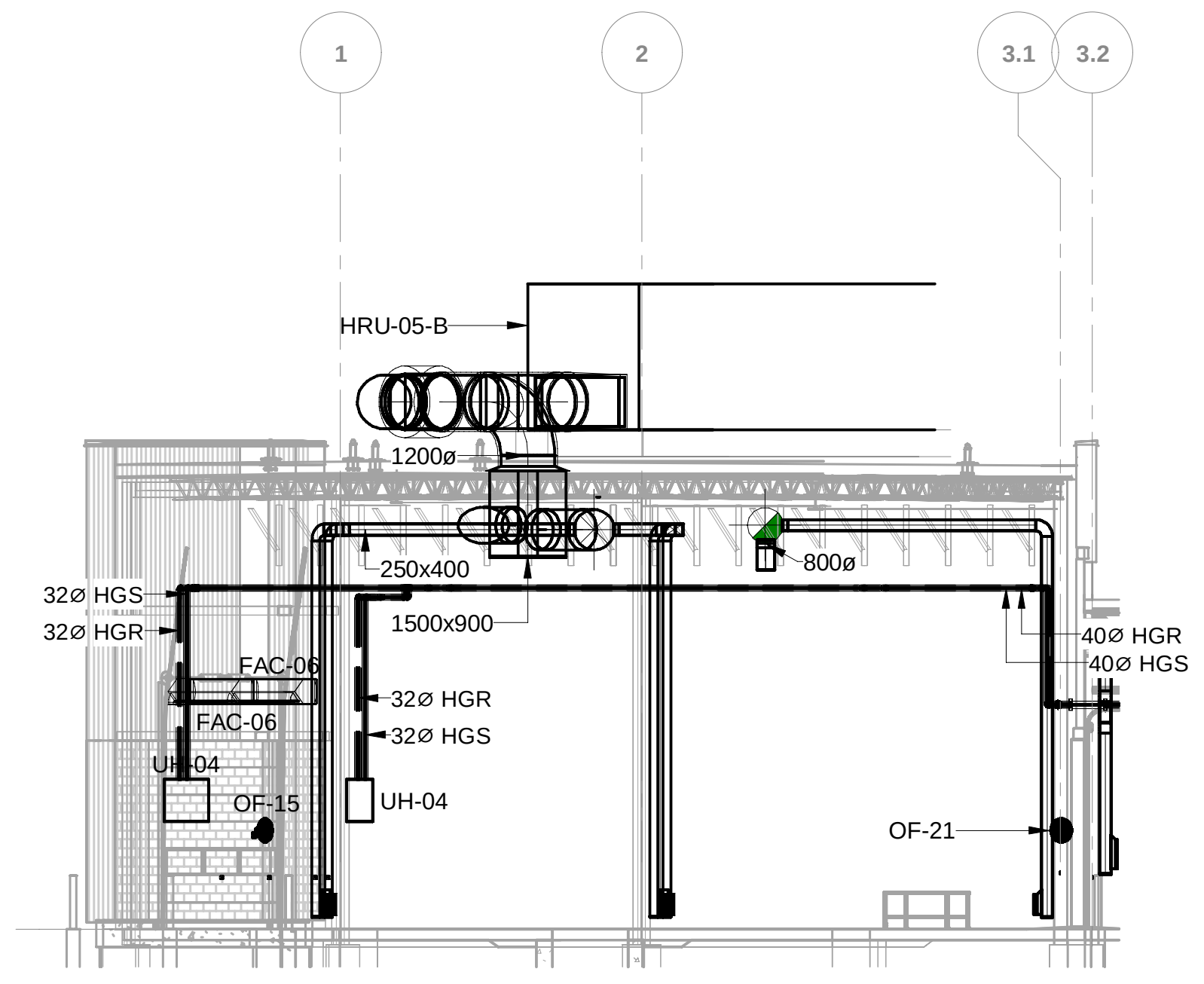


4 **SECTION 04**
30-M-301 1 : 150



3 **SECTION 03**
30-M-301 1 : 150



5 **SECTION 05**
30-M-301 1 : 150

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

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B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

MAINTENANCE GARAGE - BUILDING SECTIONS

SHEET NUMBER

30-M-301

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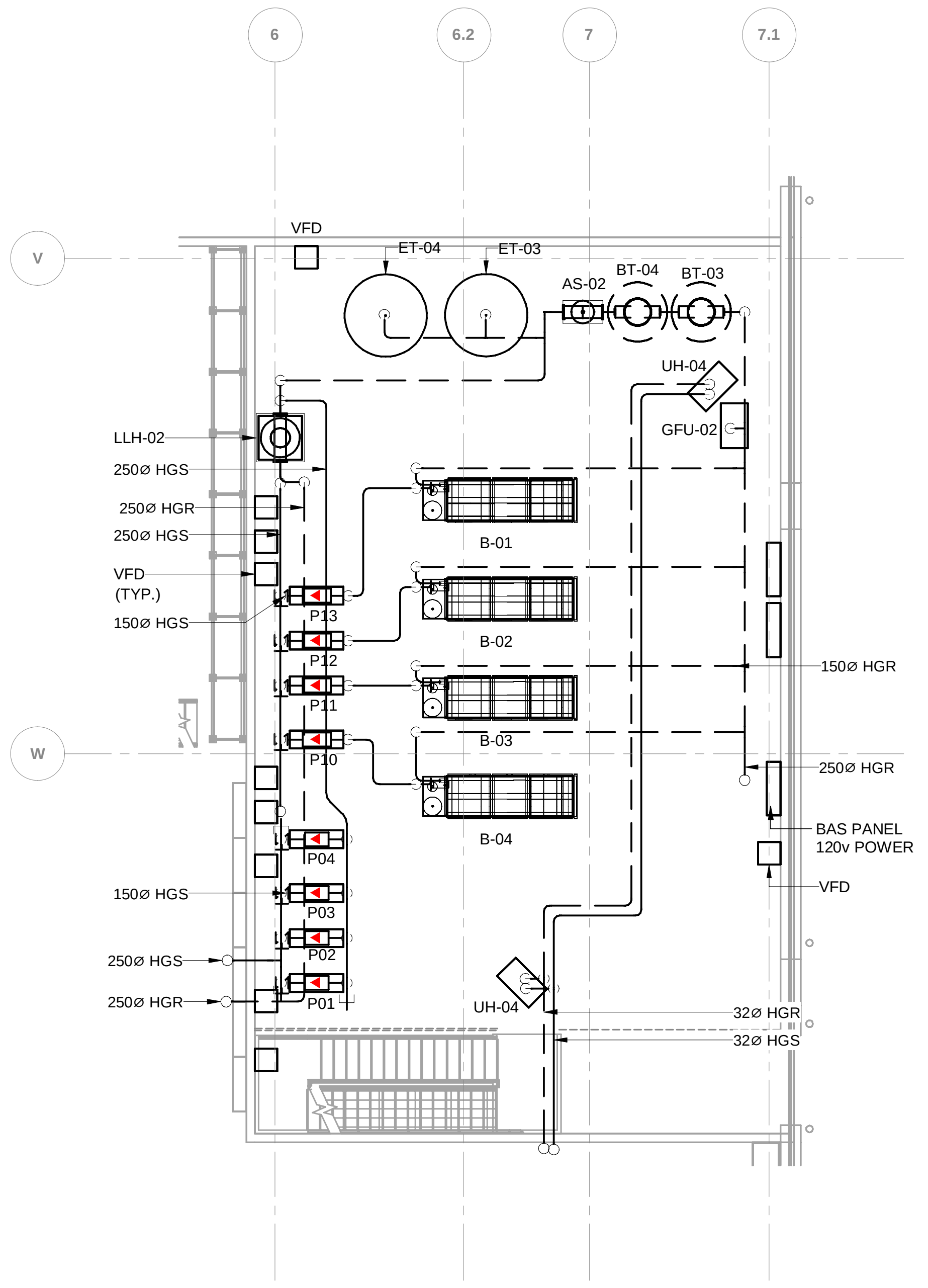
PROJECT NORTH

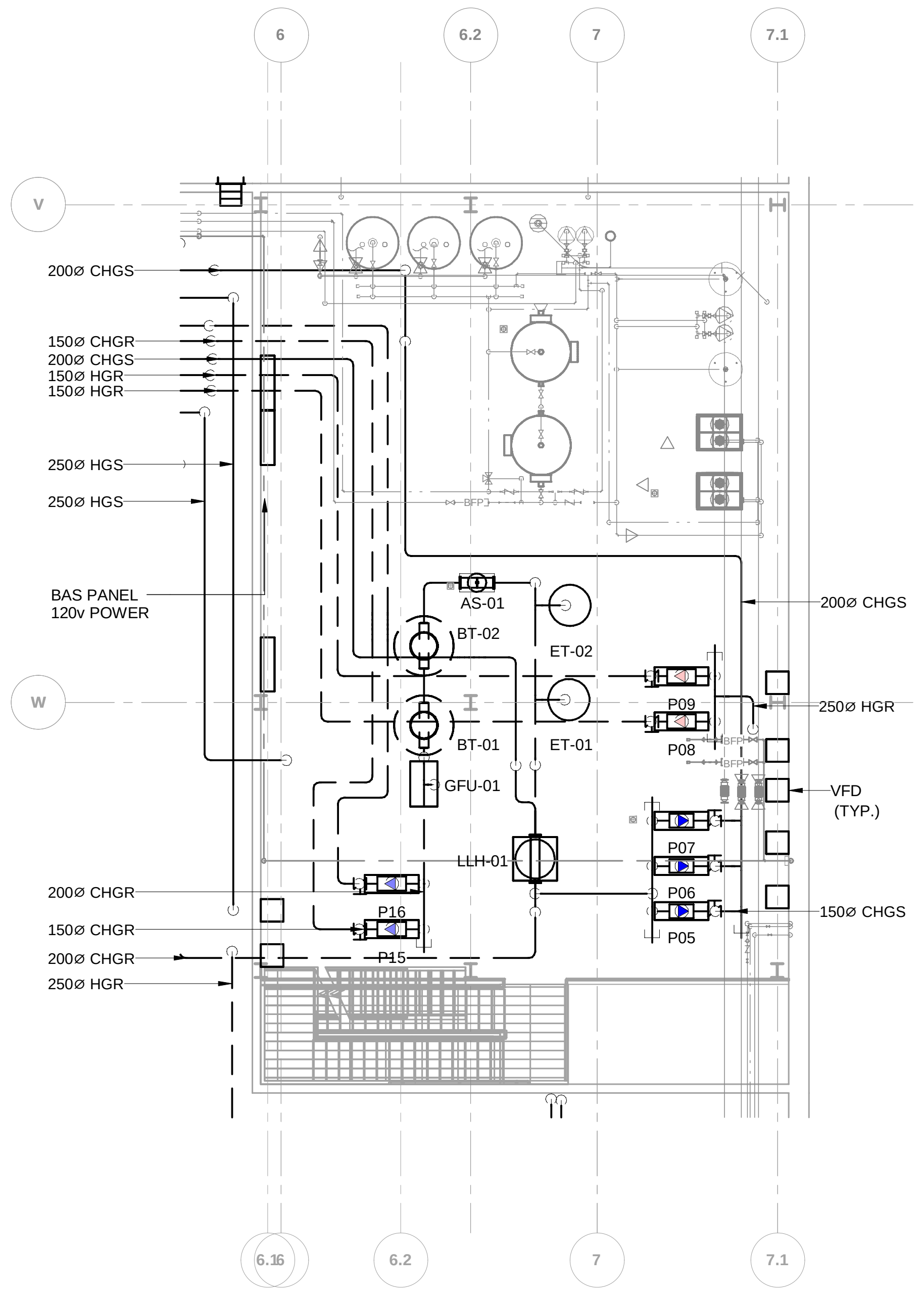
LAYOUT NOTES:

① BAS PANEL 120v POWER



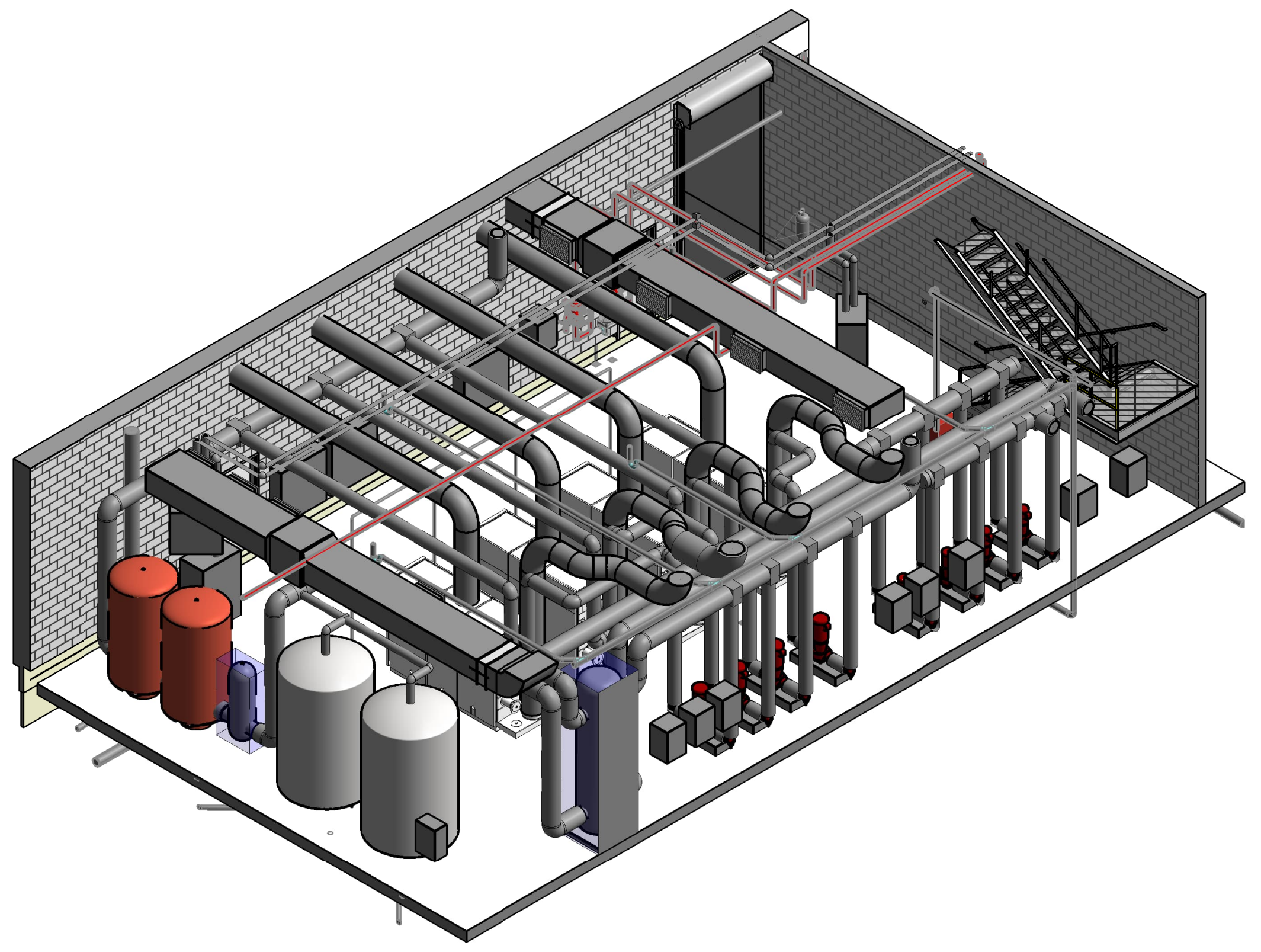
1 GROUND FLOOR PLAN-HVAC PIPING - MECHANICAL ROOM

30-M-401 1 : 100



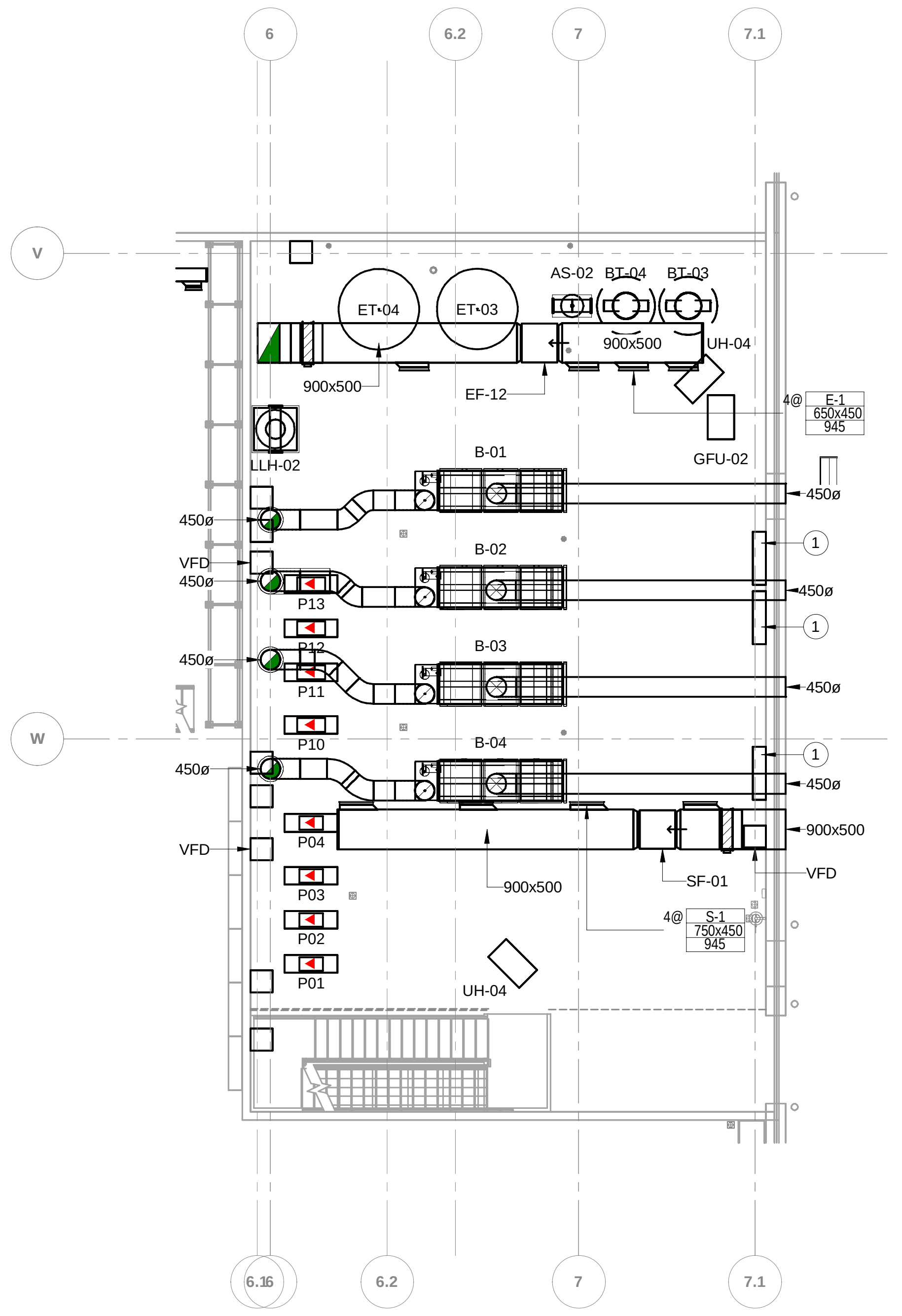
2 SECOND FLOOR PLAN-HVAC PIPING - MECHANICAL ROOM

30-M-401 1 : 100



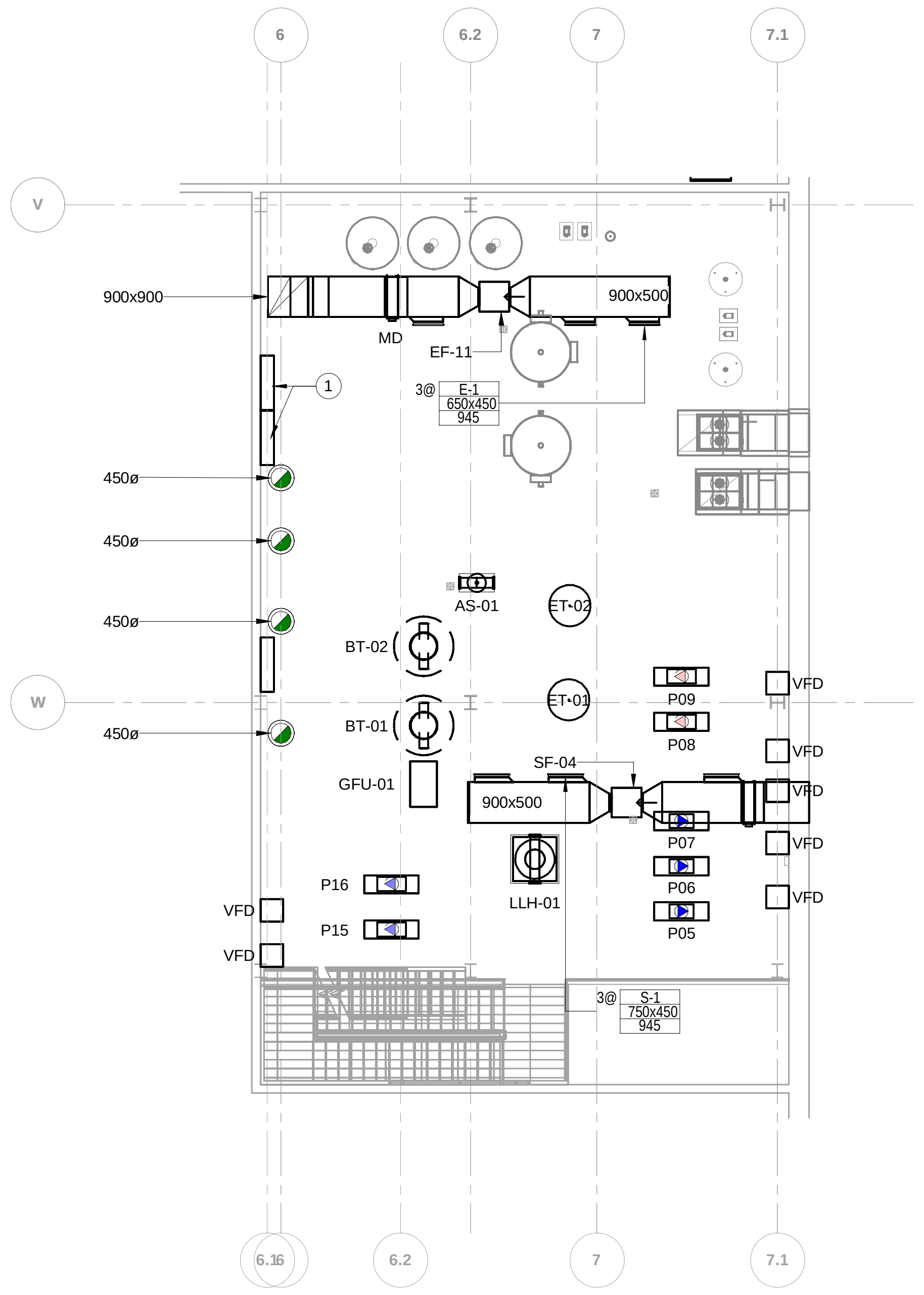
3 GROUND FLOOR PLAN - MECHANICAL ROOM-3D VIEW

30-M-401



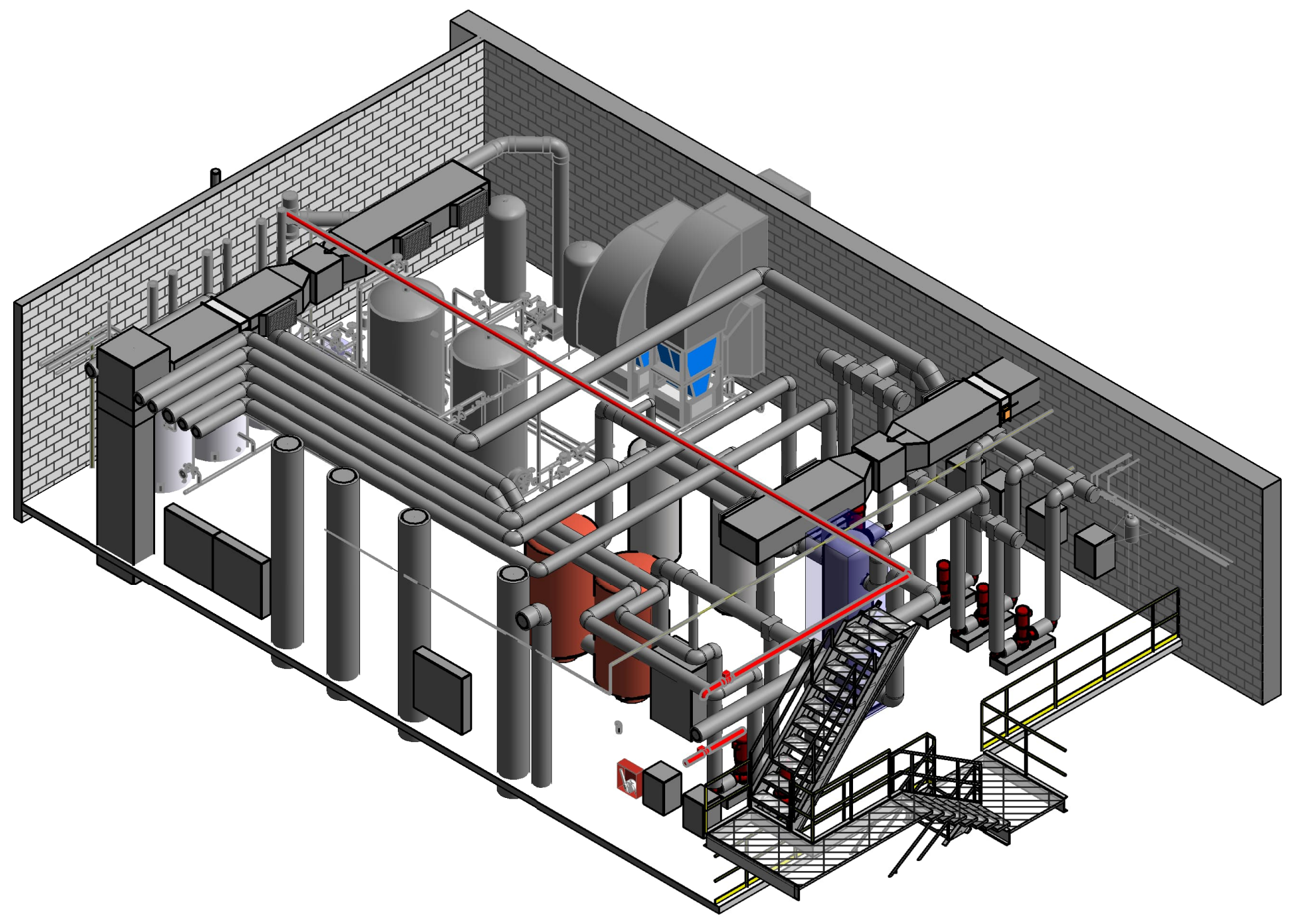
5 GROUND FLOOR PLAN-HVAC DUCTING - MECHANICAL ROOM

30-M-401 1 : 100



6 SECOND FLOOR PLAN-HVAC DUCTING - MECHANICAL ROOM

30-M-401 1 : 100



4 SECOND FLOOR PLAN - MECHANICAL ROOM-3D VIEW

30-M-401

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr.
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

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B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

MAINTENANCE GARAGE - ENLARGED GROUND & SECOND FLOOR PLAN - MECHANICAL ROOM

SHEET NUMBER

30-M-401

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

30-M-401-MAINTENANCE GARAGE - ENLARGED GROUND & SECOND FLOOR PLAN - MECHANICAL ROOM

Last Plotted: 14-02-2025 22:36:35
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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Project Management Initials: Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

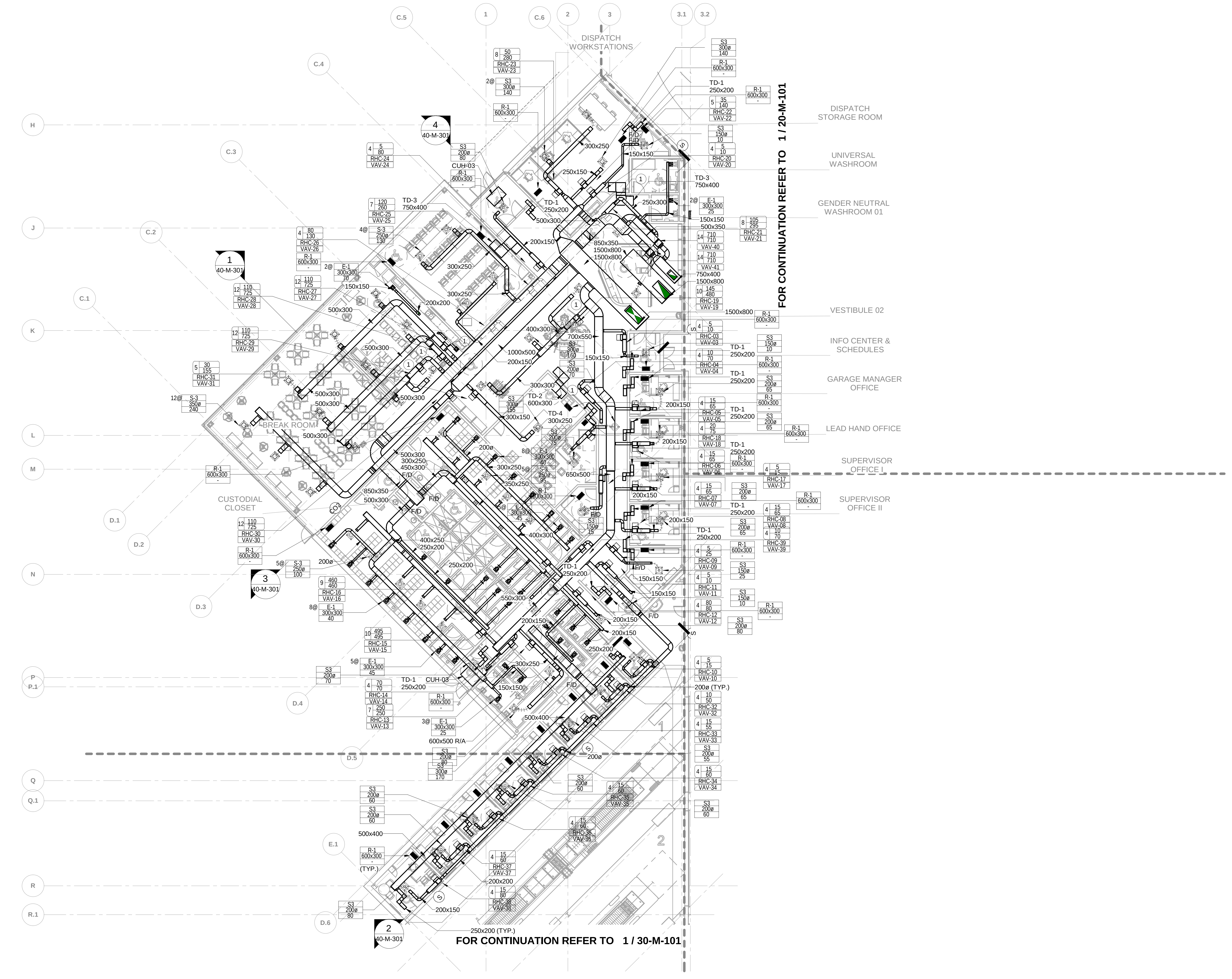
PROJECT NORTH

GENERAL NOTES:

1. PROVIDE DOOR UNDERCUT FOR ALL WASHROOMS, CHANGE ROOMS AND SHOWER ROOMS FOR AIR TRANSFER.

LAYOUT NOTES:

① PROVIDE ACOUSTIC LAGGING WITH STC 29 (B10- LAG/QFA-3) FOR VAV



1 40-M-101 **OFFICE - GROUND FLOOR PLAN-HVAC**
1 : 150

40-M-101-OFFICE - GROUND FLOOR PLAN-HVAC
Last Plotted: 14-02-2025 22:36:43
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

OFFICE - GROUND FLOOR PLAN-HVAC

SHEET NUMBER

40-M-101

Project Management Initials:
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

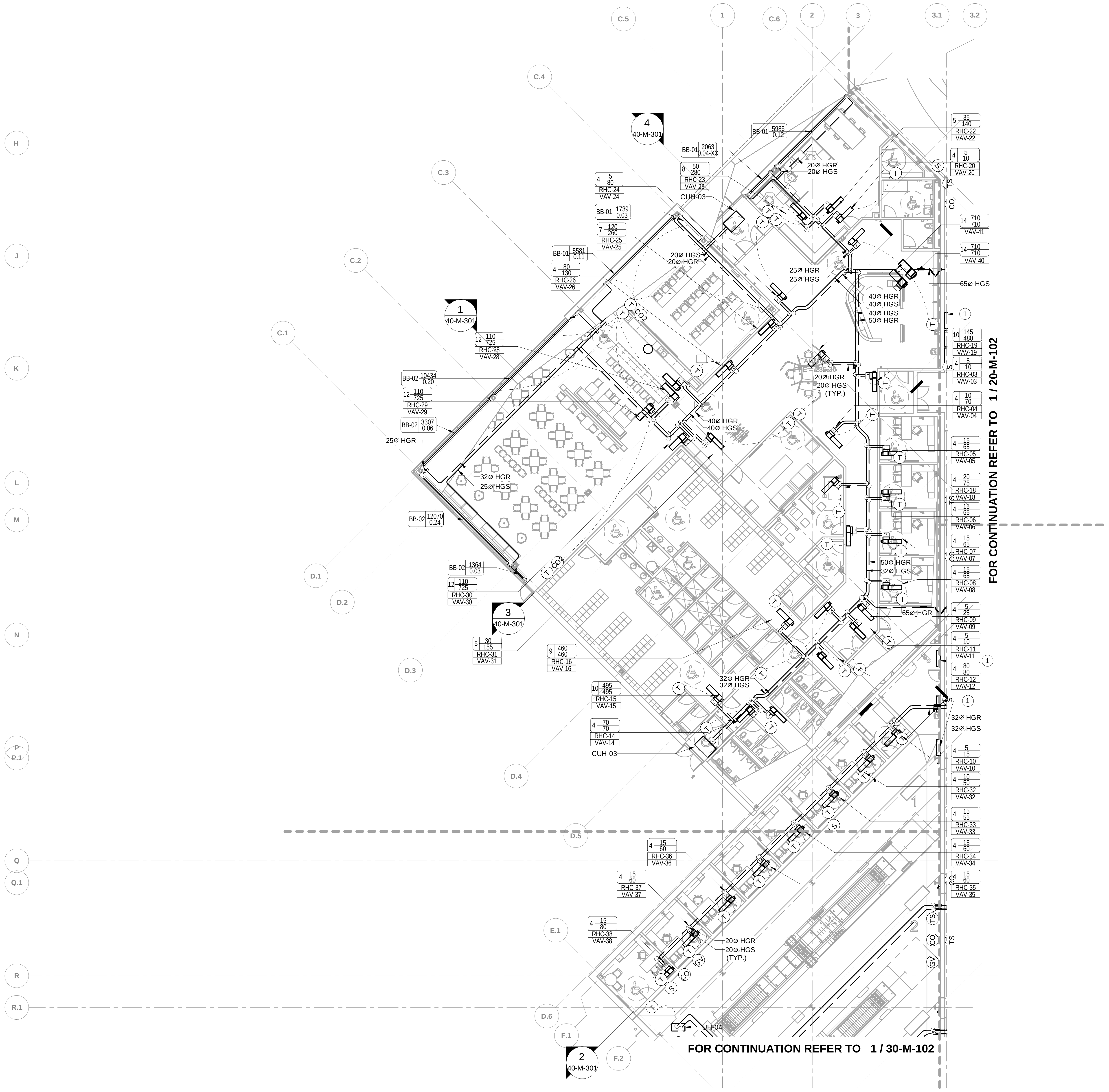
PROJECT
NORTH

GENERAL NOTES:

1. THESE DRAWING ARE JUST DEPICTING LOCATION OF UNITS. FOR DUCTWORK AND PIPING CONNECTIONS REFER TO GENERAL ARRANGEMENT DRAWINGS OF THE UNIT.

LAYOUT NOTES:

① BAS PANEL 120v POWER



FOR CONTINUATION REFER TO 1 / 20-M-102

FOR CONTINUATION REFER TO 1 / 30-M-102

1 OFFICE - GROUND FLOOR PLAN-HVAC PIPING
40-M-102 1 : 150

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
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A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

OFFICE - GROUND FLOOR PLAN-HVAC PIPING

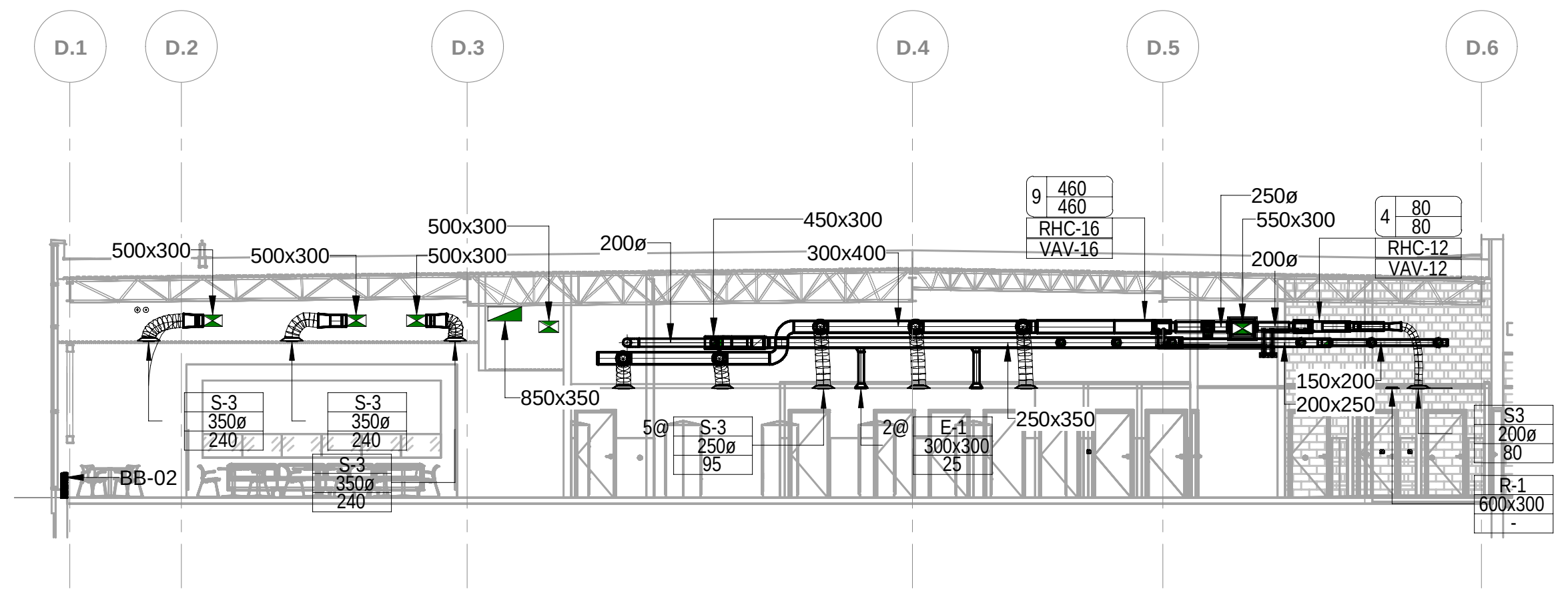
SHEET NUMBER

40-M-102

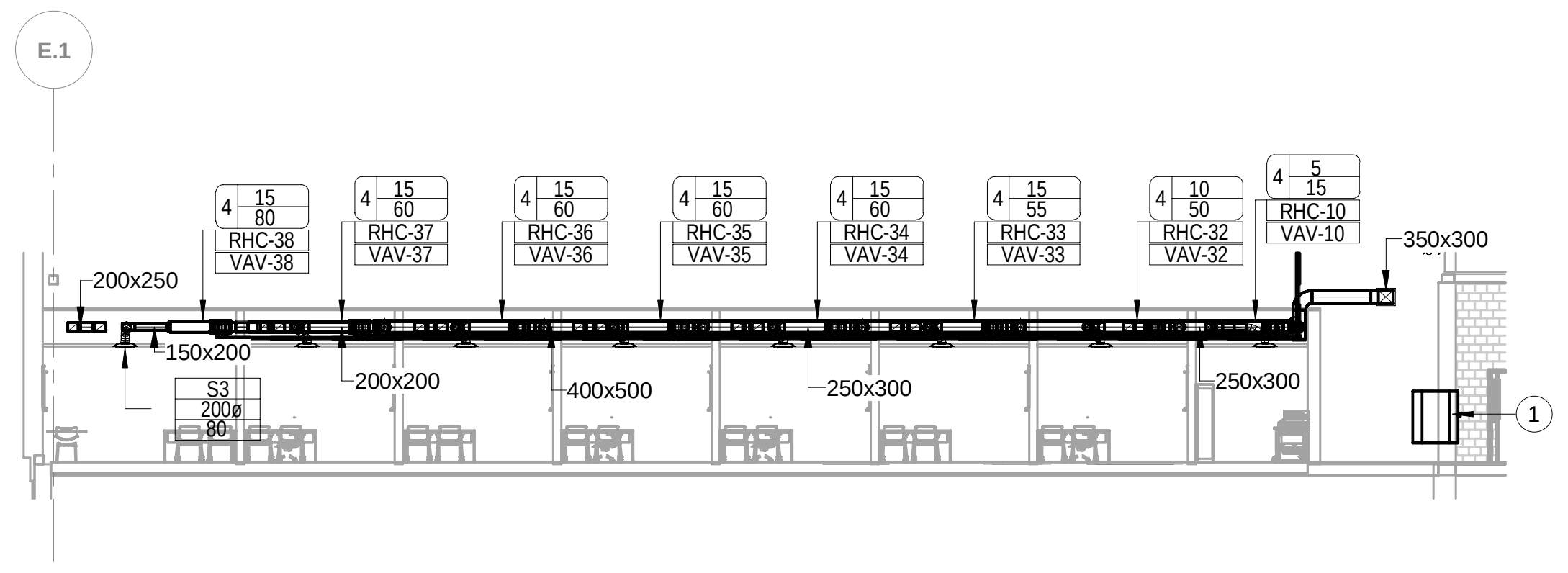
40-M-102-OFFICE - GROUND FLOOR PLAN-HVAC PIPING
Last Plotted: 14-02-2025 22:48:44
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Project Management Initials:

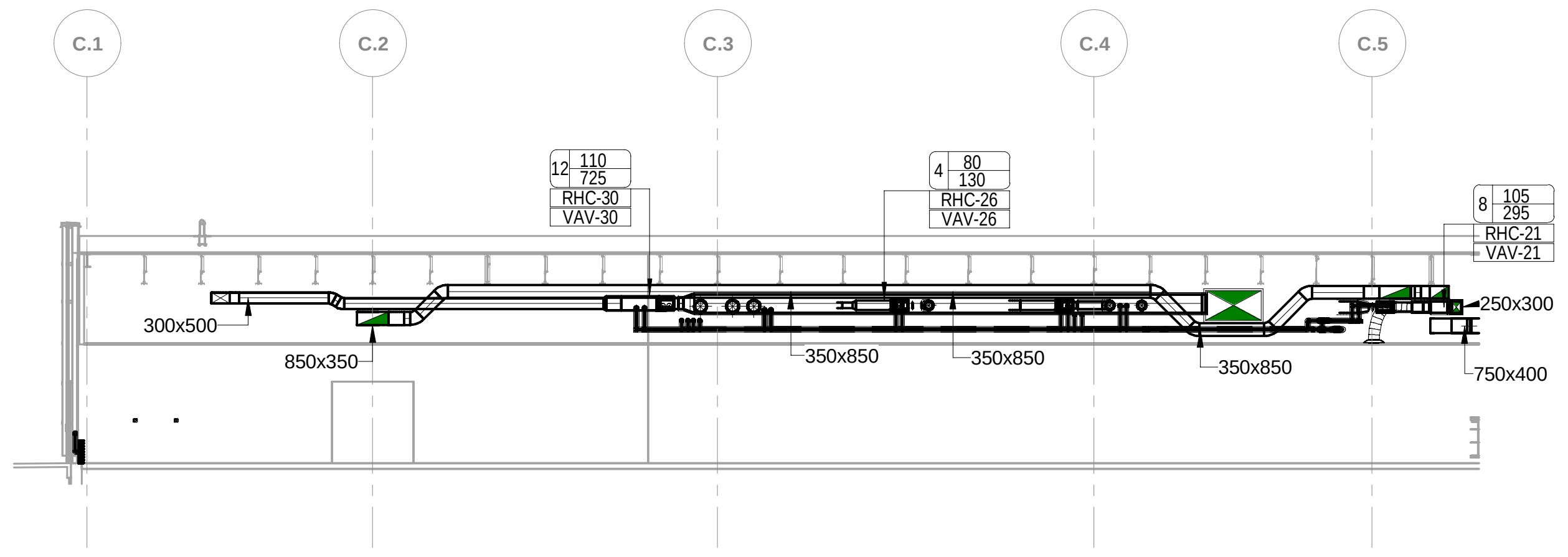
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"



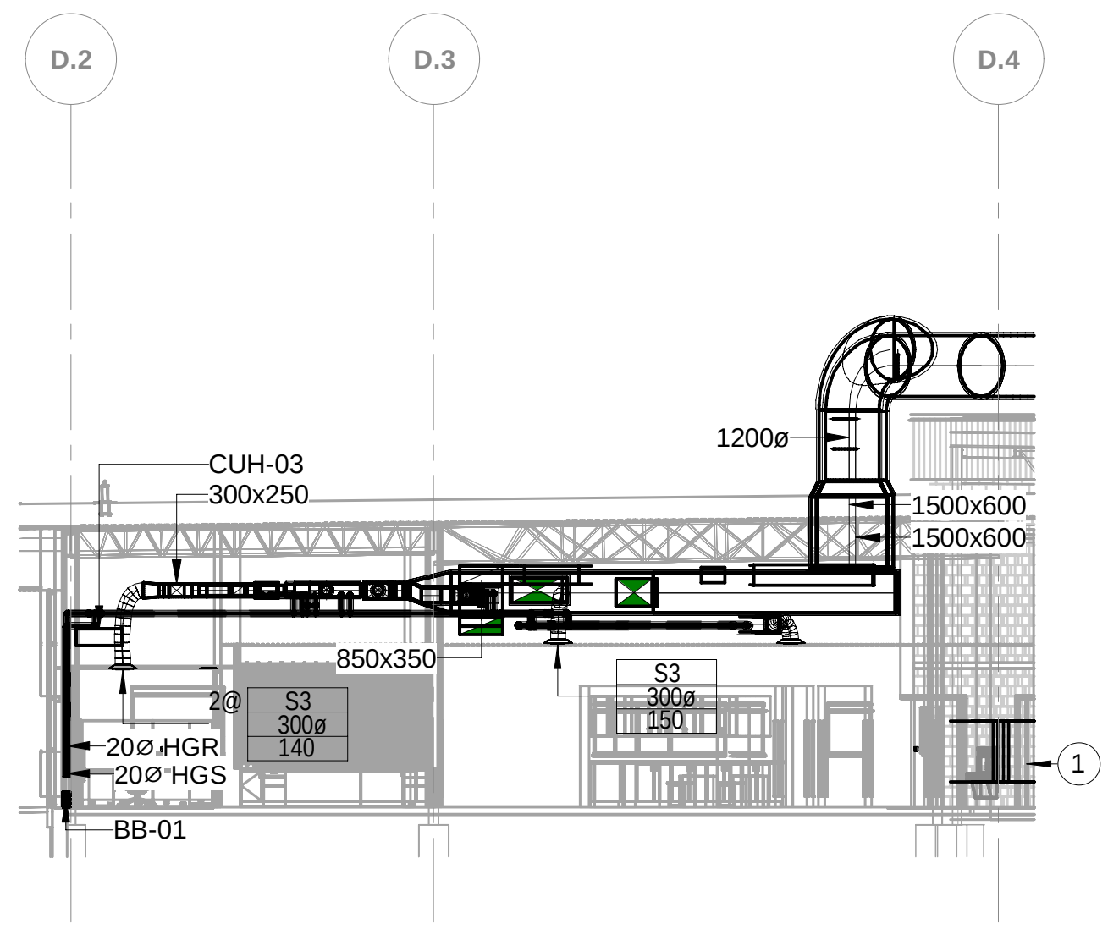
1 **SECTION 01**
40-M-301 1 : 150



2 **SECTION 02**
40-M-301 1 : 150



3 **SECTION 03**
40-M-301 1 : 150



4 **SECTION 04**
40-M-301 1 : 150

LAYOUT NOTES:

① BAS PANEL 120v POWER

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

OFFICE - BUILDING SECTIONS

SHEET NUMBER

40-M-301

40-M-301-OFFICE - BUILDING SECTIONS
Last Plotted: 14-02-2025 22:37:01
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Printed on ___% Post-Consumer
Recycled Content Paper

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

AIR HANDLING UNIT SCHEDULE

	Tag No.	AHU-01 (Normal Mode)		AHU-02-A/B (Normal Mode)		AHU-02-A/B (Redundant Mode)	
Tag Information	Location	Roof		Roof			
	Service	Offices		Bus Electrical Charger Room			
	Basis of Design	Haakon		Haakon			
	Model No.						
	Type	Outdoor VAV		Outdoor			
Supply Fan	Type, Quantity	1		2		1	
	Airflow per fan, L/s (cfm)	-	-	1,416	3,000	-	-
	Total Airflow, L/s (cfm)	7,079	15,000	2,832	6,000	2,832	6,000
	ESP, Pa (in. wc)	498	2	498	2	498	2
	Max. TSP, Pa (in. wc)	1369	5.5	1244	5	1244	5
	Drive Type	Direct		Direct			
	Motor Control	VFD		VFD			
	RPM	1820		2338		3403	
	Motor BHP (Per fan)	18		3.5		8.9	
	Motor HP (Per fan)	20		10		10	
	Inlet Sound Octave Bands 1 - 8, dB	82 91 103 89 84 79 76 73		79 76 83 87 80 75 72 68		89 88 88 91 92 86 85 79	
	Outlet Sound Octave Bands 1 - 8, dB	91 94 100 97 92 85 81 76		86 81 84 90 86 81 76 69		92 91 88 96 99 93 90 84	
Return Fan	Type, Quantity	1		2		1	
	Airflow, L/s (cfm)	-	-	1,298	2,750	-	-
	Total Airflow, L/s (cfm)	6,607	14,000	2,596	5,500	2,596	5,500
	ESP, Pa (in. wc)	373	1.5	435	1.75	435	1.75
	Max. TSP, Pa (in. wc)	547	2.2	535	2.15	535	2.15
	Drive Type	Direct		Direct			
	Motor Control	VFD		VFD			
	RPM	1389		1593		2321	
	Motor BHP (Per fan)	7.7		1.3		3.6	
	Motor HP (Per fan)	10		5		5	
	Inlet Sound Octave Bands 1 - 8, dB	77 94 97 79 75 73 70 65		70 79 85 73 70 70 65 59		82 82 93 90 81 79 78 70	
	Outlet Sound Octave Bands 1 - 8, dB	82 90 92 87 82 78 75 69		79 83 86 78 76 73 67 59		82 82 95 93 88 86 82 74	
Exhaust Fan	Type, Quantity	1		-		-	
	Airflow, L/s (cfm)	-	-	-	-	-	-
	Total Airflow, L/s (cfm)	6,607	14,000	-	-	-	-
	ESP, Pa (in. wc)	373	1.5	-	-	-	-
	Max. TSP, Pa (in. wc)	771	3.1	-	-	-	-
	Drive Type	Direct		-			
	Motor Control	VFD		-			
	RPM	1530		-		-	
	Motor BHP (Per fan)	10.1		-		-	
	Motor HP (Per fan)	15		-		-	
	Inlet Sound Octave Bands 1 - 8, dB	79 93 99 81 78 75 72 68		-		-	
	Outlet Sound Octave Bands 1 - 8, dB	86 91 94 92 86 81 77 72		-		-	
Filter	Pre-Filter	2" MERV-10		2" MERV-10			
	Post Filter	None		None			
	Final Filter	4" MERV-13		4" MERV-13			
Pre-heat Coil	Fluid Medium	50% P.G.		-			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x600x1750x1 (1x24x69x1)		-			
	Fins per Inch	10		-			
	Total Heating, kW (MBH)	51	174	-		-	
	Coil Airflow, L/s (cfm)	2,171	4,600	-		-	
	EAT Dry Bulb, °C (°F)	-33.3	-28.0	-		-	
	LAT Dry Bulb, °C (°F)	-14.1	6.6	-		-	
	Air Velocity, m/s (fpm)	2.0	400	-		-	
	Air PD, Pa (in. wc)	17.4	0.07	-		-	
	EWT, °C (°F)	48.9	120.0	-		-	
	LWT, °C (°F)	34.3	93.8	-		-	
	Water flowrate, L/s (gpm)	0.94	14.9	-		-	
	Water Velocity, m/s (fps)	1.2	4.0	-		-	
	Water PD, kPa (ft WC)	30.8	10.3	-		-	
Heating Coil	Fluid Medium	50% P.G.		50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	2x750x1800x3 (2x30x72x3)		1x840x1730x2 (1x33x68x2)			
	Fins per Inch	6		11			
	Total Heating, kW (MBH)	87	298	31		107	
	Coil Airflow, L/s (cfm)	7,079	15,000	2,832		6,000	
	EAT Dry Bulb, °C (°F)	11.1	52.0	17.8		64.0	
	LAT Dry Bulb, °C (°F)	21.2	70.2	26.8		80.3	
	Air Velocity, m/s (fpm)	2.5	500	2.0		385	
	Air PD, Pa (in. wc)	49.8	0.20	32.3		0.13	
	EWT, °C (°F)	48.9	120.0	48.9		120.0	
	LWT, °C (°F)	30.8	87.5	34.8		94.6	
	Water flowrate, L/s (gpm)	1.30	20.6	0.59		9.40	
	Water Velocity, m/s (fps)	0.7	2.2	0.27		0.9	
	Water PD, kPa (ft WC)	20.6	6.9	4.2		1.40	
Cooling Coil	Fluid Medium	50% P.G.		50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	2x750x1800x10 (2x30x72x10)		1x840x1675x10 (1x33x66x10)			
	Fins per Inch	9		10			
	Nominal Capacity, tons	35		13.5			
	Total Cooling, kW (MBH)	121	414	48		162.3	
	Sensible Cooling, kW (MBH)	100	343	40		136.6	
	EAT, Dry Bulb, °C (°F)	24.4	76.0	24.4		76.0	
	EAT, Wet Bulb, °C (°F)	17.8	64.0	17.8		64.0	
	LAT, Dry Bulb, °C (°F)	12.8	55.1	12.9		55.2	
	LAT, Wet Bulb, °C (°F)	12.7	54.8	12.8		55.0	
	Coil Airflow, L/s (cfm)	7,079	15,000	2,832		6,000	
	Air Velocity, m/s (fpm)	2.5	500	2.0		397	
	Air PD, Pa (in. WC)	253.8	1.02	189.1		0.76	
	EWT, °C (°F)	6.7	44.0	6.7		44.0	
	LWT, °C (°F)	12.8	55.1	12.7		54.9	
	Water Flowrate, L/s (gpm)	5.31	84	2.13		33.7	
	Water Velocity, m/s (fps)	0.70	2.3	0.34		1.1	
	Water PD, kPa (ft WC)	55.89	18.7	12.55		4.20	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	39.3	134.0	-		-	
	Sensible Heat Recovery, kW (MBH)	12.6	43.0	-		-	
	Sensible Efficiency / Total Efficiency, %	80%/78%		-			
	Outdoor Airflow, L/s (cfm)	2,217	4,697				
	O/A EAT DB, °C (°F)	30.0	86.0	-		-	
	O/A EAT WB, °C (°F)	23.0	73.4	-		-	
	O/A LAT, DB, °C (°F)	25.1	77.2	-		-	
	O/A LAT, WB, °C (°F)	18.4	65.2	-		-	
	R/A, DB, °C (°F)	23.9	75.0	-		-	
	R/A, WB, °C (°F)	16.9	62.4	-		-	
	E/A EAT, DB, °C (°F)	28.7	83.6	-		-	
	E/A EAT, WB, °C (°F)	21.6	70.9	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	99.4	339.0	-		-	
	Outdoor Airflow, L/s (cfm)	2,217	4,697				
	O/A EAT DB, °C (°F)	-15.0	5.0	-		-	
	O/A EAT WB, °C (°F)	-16.7	2.0	-		-	
	O/A LAT, DB, °C (°F)	14.6	58.2	-		-	
	O/A LAT, WB, °C (°F)	7.7	45.8	-		-	
	R/A, DB, °C (°F)	22.2	72.0	-		-	
	R/A, WB, °C (°F)	12.3	54.2	-		-	
	E/A EAT, DB, °C (°F)	-6.6	20.1	-		-	
	E/A EAT, WB, °C (°F)	-7.7	18.1	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60		575/3/60			
	Unit Heater, kW (MBH)	2.0	6.8	-			
	Unit MCA, A	57		37.0			
	Unit MOCP, A	70		40.0			
	Controls & Lighting Elec. Supply (V/Ph/Hz)	120/1/60	2 x 15A	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan		Refer to AHU plan			
	Curb Height, mm (in)	610	24	610		24	
	Airflow Discharge Orientation	Refer to AHU plan		Refer to AHU plan			
	Piping Feed	Refer to AHU plan		Refer to AHU plan			
	Weight, kg (lb)	15617	34,430	5,820		12,830	
	Notes	(all)		(all)			

Notes

(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) C/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

AIR SOURCE HEAT PUMP SCHEDULE

	Tag No. (1/2)	ASHP-01 TO 02	
Tag Information	Location	Roof	
	Service	Heating & Cooling Water	
	Manufacturer	Aermec	
	Model No.	NYK500	
	No. of Pipes	4	
	No. of Modules	9	
General	Total Tonnage, tons	217.53	
	Refrigerant Type	R-454B	
	Total Refrigerent Charge, kg (lb)	18.0	40
	Refrigerent per Circuit, kg (lb)	9.0	20
	Number of Compressors	2	
	Number of Circuits	2	
Cooling Performance	Cooling Capacity, tons	24.17	
	Cooling Fluid Medium	50% P.G.	
	Cooling EFT, °C (°F)	14.4	58
	Cooling LFT, °C (°F)	6.7	44
	Fluid Flow, L/s (US gpm)	2.985	47.3
	Press. Drop, kPa (ft WC)	15.2	5.10
	Fouling Factor, hr-sq.ft. F/Btu	0.0001	
	Condenser Airflow, L/s (cfm)	12,578	26,649
	Ambient Air Temp. DB, °C (°F)	35.0	95
	Number of Fans	2	
	IPLV.IP - kW / ton	13.68	
Heating Perf. 54F	Total Heating Capacity, kW...	979	3340.8
	Heating Capacity, kW (MBH)	109	371.2
	Heating Fluid Medium	50% P.G.	
	Heating EFT, °C (°F)	33.6	92.4
	Heating LFT, °C (°F)	43.3	110.0
	Heating Flow, L/s (US gpm)	2.985	47.3
	Heating PD, kPa (ft WC)	12.0	4.03
	COP	3.6	
	Total Input Power (kW)	30.4	
Heating Perf. 14F	Total Heating Capacity, kW...	624	2130.3
	Heating Capacity, kW (MBH)	69	236.7
	Heating Fluid Medium	50% P.G.	
	Heating EFT, °C (°F)	42.2	108.0
	Heating LFT, °C (°F)	48.9	120.0
	Heating Flow, L/s (US gpm)	2.984	47.3
	Heating PD, kPa (ft WC)	11.6	3.9
	COP	2.1	
	Total Input Power (kW)	33.6	
Heating Perf. 0F	Total Heating Capacity, kW...	511	1743.3
	Heating Capacity, kW (MBH)	57	193.7
	Heating Fluid Medium	50% P.G.	
	Heating EFT, °C (°F)	43.3	110.0
	Heating LFT, °C (°F)	48.9	120.0
	Heating Flow, L/s (US gpm)	2.985	47.3
	Heating PD, kPa (ft WC)	11.6	3.9
	COP	1.8	
	Total Input Power (kW)	32.4	
Electrical	Electrical Supply (V/Ph/Hz)	575/3/60	
	MCA (Total)	70 x 9	
	MOP (Total)	90 x 9	
	Starter	Compressor 1: VFD Compressor 2: Across the Line	
Misc.	Total Sound Pressure...	68.2	65.5
	Total Operating Weight, kg (lb)	16,942	37,350
	Max. Dimensions, WxLxH, mm (in.)	2718 x 10720 x 2514	107 x 422 x 99
	Structural Frame Height, mm...	203	8
	Notes	(all)	

Notes

(1) Refer to specification.
(2) Schedule refers to performance of individual modules.
(3) C/w disconnect switch, control panel and BACnet integration (120/1/60...

EXPANSION TANK SCHEDULE

	Tag No.	ET-01		ET-02		ET-03	
Tag Information	Location	Mech Room		Mech Room		Mech Room	
	Service	Chilled Water		Chilled Water		Heating Water	
	Manufacturer	Amtrol		Amtrol		Amtrol	
	Model No.	1400-L		1400-L		7500-L	
Tank Parameters	Tank Volume, L (gal.)	1,401	370	1,401	370	7,495	1,980
	System Volume, L (gal.)	2,801	740	2,801	740	14,990	3,960
	Min. System Temp., °C (°F)	4	40	4	40	4	40
	Max. System Temp., °C (°F)	32	90	32	90	66	150
	Fill Pressure Pressure, kPa (psi)	172	25	172	25	172	25
	Relief Pressure, kPa (psi)	310	45	310	45	310	45
	Acceptance Volume, L (gal.)	1,401	370	1,401	370	7,495	1,980
	Max. Operating Pressure, kPa (psi)	862	125	862	125	862	125
Misc.	Dry Weight kg (lb)	356	783	356	783	1,818	4,000
	Max. Dimensions, DxH, mm (in.)	914x2496	36x98	914x2496	36x98	1829x3226	72x127
	Notes	(1)(2)		(1)(2)		(1)(2)	
Tag Information	Tag No.	ET-04					
	Location	Mech Room					
	Service	Heating Water					
	Manufacturer	Amtrol					
	Model No.	7500-L					
Tank Parameters	Tank Volume, L (gal.)	7,495	1,980				
	System Volume, L (gal.)	14,990	3,960				
	Min. System Temp., °C (°F)	4	40				
	Max. System Temp., °C (°F)	66	150				
	Fill Pressure Pressure, kPa (psi)	172	25				
	Relief Pressure, kPa (psi)	310	45				
	Acceptance Volume, L (gal.)	7,495	1,980				
	Max. Operating Pressure, kPa (psi)	862	125				
Misc.	Dry Weight kg (lb)	1,818	4,000				
	Max. Dimensions, DxH, mm (in.)	1829x3226	72x127				
	Notes	(1)(2)					

Notes

(1) Refer to specification.
(2) ASME Certified

CABINET AND UNIT HEATER SCHEDULE

	Tag No.	UH-01		UH-02		UH-03	
Tag Information	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	Airtex		Airtex		Airtex	
	Model No.	H3		H6		V10	
	Type	Horizontal		Horizontal		Vertical	
Coil Data	Fluid Type	50% P.G.		50% P.G.		50% P.G.	
	Heating Capacity, kW (MBH)	5.5	18.8	9.7	33.2	55.17	188.4
	Fluid Flowrate, L/s (USgpm)	0.11	1.7	0.18	2.9	1.07	16.9
	Pressure Drop, kPa (ft WC)	3.8	1.26	3.2	1.08	9.7	3.24
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
Fan	Fan Type	Propeller		Propeller		Propeller	
	Airflow, L/s (cfm)	396	840	698	1480	3540	7500
Misc.	Motor Power, hp	1/12		1/6		1	
	Electrical Supply (V/Ph/Hz)	120/1/60		120/1/60		208/3/60	
	Weight, kg (lb)	44.5	98.0	66.7	147.0	152.9	337.0
	Notes	(1)(2)(3)(4)		(1)(2)(3)(4)		(all)	
Tag Information	Tag No.	UH-04		UH-05		EUH-01	
	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	Airtex		Airtex		Ouellet	
	Model No.	H10		V10		OAS03036AM	
	Type	Horizontal		Vertical		Horizontal	
Coil Data	Fluid Type	50% P.G.		50% P.G.		Electric	
	Heating Capacity, kW (MBH)	24.2	82.8	55.17	188.4	3.00	10.2
	Fluid Flowrate, L/s (USgpm)	0.47	7.5	1.07	16.9	-	-
	Pressure Drop, kPa (ft WC)	3.9	1.3	9.7	3.24	-	-
	EWT, °C (°F)	48.9	120.0	48.9	120.0	-	-
	LWT, °C (°F)	35.0	95.0	35.0	95.0	-	-
Fan	Fan Type	Propeller		Propeller		Propeller	
	Airflow, L/s (cfm)	1897	4020	3540	7500	241	510
Misc.	Motor Power, hp	1/2		1		1/30	
	Electrical Supply (V/Ph/Hz)	120/1/60		208/3/60		600/3/60	
	Weight, kg (lb)	128.8	284.0	152.9	337.0	20.4	45.0
	Notes	(1)(2)(3)(4)		(1)(2)(3)(4)		(1)(2)(3)(4)	

Notes

(1) Refer to specification.
(2) C/w thermostat and starter.
(3) C/w disconnect switch.
(4) C/w control panel and BACnet integration (120/1/60 connection).
(5) Explosion proof motor, Class I Div 2 hazardous environment

	Tag No.	EUH-02		EUH-03		EUH-04	
Tag Information	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	Ouellet		Ouellet		Ouellet	
	Model No.	OAS05036AM		OAS07536AM		OAS10036AM	
	Type	Horizontal		Horizontal		Horizontal	
Coil Data	Fluid Type	Electric		Electric		Electric	
	Heating Capacity, kW (MBH)	5.00	17.1	7.50	25.6	10.00	34.2
	Fluid Flowrate, L/s (USgpm)	-	-	-	-	-	-
	Pressure Drop, kPa (ft WC)	-	-	-	-	-	-
	EWT, °C (°F)	-	-	-	-	-	-
	LWT, °C (°F)	-	-	-	-	-	-
Fan	Fan Type	Propeller		Propeller		Propeller	
	Airflow, L/s (cfm)	330	700	330	700	330	700
Misc.	Motor Power, hp	1/30		1/30		1/30	
	Electrical Supply (V/Ph/Hz)	600/3/60		600/3/60		600/3/60	
	Weight, kg (lb)	20.4	45.0	20.4	45.0	20.4	45.0
	Notes	(1)(2)(3)(4)		(1)(2)(3)(4)		(1)(2)(3)(4)	
Tag Information	Tag No.	CUH-01		CUH-02		CUH-03	
	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	Airtex		Airtex		Airtex	
	Model No.	CUH-6		CUH-6		CUH-10	
	Type	Exposed Wall		Recessed Ceiling		Exposed Wall	
Coil Data	Fluid Type	50% P.G.		50% P.G.		50% P.G.	
	Heating Capacity, kW (MBH)	5.16	17.6	5.16	17.6	9.43	32.2
	Fluid Flowrate, L/s (USgpm)	0.10	1.60	0.10	1.60	0.18	2.80
	Pressure Drop, kPa (ft WC)	8.67	2.9	8.67	2.9	10.88	3.64
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
Fan	Fan Type	Centrifugal		Centrifugal		Centrifugal	
	Airflow, L/s (cfm)	283	600	283	600	472	1000
Misc.	Motor Power, hp	1/20		1/20		1/4	
	Electrical Supply (V/Ph/Hz)	120/1/60		120/1/60		120/1/60	
	Weight, kg (lb)	49.9	110.0	49.9	110.0	86.2	190.0
	Notes	(1)(2)(3)(4)		(1)(2)(3)(4)		(1)(2)(3)(4)	

Notes

(1) Refer to specification.
(2) C/w thermostat and starter.
(3) C/w disconnect switch.
(4) C/w control panel and BACnet integration (120/1/60 connection).
(5)

FORCED AIR CURTAIN SCHEDULE

		FAC-01		FAC-02		FAC-03	
Tag Information	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	Schwank		Schwank		Schwank	
	Model No.	[3] 3599		[1] 3559 + [1] 3579		[3] 3559 + [1] 3559	
	Type	Overhead Door		Overhead Door		Overhead Door	
Air Supply	No. of units	3		2		4	
	Airflow, L/s (cfm)	9,359	19,830	4,367	9,254	11,230	23,796
	Noise, dB	26/62		25/61		26/62	
	Max. Door Height, mm (in.)	5,994	236	5,994	236	5,994	236
Dimensions	Operating Weight, kg (lb)	370	816	178	392	448	987
	Max Dimensions - WxLxH, mm (in.)	853x7500 x583	33.5x297x 23	853x3500 x583	33.5x138x 23	853x9000 x583	33.5x356x 23
Electrical	Motor 1 hp	1.17		0.7		1.17	
	Motor 2 hp	1.17		0.93		1.17	
	Motor 3 hp	1.17		n/a		1.17	
	Motor 4 hp	n/a		n/a		0.7	
	Electrical Supply (V/Ph/Hz)	230/1/60		230/1/60		230/1/60	
	FLA	15		7		18	
	Notes	(1)(2)(3)(4)(5)(7)		(1)(2)(3)(4)(5)(7)		(1)(2)(3)(4)(5)(7)	
Tag Information		FAC-04		FAC-05		FAC-06	
	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	Schwank		Schwank		Schwank	
	Model No.	[3] 3579		[1] 3579 + [1] 3599		[2] 3579	
	Type	Overhead Door		Overhead Door		Overhead Door	
Air Supply	No. of units	3		2		2	
	Airflow, L/s (cfm)	7,487	15,864	4,367	9,254	4,991	10,576
	Noise, dB	25/61		25/61		25/61	
	Max. Door Height, mm (in.)	16,840	663	5,994	236	5,994	236
Dimensions	Operating Weight, kg (lb)	370	816	224	493	200	442
	Max Dimensions - WxLxH, mm (in.)	853x6000 x583	33.5x237x 23	853x4500 x583	33.5x178x 23	853x4000 x583	33.5x158x 23
Electrical	Motor 1 hp	0.93		0.93		0.93	
	Motor 2 hp	0.93		1.17		0.93	
	Motor 3 hp	0.93		n/a		n/a	
	Motor 4 hp	n/a		n/a		n/a	
	Electrical Supply (V/Ph/Hz)	230/1/60		230/1/60		230/1/60	
	FLA	12		9		8	
	Notes	(1)(2)(3)(4)(5)(7)		(1)(2)(3)(4)(5)(7)		(1)(2)(3)(4)(5)(7)	

Notes

(1) Refer to specification.
(2) Combination of multiple units; provide direct connection for each unit.
(3) c/w starter, disconnect, mounting bracket, time delay
(4) Provide and install structural support frame for mounting.
(5) Provide and install door switch and galvanized steel side shields. Shields to be same width as roll up door box and extend down to floor level.
(6) Class I Division 1 Group C & D and Class II Group F & G hazardous areas hazardous areas
(7) C/w control panel and BACnet integration (120/1/60 connection).

		FAC-07		FAC-08			
Tag Information	Location	See Plans		See Plans			
	Service	See Plans		Battery Storage			
	Manufacturer	Schwank		Powered Aire			
	Model No.	[2] 3559		HDX-2-144			
	Type	Overhead Door		Overhead Door			
Air Supply	No. of units	2		1			
	Airflow, L/s (cfm)	3,743	7,932	5,266	11,158		
	Noise, dB	24/60		69			
	Max. Door Height, mm (in.)	5,994	236	5,182	204		
Dimensions	Operating Weight, kg (lb)	155	342	375	826		
	Max Dimensions - WxLxH, mm (in.)	853x3000 x583	33.5x120x 23	700x3650 x583	27.25x144 x23		
Electrical	Motor 1 hp	0.7		3			
	Motor 2 hp	0.7		n/a			
	Motor 3 hp	n/a		n/a			
	Motor 4 hp	n/a		n/a			
	Electrical Supply (V/Ph/Hz)	230/1/60		575/3/60			
	FLA	6					
	Notes	(1)(2)(3)(4)(5)(7)		(all)			
Tag Information							
	Location						
	Service						
	Manufacturer						
	Model No.						
	Type						
Air Supply	No. of units						
	Airflow, L/s (cfm)						
	Noise, dB						
	Max. Door Height, mm (in.)						
Dimensions	Operating Weight, kg (lb)						
	Max Dimensions - WxLxH, mm (in.)						
Electrical	Motor 1 hp						
	Motor 2 hp						
	Motor 3 hp						
	Motor 4 hp						
	Electrical Supply (V/Ph/Hz)						
	FLA						
	Notes						

Notes

(1) Refer to specification.
(2) Combination of multiple units; provide direct connection for each unit.
(3) c/w starter, disconnect, mounting bracket, time delay
(4) Provide and install structural support frame for mounting.
(5) Provide and install door switch and galvanized steel side shields. Shields to be same width as roll up door box and extend down to floor level.
(6) Class I Division 1 Group C & D and Class II Group F & G hazardous areas hazardous areas
(7) C/w control panel and BACnet integration (120/1/60 connection).

DESTRATIFICATION FAN SCHEDULE

	Tag No.	DSF-01 to DSF-53					
Tag Information	Location	Ceiling					
	Service	Storage Garage					
	Manufacturer	Envirofan					
	Model No.	Gold Line 160C-7 WH					
Fan Data	Fan Type	Air Propeller					
	Airflow, L/s (cfm)	3,404	7,212				
	ESP, Pa (in wc)	0					
	Sound Power (Inlet), dBA	-					
	RPM	352					
	BHP	-					
	Air Filter Box	N/A					
Electrical	Drive Type						
	Variable Speed	Yes					
	Motor hp	1/5					
	Power Supply	Normal					
	Electrical Supply (V/Ph/Hz)	120/1/60					
	Notes	(1)					

Notes

(1) c/w disconnect switch, speed controller, reversible direction selector, fan guard and safety chain.
(2) C/w control panel and BACnet integration (120/1/60 connection).
(3)
(4)

AIR SEPARATOR SCHEDULE

	Tag No.	AS-01		AS-02			
Tag Information	Location	Mech Mezz		Mech Room			
	Service	Chilled Water		Heating Water			
	Manufacturer	AMTROL		AMTROL			
	Model No.	8-AS(L)		14-AS(L)			
Misc.	Pipe Connection Size, mm...	203	8	356	14		
	Length, mm (in.)	864	34	1,473	58		
	Height mm (in.)	1,448	57	2,591	102		
	Connection to Top mm (in.)	432	17	711	28		
	Shipping Weight kg (lb)	202	445	1,134	2,500		
	Notes	(all)					

Notes

(1) Refer to specifications.
(2) ASME Certified
(3) 150 PSI max. working pressure
(4)
(5)

ENERGY RECOVERY UNIT SCHEDULE

	Tag No. (1/2)	ERV-01	
Tag Information	Location	Roof	
	Service	Countdown Office	
	Manufacturer	Greenheck	
	Model No.	RVE-40-30-30L	
	Type	Outdoor	
Supply Fan	Type	Plenum	
	Airflow, L/s (cfm)	401	850
	ESP, Pa (in. WC)	199	0.80
	Max. TSP, Pa (in. WC)	388	1.56
	Drive Type	Direct	
	Motor Control	VFD	
	RPM	1,203	
	BHP	0.47	
	Motor Power, hp	1	
Exhaust Fan	Type	Plenum	
	Airflow, L/s (cfm)	401	850
	ESP, Pa (in. WC)	199	0.80
	Max. TSP, Pa (in. WC)	306	1.23
	Drive Type	Direct	
	Motor Control	VFD	
	RPM	1,079	
	BHP	0.33	
	Motor Power, hp	1	
Filter	O/A Filter	MERV 13	
	E/A Filter	MERV 8	
Cooling Coil	Total Cooling, kW (MBH)	6.2	21.3
	Sensible Cooling, kW (MBH)	5.5	18.8
	EAT DB/WB, °C (°F)	25/18.3	77.1/65
	LAT DB/WB, °C (°F)	13.8/13.7	56.9/56.8
	Fluid	50% P.G.	
	Fluid Flow Rate, L/s (gpm)	0.24	3.8
	Fluid PD, kPa (ft.wc)	0.3	0.1
	EWT, °C (°F)	7.2	45.0
	LWT, °C (°F)	14.4	58.0
Heating Coil	Total Heating, kW (MBH)	7.9	27.0
	EAT, oC (°F)	11.9	53.4
	LAT, oC (°F)	28.2	82.7
	Fluid	50% P.G.	
	Fluid Flow Rate, L/s (gpm)	0.15	2.4
	Fluid PD, kPa (ft.wc)	24.9	0.1
	EWT, oC (°F)	48.9	120.0
	LWT, oC (°F)	35.0	95.0
Heat Recovery Wheel	**Summer Conditions:**		
	Tot. Heat Recovery, kW (MBH)	9.1	31.0
	O/A EAT DB, °C (°F)	31.2	88.1
	O/A EAT WB, °C (°F)	23.6	74.4
	O/A LAT, DB, °C (°F)	25.1	77.1
	O/A LAT, WB, °C (°F)	18.3	65.0
	R/A, DB, °C (°F)	23.9	75.0
	E/A EAT, DB, °C (°F)	29.9	85.9
	E/A EAT, WB, °C (°F)	22.4	72.4
	Winter Conditions:		
	Tot. Heat Recovery, kW (MBH)	21.7	74.1
	O/A EAT DB, °C (°F)	-33.0	-27.4
	O/A EAT WB, °C (°F)	-33.2	-27.8
	O/A LAT, DB, °C (°F)	11.9	53.4
	O/A LAT, WB, °C (°F)	9.4	49.0
	R/A, DB, °C (°F)	22.2	72.0
	E/A EAT, DB, °C (°F)	-21.2	-6.2
	E/A EAT, WB, °C (°F)	-21.2	-6.2
Electrical	Preheater/Defrost (kW)	8	
	Unit Elec. Supply (V/Ph/Hz)	575/3/60	
	Unit MOP, A	15.0	
	Unit MCA, A	13.6	
	Controls Elec. Supply (V/Ph/Hz)	120/1/60	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	1350x3810x1550	53x150x61
	Curb Height, mm (in.)	356	14.0
	Airflow Discharge Orientation	Bottom/Side	
	Piping Feed		
	Weight, kg (lb)	1131	2494.0
	Notes	(all)	

...

(1) Refer to specification.
(2) C/w Piping Vestibule
(3) C/w disconnect switch.
(4) C/w control panel and BACnet integration (120/1/60 connection).
(5) C/w insulated and sloped roof curb

GRILLES, REGISTERS, & DIFFUSERS SCHEDULE

	Tag No.	S-1	S-2	S-3
Tag Info.	Description	Louvered face, double deflection grille	High Capacity Drum Louver, Split Blade,...	Plaque ceiling diffuser, 24"x24", steel
	Service	S/A	S/A	S/A
	Model No.	620-F-L-A	HCD2-VCS5	SPD-24x24
	Finish	Aluminum	B12 - White powder coat	B12 - White powder coat
	Integral Volume Damper	Yes	Yes	No
	Mounting	Screw-in	Screw-in	Lay-in
	Notes	(1)	(1)	(1)
Tag Info.	Tag No.	S-3a	S-4	S-5
	Description	Plaque ceiling diffuser, 12"x12", steel in 24"x24...	High Capacity Drum Louver, Split Blade,...	Louvered face, double deflection grille
	Service	S/A	S/A	S/A
	Model No.	SPD-12x12	HCD2-DLSS-VCS5	720-F-L-A
	Finish	B12 - White powder coat	B12 - White powder coat	Stainless Steel
	Integral Volume Damper	No	Yes	Yes
	Mounting	Lay-in	Screw-in	Screw-in
	Notes	(1)	(1)	(1)
Tag Info.	Tag No.	S-6	R-1	E-1
	Description	Nozzle	Eggcrate	Louvered face, single deflection, 45deg
	Service	S/A	R/A	R/A
	Model No.	ND	80	630-F-L-A
	Finish	Aluminum	Aluminum	Mill
	Integral Volume Damper	No	No	Yes
	Mounting	Screw-in	Screw-in/lay-in	Screw-in
	Notes	(1)	(1)	(1)
Tag Info.	Tag No.	E-2	T-1	
	Description	Louvered face, single deflection, 45deg	Door Grille, sight proof	
	Service	R/A	T/A	
	Model No.	630-F-L-A	STG1	
	Finish	Stainless Steel	Mill	
	Integral Volume Damper	Yes	No	
	Mounting	Screw-in	Screw-in	
	Notes	(1)	(1)	

Notes

(1) Refer to specification.
(2)

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

MECHANICAL SCHEDULES (1 OF 4)

SHEET NUMBER

50-M-601

50-M-601-MECHANICAL SCHEDULES (1 OF 4)
Last Plotted: 14-02-2025 22:37:04
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg North Transit Garage-M.rvt

Printed on ___% Post-Consumer
Recycled Content Paper

Designer: Designer   Checked: Checker   Approved: Approver   A0 33.1"x46.8"

Project Management Initials:

HEAT RECOVERY UNIT SCHEDULE

	Tag No.	HRU-01-A/B (Normal Mode)		HRU-01-A/B(Redundant Mode)	
Tag Information	Location	Roof			
	Service	Storage Garage - Comp 1 & 2			
	Basis of Design	Tempeff			
	Model No.	RG-N 22000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	4		3	
	Airflow per fan, L/s (cfm)	3,540	7,500	4,719	10,000
	Total Airflow, L/s (cfm)	14,158	30,000	14,158	30,000
	ESP, Pa (in. wc)	473	1.9	473	1.9
	Max. TSP, Pa (in. wc)	1620	6.51	1732	6.96
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2257		2570	
	Motor BHP (Per fan)	9.93		14.55	
	Motor HP (Per fan)	20		20	
	Inlet Sound Octave Bands 1 - 8, dB	95 88 89 91 86 85 83 78		98 91 92 94 89 88 86 81	
	Outlet Sound Octave Bands 1 - 8, dB	95 90 91 98 98 93 89 86		99 94 95 102 102 97 93 90	
Exhaust Fan	Type, Quantity	4		3	
	Airflow, L/s (cfm)	3,599	7,625	4,798	10,167
	Total Airflow, L/s (cfm)	14,394	30,500	14,394	30,500
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1311	5.27	1426	5.73
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2116		2470	
	Motor BHP (Per fan)	8.26		12.7	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	93 87 94 86 85 84 82 75		98 91 92 94 89 88 86 81	
	Outlet Sound Octave Bands 1 - 8, dB	98 91 100 97 97 93 89 86		99 94 95 102 102 97 93 90	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	RESERVED FOR FUTURE PRE-HEAT COIL			
	Fins per Inch	-			
	Total Heating, kW (MBH)	-		-	
	Coil Airflow, L/s (cfm)	-		-	
	EAT Dry Bulb, °C (°F)	-		-	
	LAT Dry Bulb, °C (°F)	-		-	
	Air Velocity, m/s (fpm)	-		-	
	Air PD, Pa (in. wc)	-		-	
	EWT, °C (°F)	-		-	
	LWT, °C (°F)	-		-	
	Water flowrate, L/s (gpm)	-		-	
	Water Velocity, m/s (fps)	-		-	
	Water PD, kPa (ft WC)	-		-	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	2x500x4750x4 (2x19.5x187x4)			
	Fins per Inch	9			
	Total Heating, kW (MBH)	742		2,533	
	Coil Airflow, L/s (cfm)	14,158		30,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	3.0		592	
	Air PD, Pa (in. wc)	99.5		0.40	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Total Water flowrate, L/s (gpm)	14		226.24	
	Water Velocity, m/s (fps)	1.48		4.9	
	Water PD, kPa (ft WC)	36.7		12.28	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	RESERVED FOR FUTURE 6-ROW COOLING COIL			
	Fins per Inch	-			
	Nominal Capacity, tons	-			
	Total Cooling, kW (MBH)	-		-	
	Sensible Cooling, kW (MBH)	-		-	
	EAT, Dry Bulb, °C (°F)	-		-	
	EAT, Wet Bulb, °C (°F)	-		-	
	LAT, Dry Bulb, °C (°F)	-		-	
	LAT, Wet Bulb, °C (°F)	-		-	
	Coil Airflow, L/s (cfm)	-		-	
	Air Velocity, m/s (fpm)	-		-	
	Air PD, Pa (in. WC)	-		-	
	EWT, °C (°F)	-		-	
	LWT, °C (°F)	-		-	
	Water Flowrate, L/s (gpm)	-		-	
	Water Velocity, m/s (fps)	-		-	
	Water PD, kPa (ft WC)	-		-	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	65.4		223.2	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	76.5%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	33.8		92.9	
	O/A LAT, Wet Bulb, °C (°F)	24.0		75.2	
	E/A EAT, Dry Bulb, °C (°F)	35.0		95.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	698.1		2382.0	
	Total Efficiency, %	91.9%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	7.5		45.5	
	O/A LAT, Wet Bulb, °C (°F)	2.3		36.1	
	E/A EAT, Dry Bulb, °C (°F)	11.1		52.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	143.0			
	Unit MOCP, A	250.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	30,374		66,963	
	Notes	(all)		(all)	

Notes

(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

HEAT RECOVERY UNIT SCHEDULE

	Tag No.	HRU-01-C (Normal Mode)		HRU-01-C (Redundant Mode)	
Tag Information	Location	Roof			
	Service	Storage Garage - Comp 3			
	Basis of Design	Tempeff			
	Model No.	RG-N 22000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	4		3	
	Airflow per fan, L/s (cfm)	3,186	6,750	4,248	9,000
	Total Airflow, L/s (cfm)	12,743	27,000	12,743	27,000
	ESP, Pa (in. wc)	473	1.9	473	1.9
	Max. TSP, Pa (in. wc)	1496	6.01	1585	6.37
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2128		2394	
	Motor BHP (Per fan)	8.27		11.88	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	92 86 93 85 84 83 81 74		96 89 90 92 87 86 84 79	
	Outlet Sound Octave Bands 1 - 8, dB	97 90 99 96 96 92 88 85		97 92 93 100 100 95 91 88	
Exhaust Fan	Type, Quantity	4		3	
	Airflow, L/s (cfm)	3,245	6,875	4,326	9,167
	Total Airflow, L/s (cfm)	12,979	27,500	12,979	27,500
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1239	4.98	1331	5.35
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2003		2302	
	Motor BHP (Per fan)	6.99		10.46	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	91 85 92 84 83 82 80 73		96 89 90 92 87 86 84 79	
	Outlet Sound Octave Bands 1 - 8, dB	96 89 98 95 95 91 87 84		97 92 93 100 100 95 91 88	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	RESERVED FOR FUTURE PRE-HEAT COIL			
	Fins per Inch	-			
	Total Heating, kW (MBH)	-		-	
	Coil Airflow, L/s (cfm)	-		-	
	EAT Dry Bulb, °C (°F)	-		-	
	LAT Dry Bulb, °C (°F)	-		-	
	Air Velocity, m/s (fpm)	-		-	
	Air PD, Pa (in. wc)	-		-	
	EWT, °C (°F)	-		-	
	LWT, °C (°F)	-		-	
	Water flowrate, L/s (gpm)	-		-	
	Water Velocity, m/s (fps)	-		-	
	Water PD, kPa (ft WC)	-		-	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	2x500x4750x3 (2x19.5x187x3)			
	Fins per Inch	9			
	Total Heating, kW (MBH)	668		2,280	
	Coil Airflow, L/s (cfm)	12,743		27,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.7		533	
	Air PD, Pa (in. wc)	62.2		0.25	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	13		203.62	
	Water Velocity, m/s (fps)	1.82		6.0	
	Water PD, kPa (ft WC)	41.3		13.81	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	RESERVED FOR FUTURE 6-ROW COOLING COIL			
	Fins per Inch	-			
	Nominal Capacity, tons	-			
	Total Cooling, kW (MBH)	-		-	
	Sensible Cooling, kW (MBH)	-		-	
	EAT, Dry Bulb, °C (°F)	-		-	
	EAT, Wet Bulb, °C (°F)	-		-	
	LAT, Dry Bulb, °C (°F)	-		-	
	LAT, Wet Bulb, °C (°F)	-		-	
	Coil Airflow, L/s (cfm)	-		-	
	Air Velocity, m/s (fpm)	-		-	
	Air PD, Pa (in. WC)	-		-	
	EWT, °C (°F)	-		-	
	LWT, °C (°F)	-		-	
	Water Flowrate, L/s (gpm)	-		-	
	Water Velocity, m/s (fps)	-		-	
	Water PD, kPa (ft WC)	-		-	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	59.9		204.4	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	77.9%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	33.9		93.0	
	O/A LAT, Wet Bulb, °C (°F)	24.1		75.3	
	E/A EAT, Dry Bulb, °C (°F)	35.0		95.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	634.8		2166.0	
	Total Efficiency, %	92.8%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	7.9		46.3	
	O/A LAT, Wet Bulb, °C (°F)	2.5		36.5	
	E/A EAT, Dry Bulb, °C (°F)	11.1		52.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	122.0			
	Unit MOCP, A	225.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	30,089		66,335	
	Notes	(all)		(all)	

Notes

(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

HEAT RECOVERY UNIT SCHEDULE

	Tag No.	HRU-02 (Normal Mode)		HRU-02 (Redundant Mode)	
Tag Information	Location	Roof			
	Service	Countdown Bus Wrap			
	Basis of Design	Tempeff			
	Model No.	RG 18000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	3		2	
	Airflow per fan, L/s (cfm)	2,832	6,000	4,248	9,000
	Total Airflow, L/s (cfm)	8,495	18,000	8,495	18,000
	ESP, Pa (in. wc)	473	1.9	473	1.9
	Max. TSP, Pa (in. wc)	1354	5.44	1468	5.9
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1991		2342	
	Motor BHP (Per fan)	6.68		11.11	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	90 84 91 83 82 81 79 72		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	93 86 95 92 92 88 84 81		95 90 91 98 98 93 89 86	
Exhaust Fan	Type, Quantity	3		2	
	Airflow, L/s (cfm)	2,910	6,167	4,366	9,250
	Total Airflow, L/s (cfm)	8,731	18,500	8,731	18,500
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1102	4.43	1224	4.92
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1860		2266	
	Motor BHP (Per fan)	5.58		9.89	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	88 82 89 81 80 79 77 70		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	92 85 94 91 91 87 83 80		95 90 91 98 98 93 89 86	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x1 (1x48x122x1)			
	Fins per Inch	12			
	Total Heating, kW (MBH)	59		203	
	Coil Airflow, L/s (cfm)	8,731		18,500	
	EAT Dry Bulb, °C (°F)	21.1		70.0	
	LAT Dry Bulb, °C (°F)	26.7		80.0	
	Air Velocity, m/s (fpm)	2.3		455	
	Air PD, Pa (in. wc)	19.9		0.08	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	1.14		18.13	
	Water Velocity, m/s (fps)	0.76		2.5	
	Water PD, kPa (ft WC)	14.5		4.86	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x2 (1x48x122x2)			
	Fins per Inch	13			
	Total Heating, kW (MBH)	445		1,520	
	Coil Airflow, L/s (cfm)	8,495		18,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.3		443	
	Air PD, Pa (in. wc)	37.3		0.15	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	8.56		135.75	
	Water Velocity, m/s (fps)	1.43		4.7	
	Water PD, kPa (ft WC)	23.3		7.80	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x3 (1x48x122x3)			
	Fins per Inch	14			
	Nominal Capacity, tons	20.0			
	Total Cooling, kW (MBH)	70		240	
	Sensible Cooling, kW (MBH)	70		240	
	EAT, Dry Bulb, °C (°F)	29.6		85.2	
	EAT, Wet Bulb, °C (°F)	22.8		73.1	
	LAT, Dry Bulb, °C (°F)	22.9		73.2	
	LAT, Wet Bulb, °C (°F)	20.9		69.7	
	Coil Airflow, L/s (cfm)	8,495		18,000	
	Air Velocity, m/s (fpm)	2.3		443	
	Air PD, Pa (in. WC)	59.7		0.24	
	EWT, °C (°F)	6.7		44.0	
	LWT, °C (°F)	14.4		58.0	
	Water Flowrate, L/s (gpm)	2.47		39.2	
	Water Velocity, m/s (fps)	1.02		3.3	
	Water PD, kPa (ft WC)	34.88		11.67	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	4.5		15.2	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	78%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	29.6		85.2	
	O/A LAT, Wet Bulb, °C (°F)	22.8		73.1	
	E/A EAT, Dry Bulb, °C (°F)	29.4		85.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	509.7		1739.2	
	Total Efficiency, %	91.3%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-		-	
	O/A LAT, Dry Bulb, °C (°F)	16.4		61.5	
	O/A LAT, Wet Bulb, °C (°F)	9.2		48.6	
	E/A EAT, Dry Bulb, °C (°F)	21.1		70.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	93.0			
	Unit MOCP, A	175.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	17,317		38,178	
	Notes	(all)		(all)	

Notes

(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

HEAT RECOVERY UNIT SCHEDULE

	Tag No.	HRU-03 (Normal Mode)		HRU-03 (Redundant Mode)	
Tag Information	Location	Roof			
	Service	Countdown Service & Wash			
	Basis of Design	Tempeff			
	Model No.	RG-N 22000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	4		3	
	Airflow per fan, L/s (cfm)	3,068	6,500	4,090	8,667
	Total Airflow, L/s (cfm)	12,271	26,000	12,271	26,000
	ESP, Pa (in. wc)	498	2	498	2
	Max. TSP, Pa (in. wc)	1501	6.03	1585	6.37
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2111		2357	
	Motor BHP (Per fan)	8.01		11.37	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	92 86 93 85 84 83 81 74		95 88 89 91 86 85 83 78	
	Outlet Sound Octave Bands 1 - 8, dB	96 89 98 95 95 91 87 84		96 91 92 99 99 94 90 87	
Exhaust Fan	Type, Quantity	4		3	
	Airflow, L/s (cfm)	3,127	6,625	4,169	8,833
	Total Airflow, L/s (cfm)	12,507	26,500	12,507	26,500
	ESP, Pa (in. wc)	498	2	498	2.00
	Max. TSP, Pa (in. wc)	1224	4.92	1311	5.27
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1972		2252	
	Motor BHP (Per fan)	6.66		9.85	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	90 84 91 83 82 81 79 72		95 88 89 91 86 85 83 78	
	Outlet Sound Octave Bands 1 - 8, dB	95 88 97 94 94 90 86 83		96 91 92 99 99 94 90 87	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1125x4750x1 (1x45x187x2)			
	Fins per Inch	10			
	Total Heating, kW (MBH)	85		290	
	Coil Airflow, L/s (cfm)	12,507		26,500	
	EAT Dry Bulb, °C (°F)	21.1		70.0	
	LAT Dry Bulb, °C (°F)	26.7		80.0	
	Air Velocity, m/s (fpm)	2.3		453	
	Air PD, Pa (in. wc)	17.4		0.07	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	1.64		25.98	
	Water Velocity, m/s (fps)	1.26		4.1	
	Water PD, kPa (ft WC)	33.1		11.06	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	2x500x4750x3 (2x19.5x187x3)			
	Fins per Inch	9			
	Total Heating, kW (MBH)	643		2,195	
	Coil Airflow, L/s (cfm)	12,271		26,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.6		513	
	Air PD, Pa (in. wc)	57.2		0.23	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	12.43		197.00	
	Water Velocity, m/s (fps)	1.76		5.8	
	Water PD, kPa (ft WC)	38.5		12.88	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1140x4750x5 (1x45x187x5)			
	Fins per Inch	10			
	Nominal Capacity, tons	30.0			
	Total Cooling, kW (MBH)	106		360	
	Sensible Cooling, kW (MBH)	106		360	
	EAT, Dry Bulb, °C (°F)	29.6		85.2	
	EAT, Wet Bulb, °C (°F)	22.8		73.1	
	LAT, Dry Bulb, °C (°F)	22.6		72.7	
	LAT, Wet Bulb, °C (°F)	20.8		69.5	
	Coil Airflow, L/s (cfm)	12,271		26,000	
	Air Velocity, m/s (fpm)	2.3		445	
	Air PD, Pa (in. WC)	64.7		0.26	
	EWT, °C (°F)	6.7		44.0	
	LWT, °C (°F)	14.4		58.0	
	Water Flowrate, L/s (gpm)	3.72		59.0	
	Water Velocity, m/s (fps)	0.69		2.3	
	Water PD, kPa (ft WC)	18.59		6.22	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	6.4		21.9	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	78.3%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	29.6		85.2	
	O/A LAT, Wet Bulb, °C (°F)	22.8		73.1	
	E/A EAT, Dry Bulb, °C (°F)	29.4		85.0	
	E/A EAH, RH	45%		45%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	745.3		2543.0	
	Total Efficiency, %	92.4			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	17.0		62.6	
	O/A LAT, Wet Bulb, °C (°F)	10.1		50.2	
	E/A EAT, Dry Bulb, °C (°F)	21.1		70.0	
	E/A EAH, RH	45%		45%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	122.0			
	Unit MOCP, A	225.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	30,479		67,195	
	Notes	(all)		(all)	

Notes

(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

FAN COIL UNIT SCHEDULE

	Tag No.	FCU-01		FCU-02 TO 09		FCU-10	
Tag Information	Location	Refer to plans		Refer to plans		Refer to plans	
	Service	Refer to plans		Refer to plans		Refer to plans	
	Manufacturer	IEC		IEC		IEC	
	Model No.	HPY16		CPY02		HPY14	
	Type	Horizontal Ducted		Horizontal Ducted		Horizontal Ducted	
Fan	Airflow, L/s (cfm)	661	1,400	80	170	614	1,300
	Outdoor Air, L/s (cfm)	n/a		n/a		n/a	
	ESP, Pa (in wc)	75	0.3	75	0.3	75	0.3
Cooling Coil	Total Cooling, kW (MBH)	9.6	32.7	1.8	6.0	8.4	28.7
	Sensible Cooling, kW (MBH)	8.7	29.7	1.3	4.4	7.9	26.9
	EAT DB/WB, °C (°F)	23.9/17.2	75/63	23.9/17.2	75/63	23.9/17.2	75/63
	LAT DB/WB, °C (°F)	13.2/12.8	55.7/55.1	15/13.9	59/57	13.4/13.1	56.2/55.6
	Fluid	50% P.G.		50% P.G.		50% P.G.	
	Fluid Flow Rate, L/s (gpm)	0.33	5.2	0.05	0.9	0.29	4.6
	Fluid PD, kPa (ft.wc)	16.4	5.5	19.1	6.4	13.2	4.4
	EWT, °C (°F)	6.7	44	6.7	44	6.7	44
	EWT, °C (°F)	14.4	58	14.4	58	14.4	58
Heating Coil	Total Heating, kW (MBH)	6.3	21.5	1.3	4.5	5.3	18.2
	EAT, oC (°F)	22.2	72.0	22.2	72.0	22.2	72.0
	LAT, oC (°F)	29.9	85.9	29.7	85.5	29.3	84.7
	Fluid	50% P.G.		50% P.G.		50% P.G.	
	Fluid Flow Rate, L/s (gpm)	0.12	1.9	0.03	0.4	0.10	1.6
	Fluid PD, kPa (ft.wc)	547.4	2.2	124.4	0.5	298.6	1.2
	EWT, oC (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, oC (°F)	35.0	95.0	35.0	95.0	35.0	95.0
Misc.	Pre-Filter	MERV 8		MERV 8		MERV 8	
	Sound Octave Bands 1-8 (Casing), dB	62 58 58 55 51 47 38 60		57 48 48 43 40 33 36 49		64 58 58 56 51 46 39 61	
	Max. Dimensions, WxLxH, mm (in.)	1194x748x483	47x29.5x19	540x445x220	21.3x17.5x8.75	1067x748x483	42x29.5x19
	Weight, kg (lb)	81	178	16	36	79	174
Elec.	MCA, A	12.8		2.6		10.0	
	Motor Power, HP	0.17		0.17		0.17	
	Electrical Supply (V/Ph/Hz)	115/1/60		115/1/60		115/1/60	
	Notes	(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Units shall come complete with 0-10V EC motors.
(3) C/w condensate pump.
(4) C/w disconnect switch
(5) C/w control panel and BACnet integration (120/1/60 connection).

MAKE UP AIR UNIT SCHEDULE

	Tag	MUA-01-A/B/C	
Tag Information	Location	Roof	
	Service	Storage Garage	
	Manufacturer	Engineered Air	
	Model No.	DJX300/O/MV	
	Type	Outdoor - 100% O/A	
	Type	Plug	
	Quantity	2	
Supply Fan	Airflow, L/s (cfm)	10,856	23,000
	ESP, Pa (in. WC)	498	2.00
	Max. TSP, Pa (in. WC)	1443.3	5.80
	Drive Type	Direct	
	Motor Control	VFD	
	RPM	2,292	
	Motor, HP	20	
Filter	Pre-Filter (30%)	MERV 8	
	Post Filter	--	
	Final Filter (95%)	MERV 13	
Heating Section	Type	Indirect Natural Gas/modulating	
	Input, kW (MBH)	805	2,750.0
	Output, kW (MBH)	733	2,503.0
	Efficiency		
	Min. Gas Pressure, kPa (in. WC)	1.0	4.0
	Max. Gas Pressure, kPa (in. WC)	3.5	14.0
	EAT, °C (°F)	-40	-40.0
	LAT, °C (°F)	16	60.0
	Temperature Rise, °C (°F)	38	100.0
Electrical	Unit Elec. Supply (V/Ph/Hz)	575/3/60	
	Unit MOP, A	70	
	Unit MCA, A	52.1	
	Lights & Controls Elec. Supply (V/Ph/Hz)	2 x 120/1/60	
	Lights & Controls MCA, A	2 x 12A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to enlarged AHU plans on dwgs	
	Curb Height, mm (in.)	610	24
	Airflow Discharge Orientation	Refer to enlarged AHU plans on dwgs	
	Weight, kg (lb)	9,979	22,000
	Notes	(all)	

Notes

(1) Refer to specification.
(2) c/w disconnect switch.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w insulated and sloped roof curb.

PUMP SCHEDULE

	Tag No.	P-01 to 04		P-05 to 07		P-08 to P-9	
Tag Information	Location	Mechanical Room 02		Mechanical Room 02		Mechanical Room 02	
	Service	Heating Secondary - Glycol Loop		Chilled Secondary - Glycol Loop		ASHP Primary Heating Loop	
	Manufacturer	Bell & Gossett		Bell & Gossett		Bell & Gossett	
	Model No.	e-80SC		e-80SC		e-80SC	
	Pump Type	In-line centrifugal		In-line Centrifugal		In-line Centrifugal	
General	Operation (Speed Control)	VFD		VFD		VFD	
	Fluid Type	50% P.G.		50% P.G.		50% P.G.	
	Fluid Flow, L/s (gpm)	44.16	700	28.39	450	28.39	450
	Head Pressure, kPa (ft wc)	344	115	374	125	194	65
	Max. Dimensions, WxLxH, mm (in.)	380 x 600 x 1140	15 x 24 x 45	380 x 530 x 1140	15 x 21 x 45	300 x 635 x 1040	12 x 25 x 41
Electrical	Motor Power, hp	40		30		15	
	Duty Point Power, BHP	31.3		21.9		11.1	
	Variable Frequency Drive	Yes		Yes		Yes	
	RPM	3600		3550		1800	
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60		575/3/60	
	Power Supply	Normal		Normal		Normal	
	Notes	(1)(2)(3)(5)		(1)(2)(3)(5)		(1)(2)(3)(5)	
Tag Information	Tag No.	P-10 to 13		P-14 to 15			
	Location	Mechanical Room 02		Mechanical Room 02			
	Service	Boiler Primary Loop		ASHP Chilled Primary Loop			
	Manufacturer	Bell & Gossett		Bell & Gossett			
	Model No.	e-80SC		e-80SC			
	Pump Type	In-line Centrifugal		In-line Centrifugal			
General	Operation (Speed Control)	VFD		VFD			
	Fluid Type	50% P.G.		50% P.G.			
	Fluid Flow, L/s (gpm)	33.12	525	28.39	450		
	Head Pressure, kPa (ft wc)	194	65	194	65		
	Max. Dimensions, WxLxH, mm (in.)	280 x 585 x 890	11 x 23 x 35	300 x 635 x 1040	12 x 25 x 41		
Electrical	Motor Power, hp	15		15			
	Duty Point Power, BHP	12.5		11.1			
	Variable Frequency Drive	Yes		Yes			
	RPM	1800		1800			
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60			
	Power Supply	Normal		Normal			
	Notes	(1)(2)(3)(5)		(1)(2)(3)(5)			

Notes

(1) Refer to specifications.
(2) C/w suction diffusers and flotrex valves.
(3) C/w BMS interface (refer to...
(4) C/w 3-way valve manifold cabinet
(5) C/w disconnect switch.

	Tag No.	MF-1					
Tag Information	Location	Refer to Plans					
	Service	Floor Heating					
	Manufacturer	Grundfos					
	Model No.	UPS 15-58					
	Pump Type	Inline Circulator					
General	Operation (Speed Control)	3-speed					
	Fluid Type	50% P.G.					
	Fluid Flow, L/s (gpm)	0.54	9				
	Head Pressure, kPa (ft wc)	57	19				
	Max. Dimensions, WxLxH, mm (in.)	-	-				
Electrical	Motor Power, hp	0.15					
	Duty Point Power, BHP	0.08					
	Variable Frequency Drive	No					
	RPM	-					
	Electrical Supply (V/Ph/Hz)	120/1/60					
	Power Supply	Normal					
	Notes	(all)					
Tag Information	Tag No.						
	Location						
	Service						
	Manufacturer						
	Model No.						
	Pump Type						
General	Operation (Speed Control)						
	Fluid Type						
	Fluid Flow, L/s (gpm)						
	Head Pressure, kPa (ft wc)						
	Max. Dimensions, WxLxH, mm (in.)						
Electrical	Motor Power, hp						
	Duty Point Power, BHP						
	Variable Frequency Drive						
	RPM						
	Electrical Supply (V/Ph/Hz)						
	Power Supply						
	Notes						

Notes

(1) Refer to specifications.
(2) C/w suction diffusers and flotrex valves.
(3) C/w BMS interface (refer to...
(4) C/w 3-way valve manifold cabinet
(5) C/w disconnect switch.

BOILER SCHEDULE

	Tag No.	B-01 to B-04			
Tag Information	Location	Mechanical Rm 02			
	Service	Heating Glycol Loop			
	Manufacturer	Viessmann			
	Model No.	Victocrossal 300 CA3B6			
	Type	Condensing			
	Fuel Type	Natural Gas			
Capacity	Max. Input, kW (MBH)	1,758	6,000		
	Min. Input, kW (MBH)	117	400		
	Turndown ratio	1:16			
	Design Output, kW (MBH)	1,690	5,766		
	Design Efficiency (gross rated)	96.1%			
	Max. Gas Pressure, kPa (in. WC)	3.5	14.0		
	Min. Gas Pressure, kPa (in. WC)	1.0	4.0		
Fluid Conditions	Fluid	50% P.G.			
	Max. Flow, L/s (gpm)	34.700	550.0		
	Design Flow, L/s (gpm)	33.122	525.0		
	PD @ Design Flow, kPa (ft. WC)	74.7	25.0		
	Max Working Pressure, kPa (psi)	1103.2	160.0		
	EWT, °C (°F)	35.0	95		
	LWT, °C (°F)	48.9	120		
Misclaneous	Max Dimensions - WxDxH, mm (in.)	1000 x 3450 x 2100	40 x 136 x 84		
	Operating Weight, kg (lb)	3127	6894		
	Air Intake Diameter, mm (in.)	406	16		
	Vent (Flue) Diameter, mm (in.)	406	16		
	FLA, A	20			
	Electrical Supply (V/Ph/Hz)	208/3/60 (4 wire)			
	Notes	(all)			

Notes

(1) Refer to specification.
(2) C/w control panel and BACnet integration (120/1/60 connection).
(3) C/w acid neutralization unit on each boiler.
(4) C/w with sealed combustion burner, and flue exhaust.

OSCILLATING FAN SCHEDULE

	Tag No.	OF-01 to 26	
Tag Information	Location	Wall-mounted	
	Service	Refer to Plans	
	Manufacturer	ULINE	
	Model No.	H-1457	
Fan Data	Fan Type	Oscillating	
	Airflow, L/s (cfm)	2,832	6,000
	ESP, Pa (in wc)	-	-
	Fan Size, mm (in)	750	30
	Sound Power (Inlet), dBA	66	
	RPM	-	
	Air Filter Box	N/A	
Electrical	Drive Type		
	Variable Speed	Yes	3-speed
	Motor hp	1/4	
	Power Supply	Normal	
	Electrical Supply (V/Ph/Hz)	120/1/60	
	Notes	(1)	

Notes

(1) c/w switch, front and rear guard, wall mount hardware
(2) 12' long power cord, 3-prong plug
(3) c/w 38" pull chain, swing arm
(4) ETL/C-ETL listed, OSHA Compliant, CSA Approved

GLYCOL FEED UNIT SCHEDULE

	Tag No.	GFU-01		GFU-02			
Tag Information	Location	Mech Mezz		Mech Room			
	Service	Chilled Water		Heating Water			
	Manufacturer	Axiom		Axiom			
	Model No.	SF100		SF-100L			
Tank Parameters	Volume, L (gal.)	208	55	379	100		
	Pump Capacity @ free flow, L/s (gpm)	0.09	1.4	0.09	1		
	Pump Capacity @ 345 kPa (50 psig), L/s (gpm)	0.06	1.0	0.06	1		
	Max. Liquid Temp. °C (°F)	76.7	170.0	76.7	170.0		
Elec.	Shipping weight, kg (lb)	23	50	25	55		
	Electrical Supply (V/Ph/Hz)	115/1/60		115/1/60			
	Load, A	1		1			
	Notes	(all)		(all)			

Notes

(1) Refer to specifications.
(2) 3 prong plug & cord, self-priming up to 2.1 m
(3)
(4)
(5)

BUFFER TANK SCHEDULE

	Tag No.	BT-01 AND 02		BT-03 AND 04	
Tag Information	Location	Mech Mezz		Mech Room	
	Service	Chilled Water		Heating Water	
	Manufacturer	Taco Comfort Solutions		Taco Comfort Solutions	
	Model No.	BTL0700G -125NN		BTL1050G-125NN	
Tank Parameters	Tank Volume, L (gal.)	2,650	700	3,975	1,050
	Pipe Connection Size, mm...	0		0	
	Max. Operating Temperature, °C (°F)	191	375	191	375
	Max. Operating Pressure, kPa (psi)	862	125	862	125
	Dry Weight kg (lb)	568	1,250	941	2,070
Misc.	Actual Weight kg (lb)	3,218	7,082	4,916	10,818
	Max. Dimensions, DxH, mm (in.)	1200x2500	48x100	1500x2500	60x99
	Notes	(all)		(all)	

Notes

(1) Refer to specifications.
(2) ASME Certified
(3)
(4)
(5)

LOW LOSS HEADER SCHEDULE

	Tag No.	LLH-01		LLH-02			
Tag Information	Location	Mech Mezz		Mech Room			
	Service	Chilled Water		Heating Water			
	Manufacturer	SpiroTherm		SpiroTherm			
	Model No.	VXN600FA		VXN1200FA			
Misc.	Pipe Connection Size, mm...	203	8	305	12		
	Length, mm (in.)	813	32	1,067	42		
	Height mm (in.)	2,311	91	3,378	133		
	Recommended Flow L/s...	59.30	940.0	131.86	2090.0		
	Shipping Weight kg (lb)	385	848	965	2,127		
	Notes	(all)					

Notes

(1) Refer to specifications.
(2) ASME Certified
(3) 150 PSI max. working pressure
(4)
(5)

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

MECHANICAL SCHEDULES (2 OF 4)

SHEET NUMBER

50-M-602

50-M-602-MECHANICAL SCHEDULES (2 OF 4)
Last Plotted: 14-02-2025 22:37:08
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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HEAT RECOVERY UNIT SCHEDULE

Tag Information	Tag No.	HRU-04-A (Normal Mode)		HRU-04-A (Redundant Mode)	
	Location	Roof			
	Service	Bull Pen			
	Basis of Design	Tempeff			
	Model No.	RG 18000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	3		2	
	Airflow per fan, L/s (cfm)	2,832	6,000	4,248	9,000
	Total Airflow, L/s (cfm)	8,495	18,000	8,495	18,000
	ESP, Pa (in. wc)	473	1.9	473	1.9
	Max. TSP, Pa (in. wc)	1408	5.66	1615	6.49
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2074		2407	
	Motor BHP (Per fan)	7.44		12.08	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	91 85 92 84 83 82 80 73		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	94 87 96 93 93 89 85 82		95 90 91 98 98 93 89 86	
Exhaust Fan	Type, Quantity	3		2	
	Airflow, L/s (cfm)	2,910	6,167	4,366	9,250
	Total Airflow, L/s (cfm)	8,731	18,500	8,731	18,500
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1117	4.49	1239	4.98
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1869		2272	
	Motor BHP (Per fan)	5.65		9.98	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	88 82 89 81 80 79 77 70		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	93 66 86 95 92 92 88 84 81		95 90 91 98 98 93 89 86	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x1 (1x48x122x1)			
	Fins per Inch	10			
	Total Heating, kW (MBH)	89		303	
	Coil Airflow, L/s (cfm)	8,731		18,500	
	EAT Dry Bulb, °C (°F)	11.1		52.0	
	LAT Dry Bulb, °C (°F)	19.4		67.0	
	Air Velocity, m/s (fpm)	2.3		455	
	Air PD, Pa (in. wc)	17.4		0.07	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	1.70		27.02	
	Water Velocity, m/s (fps)	1.13		3.7	
	Water PD, kPa (ft WC)	21.8		7.29	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x2 (1x48x122x2)			
	Fins per Inch	13			
	Total Heating, kW (MBH)	445		1,520	
	Coil Airflow, L/s (cfm)	8,495		18,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.3		443	
	Air PD, Pa (in. wc)	37.3		0.15	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	8.57		135.80	
	Water Velocity, m/s (fps)	1.42		4.7	
	Water PD, kPa (ft WC)	23.3		7.80	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x5 (1x48x122x5)			
	Fins per Inch	12			
	Nominal Capacity, tons	25			
	Total Cooling, kW (MBH)	88		300	
	Sensible Cooling, kW (MBH)	78		267	
	EAT, Dry Bulb, °C (°F)	27.4		81.3	
	EAT, Wet Bulb, °C (°F)	22.2		72.0	
	LAT, Dry Bulb, °C (°F)	20.0		67.9	
	LAT, Wet Bulb, °C (°F)	19.7		67.5	
	Coil Airflow, L/s (cfm)	8,495		18,000	
	Air Velocity, m/s (fpm)	2.3		443	
	Air PD, Pa (in. WC)	206.5		0.83	
	EWT, °C (°F)	6.7		44.0	
	LWT, °C (°F)	14.4		58.0	
	Water Flowrate, L/s (gpm)	3.09		49	
	Water Velocity, m/s (fps)	0.78		2.6	
	Water PD, kPa (ft WC)	31.74		10.62	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	26.4		90.1	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	78.0%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	27.4		81.3	
	O/A LAT, Wet Bulb, °C (°F)	22.2		72.0	
	E/A EAT, Dry Bulb, °C (°F)	26.7		80.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	423.2		1444.0	
	Total Efficiency, %	92.8%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	7.9		46.3	
	O/A LAT, Wet Bulb, °C (°F)	2.5		36.5	
	E/A EAT, Dry Bulb, °C (°F)	11.1		52.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	93.0			
	Unit MOCP, A	175.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	17,868		39,392	
	Notes	(all)		(all)	

Notes
(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

HEAT RECOVERY UNIT SCHEDULE

Tag Information	Tag No.	HRU-04-B (Normal Mode)		HRU-04-B (Redundant Mode)	
	Location	Roof			
	Service	Bull Pen			
	Basis of Design	Tempeff			
	Model No.	RG 18000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	3		2	
	Airflow per fan, L/s (cfm)	2,832	6,000	4,248	9,000
	Total Airflow, L/s (cfm)	8,495	18,000	8,495	18,000
	ESP, Pa (in. wc)	473	1.9	473	1.9
	Max. TSP, Pa (in. wc)	1408	5.66	1615	6.49
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2074		2407	
	Motor BHP (Per fan)	7.44		12.08	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	91 85 92 84 83 82 80 73		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	94 87 96 93 93 89 85 82		95 90 91 98 98 93 89 86	
Exhaust Fan	Type, Quantity	3		2	
	Airflow, L/s (cfm)	2,910	6,167	4,366	9,250
	Total Airflow, L/s (cfm)	8,731	18,500	8,731	18,500
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1117	4.49	1239	4.98
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1869		2272	
	Motor BHP (Per fan)	5.65		9.98	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	88 82 89 81 80 79 77 70		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	93 66 86 95 92 92 88 84 81		95 90 91 98 98 93 89 86	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x1 (1x48x122x1)			
	Fins per Inch	10			
	Total Heating, kW (MBH)	89		303	
	Coil Airflow, L/s (cfm)	8,731		18,500	
	EAT Dry Bulb, °C (°F)	11.1		52.0	
	LAT Dry Bulb, °C (°F)	19.4		67.0	
	Air Velocity, m/s (fpm)	2.3		455	
	Air PD, Pa (in. wc)	17.4		0.07	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	1.70		27.02	
	Water Velocity, m/s (fps)	1.13		3.7	
	Water PD, kPa (ft WC)	21.8		7.29	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x2 (1x48x122x2)			
	Fins per Inch	13			
	Total Heating, kW (MBH)	445		1,520	
	Coil Airflow, L/s (cfm)	8,495		18,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.3		443	
	Air PD, Pa (in. wc)	37.3		0.15	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	8.57		135.80	
	Water Velocity, m/s (fps)	1.42		4.7	
	Water PD, kPa (ft WC)	23.3		7.80	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	RESERVED FOR FUTURE 6-ROW COOLING COIL			
	Fins per Inch	-			
	Nominal Capacity, tons	-			
	Total Cooling, kW (MBH)	-		-	
	Sensible Cooling, kW (MBH)	-		-	
	EAT, Dry Bulb, °C (°F)	-		-	
	EAT, Wet Bulb, °C (°F)	-		-	
	LAT, Dry Bulb, °C (°F)	-		-	
	LAT, Wet Bulb, °C (°F)	-		-	
	Coil Airflow, L/s (cfm)	-		-	
	Air Velocity, m/s (fpm)	-		-	
	Air PD, Pa (in. WC)	-		-	
	EWT, °C (°F)	-		-	
	LWT, °C (°F)	-		-	
	Water Flowrate, L/s (gpm)	-		-	
	Water Velocity, m/s (fps)	-		-	
	Water PD, kPa (ft WC)	-		-	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	26.4		90.1	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	78.0%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	27.4		81.3	
	O/A LAT, Wet Bulb, °C (°F)	22.2		72.0	
	E/A EAT, Dry Bulb, °C (°F)	26.7		80.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	423.2		1444.0	
	Total Efficiency, %	92.8%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	7.9		46.3	
	O/A LAT, Wet Bulb, °C (°F)	2.5		36.5	
	E/A EAT, Dry Bulb, °C (°F)	11.1		52.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	93.0			
	Unit MOCP, A	175.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	17,868		39,392	
	Notes	(all)		(all)	

Notes
(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

HEAT RECOVERY UNIT SCHEDULE

Tag Information	Tag No.	HRU-05-A/B (Normal Mode)		HRU-05-A/B (Redundant...	
	Location	Roof			
	Service	Repair Garage			
	Basis of Design	Tempeff			
	Model No.	RG 18000			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	3		2	
	Airflow per fan, L/s (cfm)	2,753	5,834	4,130	8,750
	Total Airflow, L/s (cfm)	8,259	17,500	8,259	17,500
	ESP, Pa (in. wc)	473	1.9	473	1.9
	Max. TSP, Pa (in. wc)	1354	5.44	1463	5.88
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1979		2311	
	Motor BHP (Per fan)	6.52		10.7	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	90 84 91 83 82 81 79 72		93 86 87 89 84 83 81 76	
	Outlet Sound Octave Bands 1 - 8, dB	93 86 95 92 92 88 84 81		94 89 90 97 97 92 88 85	
Exhaust Fan	Type, Quantity	3		2	
	Airflow, L/s (cfm)	2,832	6,000	4,248	9,000
	Total Airflow, L/s (cfm)	8,495	18,000	8,495	18,000
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1087	4.37	1202	4.83
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	1836		2224	
	Motor BHP (Per fan)	5.35		939	
	Motor HP (Per fan)	15		15	
	Inlet Sound Octave Bands 1 - 8, dB	87 81 88 80 79 78 76 69		94 87 88 90 85 84 82 77	
	Outlet Sound Octave Bands 1 - 8, dB	92 85 94 91 91 87 83 80		94 89 90 97 97 92 88 85	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x1 (1x48x122x1)			
	Fins per Inch	12			
	Total Heating, kW (MBH)	58		198	
	Coil Airflow, L/s (cfm)	8,495		18,000	
	EAT Dry Bulb, °C (°F)	21.1		70.0	
	LAT Dry Bulb, °C (°F)	26.7		80.0	
	Air Velocity, m/s (fpm)	2.3		443	
	Air PD, Pa (in. wc)	17.4		0.07	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	1.11		17.64	
	Water Velocity, m/s (fps)	0.74		2.4	
	Water PD, kPa (ft WC)	13.8		4.62	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x2 (1x48x122x2)			
	Fins per Inch	13			
	Total Heating, kW (MBH)	433		1,478	
	Coil Airflow, L/s (cfm)	8,259		17,500	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.2		430	
	Air PD, Pa (in. wc)	37.3		0.15	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	8.33		131.98	
	Water Velocity, m/s (fps)	1.38		4.5	
	Water PD, kPa (ft WC)	22.1		7.40	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1220x3100x4 (1x48x122x4)			
	Fins per Inch	13			
	Nominal Capacity, tons	21			
	Total Cooling, kW (MBH)	74		252	
	Sensible Cooling, kW (MBH)	70		240	
	EAT, Dry Bulb, °C (°F)	27.4		81.3	
	EAT, Wet Bulb, °C (°F)	22.2		72.0	
	LAT, Dry Bulb, °C (°F)	20.5		69.0	
	LAT, Wet Bulb, °C (°F)	20.1		68.1	
	Coil Airflow, L/s (cfm)	8,259		17,500	
	Air Velocity, m/s (fpm)	2.2		430	
	Air PD, Pa (in. WC)	72.2		0.29	
	EWT, °C (°F)	6.7		44.0	
	LWT, °C (°F)	14.4		58.0	
	Water Flowrate, L/s (gpm)	2.59		41.1	
	Water Velocity, m/s (fps)	0.81		2.7	
	Water PD, kPa (ft WC)	29.80		9.97	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	26.0		88.8	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	78.3%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	27.4		81.3	
	O/A LAT, Wet Bulb, °C (°F)	22.2		72.0	
	E/A EAT, Dry Bulb, °C (°F)	26.7		80.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	497.4		1697.3	
	Total Efficiency, %	91.6%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	16.6		61.8	
	O/A LAT, Wet Bulb, °C (°F)	9.3		48.7	
	E/A EAT, Dry Bulb, °C (°F)	21.1		70.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	93.0			
	Unit MOCP, A	175.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	17,564		38,723	
	Notes	(all)		(all)	

Notes
(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

HEAT RECOVERY UNIT SCHEDULE

Tag Information	Tag No.	HRU-06 (Normal Mode)		HRU-06 (Redundant Mode)	
	Location	Roof			
	Service	Storage and Parts			
	Basis of Design	Tempeff			
	Model No.	RG 9500			
	Type	Outdoor - Dual Core			
Supply Fan	Type, Quantity	3		2	
	Airflow per fan, L/s (cfm)	1,731	3,667	2,596	5,500
	Total Airflow, L/s (cfm)	5,191	11,000	5,191	11,000
	ESP, Pa (in. wc)	473	1.90	473	1.90
	Max. TSP, Pa (in. wc)	1416	5.69	1575	6.33
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2980		3664	
	Motor BHP (Per fan)	4.37		7.95	
	Motor HP (Per fan)	10		10	
	Inlet Sound Octave Bands 1 - 8, dB	94 88 82 88 80 81 75 73		99 93 87 93 85 86 80 78	
	Outlet Sound Octave Bands 1 - 8, dB	102 96 90 96 88 89 83 81		108 102 96 102 94 95 89 87	
Exhaust Fan	Type, Quantity	3		2	
	Airflow, L/s (cfm)	1,809	3,833	2,714	5,750
	Total Airflow, L/s (cfm)	5,427	11,500	5,427	11,500
	ESP, Pa (in. wc)	473	1.9	473	1.90
	Max. TSP, Pa (in. wc)	1202	4.83	1379	5.54
	Drive Type	Direct			
	Motor Control	VFD			
	RPM	2876		3657	
	Motor BHP (Per fan)	3.96		7.74	
	Motor HP (Per fan)	10		10	
	Inlet Sound Octave Bands 1 - 8, dB	94 88 82 88 80 81 75 73		100 94 88 94 86 87 81 79	
	Outlet Sound Octave Bands 1 - 8, dB	102 96 90 96 88 89 83 81		109 103 97 103 95 96 90 88	
Filter	Pre-Filter	2" MERV-10			
	Post Filter	None			
	Final Filter	4" MERV-13			
Pre-Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	RESERVED FOR FUTURE PRE-HEAT COIL			
	Fins per Inch	-			
	Total Heating, kW (MBH)	-		-	
	Coil Airflow, L/s (cfm)	-		-	
	EAT Dry Bulb, °C (°F)	-		-	
	LAT Dry Bulb, °C (°F)	-		-	
	Air Velocity, m/s (fpm)	-		-	
	Air PD, Pa (in. wc)	-		-	
	EWT, °C (°F)	-		-	
	LWT, °C (°F)	-		-	
	Water flowrate, L/s (gpm)	-		-	
	Water Velocity, m/s (fps)	-		-	
	Water PD, kPa (ft WC)	-		-	
Heating Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1143x1790x3 (1x45x70.5x3)			
	Fins per Inch	9			
	Total Heating, kW (MBH)	272		929	
	Coil Airflow, L/s (cfm)	5,191		11,000	
	EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	LAT Dry Bulb, °C (°F)	10.0		50.0	
	Air Velocity, m/s (fpm)	2.5		499	
	Air PD, Pa (in. wc)	54.7		0.22	
	EWT, °C (°F)	48.9		120.0	
	LWT, °C (°F)	35.0		95.0	
	Water flowrate, L/s (gpm)	5.23		82.96	
	Water Velocity, m/s (fps)	1.26		4.2	
	Water PD, kPa (ft WC)	21.0		7.02	
Cooling Coil	Fluid Medium	50% P.G.			
	Coil Quantity x Size H x L x Rows, mm (in.)	1x1150x1790x2 (1x45x70.5x2)			
	Fins per Inch	5			
	Nominal Capacity, tons	7.5			
	Total Cooling, kW (MBH)	26		90	
	Sensible Cooling, kW (MBH)	26		90	
	EAT, Dry Bulb, °C (°F)	33.8		92.90	
	EAT, Wet Bulb, °C (°F)	24.0		75.20	
	LAT, Dry Bulb, °C (°F)	29.7		85.54	
	LAT, Wet Bulb, °C (°F)	22.9		73.22	
	Coil Airflow, L/s (cfm)	5,191		11,000	
	Air Velocity, m/s (fpm)	2.5		499	
	Air PD, Pa (in. WC)	27.4		0.11	
	EWT, °C (°F)	7.2		45.00	
	LWT, °C (°F)	14.4		58.00	
	Water Flowrate, L/s (gpm)	1.00		15.8	
	Water Velocity, m/s (fps)	1.06		3.5	
	Water PD, kPa (ft WC)	36.91		12.35	
Summer Heat Recovery	Total Heat Recovery, kW (MBH)	24.0		81.8	
	Sensible Heat Recovery, kW (MBH)	-		-	
	Sensible Efficiency / Total Efficiency, %	76.5%			
	O/A EAT Dry Bulb, °C (°F)	30.0		86.0	
	O/A EAT Wet Bulb, °C (°F)	23.0		73.4	
	O/A LAT, Dry Bulb, °C (°F)	33.8		92.9	
	O/A LAT, Wet Bulb, °C (°F)	24.0		75.2	
	E/A EAT, Dry Bulb, °C (°F)	35.0		95.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Winter Heat Recovery	Total Heat Recovery, kW (MBH)	282.5		963.9	
	Total Efficiency, %	91.2%			
	O/A EAT Dry Bulb, °C (°F)	-33.3		-28.0	
	O/A EAT Wet Bulb, °C (°F)	-33.3		-28.0	
	O/A LAT, Dry Bulb, °C (°F)	11.7		53.1	
	O/A LAT, Wet Bulb, °C (°F)	5.6		42.0	
	E/A EAT, Dry Bulb, °C (°F)	16.1		61.0	
	E/A EAH, RH	40%		40%	
	E/A LAT, Dry Bulb, °C (°F)	-		-	
	E/A LAT, Wet Bulb, °C (°F)	-		-	
Electrical	Unit Supply (V/Ph/Hz)	575/3/60			
	Unit MCA, A	61.0			
	Unit MOCP, A	100.0			
	Lighting and Controls Elec Supply	120/1/60		2 x 15A	
Dimensions	Max. Dimensions, WxLxH, mm (in.)	Refer to AHU plan			
	Curb Height, mm (in)	457		18	
	Airflow Discharge Orientation	Refer to AHU plan			
	Piping Feed	Refer to AHU plan			
	Weight, kg (lb)	9,651		21,277	
	Notes	(all)		(all)	

Notes
(1) Refer to specification.
(2) Performance in the winter shall include the effects of frost control to allow for adequate coil sizing.
(3) c/w disconnect switch
(4) Allow for fully loaded air filters in pressure drop calculations.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w insulated and sloped roof curb

SPLIT AC SYSTEM SCHEDULE

Tag Info	Tag No.	ACU-01 TO ACU-04		ACU-05 TO ACU-11		ACU-12 TO ACU-15	
	Location	Refer to plans		Refer to plans		Refer to plans	
	Service	Refer to plans		Refer to plans		Refer to plans	
	Manufacturer	Mitsubishi		Mitsubishi		Mitsubishi	
Indoor Unit	Model No.	PLA-A36EA8		PLA-A42EA8		PKA-A30KA7	
	Refrigerant Type	R-410A		R-410A		R-410A	
	Heating Capacity, kW (MBH)	-	-	-	-	-	-
	Total Cooling Capacity, kW (tons)	10.6	3.0	8.8	3.5	3.2	2.5
	Dry Airflow (Lo-Mid-Hi), (cfm)	670-850-1200		700-880-1160		635-705-775	
	Rated Indoor Max. DB/WB, °C (°F)	27/19	80/67	27/19	80/67	27/19	80/67
	Electrical Supply (V/Ph/Hz)	208/1/60		208-230/1/60		208-230/1/60	
	MCA, A	2.0		2.0		1.0	
	Max. Dimensions, WxHxD, mm (in.)	950 x 950 x 340	37.4x 37.4 x 13.4	950 x 950 x 300	37.4x 37.4 x 11.8	1170x365 x295	46x14.5 x12
	Weight, kg (lb)	25.4	56.0	25.4	56.0	21.0	46.0
Outdoor Unit	Tag No.	CU-01 TO CU-04		CU-05 TO CU-11		CU-12 TO CU-15	
	Location	Roof		Roof		Roof	
	Model No.	PUY-A36NKA7		PUY-A42NKA7		PUY-A30NHA	
	Rated O/A Max. DB, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	Rated O/A Min. DB, °C (°F)	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0
	Electrical Supply (V/Ph/Hz)	208/3/60		208-230/3/60		208-230/3/60	
	MCA, A	25.0		25.0		19.0	
	MOP, A	31		31		19.8	
	SEER2	22		21.5			
	Max. Dimensions, HxWxD, mm (in.)	950x330x943	37x13x37	1338x1050 x360	53x42x14	950x330x943	37x13x37
	Weight, kg (lb)	95.7	211.0	95.7	211.0	68	151
	Notes	(all)		(all)		(all)	

Notes
(1) Refer to specifications.
(2) C/w low ambient cooling kit with ability to operate to -40°C (-40°F).
(3) c/w condensate pump
(4) c/w disconnect switch
(5) C/w control panel and BACnet integration (120/1/60 connection).

GRILLES, REGISTERS, & DIFFUSERS SCHEDULE

Tag Info.	Tag No.	S-1	S-2	S-3
	Description	Louvered face, double deflection grille	High Capacity Drum Louver, Split Blade,...	Plaque ceiling diffuser, 24"x24", steel
	Service	S/A	S/A	S/A
	Model No.	620-F-L-A	HCD2-VCS5	SPD-24x24
	Finish	Aluminum	B12 - White powder coat	B12 - White powder coat
	Integral Volume Damper	Yes	Yes	No
	Mounting	Screw-in	Screw-in	Lay-in
	Notes	(1)	(1)	(1)
Tag Info.	Tag No.	S-3a	S-4	S-5
	Description	Plaque ceiling diffuser, 12"x12", steel in 24"x24...	High Capacity Drum Louver, Split Blade,...	Louvered face, double deflection grille
	Service	S/A	S/A	S/A
	Model No.	SPD-12x12	HCD2-DLSS-VCS5	720-F-L-A
	Finish	B12 - White powder coat	B12 - White powder coat	Stainless Steel
	Integral Volume Damper	No	Yes	Yes
	Mounting	Lay-in	Screw-in	Screw-in
	Notes	(1)	(1)	(1)
Tag Info.	Tag No.	S-6	R-1	E-1
	Description	Nozzle	Eggcrate	Louvered face, single deflection, 45deg
	Service	S/A	R/A	R/A
	Model No.	ND	80	630-F-L-A
	Finish	Aluminum	Aluminum	Mill
	Integral Volume Damper	No	No	Yes
	Mounting	Screw-in	Screw-in/lay-in	Screw-in
	Notes	(1)	(1)	(1)
Tag Info.	Tag No.	E-2	T-1	
	Description	Louvered face, single deflection, 45deg	Door Grille, sight proof	
	Service	R/A	T/A	
	Model No.	630-F-L-A	STG1	
	Finish	Stainless Steel	Mill	
	Integral Volume Damper	Yes	No	
	Mounting	Screw-in	Screw-in	
	Notes	(1)	(1)	

Notes
(1) Refer to specification.
(2)

HVAC FANS SCHEDULE

Tag Information	Tag No.	EF-01		EF-02		EF-03	
	Location	Ceiling		Roof		Roof	
	Service	Garbage Room		Rainwater Room		Mech Rm 01 SV	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	SQ-7-VG		G-100HP-VG		G-100HP-VG	
Fan Data	Fan Type	Inline		Centrifugal Rooftop		Centrifugal Rooftop	
	Airflow, L/s (cfm)	425	900	236	500	236	500
	ESP, Pa (in wc)	323	1.30	311	1.25	311	1.25
	Sound Power (Inlet), dBA	68		61		61	
	RPM	3648		2034		2034	
	BHP	0.37		0.24		0.24	
	Air Filter Box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Direct		Direct	
	Variable Speed	Yes	ECM	Yes	ECM	Yes	ECM
	Motor hp	1/2		1/2		1/2	
	Power Supply	Normal		Normal		Normal	
	Electrical Supply (V/Ph/Hz)	115/1/60		115/1/60		115/1/60	
	Notes	(1)(5)(6)(7)		(1)(4)(5)(6)(7)		(1)(4)(5)(6)(7)	
Tag Information	Tag No.	EF-04		EF-05		EF-06	
	Location	Roof		Roof		Ceiling	
	Service	DEF Storage		Cleaning EQ Storage		Bus Vacuum EQ	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	G-140HP-VG		GB-100HP-5		SQ-7	
Fan Data	Fan Type	Centrifugal Rooftop		Centrifugal Rooftop		Inline	
	Airflow, L/s (CFM)	425	900	189	400	472	1,000
	ESP, Pa (in WC)	311.0	1.25	298.6	1.2	323.5	1.30
	Sound Power (Inlet), dBA	64		60		70	
	RPM	1717		1913		3853	
	BHP	0.38		0.23		0.42	
	Air Filter Box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Belt		Direct	
	Variable Speed	Yes	VFD	No	-	Yes	VFD
	Motor hp	3/4		1/2		3/4	
	Power Supply	Normal		Normal		Normal	
	Electrical Supply (V/Ph/Hz)	575/3/60		115/1/60		575/3/60	
	Notes	(1)(4)(5)(6)(7)		(1)(4)(5)(6)(7)		(1)(5)(6)(7)	

Notes
(1) Refer to specification.
(2) Aluminum housing, spark C construction, explosion proof motor
(3) c/w MERV 8 pleated filters
(4) c/w 450mm sloped & insulated roof curb, hinged curb cap, and damper tray
(5) c/w motorized insulated damper and fan interlock
(6) c/w disconnect switch and starter
(7) C/w control panel and BACnet integration (120/1/60 connection).

Tag Information	Tag No.	EF-07		EF-08		EF-09	
	Location	Roof		Roof		Ceiling	
	Service	Break Room		Bus Wash EQ		Meter Room	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	G-060-D		G-140-A		SQ-15	
Fan Data	Fan Type	Centrifugal Roof		Centrifugal Roof		Inline	
	Airflow, L/s (CFM)	47	100	944	2,000	1,888	4,000
	ESP, Pa (in WC)	62.2	0.25	311.0	1.25	348.4	1.4
	Sound Power (Inlet), dBA	44		67		69	
	RPM	1550		1590		2020	
	BHP	0.02		0.8		1.63	
	Air Filter Box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Direct		Direct	
	Variable Speed	No	-	Yes	VFD	Yes	VFD
	Motor Power, hp	1/15		1 1/2		3	
	Power Supply	Normal		Normal		Emergency	
	Electrical Supply (V/Ph/Hz)	115/1/60		575/3/60		575/3/60	
	Notes	(1)(4)(5)(6)(7)		(1)(4)(5)(6)(7)		(1)(5)(6)(7)	
Tag Information	Tag No.	EF-10		EF-11		EF-12	
	Location	Roof		Ceiling		Ceiling	
	Service	Washroom 03		Mech Mezzanine		Mech Rm 01 (SP)	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	G-060-D		SQ-18		SQ-22	
Fan Data	Fan Type	Centrifugal Roof		Inline		Inline	
	Airflow, L/s (CFM)	47	100	1,888	4,000	2,832	6,000
	ESP, Pa (in WC)	62.2	0.25	124	0.50	124	0.50
	Sound Power (Inlet), dBA	44		61		63	
	RPM	1550		1068		841	
	BHP	0.02		0.61		0.9	
	Air Filter Box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Direct		Direct	
	Variable Speed	No	-	Yes	VFD	Yes	VFD
	Motor Power, hp	1/15		1		3	
	Power Supply	Normal		Normal		Emergency	
	Electrical Supply (V/Ph/Hz)	115/1/60		575/3/60		575/3/60	
	Notes	(1)(4)(5)(6)(7)		(1)(5)(6)(7)		(1)(5)(6)(7)	

Notes
(1) Refer to specification.
(2) Aluminum housing, spark C construction, explosion proof motor
(3) c/w MERV 8 pleated filters
(4) c/w 450mm sloped & insulated roof curb, hinged curb cap, and damper tray
(5) c/w motorized insulated damper and fan interlock
(6) c/w disconnect switch and starter
(7) C/w control panel and BACnet integration (120/1/60 connection).

Tag Information	Tag No.	EF-13		EF-14		EF-15	
	Location	Ceiling		Ceiling		Roof	
	Service	Lube Room		Facility Reuse		Washroom 6 & 7	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	CUBE-160XP-10		SQ-9		G-070-D	
Fan Data	Fan Type	Centrifugal Rooftop		Inline		Centrifugal Roof	
	Airflow, L/s (CFM)	472	1,000	708	1,500	106	225
	ESP, Pa (in WC)	323	1.30	311	1.25	62	0.25
	Sound Power (Inlet), dBA	62		65		47	
	RPM	1748		2476		1550	
	BHP	0.5		0.56		0.03	
	Air Filter box	N/A		N/A		N/A	
Electrical	Drive Type	Belt		Direct		Direct	
	Variable Speed	Yes	VFD	Yes	VFD	No	-
	Motor, hp	1		3/4		1/15	
	Power Supply	Normal		Normal		Normal	
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60		115/1/60	
	Notes	(1)(2)(4)(5)(6)(7)		(1)(5)(6)(7)		(1)(4)(5)(6)(7)	
Tag Information	Tag No.	EF-16		EF-17		EF-18 TO 21	
	Location	Roof		Ceiling		Roof	
	Service	Mech Rm 02 (SV)		Large Aux Vehicles-02		Battery Storage	
	Basis of Design	Greenheck		Greenheck		Greenheck	
	Model No.	G-100HP-VG		SQ-18		GB-220HP-30	
Fan Data	Fan Type	Centrifugal Rooftop		Inline		Centrifugal Roof	
	Airflow, L/s (CFM)	236	500	1,888	4,000	2,360	5,000
	ESP, Pa (in WC)	311	1.25	124	0.50	348	1.40
	Sound Power (Inlet), dBA	61		61		71	
	RPM	2034		1068		1102	
	BHP	0.24		0.61		2.31	
	Air Filter Box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Direct		Belt	
	Variable Speed	Yes	ECM	Yes	VFD	Yes	VFD
	Motor, hp	1/2		1		3	
	Power Supply	Normal		Normal		Normal	
	Electrical Supply (V/Ph/Hz)	115/1/60		575/3/60		575/3/60	
	Notes	(1)(4)(5)(6)(7)		(1)(5)(6)(7)		(1)(2)(4)(5)(6)(7)	

Notes
(1) Refer to specification.
(2) Aluminum housing, spark C construction, explosion proof motor
(3) c/w MERV 8 pleated filters
(4) c/w 450mm sloped & insulated roof curb, hinged curb cap, and damper tray
(5) c/w motorized insulated damper and fan interlock
(6) c/w disconnect switch and starter
(7) C/w control panel and BACnet integration (120/1/60 connection).

Tag Information	Tag No.	EF-22		EF-23 TO 26		EF-27 TO 29	
	Location	Ceiling		See Plans		Roof	
	Service	Large Aux Vehicles-01		Elec Charger Rm		Storage Garage #1	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	SQ-27		SE1-18-429-A7		GB-540-150	
Fan Data	Fan Type	Inline		Sidewall		Centrifugal Roof	
	Airflow, L/s (CFM)	3,304	7,000	1,770	3,750	11,327	24,000
	ESP, Pa (in WC)	124	0.50	62	0.25	249	1.00
	Sound Power (Inlet), dBA	63		64		71	
	RPM	594		1533		418	
	BHP	0.97		0.49		8.64	
	Air Filter box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Direct		Belt	
	Variable Speed	Yes	VFD	Yes	VFD	Yes	VFD
	Motor, hp	3		3/4		15	
	Power Supply	Normal		Normal		Normal	
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60		575/3/60	
	Notes	(1)(5)(6)(7)		(1)(5)(6)(7)		(1)(4)(5)(6)(7)	
Tag Information	Tag No.	EF-30		EF-31 TO 32		EF-33	
	Location	See Plans		See plans		See Plans	
	Service	Elec Room 01 SV		Elec Room 01 SP		AHU-01 Corridor	
	Basis of Design	Greenheck		Greenheck		Greenheck	
	Model No.	SE1-18-429-A7		SE1-20-432-A15		SE1-10-440D	
Fan Data	Fan Type	Sidewall		Sidewall		Sidewall	
	Airflow, L/s (CFM)	1,416	3,000	2,832	6,000	378	800
	ESP, Pa (in WC)	124	0.50	124	0.50	37	0.15
	Sound Power (Inlet), dBA	67		73			
	RPM	1559		1696		1550	
	BHP	0.6		1.44		0.1	
	Air Filter Box	N/A		N/A		N/A	
Electrical	Drive Type	Direct		Direct		Direct	
	Variable Speed	Yes	VFD	Yes	VFD	Yes	ECM
	Motor, hp	1		2		1/2	
	Power Supply	Normal		Normal		Normal	
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60		115/1/60	
	Notes	(1)(5)(6)(7)		(1)(5)(6)(7)		(1)(5)(6)(7)	

Notes
(1) Refer to specification.
(2) Aluminum housing, spark C construction, explosion proof motor
(3) c/w MERV 8 pleated filters
(4) c/w 450mm sloped & insulated roof curb, hinged curb cap, and damper tray
(5) c/w motorized insulated damper and fan interlock
(6) c/w disconnect switch and starter
(7) C/w control panel and BACnet integration (120/1/60 connection).

Tag Information	Tag No.	EF-34		SF-01		SF-02	
	Location	Roof		Ceiling		Ceiling	
	Service	Large Break Room		Mech Rm 01 (SP)		Large Aux Vehicles-02	
	Manufacturer	Greenheck		Greenheck		Greenheck	
	Model No.	CUE-090-G		SQ-18		SQ-16	
Fan Data	Fan Type	Centrifugal Rooftop		Inline		Inline	
	Airflow, L/s (CFM)	142	300	2,832	6,000	1,888	4,000
	ESP, Pa (in WC)	62.2	0.25	373	1.50	348	1.40
	Sound Power (Inlet), dBA	46		69		66	
	RPM	1056		1670		1668	
	BHP	0.03		2.45		1.48	
	Air Filter box	N/A		Yes		Yes	
Electrical	Drive Type	Direct		Direct		Direct	
	Variable Speed	Yes	ECM	Yes	VFD	Yes	VFD
	Motor, hp	1/15		3		2	
	Power Supply	Normal		Emergency		Normal	
	Electrical Supply (V/Ph/Hz)	115/1/60		575/3/60		575/3/60	
	Notes	(1)(4)(5)(6)(7)		(1)(3)(5)(6)(7)		(1)(3)(5)(6)(7)	
Tag Information	Tag No.	SF-03		SF-04			
	Location	Ceiling		Ceiling			
	Service	Large Aux Vehicles-01		Mech Mezzanine			
	Basis of Design	Greenheck		Greenheck			
	Model No.	SQ-20		SQ-16			
Fan Data	Fan Type	Inline		Inline			
	Airflow, L/s (CFM)	3,304	7,000	1,888	4,000		
	ESP, Pa (in WC)	323	1.30	373	1.50		
	Sound Power (Inlet), dBA	70		67			
	RPM	1377		1700			
	BHP	2.54		1.58			
	Air Filter Box	Yes		Yes			
Electrical	Drive Type	Direct		Direct			
	Variable Speed	Yes	VFD	Yes	VFD		
	Motor, hp	3		2			
	Power Supply	Normal		Normal			
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60			
	Notes	(1)(3)(5)(6)(7)		(1)(3)(5)(6)(7)			

(1) Refer to specification.
(2) Aluminum housing, spark C construction, explosion proof motor
(3) c/w MERV 8 pleated filters
(4) c/w 450mm sloped & insulated roof curb, hinged curb cap, and damper tray
(5) c/w motorized insulated damper and fan interlock
(6) c/w disconnect switch and starter
(7) C/w control panel and BACnet integration (120/1/60 connection).

HUMIDIFIER SCHEDULE

Tag Information	Tag No.		HU-01		HU-02			
	Location		Offices		Countdown Offices			
	AHU Served		AHU-01		ERV-01			
	Manufacturer		Nortec		Nortec			
	Model No.		GS 100-CS		EL 010			
	Type		Gas-fired...		Electric - In Space			
Capacity	Capacity, kg/h (lb/h)		45	100	9.1	20		
	Min. Turndown Ratio		5:1		N/A			
	Efficiency		90%					
	Gas Input, kW (MBH)		36.3	124				
	Gas Pressure, Pa (in. WC)		1.74	7				
	Fill Rate, Lpm (US gpm)		9.8	2.6	0.8	0.2		
	Min. Water Pressure, kPa (psi)		206.8	30	206.8	30		
	Max. Water Pressure, kPa (psi)		551.58	80	551.58	80		
Air Conditions	Total AHU Airflow L/s (cfm)		9439	20,000	-	-		
	Outdoor Airflow L/s (cfm)		2124	4,500	-	-		
	Outdoor Air Conditions	Temp., °C (°F)	14	57.0	-	-		
		R.H.	45%		-			
	Space Air Conditons	Temp., °C (°F)	22	72	22	72		
		R.H.	50%		50%			
Dispersion	Manufacturer		(By AHU...		Nortec			
	Model No. (# of tubes)		-					
	Type		(Manifold in AHU)		Duct Manifold			
	Duct/AHU Dimensions WxH, mm (in.)		-	-	N/A			
	Absorption Distance, mm (in.)		-	-	228.6	9.0		
Elec.	Electrical Supply (V/Ph/Hz)		120/1/60		120/1/60			
	Rated Current (MCA), A		2.0		36.0			
	Max Current (MOCP), A		15		45			
Dimensions	Max. Dimensions, WxLxH, mm (in.)		640 x 542 x 1101	25.5 x 22 x 44	420x400 x905	16.5x15.8x 35.7		
	Exhaust Flue Dia., mm (in.)		76	3.00	N/A			
	Air Intake Dia., mm (in.)		76	3.00				
	DCW Inlet, mm (in.)		19	0.75	13	0.50		
	Operating Weight, kg (lb)		159	351	29	65		
	Mount		Wall		Wall			
	Notes		(all)		(1)(2)(4)(5)			

Notes
(1) Refer to specification.
(2) C/w control panel and BACnet integration (120/1/60 connection).
(3) c/w condensation neutralization kit for drain connection
(4) O/A conditions based on temperatures leaving the heat recovery device (wheel, pipe, coil, etc)
(5) c/w air pressure proving switch
(6) C/w with sealed combustion burner, and flue exhaust.
(7) C/w disconnect switch

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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City of Winnipeg
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CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

MECHANICAL SCHEDULES (3 OF 4)

SHEET NUMBER

50-M-603

A0 33.1"x46.8"

Designer: Designer Checked: Checker Approved: Approver

Project Management Initials:

50-M-603-MECHANICAL SCHEDULES (3 OF 4)
Last Plotted: 14-02-2025 22:37:11
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg North Transit Garage-M.rvt

Printed on ___% Post-Consumer Recycled Content Paper

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

VAV BOX SCHEDULE

	Tag No.	VAV-01		VAV-02		VAV-03	
Tag...	Service	COUNTDOWN...		COUNTDOWN...		VESTIBULE 02	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	125	5	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	28	60	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	236	500	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-04		VAV-05		VAV-06	
Tag...	Service	CORRIDOR 01		GARAGE MANAGER		LEAD HAND	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	100	4	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	21	45	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	189	400	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-07		VAV-08		VAV-09	
Tag...	Service	SUPERVISOR I		SUPERVISOR II		UNIFORM STORAGE	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	100	4	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	21	45	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	189	400	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

Notes

(1) Refer to specification.
(2) C/w 900mm long attenuator.
(3) C/w disconnect switch and transformer 120/24V for VAV box controls.
(4) Refer to layout drawings for airflow requirements.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6)

	Tag No.	VAV-10		VAV-11		VAV-12	
Tag...	Service	FILES STORAGE		VESTIBULE 03		G.N. WASHROOM 02	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	100	4	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	21	45	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	189	400	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-13		VAV-14		VAV-15	
Tag...	Service	URINAL WC		VESTIBULE 04		MECHANICS...	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	175	7	100	4	250	10
	Min. Rated Airflow, L/s (cfm)	45	95	21	45	99	210
	Max. Rated Airflow, L/s (cfm)	378	800	189	400	850	1800
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-16		VAV-17		VAV-18	
Tag...	Service	DRIVERS LOCKER		GENERAL STORAGE		QUIET ROOM	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	225	9	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	76	160	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	661	1,400	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

Notes

(1) Refer to specification.
(2) C/w 900mm long attenuator.
(3) C/w disconnect switch and transformer 120/24V for VAV box controls.
(4) Refer to layout drawings for airflow requirements.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6)

	Tag No.	VAV-19		VAV-20		VAV-21	
Tag...	Service	INFO CENTER		DISPATCH...		INFO CENTER	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	250	10	100	4	200	8
	Min. Rated Airflow, L/s (cfm)	99	210	21	45	59	125
	Max. Rated Airflow, L/s (cfm)	850	1,800	189	400	519	1100
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-22		VAV-23		VAV-24	
Tag...	Service	DISPATCH WS INT.		DISPATCH WS. PER.		VESTIBULE 01	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	125	5	200	8	100	4
	Min. Rated Airflow, L/s (cfm)	28	60	59	125	21	45
	Max. Rated Airflow, L/s (cfm)	236	500	519	1,100	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-25		VAV-26		VAV-27	
Tag...	Service	TRAINING CONF....		TRAINING CONF....		BREAK ROOM PER.	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	175	7	100	4	300	12
	Min. Rated Airflow, L/s (cfm)	45	95	21	45	142	300
	Max. Rated Airflow, L/s (cfm)	378	800	189	400	1,227	2600
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

Notes

(1) Refer to specification.
(2) C/w 900mm long attenuator.
(3) C/w disconnect switch and transformer 120/24V for VAV box controls.
(4) Refer to layout drawings for airflow requirements.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6)

VAV BOX SCHEDULE

	Tag No.	VAV-28		VAV-29		VAV-30	
Tag...	Service	BREAKROOM		BREAKROOM		BREAKROOM PER.	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	300	12	300	12	300	12
	Min. Rated Airflow, L/s (cfm)	142	300	142	300	142	300
	Max. Rated Airflow, L/s (cfm)	1,227	2,600	1,227	2,600	1,227	2600.00
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-31		VAV-32		VAV-33	
Tag...	Service	TV ROOM		MAINT. SUP. 02		ELEC. IN CHARGE	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	125	5	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	28	60	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	236	500	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-34		VAV-35		VAV-36	
Tag...	Service	ELEC. SUPERVISOR		MAIN. IN CHARGE		MAINT....	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	100	4	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	21	45	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	189	400	189	400	189	400
	Sound Power (Inlet), dBA	-					
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

Notes

(1) Refer to specification.
(2) C/w 900mm long attenuator.
(3) C/w disconnect switch and transformer 120/24V for VAV box controls.
(4) Refer to layout drawings for airflow requirements.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6)

	Tag No.	VAV-37		VAV-38		VAV-39	
Tag...	Service	FM CHARGE HAND		BLD. MAINT. SUP.		CORRIDOR 01	
	Manufacturer	EH PRICE		EH PRICE		EH PRICE	
	Model No.	SDV		SDV		SDV	
Fan Data	Size, mm (in)	100	4	100	4	100	4
	Min. Rated Airflow, L/s (cfm)	21	45	21	45	21	45
	Max. Rated Airflow, L/s (cfm)	189	400	189	400	189	400
	Sound Power (Inlet), dBA	-				-	
Notes		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)		(1)(2)(3)(4)(5)	

	Tag No.	VAV-40		VAV-41			
Tag...	Service	AHU-01 EXHAUST		AHU-01 EXHAUST			
	Manufacturer	EH PRICE		EH PRICE			
	Model No.	SDEQ-SM		SDEQ-SM			
Fan Data	Size, mm (in)	350	14	350	14		
	Min. Rated Airflow, L/s (cfm)	184	390	184	390		
	Max. Rated Airflow, L/s (cfm)	1,227	2600.00	1,227	2600.00		
	Sound Power (Inlet), dBA						
Notes		(all)		(all)			

	Tag No.						
Tag...	Service						
	Manufacturer						
	Model No.						
Fan Data	Size, mm (in)						
	Min. Rated Airflow, L/s (cfm)						
	Max. Rated Airflow, L/s (cfm)						
	Sound Power (Inlet), dBA						
Notes							

Notes

(1) Refer to specification.
(2) C/w 900mm long attenuator.
(3) C/w disconnect switch and transformer 120/24V for VAV box controls.
(4) Refer to layout drawings for airflow requirements.
(5) C/w control panel and BACnet integration (120/1/60 connection).
(6) C/w packless integral silencers and solid metal liners

REHEAT COIL SCHEDULE

	Tag No.	RHC-01		RHC-02		RHC-03	
Tag...	Location	RESERVED		RESERVED		See Plans	
	Service					See Plans	
	Manufacturer					by VAV box manuf.	
General	Fluid Type					50% Prop. Glycol	
	Airflow, L/s (cfm)					5	11
	Heating Capacity, kW (MBH)					0.1	0.3
	Fluid Flow, L/m (gpm)					0.1	0.02
	EWT, °C (°F)					48.9	120.0
	LWT, °C (°F)					35.0	95.0
	EAT, °C (°F)					18.3	65.0
	LAT, °C (°F)					30.6	87.0
	No. of rows						
	Air PD, Pa (in. wc)					0.00	
	Water PD, kPa (ft wc)					0.00	
Notes						(all)	

	Tag No.	RHC-04		RHC-05		RHC-06	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	10	21	15	32	15	32
	Heating Capacity, kW (MBH)	0.1	0.5	0.2	0.8	0.2	0.8
	Fluid Flow, L/m (gpm)	0.2	0.05	0.3	0.07	0.3	0.07
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2		2	
	Air PD, Pa (in. wc)	0.01	0.04	0.01	0.03	0.01	0.03
	Water PD, kPa (ft wc)	0.60	0.20	0.60	0.20	0.60	0.20
Notes		(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

	Tag No.	RHC-07		RHC-08		RHC-09	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	15	32	15	32	5	11
	Heating Capacity, kW (MBH)	0.2	0.8	0.2	0.8	0.1	0.3
	Fluid Flow, L/m (gpm)	0.3	0.07	0.3	0.07	0.1	0.02
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2			
	Air PD, Pa (in. wc)	0.01	0.03	0.01	0.03	0.00	
	Water PD, kPa (ft wc)	0.60	0.20	0.60	0.20	0.00	
Notes		(all)		(all)		(all)	

	Tag No.	RHC-10		RHC-11		RHC-12	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	5	11	5	11	80	170
	Heating Capacity, kW (MBH)	0.1	0.3	0.1	0.3	1.2	4.0
	Fluid Flow, L/m (gpm)	0.1	0.02	0.1	0.02	1.4	0.37
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows					2	
	Air PD, Pa (in. wc)	0.00		0.00		0.02	0.10
	Water PD, kPa (ft wc)	0.00		0.00		1.50	0.50
Notes		(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

	Tag No.	RHC-13		RHC-14		RHC-15	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	250	530	70	148	495	1049
	Heating Capacity, kW (MBH)	3.7	12.6	1.0	3.5	7.3	24.9
	Fluid Flow, L/m (gpm)	4.3	1.14	1.2	0.32	8.6	2.27
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	4		2		6	
	Air PD, Pa (in. wc)	0.08	0.31	0.01	0.05	0.16	0.64
	Water PD, kPa (ft wc)	1.50	0.50	1.20	0.40	3.89	1.30
Notes		(all)		(all)		(all)	

	Tag No.	RHC-16		RHC-17		RHC-18	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	460	975	5	11	20	42
	Heating Capacity, kW (MBH)	6.8	23.2	0.1	0.3	0.3	1.0
	Fluid Flow, L/m (gpm)	8.0	2.11	0.1	0.02	0.3	0.09
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	5				2	
	Air PD, Pa (in. wc)	0.16	0.65	0.00		0.01	0.03
	Water PD, kPa (ft wc)	2.99	1.00	0.00		0.60	0.20
Notes		(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

	Tag No.	RHC-19		RHC-20		RHC-21	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	145	307	5	11	105	222
	Heating Capacity, kW (MBH)	2.1	7.3	0.1	0.3	1.5	5.3
	Fluid Flow, L/m (gpm)	2.5	0.66	0.1	0.02	1.8	0.48
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2				2	
	Air PD, Pa (in. wc)	0.03	0.11	0.00		0.02	0.07
	Water PD, kPa (ft wc)	4.49	1.50	0.00		2.39	0.80
Notes		(all)		(all)		(all)	

	Tag No.	RHC-22		RHC-23		RHC-24	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	35	74	50	106	5	11
	Heating Capacity, kW (MBH)	0.5	1.8	0.7	2.5	0.1	0.3
	Fluid Flow, L/m (gpm)	0.6	0.16	0.9	0.23	0.1	0.02
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2			
	Air PD, Pa (in. wc)	0.04	0.16	0.01	0.05	0.00	
	Water PD, kPa (ft wc)	0.60	0.20	0.90	0.30	0.00	
Notes		(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

SILENCERS SCHEDULE

	Tag No.	SL-S-01		SL-R-01		SL-E-01	
Tag Information	Service	AHU-01 SUPPLY AIR		AHU-01 RETURN AIR		AHU-01 EXHAUST AIR	
	Manufacturer	VIBRO-ACOUSTICS		VIBRO-ACOUSTICS		VIBRO-ACOUSTICS	
	Model No.	CD-MV-F1		CD-MV-F1		CFL-UHV-F1	
	Type	CD		CD		CFL	
General	Flowrate, L/s (cfm)	7,079	15,000	6,607	14,000	1,510	3,200
	Velocity, m/s (fpm)	-6.6	-1300	6.2	1213	-40.2	-7922
	Pressure Drop, Pa (in. wc.)	7	0.03	10	0.04	2	0.01
	Type	ROUND		ROUND		ROUND	
	Length, mm (in.)	1,168	46	3,505	138	914	36
	Inlet Dia./Width x Height, mm (in.)	1168	46	1168	46	457	18
Sound Data	Min. Dynamic Insertion Loss (dB)						
	63 dB	5		13		4	
	125 dB	8		23		6	
	250 dB	16		39		10	
	500 dB	21		48		12	
	1000 dB	26		45		10	
	2000 dB	17		32		9	
	4000 dB	10		21		7	
	8000 dB	5		17		3	
Notes		(all)		(all)		(all)	

	Tag No.	SL-S-02		SL-R-02		SL-S-03	
Tag Information	Service	HRU-05A SUPPLY AIR		HRU-05A RETURN AIR		HRU-05B SUPPLY AIR	
	Manufacturer	VIBRO-ACOUSTICS		VIBRO-ACOUSTICS		VIBRO-ACOUSTICS	
	Model No.	RD-HV-F4		RD-UHV-F4		CD-HV-F1	
	Type	RD		RD		CD	
General	Flowrate, L/s (cfm)	8,259	17,500	8,495	18,000	8,259	17,500
	Velocity, m/s (fpm)	6.7	1312	6.2	1227	-8.4	-1657
	Pressure Drop, Pa (in. wc.)	17	0.07	12	0.05	5	0.02
	Type	RECTANGULAR		RECTANGULAR		ROUND	
	Length, mm (in.)	914	36	914	36	1,118	44
	Inlet Dia./Width x Height, mm (in.)	1200x1000	48x40	1200x1100	48x44	1118	44
Sound Data	Min. Dynamic Insertion Loss (dB)						
	63 dB	3		2		5	
	125 dB	5		3		7	
	250 dB	9		7		13	
	500 dB	14		12		18	
	1000 dB	14		11		20	
	2000 dB	11		10		13	
	4000 dB	8		8		8	
	8000 dB	6		8		5	
Notes		(all)		(all)		(all)	

	Tag No.	SL-S-04					
Tag Information	Service	HRU-06 SUPPLY AIR					
	Manufacturer	VIBRO-ACOUSTICS					
	Model No.	RD-UHV-F9					
	Type	RD					
General	Flowrate, L/s (cfm)	80	170				
	Velocity, m/s (fpm)	5.6	1100				
	Pressure Drop, Pa (in. wc.)	8	0.03				
	Type	RECTANGULAR					
	Length, mm (in.)	1,524	60				
	Inlet Dia./Width x Height, mm (in.)	150x150	6x6				
Sound Data	Min. Dynamic Insertion Loss (dB)						
	63 dB	5					
	125 dB	4					
	250 dB	10					
	500 dB	24					
	1000 dB	38					
	2000 dB	33					
	4000 dB	21					
	8000 dB	17					
Notes		(all)					

Notes

(1) Refer to specification.
(2) Type: C-circular, D-dissipative, FL-film lined
(3) Velocity shown is + (forward flow) or - (reverse flow) as defined by astm e477-20.
(4) Pressure drop per astm e477-20 plus system effects for nearby duct elements.
(5) Minimum dynamic insertion loss determined per astm e477-20 in a nvlap-accredited acoustical laboratory.
(6) Vibar film liner media protection.

REHEAT COIL SCHEDULE

	Tag No.	RHC-25		RHC-26		RHC-27	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	120	254	80	170	110	233
	Heating Capacity, kW (MBH)	1.8	6.0	1.2	4.0	1.6	5.5
	Fluid Flow, L/m (gpm)	2.1	0.55	1.4	0.37	1.9	0.50
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2		2	
	Air PD, Pa (in. wc)	0.01	0.05	0.02	0.10	0.01	0.04
	Water PD, kPa (ft wc)	3.59	1.20	1.50	0.50	2.99	1.00
Notes		(all)		(all)		(all)	

	Tag No.	RHC-28		RHC-29		RHC-30	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	110	233	110	233	110	233
	Heating Capacity, kW (MBH)	1.6	5.5	1.6	5.5	1.6	5.5
	Fluid Flow, L/m (gpm)	1.9	0.50	1.9	0.50	1.9	0.50
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2		2	
	Air PD, Pa (in. wc)	0.01	0.04	0.01	0.04	0.01	0.04
	Water PD, kPa (ft wc)	2.99	1.00	2.99	1.00	2.99	1.00
Notes		(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

	Tag No.	RHC-31		RHC-32		RHC-33	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	30	64	10	21	15	32
	Heating Capacity, kW (MBH)	0.4	1.5	0.1	0.5	0.2	0.8
	Fluid Flow, L/m (gpm)	0.5	0.14	0.2	0.05	0.3	0.07
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2		2	
	Air PD, Pa (in. wc)	0.02	0.08	0.01	0.04	0.01	0.03
	Water PD, kPa (ft wc)	0.60	0.20	0.60	0.20	0.60	0.20
Notes		(all)		(all)		(all)	

	Tag No.	RHC-34		RHC-35		RHC-36	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	15	32	15	32	15	32
	Heating Capacity, kW (MBH)	0.2	0.8	0.2	0.8	0.2	0.8
	Fluid Flow, L/m (gpm)	0.3	0.07	0.3	0.07	0.3	0.07
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2		2	
	Air PD, Pa (in. wc)	0.01	0.03	0.01	0.03	0.01	0.03
	Water PD, kPa (ft wc)	0.60	0.20	0.60	0.20	0.60	0.20
Notes		(all)		(all)		(all)	

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

	Tag No.	RHC-37		RHC-38		RHC-39	
Tag...	Location	See Plans		See Plans		See Plans	
	Service	See Plans		See Plans		See Plans	
	Manufacturer	by VAV box manuf.		by VAV box manuf.		by VAV box manuf.	
General	Fluid Type	50% Prop. Glycol		50% Prop. Glycol		50% Prop. Glycol	
	Airflow, L/s (cfm)	15	32	15	32	10	21
	Heating Capacity, kW (MBH)	0.2	0.8	0.2	0.8	0.1	0.5
	Fluid Flow, L/m (gpm)	0.3	0.07	0.3	0.07	0.2	0.05
	EWT, °C (°F)	48.9	120.0	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0	35.0	95.0
	EAT, °C (°F)	18.3	65.0	18.3	65.0	18.3	65.0
	LAT, °C (°F)	30.6	87.0	30.6	87.0	30.6	87.0
	No. of rows	2		2		2	
	Air PD, Pa (in. wc)	0.01	0.03	0.01	0.03	0.01	0.04
	Water PD, kPa (ft wc)	0.60	0.20	0.60	0.20	0.60	0.20
Notes		(all)		(all)		(all)	

	Tag No.						
Tag...	Location						
	Service						
	Manufacturer						
General	Fluid Type						
	Airflow, L/s (cfm)						
	Heating Capacity, kW (MBH)						
	Fluid Flow, L/m (gpm)						
	EWT, °C (°F)						
	LWT, °C (°F)						
	EAT, °C (°F)						
	LAT, °C (°F)						
	No. of rows						
	Air PD, Pa (in. wc)						
	Water PD, kPa (ft wc)						
Notes							

Notes

(1) Refer to specification.
(2) Single or double row as required to meet capacity.
(3) C/w control panel and BACnet integration (120/1/60 connection).
(4)
(5)

BASEBOARD HEATER SCHEDULE

	Tag No.	BB-01		BB-02	
Tag Info.	Location	Refer to Plans		Refer to Plans	
	Manufacturer	Runtal		Runtal	
	Model No.	R3F-4		R3F-8	
Performance	Fluid	50% P.G.		50% P.G.	
	Heating Per Foot, kW (MBH)	0.24	0.828	0.41	1.396
	EWT, °C (°F)	48.9	120.0	48.9	120.0
	LWT, °C (°F)	35.0	95.0	35.0	95.0
	Height, mm (in.)	292	11.5	587	23.1
Notes		(1)		(1)	

(1) Refer to specification.
(2) C/w control panel and BACnet integration (120/1/60 connection).
(3)

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

MECHANICAL SCHEDULES (4 OF 4)

SHEET NUMBER

50-M-604

50-M-604-MECHANICAL SCHEDULES (4 OF 4)
Last Plotted: 15-02-2025 00:06:33
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

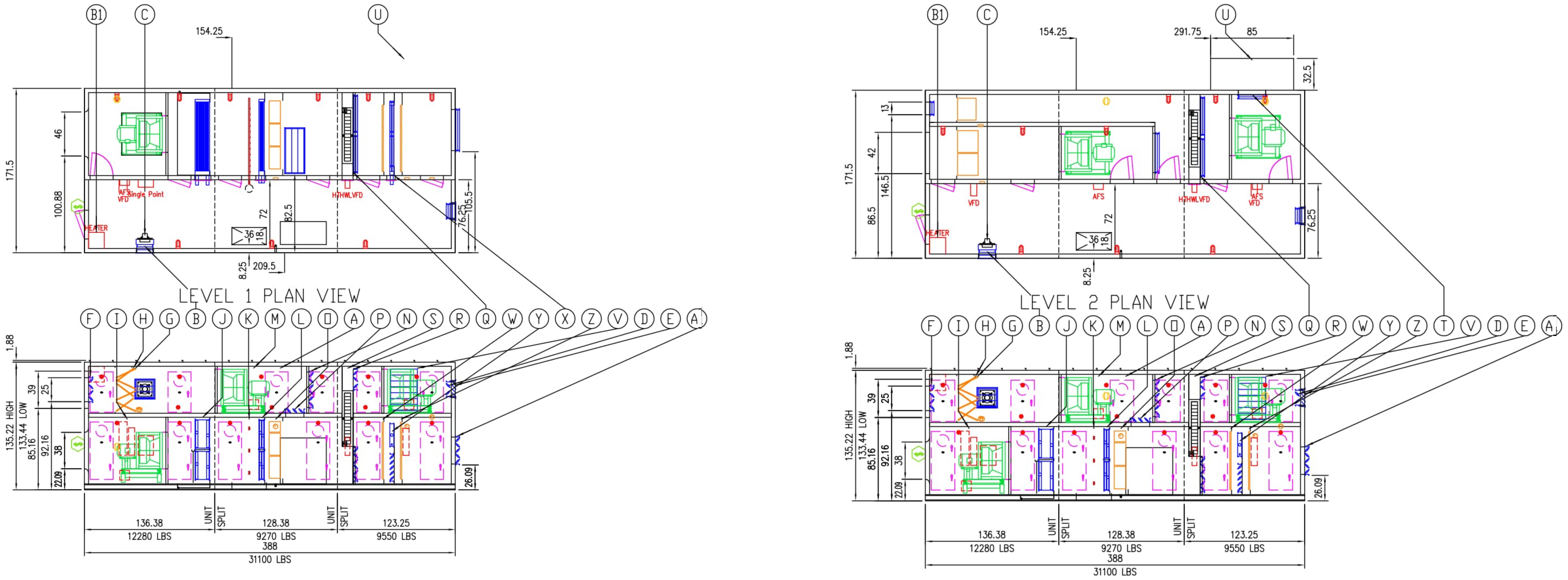
Printed on ___% Post-Consumer Recycled Content Paper

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN THE IMPERIAL UNITS



(W) FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 500 FPM
TYPE : 2" (MERV 11) Farr Aeropleat-Eleven
SIZES : 6 @ 24 X 24 3 @ 24 X 12

(X) BYPASS DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 1000
SIZE : 69 X 30

(Y) PRE HEAT COIL
TYPE : 1 ROW
SIZES : 1 @ 24 X 69
CONN : RIGHT PULL : RIGHT
VEL : 400 FPM

(Z) FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 500 FPM
TYPE : 2" (MERV 11) Farr Aeropleat-Eleven
SIZES : 6 @ 24 X 24 3 @ 24 X 12

(A1) OA DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 45 X 30

(B1) 2 kW Unit Heater
– c/w Thermostat

UNIT MOUNTING
The unit is designed to be mounted on a concrete curb.

Note : Calculated unit weights are shipping weights and do not reflect operating conditions, items which are field installed or ship loose.

(M) Service : RF
Fan: 27" EPFN SW, 105% Width, Arrangement-4
Class: 1 Max RPM: 1556
Design
A.F.(cfm): 14000
TSP(inWC): 2.20
ESP(inWC): 1.50
RPM: 1389
FEI: 1.28
MOTOR : 10 HP, TEFC Prem-Eff, 575/3/60
RPM : 1150 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG80 η_{pt}: 78% η_t / η_{pt} : 80%

(N) RA TO WHEEL DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 42 X 39

(O) FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 500 FPM
TYPE : 12" (MERV 16) Farr Durafil 4V ES Merv 16
SIZES : 6 @ 24 X 24 3 @ 24 X 12

(P) RECIRC DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 1000
SIZE : 48 X 21

(Q) SUPPLY BYPASS DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 82 X 37

(R) EXHAUST BYPASS DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 82 X 23

(S) HEAT WHEEL
TYPE: SG AMERICA HPR-1300T20
VOLTAGE : 575/3/60
VARIABLE SPEED
MOTOR : 0.25 HP

(T) EA DISCH DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 30 X 45

(U) EA DISCH HOOD

(V) Service : EF Out
Fan: 27" EPFN SW, Arrangement-4
Class: 2 Max RPM: 1981
Design
A.F.(cfm): 14000
TSP(inWC): 3.10
ESP(inWC): 1.50
RPM: 1530
FEI: 1.32
MOTOR : 15 HP, ODP Prem-Eff, 575/3/60
RPM : 1150 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG80 η_{pt}: 78% η_t / η_{pt} : 85%

(A) HUM

(B) OPEN DAMPER : PARALLEL BLADES
MAKE : TAMCO 7000-CW
SIZE : 18 X 18

(C) Vent Fan
Greenheck SE1-10-440D

(D) OPEN DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 18 X 18

(E) LOUVRE SIZE : 18 X 18
Std Louvre

(F) EA INLET DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 15 X 27

(G) FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 438 FPM
TYPE : 2" (MERV 8) Farr 30/30
SIZES : 8 @ 24 X 24

(H) FILTERS : LIFT-OUT DOWNSTREAM
VELOCITY : 208 FPM
TYPE : 2" (MERV 8) Farr 30/30
SIZES : 3 @ 24 X 24

(I) Service : SF
Fan: 27" EPFN SW, Arrangement-4
Class: 3 Max RPM: 2546
Design
A.F.(cfm): 15000
TSP(inWC): 5.50
ESP(inWC): 2.00
RPM: 1820
FEI: 1.33
MOTOR : 20 HP, ODP Prem-Eff, 575/3/60
RPM : 1750 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG80 η_{pt}: 78% η_t / η_{pt} : 92%

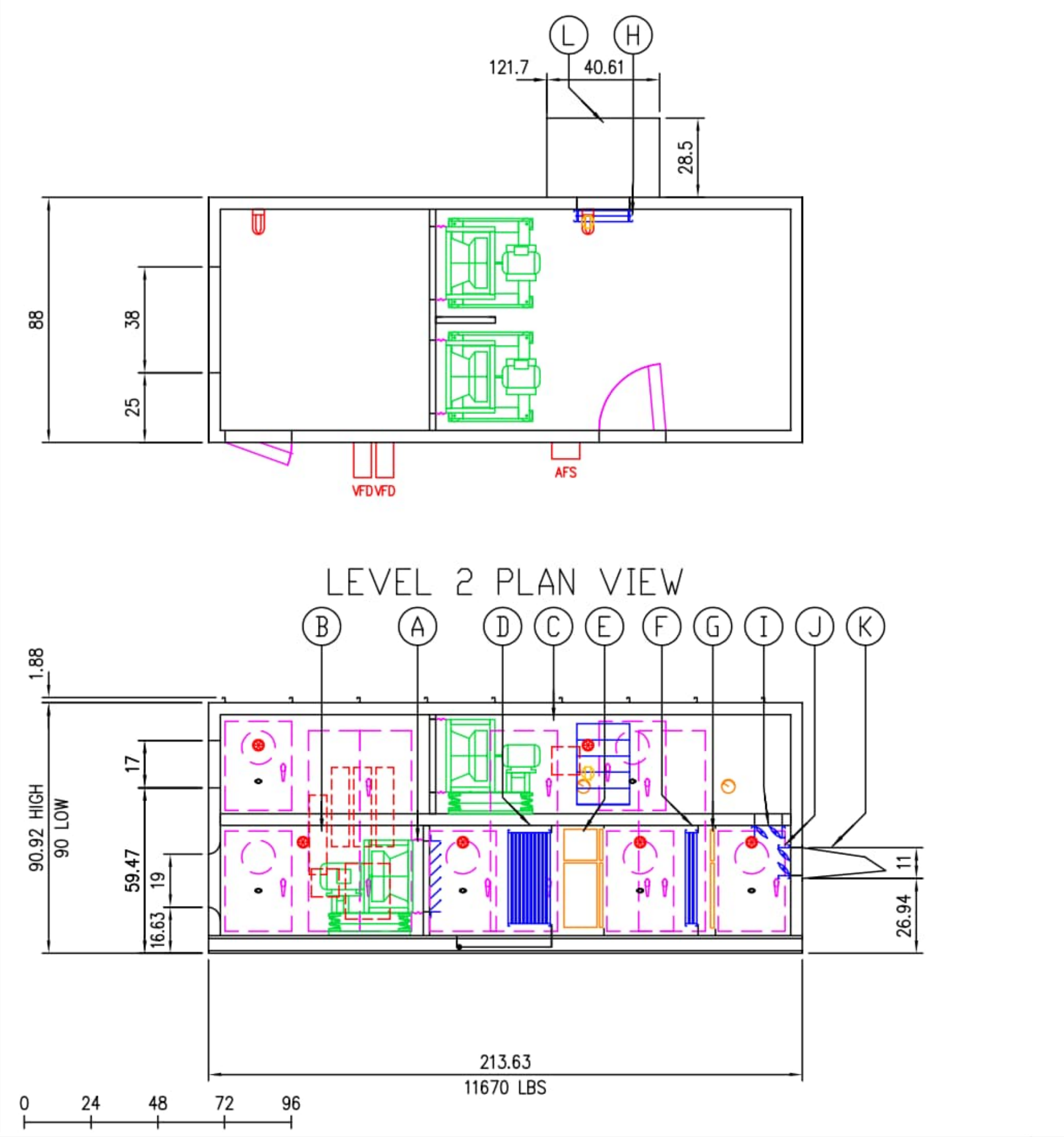
(J) COOLING COIL
TYPE : 10 ROW
SIZES : 2 @ 30 X 72
CONN : RIGHT PULL : RIGHT
DRAIN : LEFT VEL : 500 FPM

(K) HUMIDIFIER
CONN : Right Side

(L) HEATING COIL
TYPE : 3 ROW
SIZES : 2 @ 30 X 72
CONN : RIGHT PULL : RIGHT
VEL : 500 FPM

SDG VER: Jan 20 2025

1 **AHU-01**
50-M-610 NTS



(L) EA DISCH HOOD

(I) RA DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 1000
SIZE : 53 X 12

(J) OA DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 1000
SIZE : 58 X 12

(K) OA HOOD

UNIT MOUNTING
The unit is designed to be mounted on a concrete curb.

Note : Calculated unit weights are shipping weights and do not reflect operating conditions, items which are field installed or ship loose.

(A) FAN INLET DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 7600CWA
SIZE : 2 @ 25.5 X 25.5

(B) Service : SF
Fan: 2 @ 18" EPQN SW, 60% Width, Arrangement-4
Class: 3 Max RPM: 3767

	Design	N-1
A.F.(cfm):	3000	6000
TSP(inWC):	5.00	5.00
ESP(inWC):	2.00	2.00
RPM:	2338	3403
# Fans:	2	1
Tot CFM:	6000	6000
FEI:	1.33	1.01

MOTOR : 10 HP, TEFC Prem-Eff, 575/3/60
RPM : 3500 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG75 η_{pt}: 70% η_t / η_{pt} : 95%

(C) Service : RF
Fan: 2 @ 18" EPFN SW, 75% Width, Arrangement-4
Class: 2 Max RPM: 2930

	Design	N-1
A.F.(cfm):	2750	5500
TSP(inWC):	2.15	2.15
ESP(inWC):	1.75	1.75
RPM:	1593	2321
# Fans:	2	1
Tot CFM:	5500	5500
FEI:	1.57	1.10

MOTOR : 5 HP, TEFC Prem-Eff, 575/3/60
RPM : 1750 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG80 η_{pt}: 73% η_t / η_{pt} : 94%

(D) COOLING COIL
TYPE : 10 ROW
SIZES : 1 @ 33 X 66
CONN : LEFT PULL : RIGHT
DRAIN : RIGHT VEL : 397 FPM

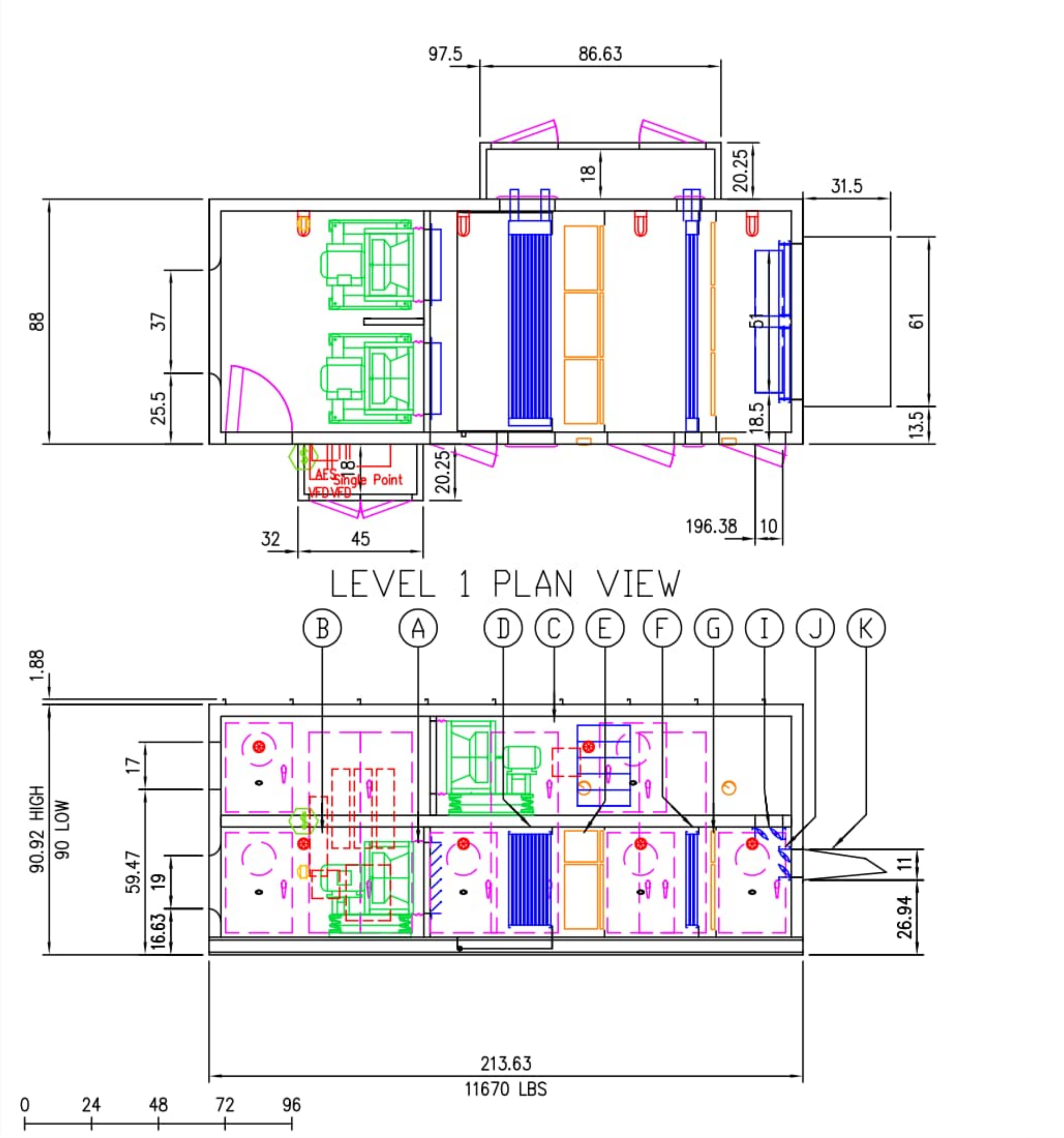
(E) Winter FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 333 FPM
TYPE : 2" (MERV 8) Farr 30/30
12" (MERV 13) Farr Durafil 4V ES Merv 13
SIZES : 3 @ 24 X 24 3 @ 24 X 12

(F) HEATING COIL
TYPE : 2 ROW
SIZES : 1 @ 33 X 66
CONN : LEFT PULL : RIGHT
VEL : 397 FPM

(G) Summer FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 333 FPM
TYPE : 2" (MERV 8) Farr 30/30
SIZES : 3 @ 24 X 24 3 @ 24 X 12

(H) EA DISCH DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 21 X 31

SDG VER: Jan 20 2025



(I) RA DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 1000
SIZE : 53 X 12

(J) OA DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 1000
SIZE : 58 X 12

(K) OA HOOD

UNIT MOUNTING
The unit is designed to be mounted on a concrete curb.

Note : Calculated unit weights are shipping weights and do not reflect operating conditions, items which are field installed or ship loose.

(A) FAN INLET DAMPER : PARALLEL BLADES
MAKE : T.A. Morrison 7600CWA
SIZE : 2 @ 25.5 X 25.5

(B) Service : SF
Fan: 2 @ 18" EPQN SW, 60% Width, Arrangement-4
Class: 3 Max RPM: 3767

	Design	N-1
A.F.(cfm):	3000	6000
TSP(inWC):	5.00	5.00
ESP(inWC):	2.00	2.00
RPM:	2338	3403
# Fans:	2	1
Tot CFM:	6000	6000
FEI:	1.33	1.01

MOTOR : 10 HP, TEFC Prem-Eff, 575/3/60
RPM : 3500 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG75 η_{pt}: 70% η_t / η_{pt} : 95%

(C) Service : RF
Fan: 2 @ 18" EPFN SW, 75% Width, Arrangement-4
Class: 2 Max RPM: 2930

	Design	N-1
A.F.(cfm):	2750	5500
TSP(inWC):	2.15	2.15
ESP(inWC):	1.75	1.75
RPM:	1593	2321
# Fans:	2	1
Tot CFM:	5500	5500
FEI:	1.57	1.10

MOTOR : 5 HP, TEFC Prem-Eff, 575/3/60
RPM : 1750 (GROUNDED SHAFT)
ISOLATORS : OS DEF : 2 in
FEG80 η_{pt}: 73% η_t / η_{pt} : 94%

(D) COOLING COIL
TYPE : 10 ROW
SIZES : 1 @ 33 X 66
CONN : LEFT PULL : RIGHT
DRAIN : RIGHT VEL : 397 FPM

(E) Winter FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 333 FPM
TYPE : 2" (MERV 8) Farr 30/30
12" (MERV 13) Farr Durafil 4V ES Merv 13
SIZES : 3 @ 24 X 24 3 @ 24 X 12

(F) HEATING COIL
TYPE : 2 ROW
SIZES : 1 @ 33 X 66
CONN : LEFT PULL : RIGHT
VEL : 397 FPM

(G) Summer FILTERS : LIFT-OUT UPSTREAM
VELOCITY : 333 FPM
TYPE : 2" (MERV 8) Farr 30/30
SIZES : 3 @ 24 X 24 3 @ 24 X 12

(H) EA DISCH DAMPER : OPPOSED BLADES
MAKE : T.A. Morrison 1000
SIZE : 21 X 31

SDG VER: Jan 20 2025

2 **AHU-02**
50-M-610 NTS

50-M-610-EQUIPMENT ENLARGED VIEW (1 OF 2)
Last Plotted: 14-02-2025 22:37:15
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Printed on ___% Post-Consumer Recycled Content Paper

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

EQUIPMENT ENLARGED VIEW (1 OF 2)

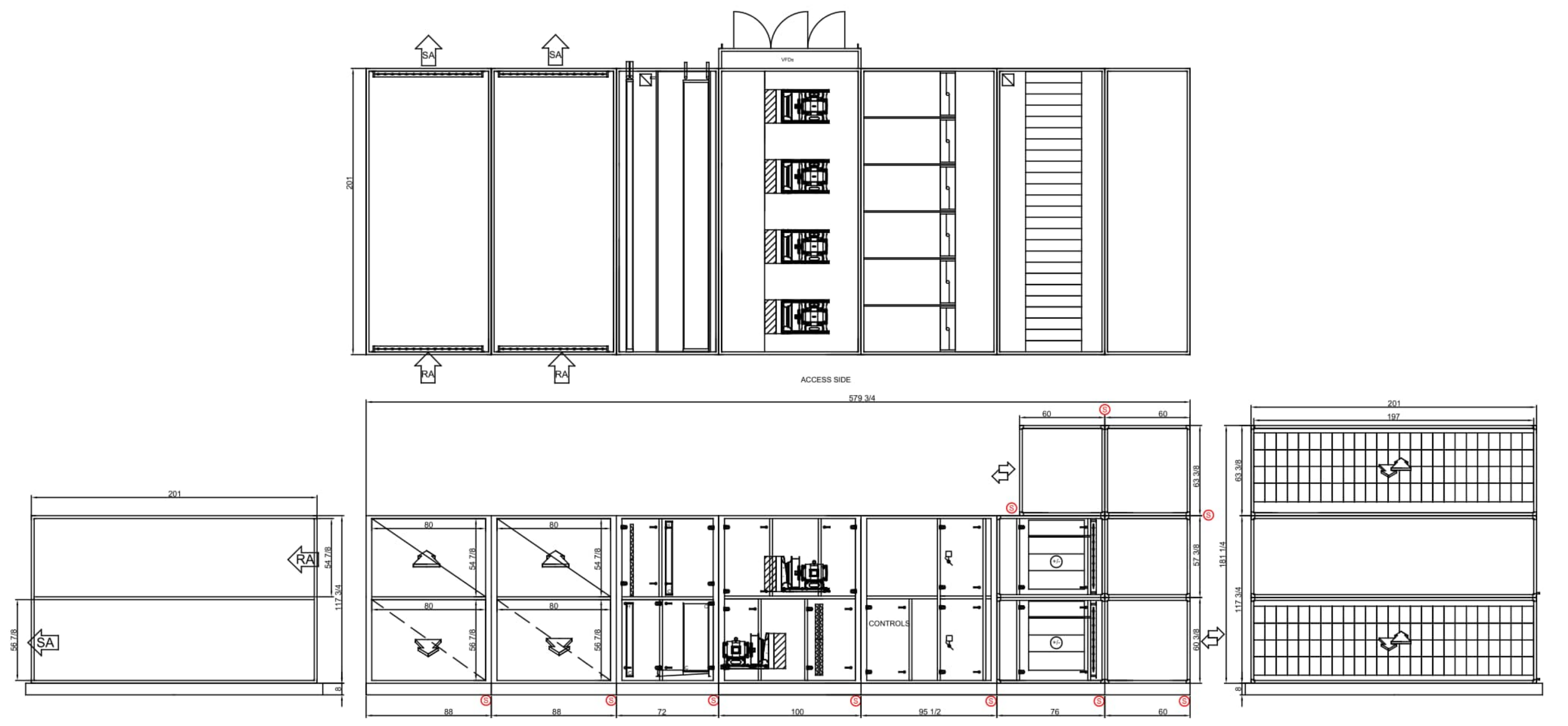
SHEET NUMBER

50-M-610

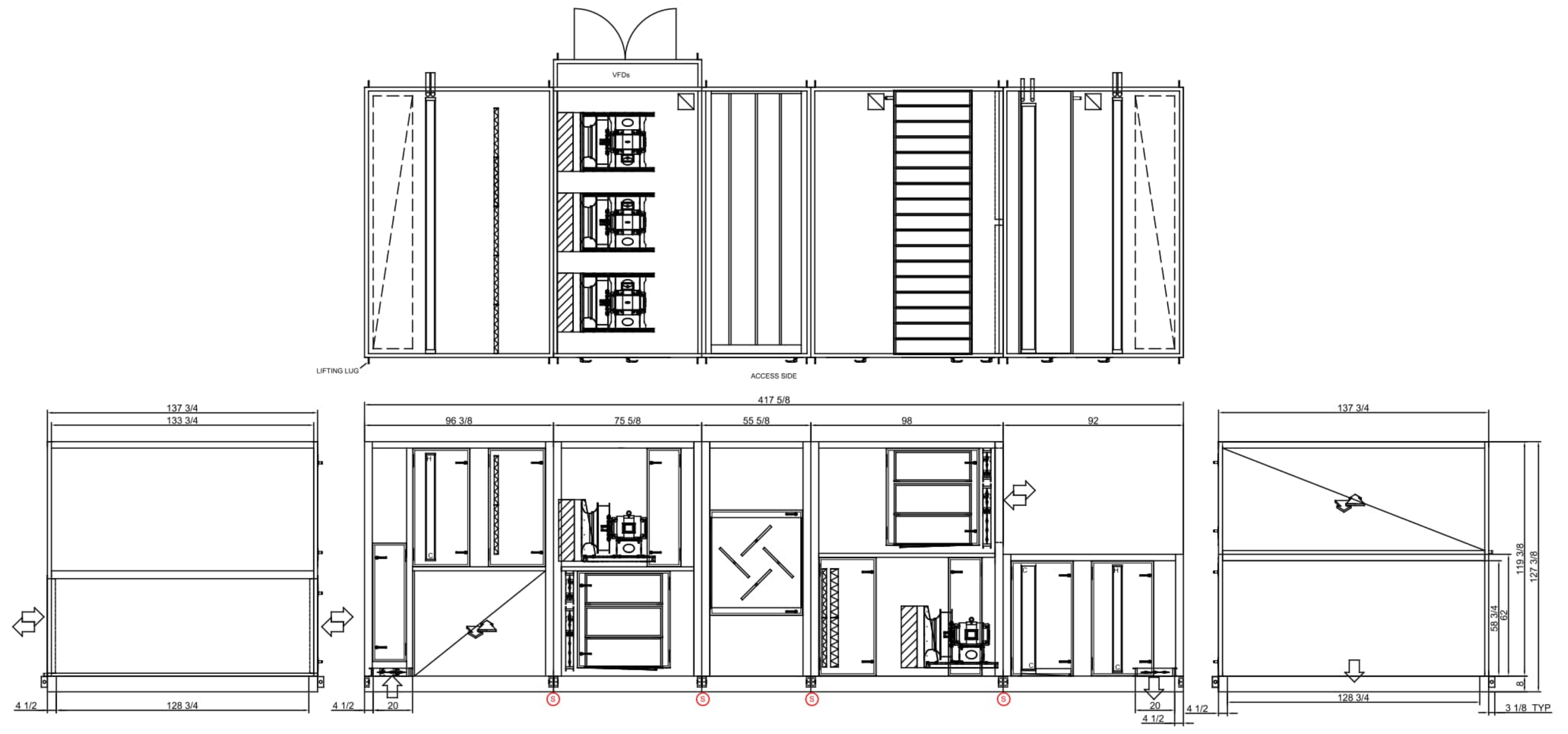
Project Management Initials: Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

GENERAL NOTES:

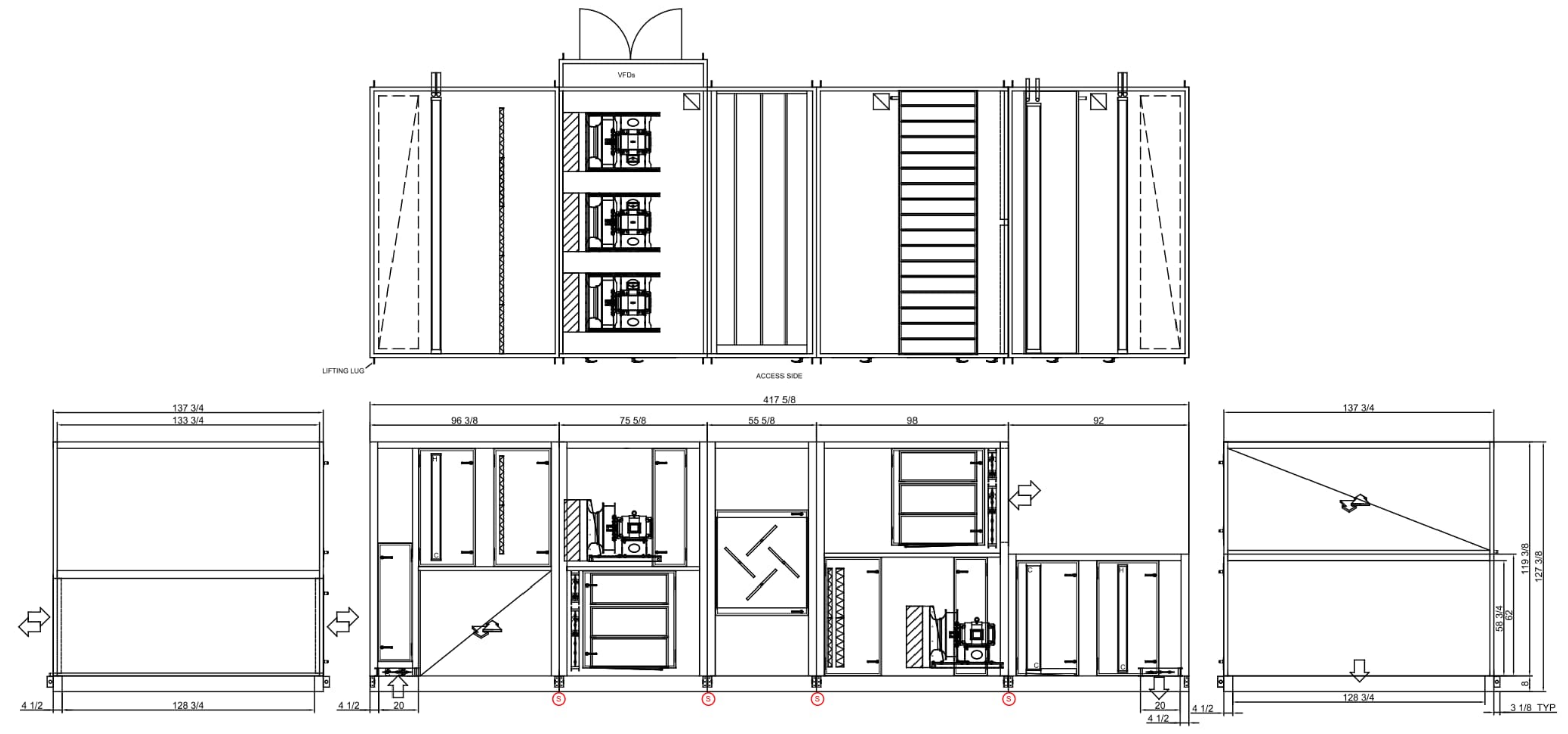
1. ALL DIMENSIONS ARE IN THE IMPERIAL UNITS



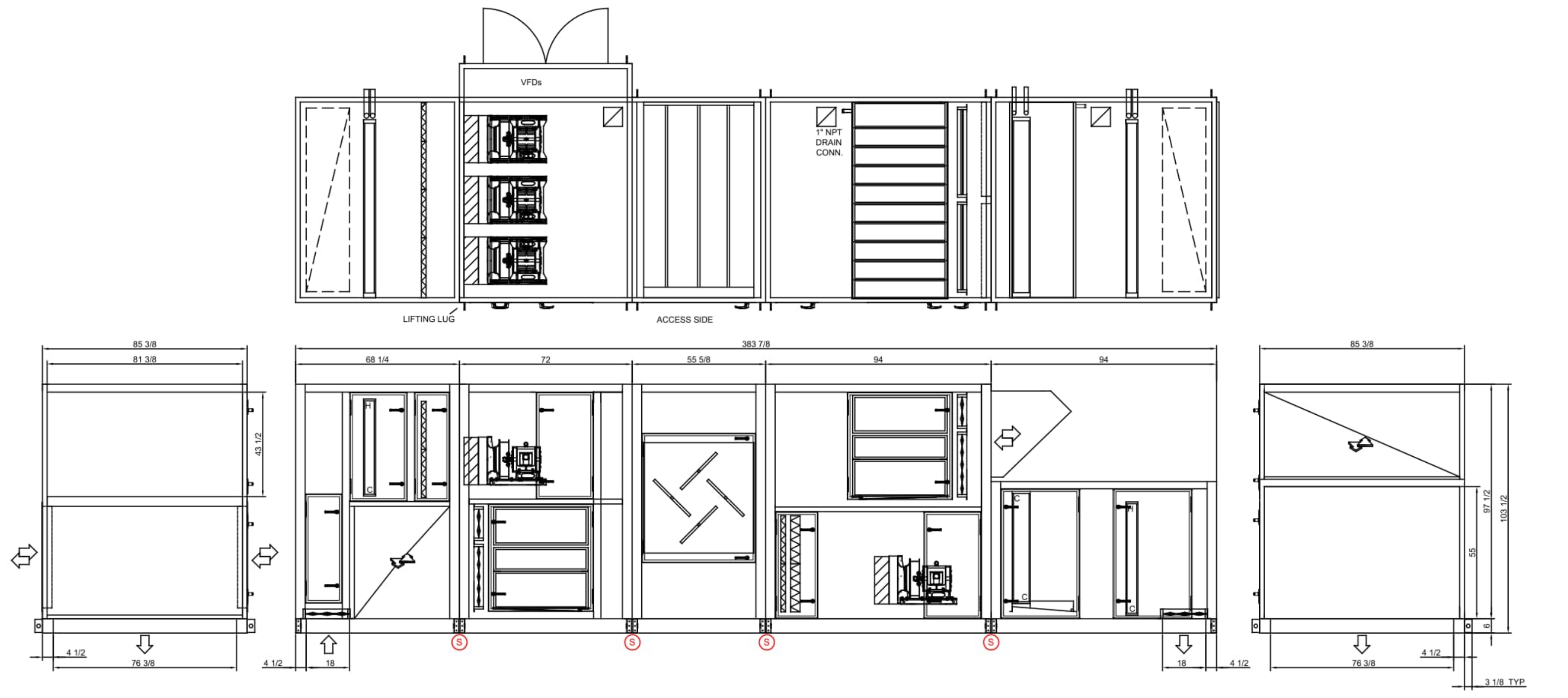
1 **HRU-01-A&B**
50-M-611 NTS



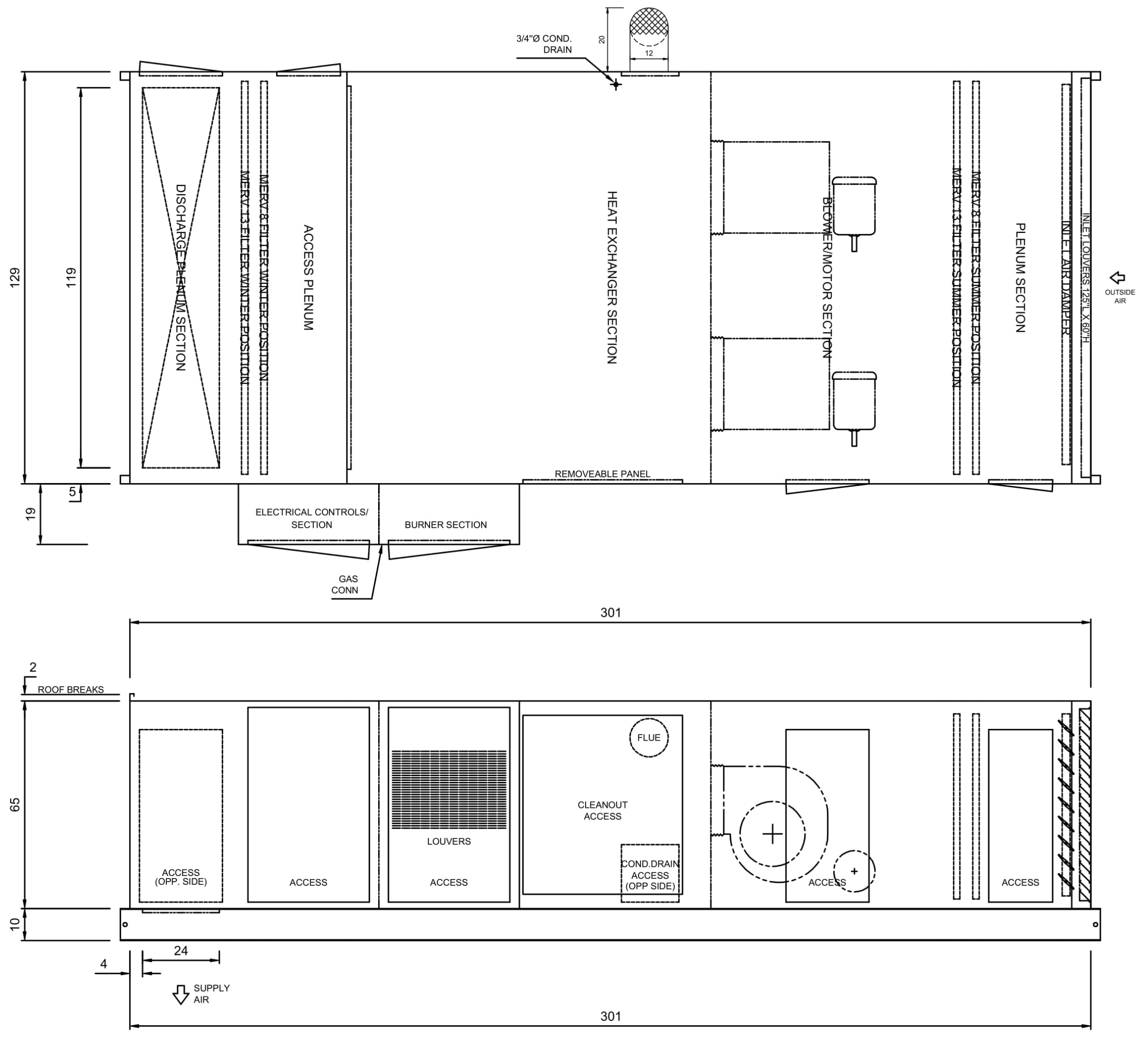
2 **HRU-02**
50-M-611 NTS



3 **HRU-04 A&B**
50-M-611 NTS

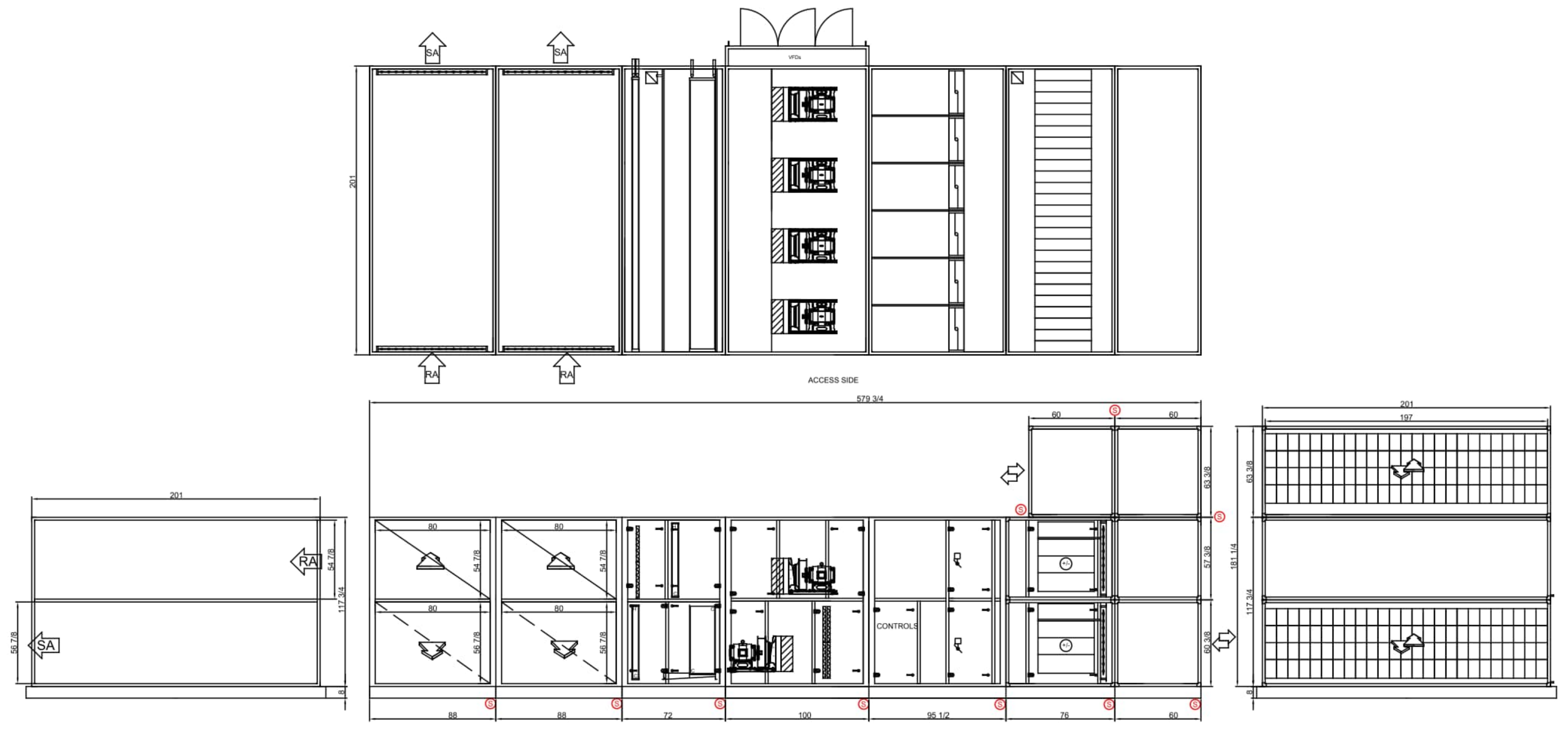


4 **HRU-06**
50-M-611 NTS

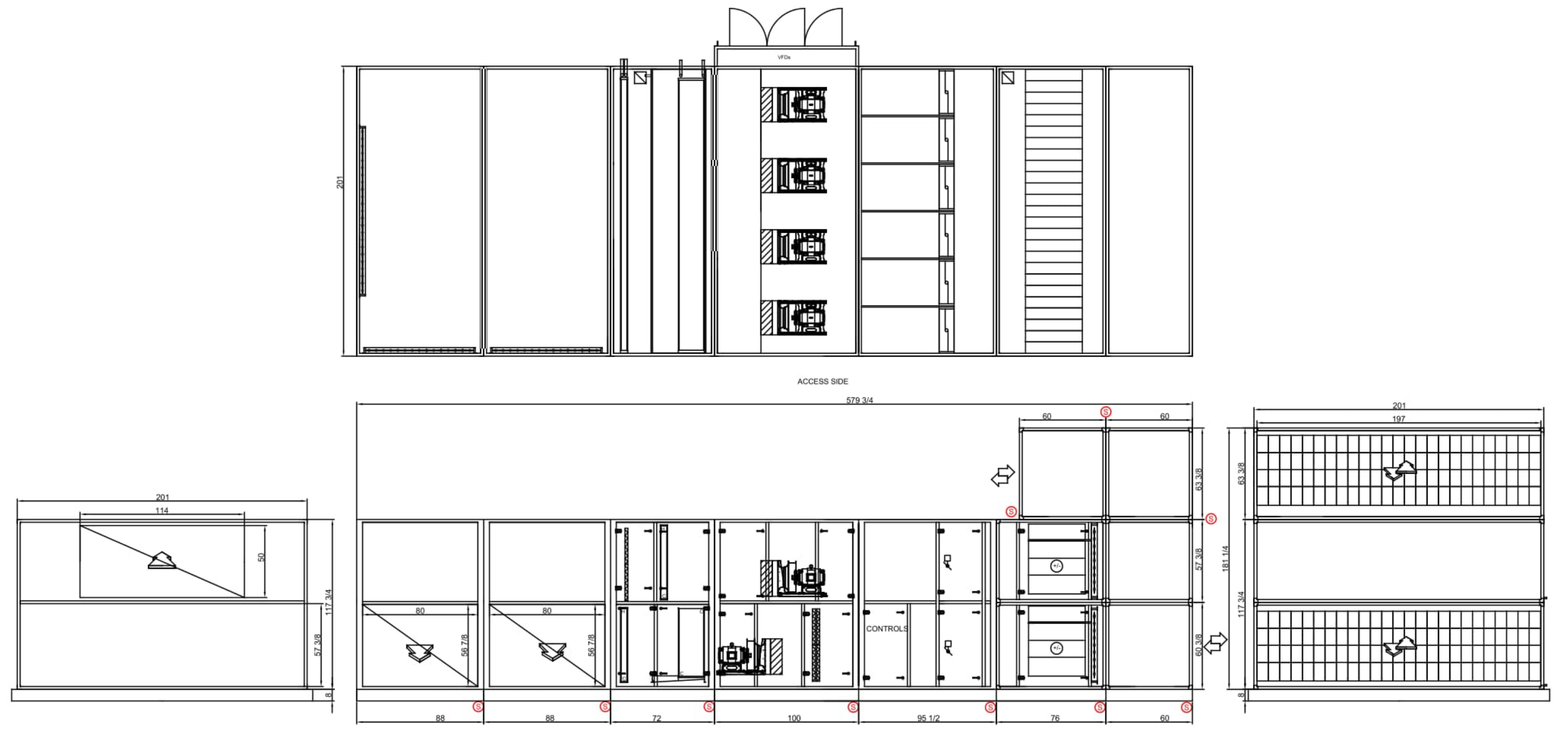


ESTIMATED Total unit Weight = 20,000 lbs (SUBJECT TO CHANGE)

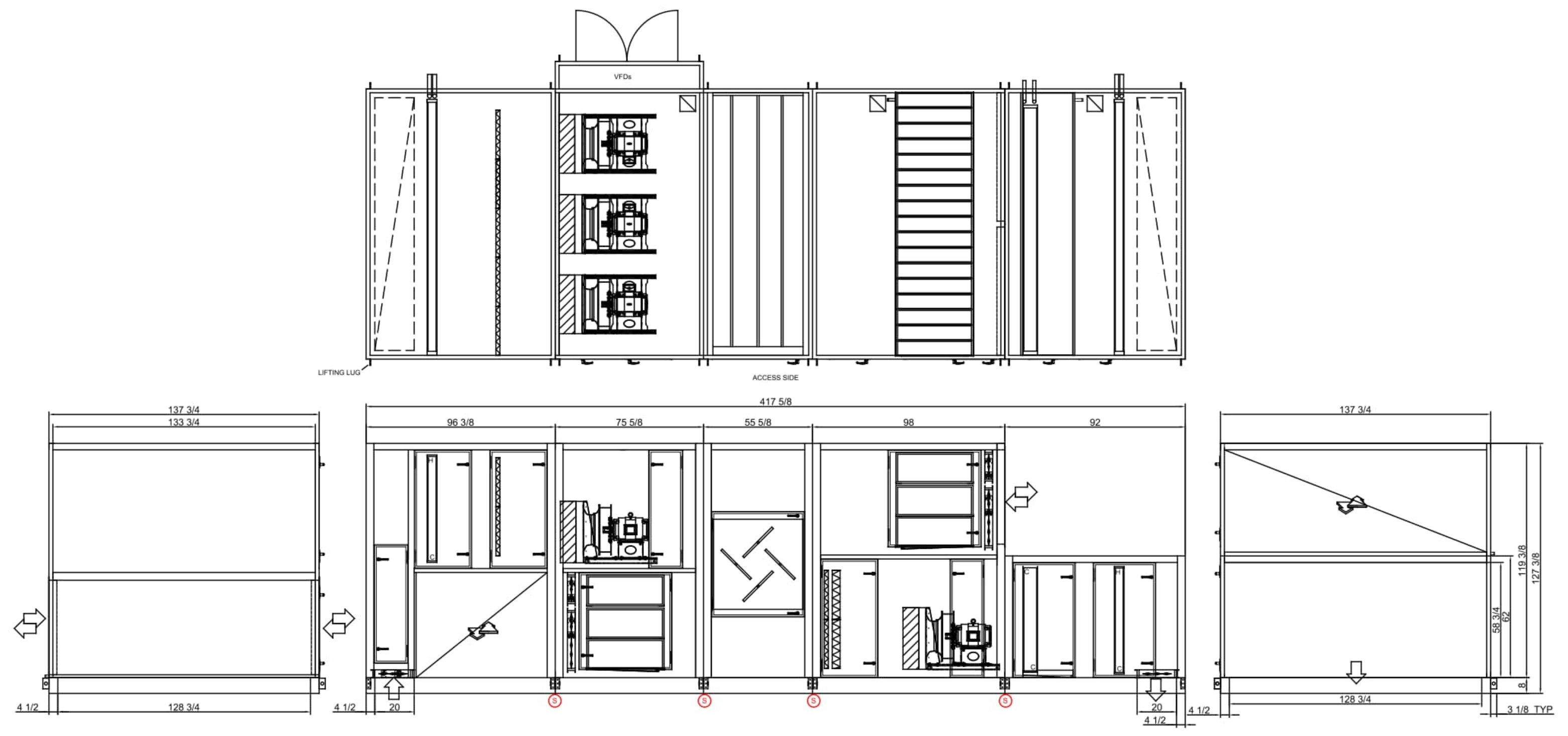
5 **MUA-01-ABC**
50-M-611 NTS



6 **HRU-01-C**
50-M-611 NTS



7 **HRU-03**
50-M-611 NTS



8 **HRU-05 A&B**
50-M-611 NTS

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

EQUIPMENT ENLARGED VIEW (2 OF 2)

SHEET NUMBER

50-M-611

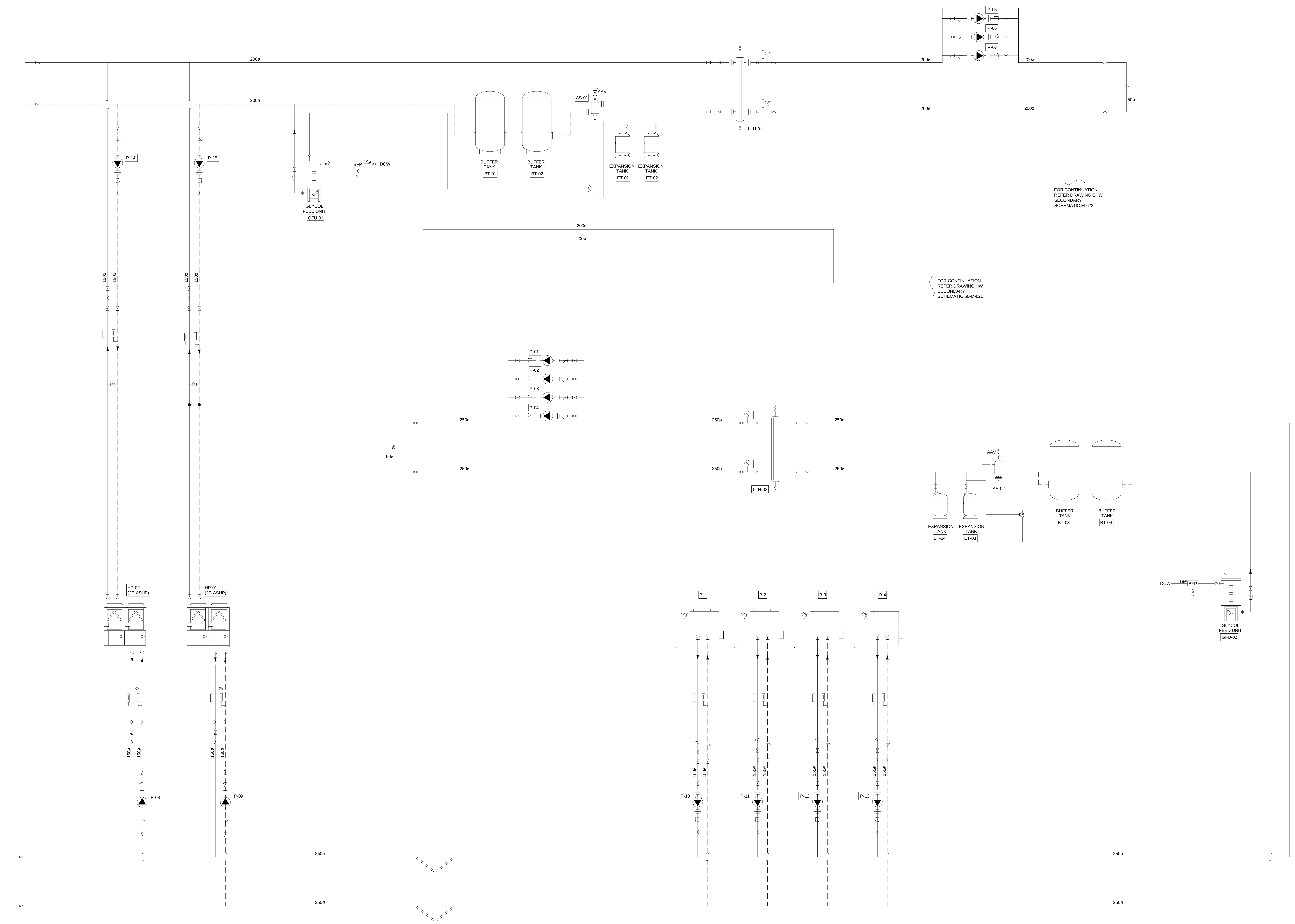
50-M-611-EQUIPMENT ENLARGED VIEW (2 OF 2)
Last Plotted: 14-02-2025 22:37:16
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Project Management Initials:

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

GENERAL NOTES:

1. REFER TO AND PROVIDE PIPING CONNECTIONS TO EACH UNIT AS PER TYPICAL DETAILS.



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AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

HYDRONIC SCHEMATIC

SHEET NUMBER

50-M-620

00-M-501-TYPICAL DETAILS (1 OF 8)

Last Plotted: 14-02-2025 22:23:41
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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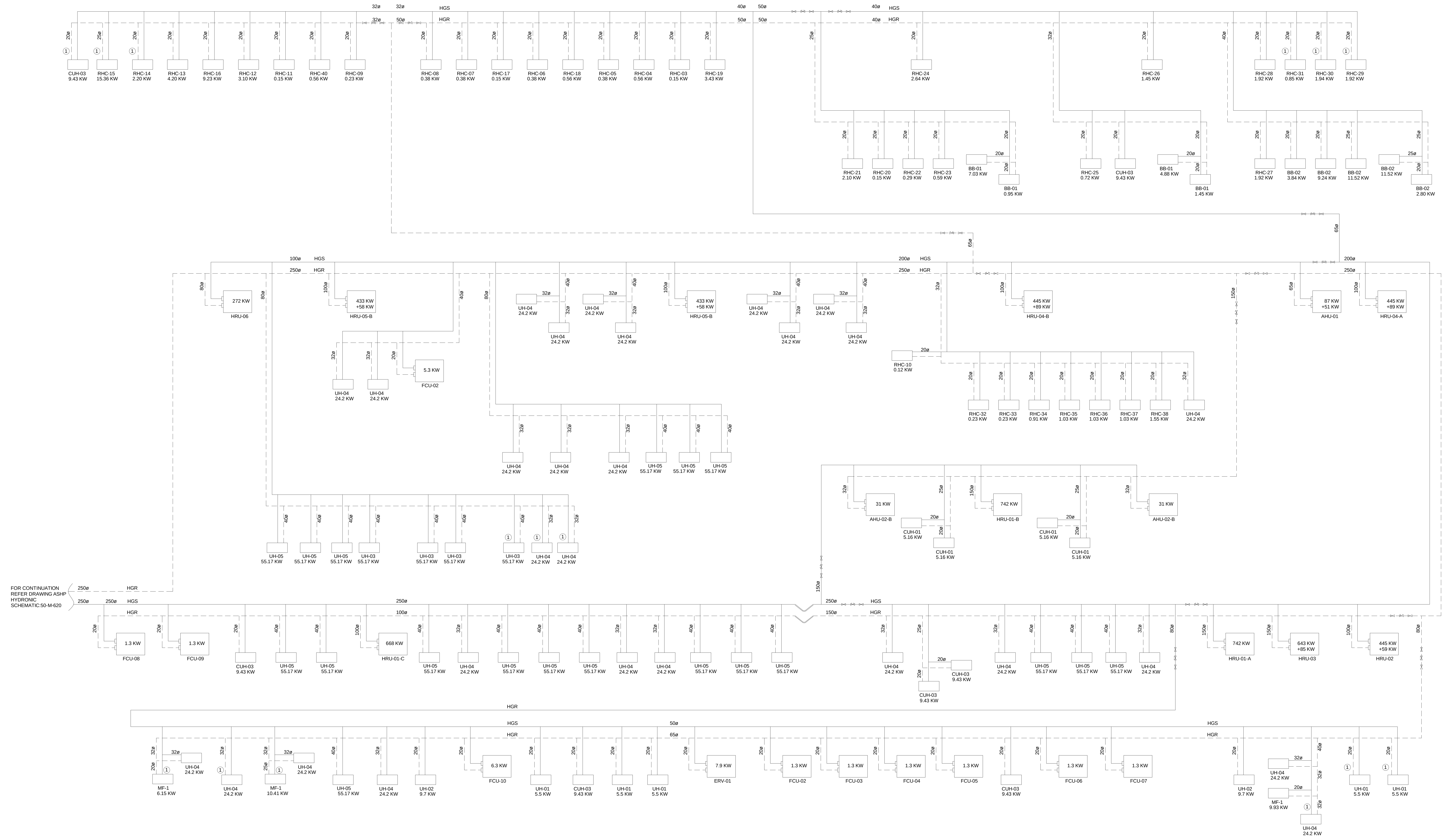
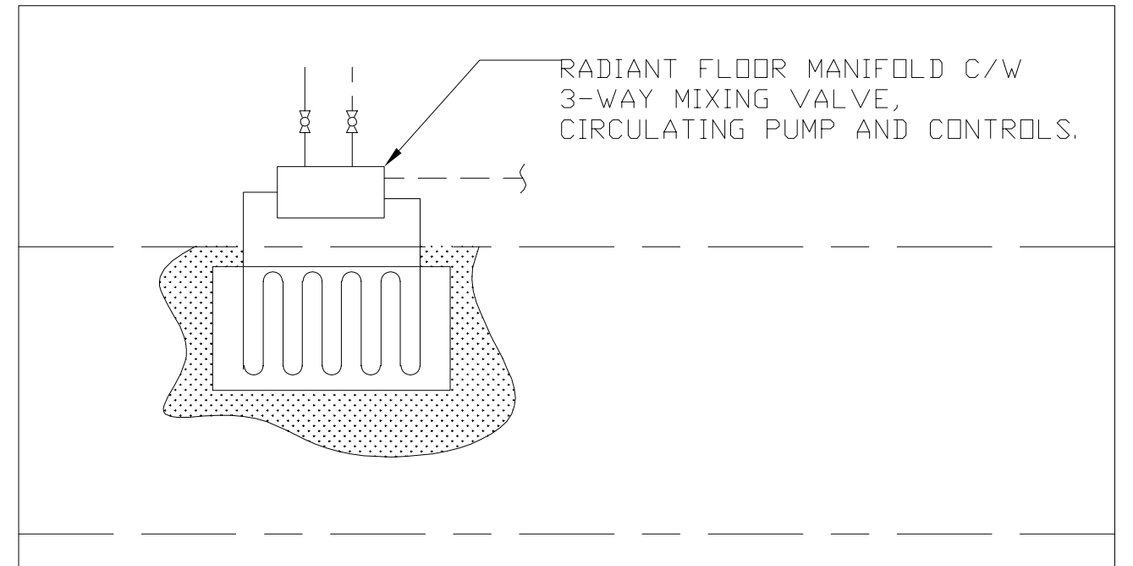
GENERAL NOTES:

1. REFER TO AND PROVIDE PIPING CONNECTIONS TO EACH UNIT AS PER TYPICAL DETAILS.

LAYOUT NOTES:

① PROVIDE 3 WAY VALVES FOR THE LAST THREE UNITS OF THE LONGEST RUNS OF SUPPLY PIPES




RADIANT FLOOR MANIFOLD C/W 3-WAY MIXING VALVE, CIRCULATING PUMP AND CONTROLS.

DETAIL MF-1
RADIANT FLOOR HEATING

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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

HOT WATER SECONDARY SCHEMATIC

SHEET NUMBER

50-M-621

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

Last Plotted: 14-02-2025 22:23:41
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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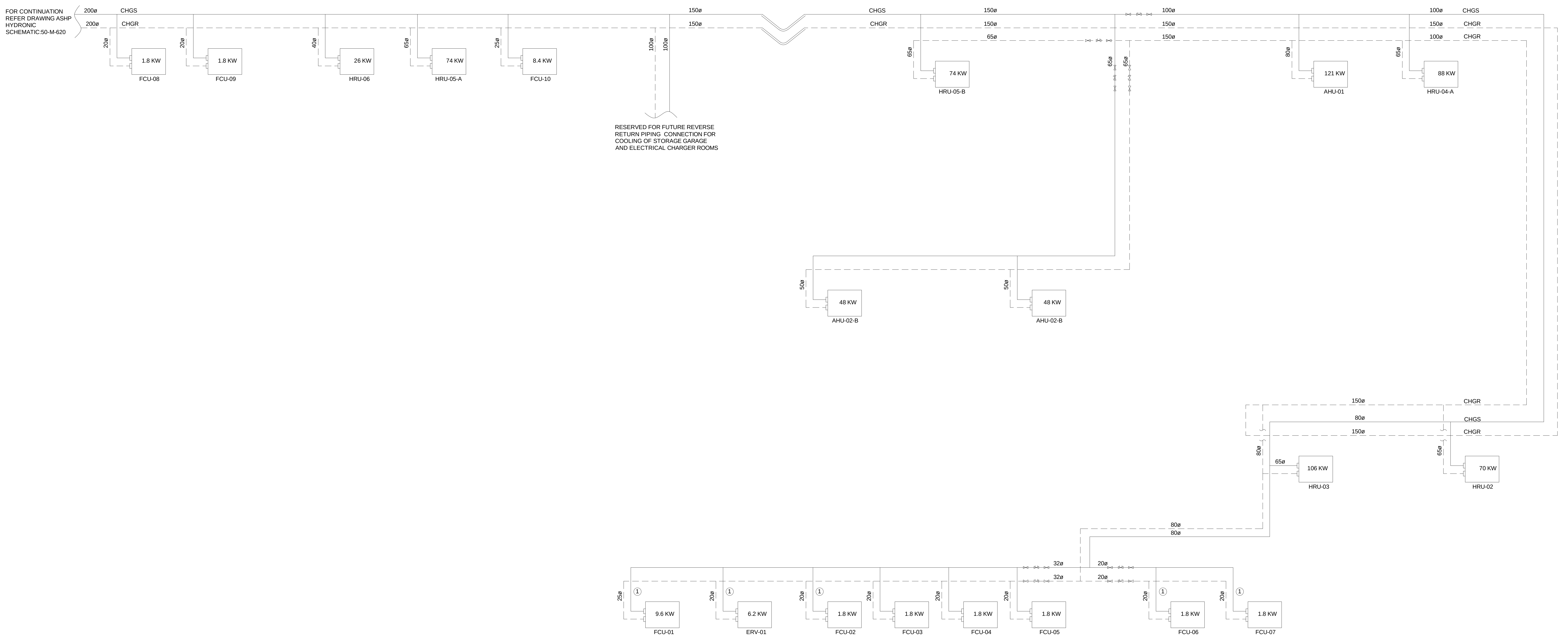
GENERAL NOTES:

1. REFER TO AND PROVIDE PIPING CONNECTIONS TO EACH UNIT AS PER TYPICAL DETAILS.

LAYOUT NOTES:

① PROVIDE 3 WAY VALVES FOR THE LAST THREE UNITS OF THE LONGEST RUNS OF SUPPLY PIPES



00-M-501-TYPICAL DETAILS (1 OF 8)

Last Plotted: 14-02-2025 22:23:41
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
B	08/12/2024	ISSUED FOR 66% DESIGN
A	03/28/2024	ISSUED FOR SCHEMATIC

PROJECT NUMBER

60721079

SHEET TITLE

CHILLED WATER SECONDARY SCHEMATIC

SHEET NUMBER

50-M-622

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

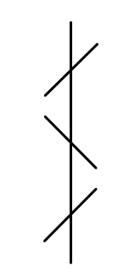
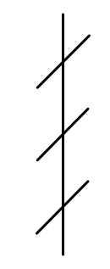
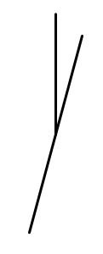
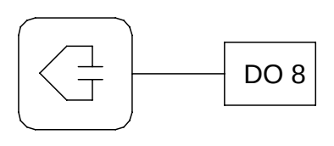
COMMON USED MECHANICAL CONTROLS SYMBOLS

NOTE: NOT ALL SYMBOLS MAY BE USED.

SYMBOL	DESCRIPTION
	SPACE MOUNTED INSTRUMENTS (CEILING, WALL, AND FLOOR MOUNTED)
T	SPACE MOUNTED TEMPERATURE SENSOR
CO2	SPACE MOUNTED CARBON DIOXIDE SENSOR
CO	SPACE MOUNTED CARBON MONOXIDE SENSOR
NOx	SPACE MOUNTED NITROGEN DIOXIDE AND NITRIC OXIDE SENSOR
SO2	SPACE MOUNTED SULPHUR DIOXIDE SENSOR
VOC	SPACE MOUNTED VOLATILE ORGANIC COMPOUND SENSOR
GV	GASOLINE/VOC SENSOR
HC	HYDROCARBON SENSOR
DTS	DIGITAL TIME SWITCH
H	SPACE MOUNTED HUMIDITY SENSOR
OS	SPACE MOUNTED OCCUPANCY SENSOR
S	SPACE MOUNTED SWITCH
WS	SPACE MOUNTED WATER SENSOR
CH4	SPACE MOUNTED METHANE SENSOR
	PROJECT SPECIFIC INSTRUMENTS AND DEVICES (DESIGNATIONS MAY DIFFER FROM INSTRUMENATION IDENTIFICATION CHART)
EA	ELECTRIC ACTUATOR
AS	AIRFLOW SWITCH
CSW	CURRENT SWITCH
BACnet	DATA LINK
DSD	DUCT SMOKE DETECTOR
ES	END SWITCH
FM	FLOW METER
FZ	FREEZESTAT
H	HUMIDITY SENSOR
HSW	HUMIDITY SWITCH
LSW	LEVEL SWITCH
MC	MOTOR CONTROLLER
MS	MOTOR STARTER
PS	PRESSURE SENSOR
PSW	PRESSURE SWITCH
T	TEMPERATURE SENSOR

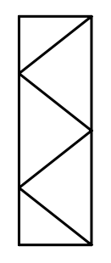
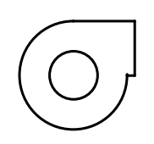
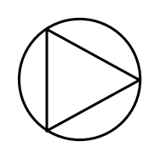
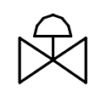
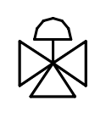
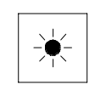
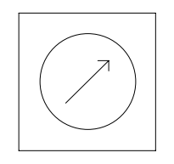
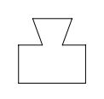
COMMON USED MECHANICAL CONTROLS SYMBOLS

NOTE: NOT ALL SYMBOLS MAY BE USED.

SYMBOL	DESCRIPTION
	PROJECT SPECIFIC INSTRUMENTS AND DEVICES (DESIGNATIONS MAY DIFFER FROM INSTRUMENATION IDENTIFICATION CHART)
	OPPOSED BLADE DAMPER
	PARALLEL BLADE DAMPER
	SINGLE BLADE DAMPER
CONTROL PANEL	CONTROL PANEL
MS ECM CTRL	MOTOR STARTER / MOTOR CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
AF	AIRFLOW DEVICE
CHW	CHILLED WATER COIL
DX	DIRECT EXPANSION (REFRIGERANT) COIL
HW	HOT WATER COIL
HR	HEAT RECOVERY COIL
	DRY CONTACT

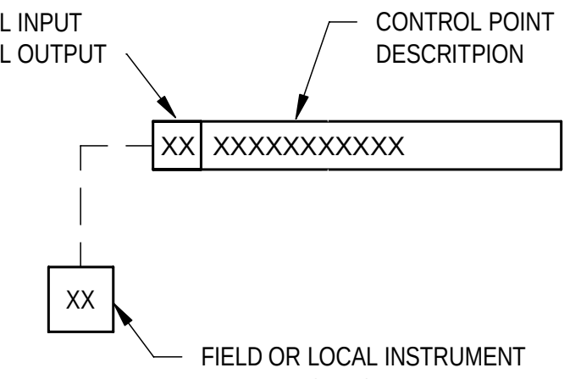
COMMON USED MECHANICAL CONTROLS SYMBOLS (CONTINUED)

NOTE: NOT ALL SYMBOLS MAY BE USED.

SYMBOL	DESCRIPTION
	PROJECT SPECIFIC INSTRUMENTS AND DEVICES (DESIGNATIONS MAY DIFFER FROM INSTRUMENATION IDENTIFICATION CHART)
	AIR FILTERS
HUM	HUMIDIFIER
	FAN
	PUMP
	2-WAY VALVE
	3-WAY VALVE
●	CONTROL PANEL PUSH BUTTON
	CONTROL PANEL LIGHT
☐	CONTROL PANEL BLANK
	CONTROL PANEL DIAL
	HORN
◉	STROBE LIGHT

INSTRUMENT/FUNCTION SYMBOLS

AI - BINARY INPUT
AO - BINARY OUTPUT
DI - DIGITAL INPUT
DO - DIGITAL OUTPUT



CONTROL POINT DESCRITPION

FIELD OR LOCAL INSTRUMENT
- REFER TO "INSTRUMENT
IDENTIFICATION LETTERS"

*MULTI-STATE INPUT & OUTPUT OBJECTS ARE NOT FULLY DEFINED BY BACNET PROTOCAL AND REPRESENTS AN ALGORITHMIC PROCESS WITHIN A CONTROLLER. THE MULTI-STATE CONDITION MAY BE A RESULTS OF A COMBINTATION OF MULTIPLE BINARY INPUTS/OUTPUTS OR ONE OR MORE ANALOG INPUTS/OUTPUTS. MULTI-STATE INPUTS & OUTPUTS SHALL BE SHOWN AS ANALOG SIGNALS WITHIN THE CONTROL DIAGRAMS OF THIS PROJECT.

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS COMMON SYMBOLS

SHEET NUMBER

50-M-630

50-M-630-CONTROLS COMMON SYMBOLS
Last Plotted: 14-02-2025 22:37:17
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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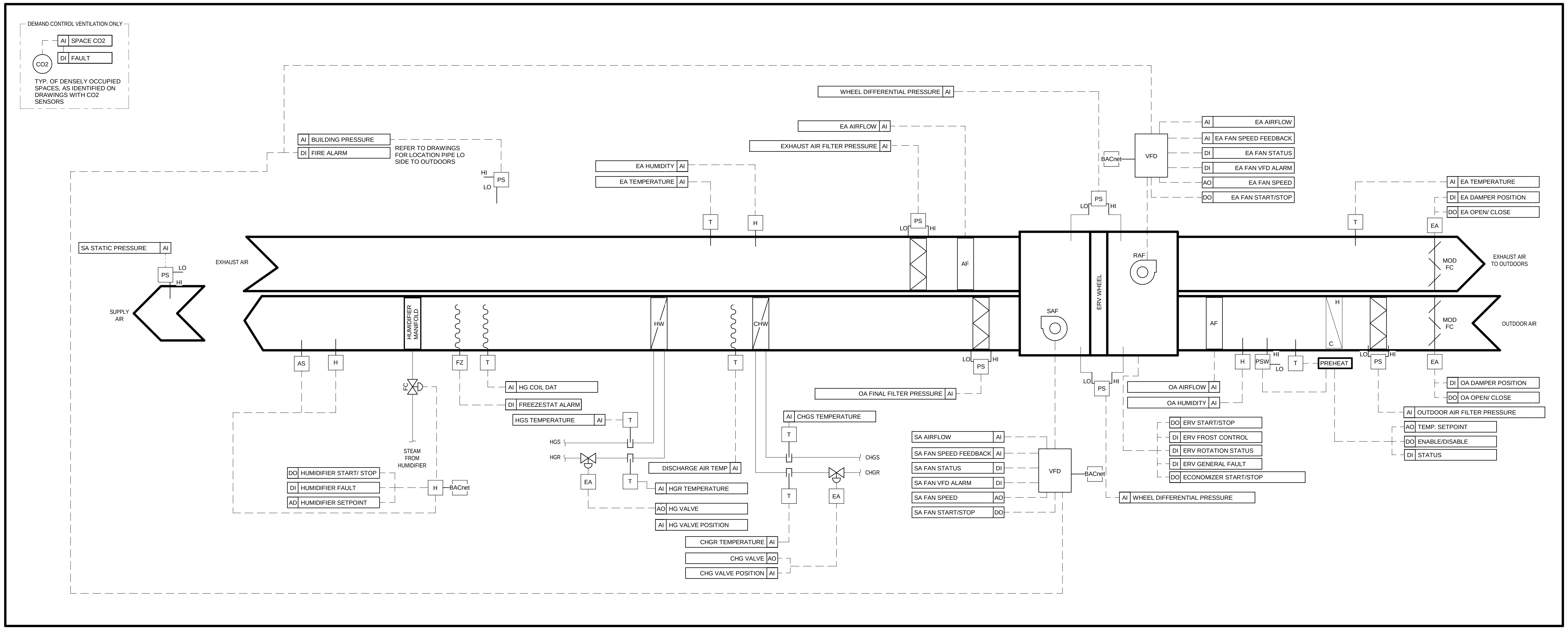
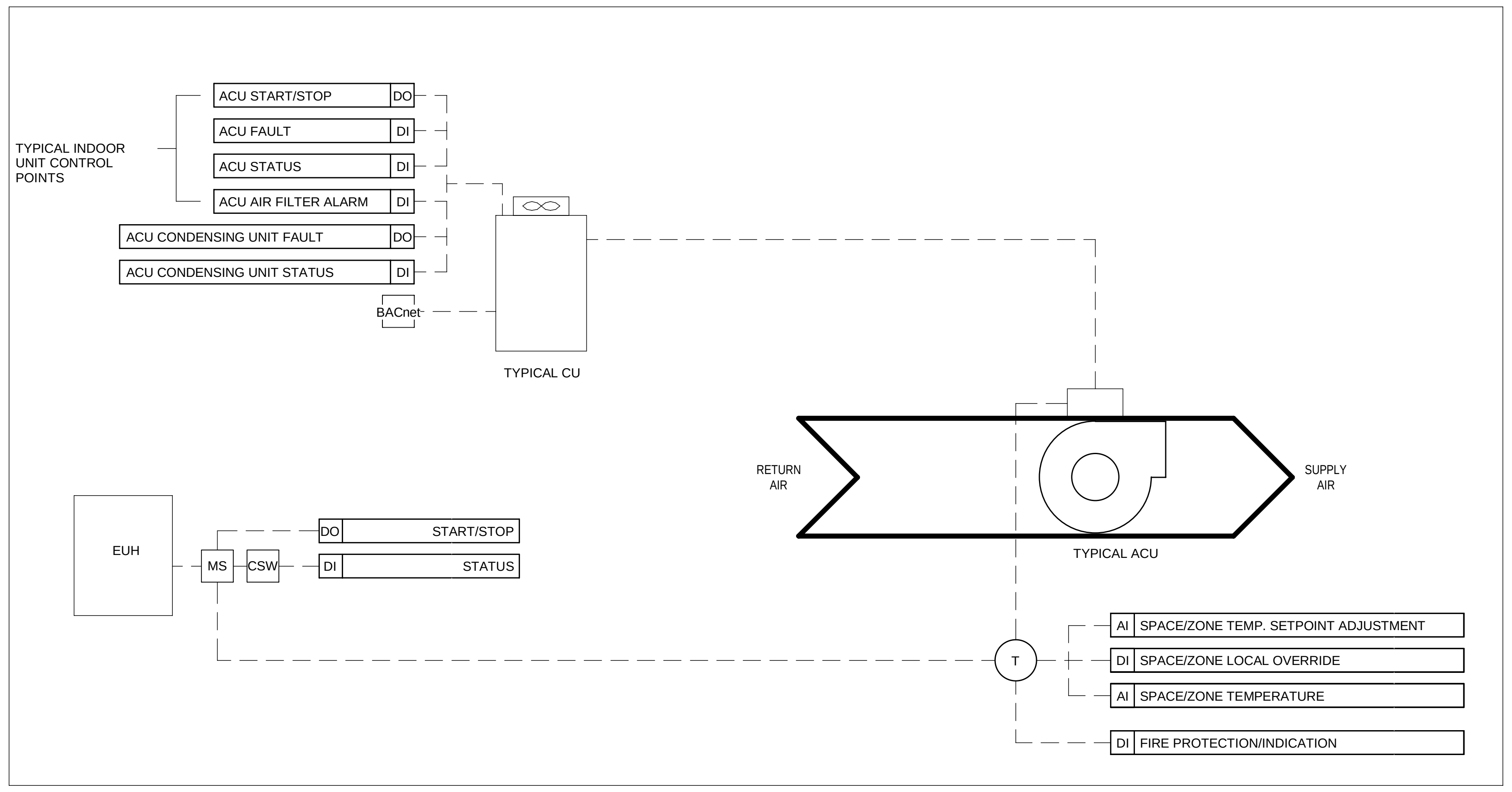
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:



1 **ERV-01**
50-M-631 NTS


TYPICAL INDOOR UNIT CONTROL POINTS
ACU START/STOP DO
ACU FAULT DI
ACU STATUS DI
ACU AIR FILTER ALARM DI
ACU CONDENSING UNIT FAULT DO
ACU CONDENSING UNIT STATUS DI
BACnet
TYPICAL CU
RETURN AIR
SUPPLY AIR
TYPICAL ACU
EUH
MS
CSW
DO START/STOP
DI STATUS
T
AI SPACE/ZONE TEMP. SETPOINT ADJUSTMENT
DI SPACE/ZONE LOCAL OVERRIDE
AI SPACE/ZONE TEMPERATURE
DI FIRE PROTECTION/INDICATION

2 **TYPICAL ACU, CU AND EUH**
50-M-631 NTS

50-M-631-CONTROLS ENERGY RECOVERY AND ACU
Last Plotted: 14-02-2025 22:37:18
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

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C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

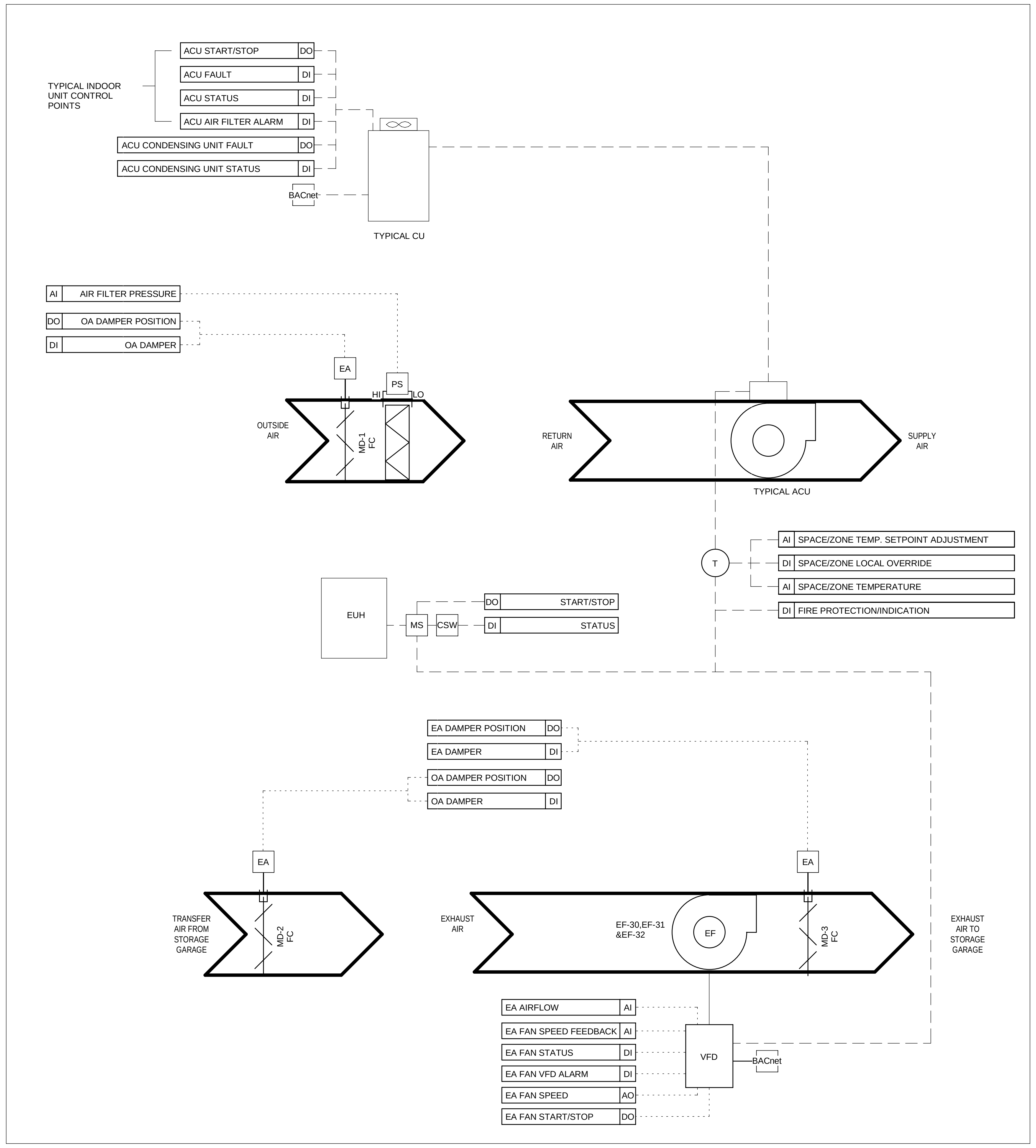
CONTROLS ENERGY RECOVERY AND ACU

SHEET NUMBER

50-M-631

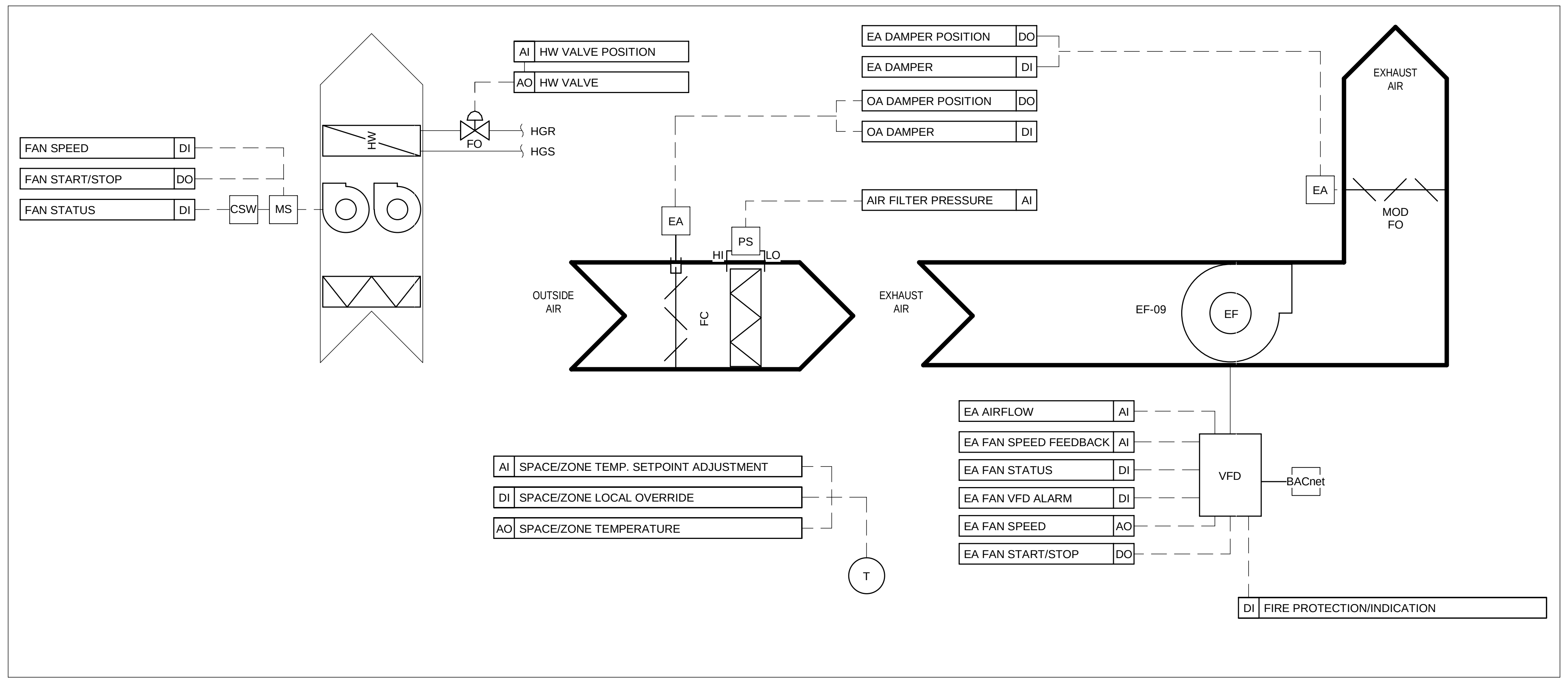
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:



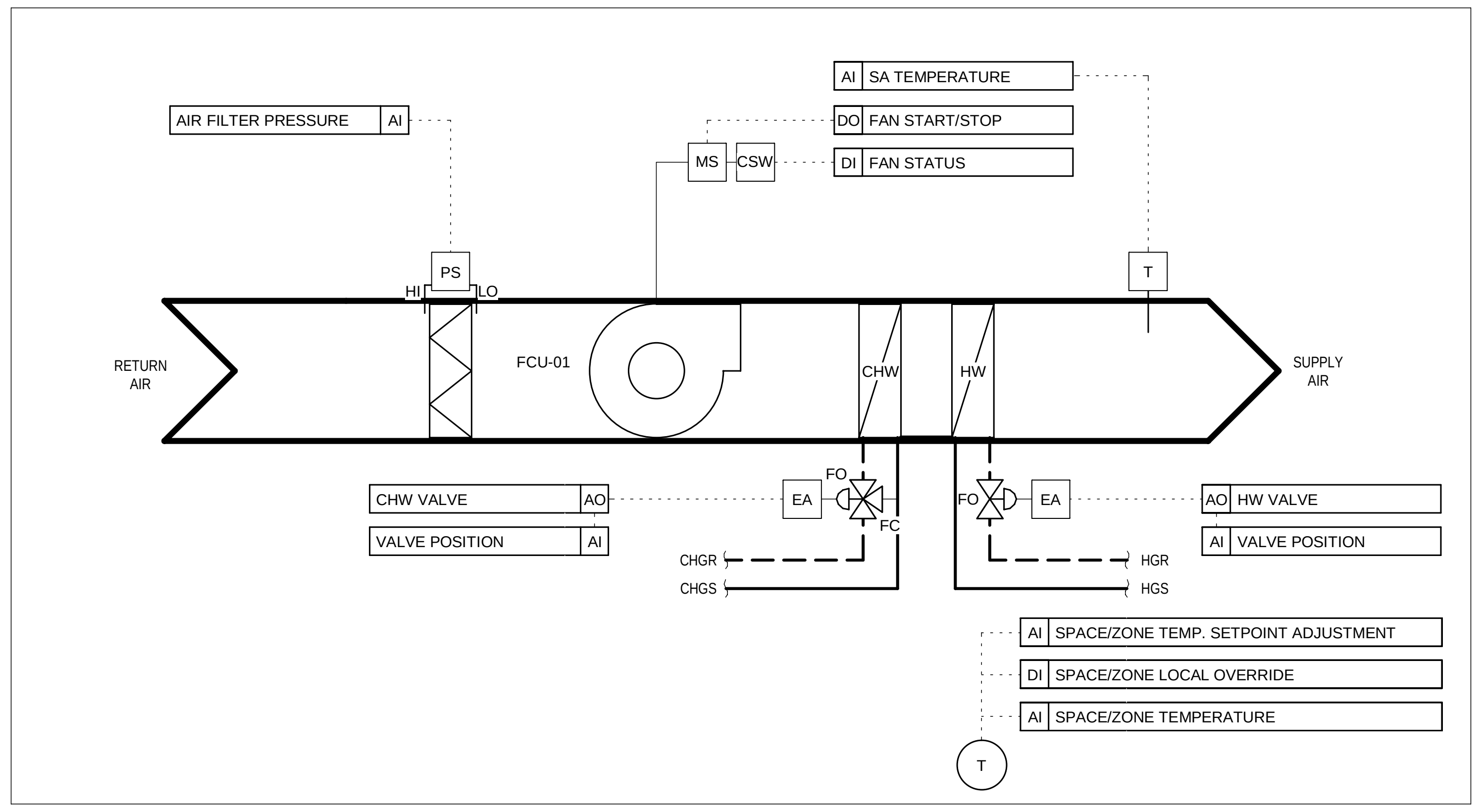
1 ELECTRICAL ROOM 01(SV), ELECTRICAL ROOM 01(SP)

50-M-632 NTS



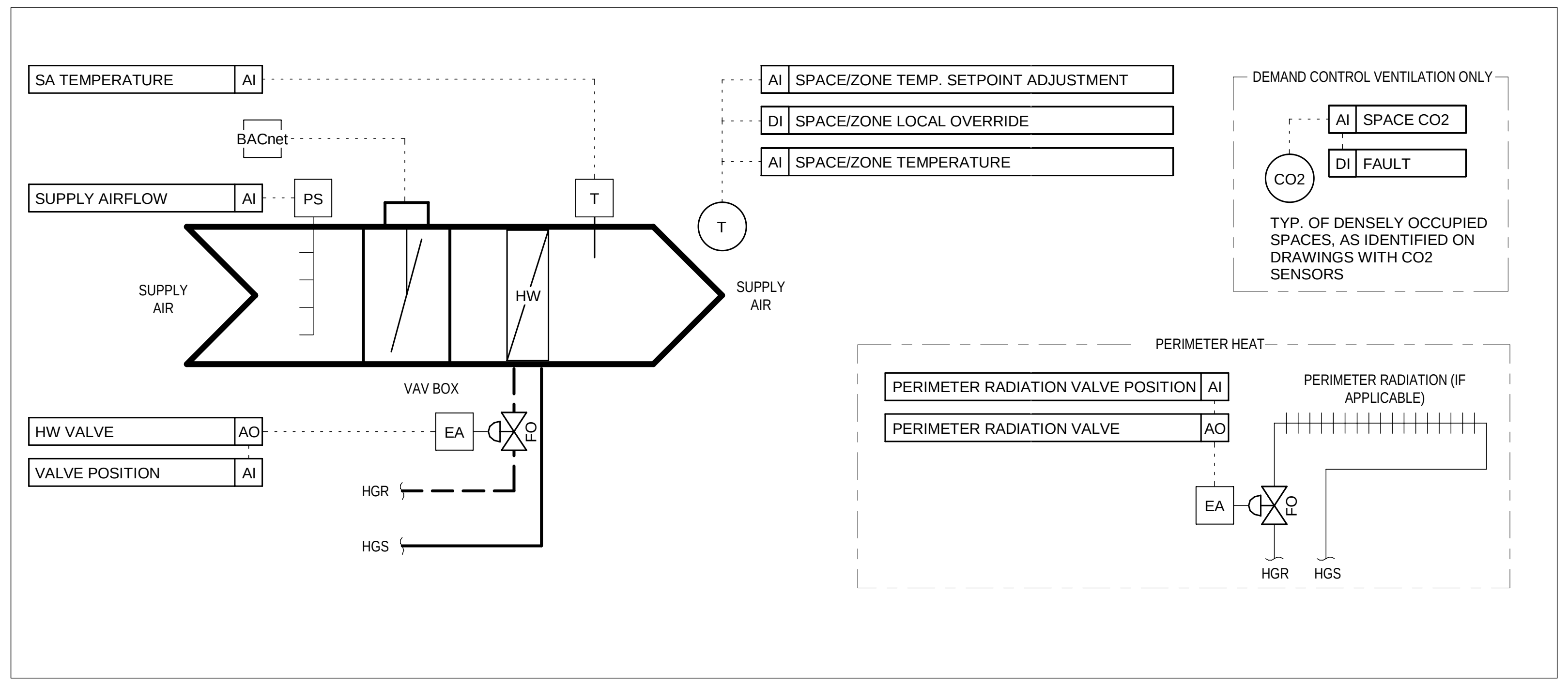
2 EXHAUST FAN (EF-02,03,08,09,13,14)

50-M-632 NTS



3 TYPICAL FCU

50-M-632 NTS


SA TEMPERATURE AI
BACnet
SUPPLY AIRFLOW AI
PS
T
SUPPLY AIR
HW
SUPPLY AIR
VAV BOX
HW VALVE AO
VALVE POSITION AI
EA
FO
HGR
HGS
T
AI SPACE/ZONE TEMP. SETPOINT ADJUSTMENT
DI SPACE/ZONE LOCAL OVERRIDE
AI SPACE/ZONE TEMPERATURE
DEMAND CONTROL VENTILATION ONLY
AI SPACE CO2
DI FAULT
CO2
TYP. OF DENSELY OCCUPIED SPACES, AS IDENTIFIED ON DRAWINGS WITH CO2 SENSORS
PERIMETER HEAT
PERIMETER RADIATION VALVE POSITION AI
PERIMETER RADIATION VALVE AO
PERIMETER RADIATION (IF APPLICABLE)
EA
FO
HGR
HGS

4 VAV TERMINAL UNIT W/ REHEAT AND PERIMETER HEATING

50-M-632 NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION

PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS AIR TERMINALS AND FANS-01

SHEET NUMBER

50-M-632

50-M-632-CONTROLS AIR TERMINALS AND FANS-01
Last Plotted: 14-02-2025 22:37:19
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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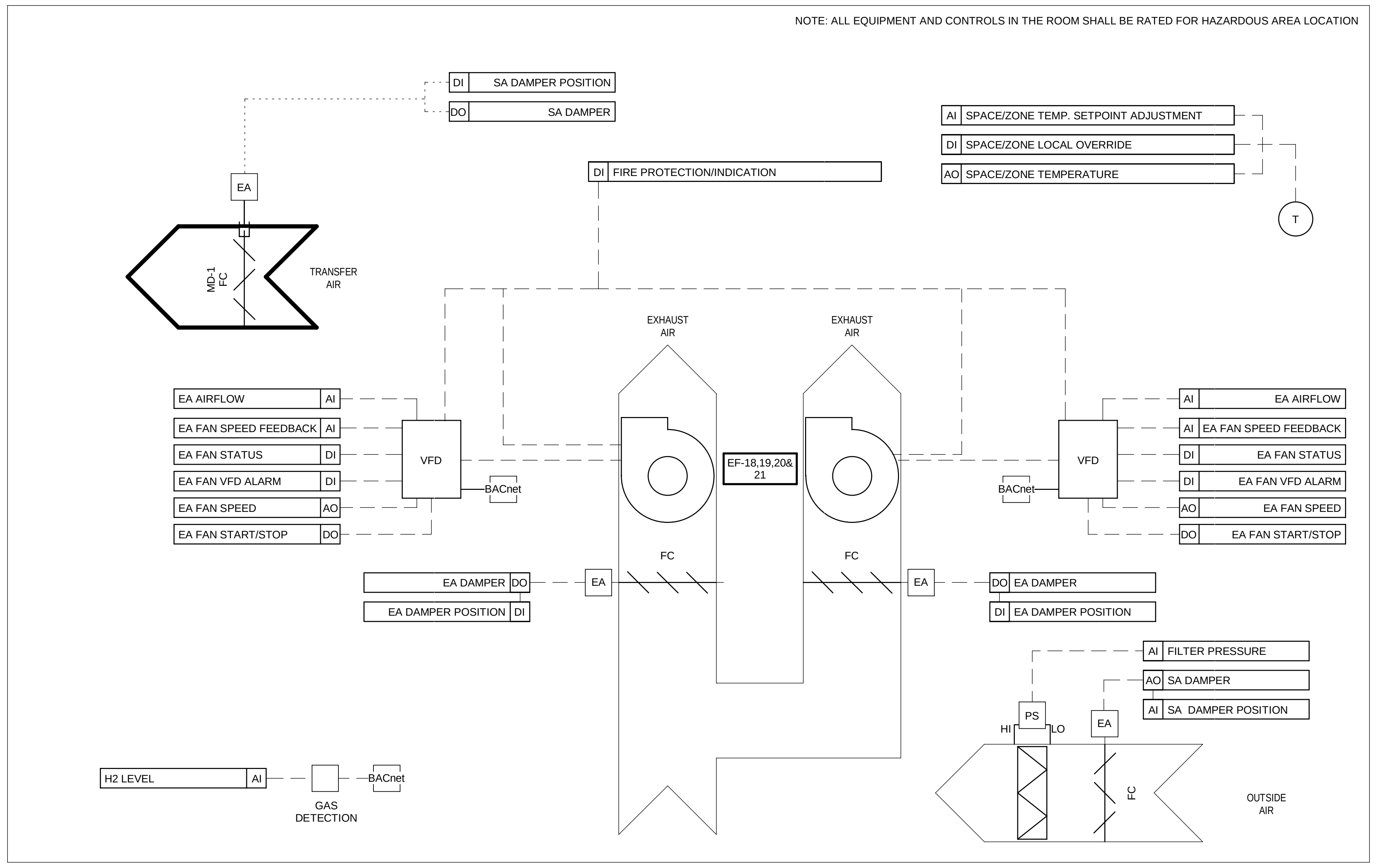
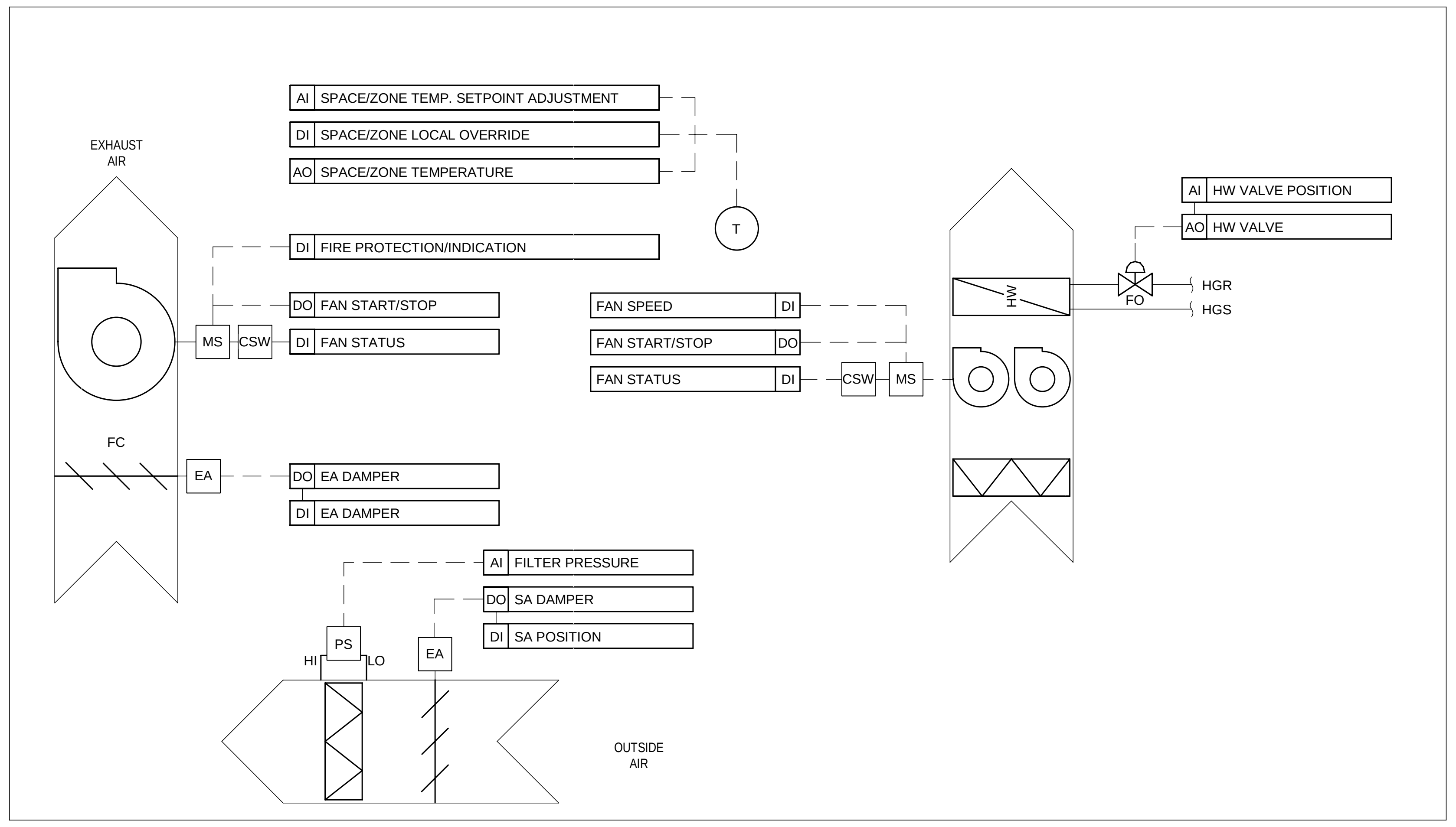
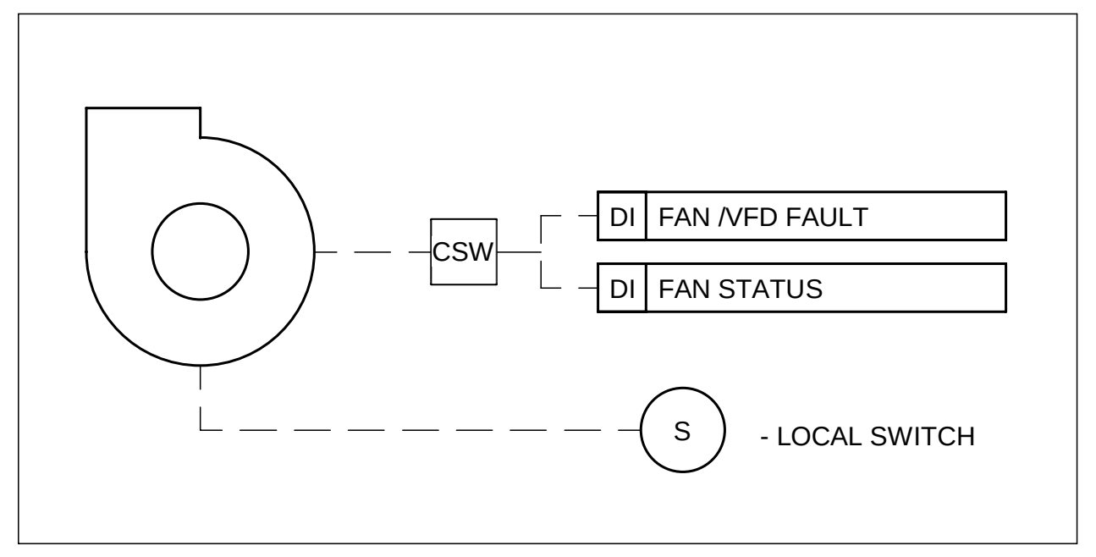

NOTE: ALL EQUIPMENT AND CONTROLS IN THE ROOM SHALL BE RATED FOR HAZARDOUS AREA LOCATION

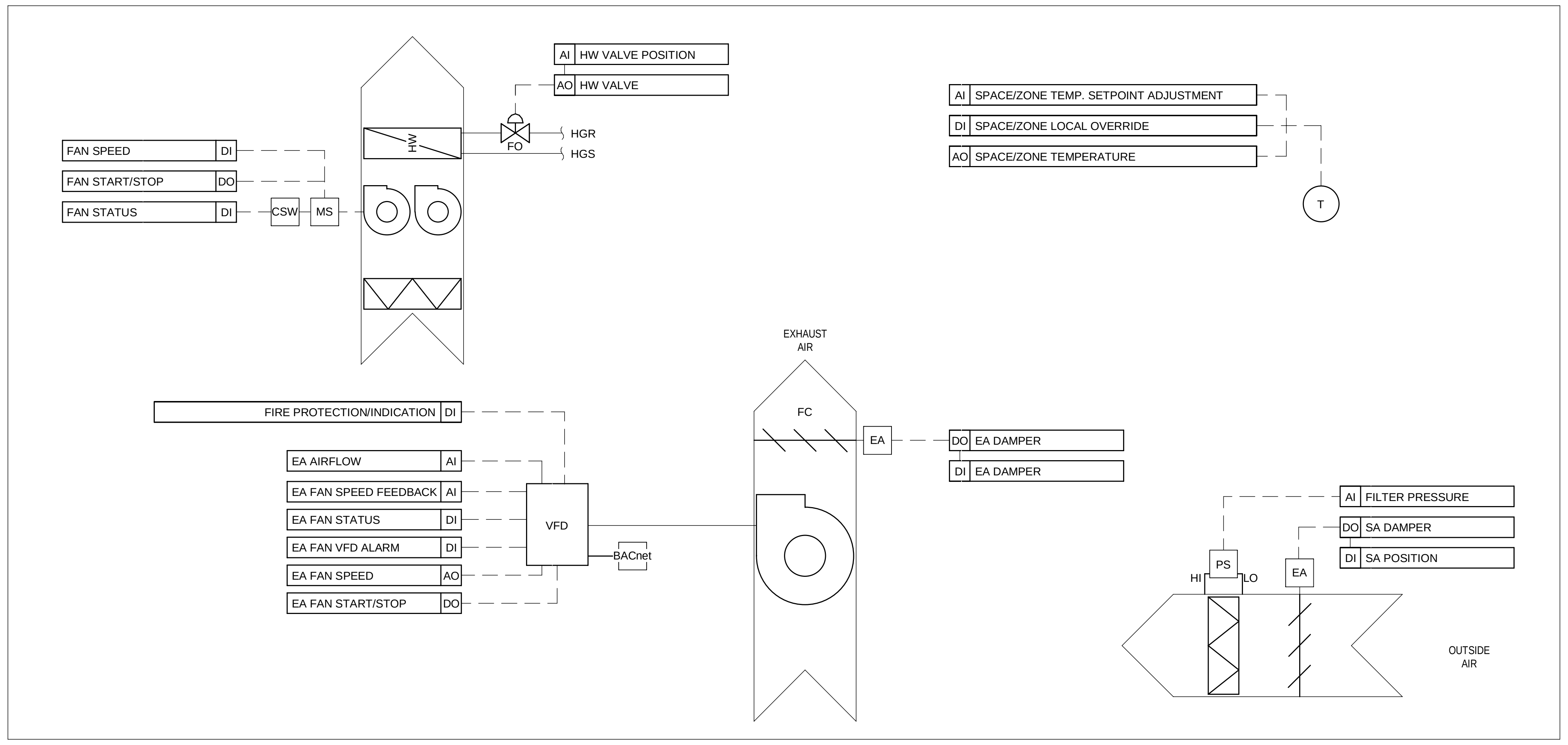
1 **BATTERY ROOM**
50-M-633 NTS



2 **EXHAUST FAN (EF-01,04,16)**
50-M-633 NTS



3 **EXHAUST FAN (EF-05,07,10,15)**
50-M-633 NTS



4 **EXHAUST FAN (EF-06)**
50-M-633 NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS AIR TERMINALS & FAN-02

SHEET NUMBER

50-M-633

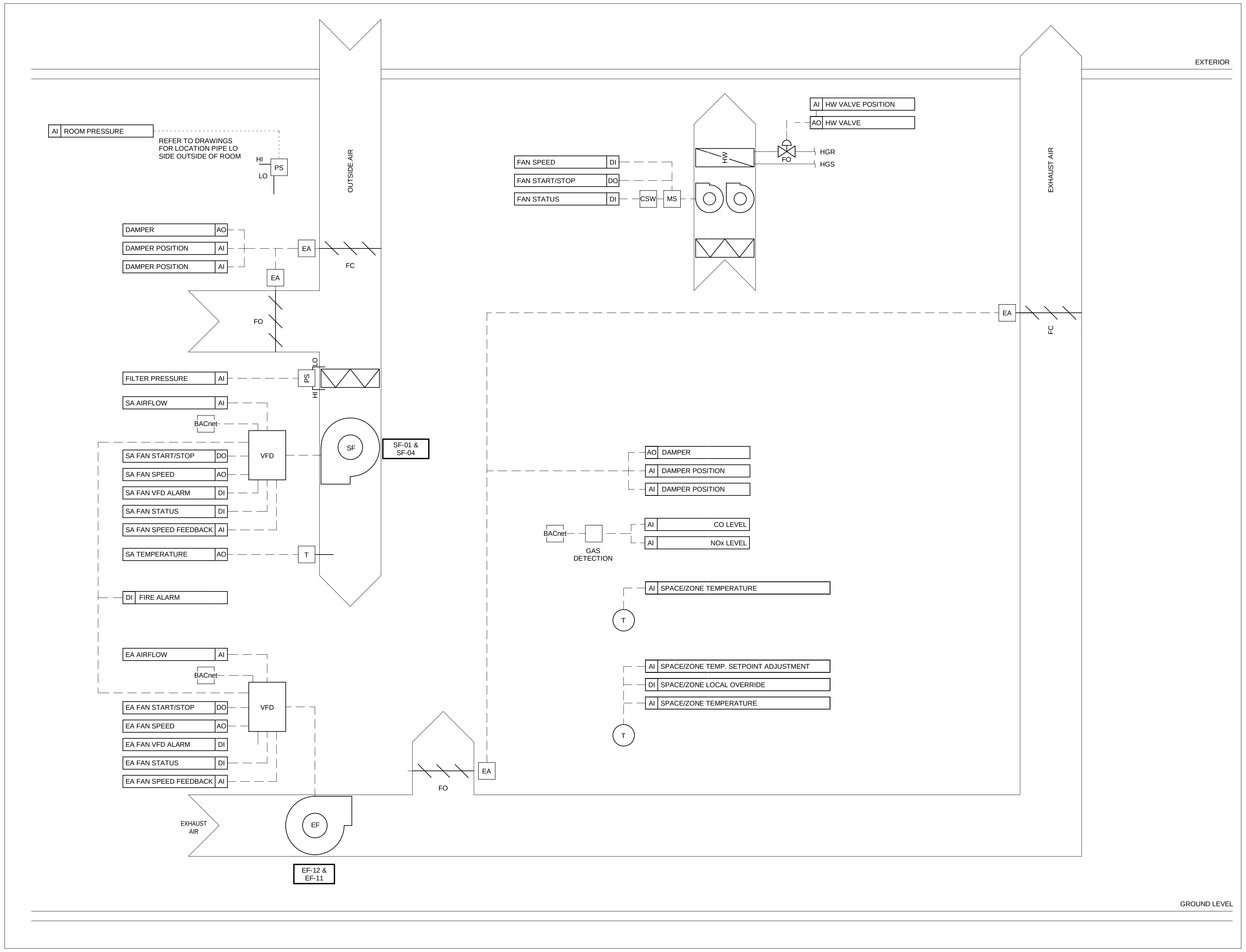
Project Management Initials: Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

50-M-633-CONTROLS AIR TERMINALS & FAN-02
Last Plotted: 14-02-2025 22:37:21
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Printed on ___% Post-Consumer Recycled Content Paper

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:



1 **MECHANICAL ROOM**
50-M-634 NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr.
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS MECHANICAL ROOM

SHEET NUMBER

50-M-634

50-M-634-CONTROLS MECHANICAL ROOM
Last Plotted: 14-02-2025 22:37:21
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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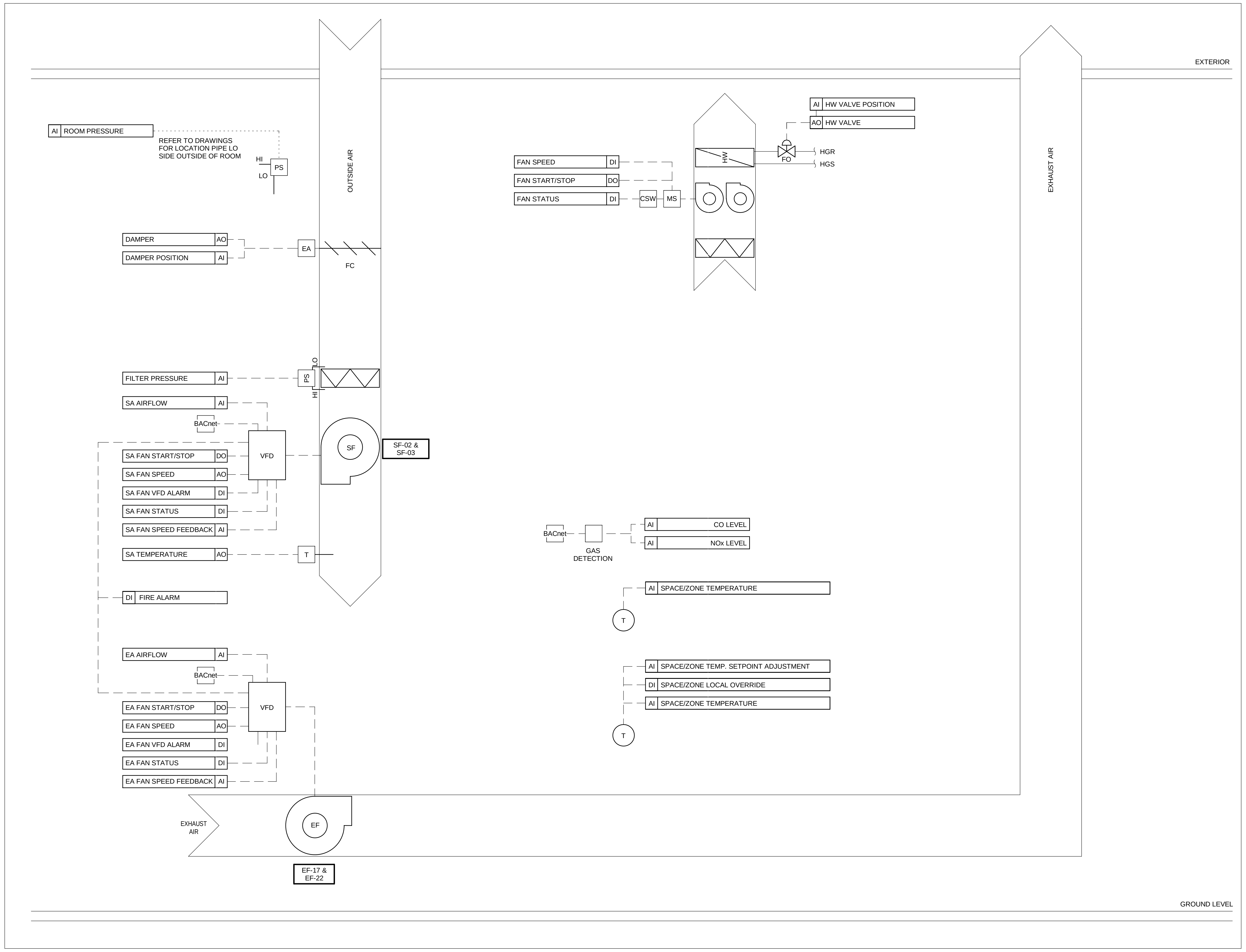

1 **AUXILIARY ROOMS**
50-M-635 1 : 1

Project Management Initials: Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

50-M-635-CONTROLS LARGE AUXILIARY VEHICLES ROOM
Last Plotted: 14-02-2025 22:37:22
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
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Winnipeg, MB R3L 2A1

CONSULTANT

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99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

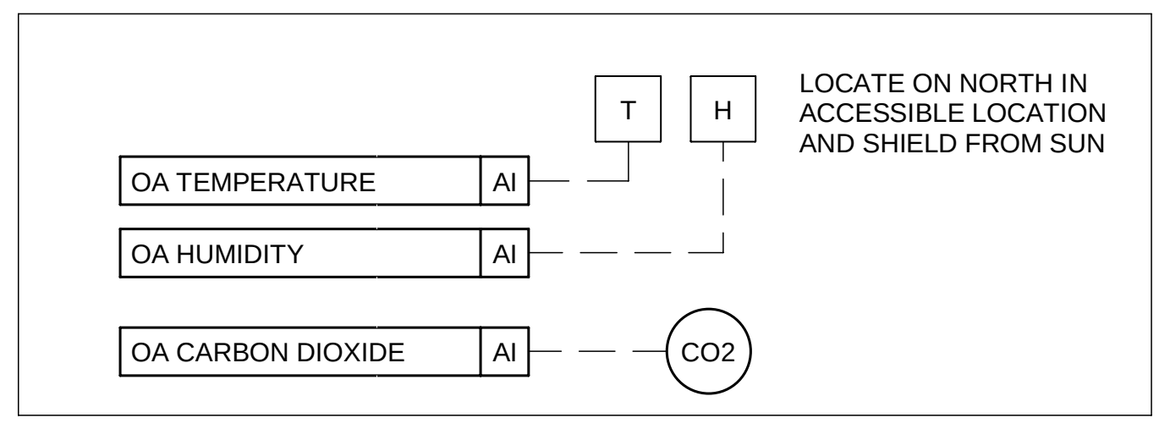
SHEET TITLE

CONTROLS LARGE AUXILIARY VEHICLES ROOM

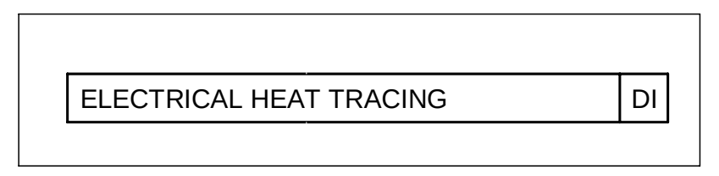
SHEET NUMBER

50-M-635

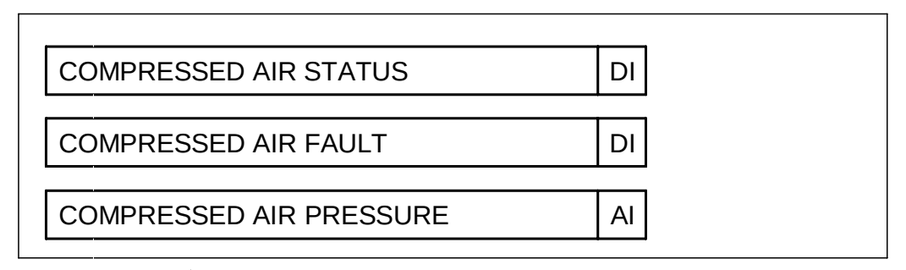
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"
Project Management Initials:



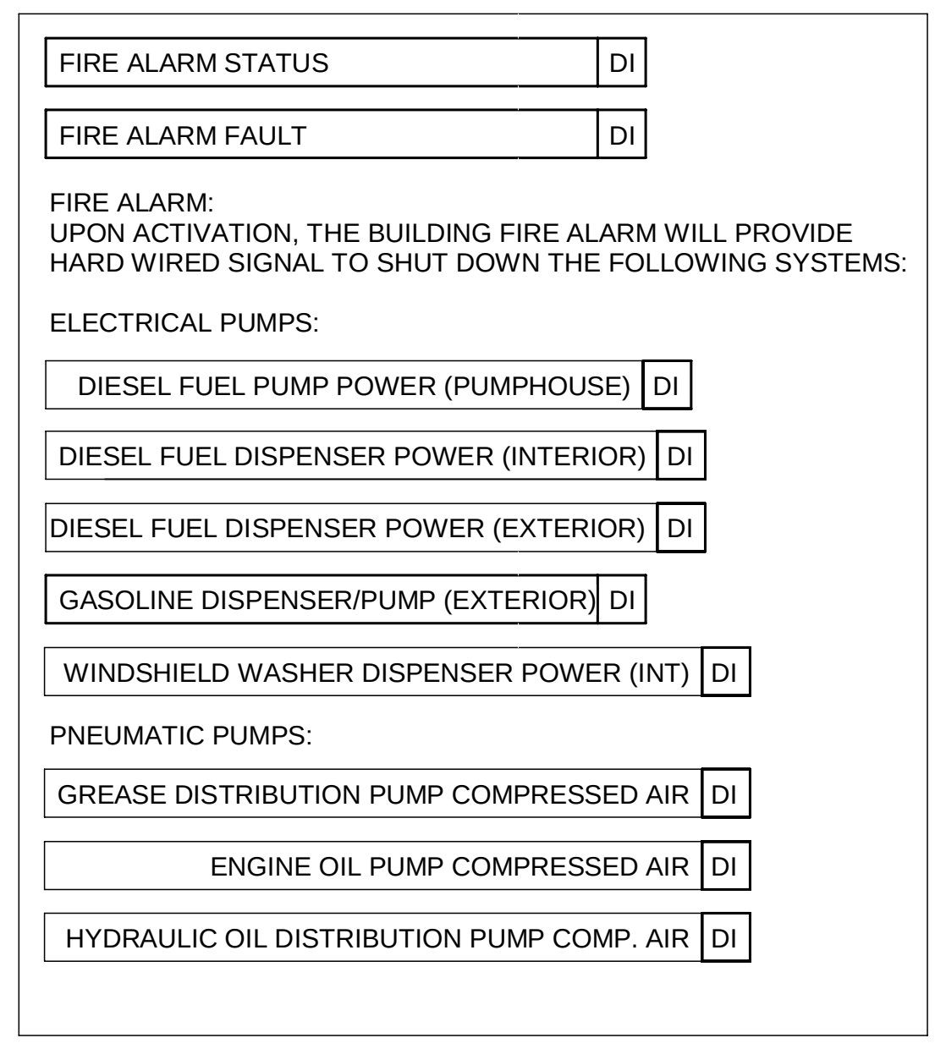
1 **OUTDOOR DATA**
50-M-636 NTS



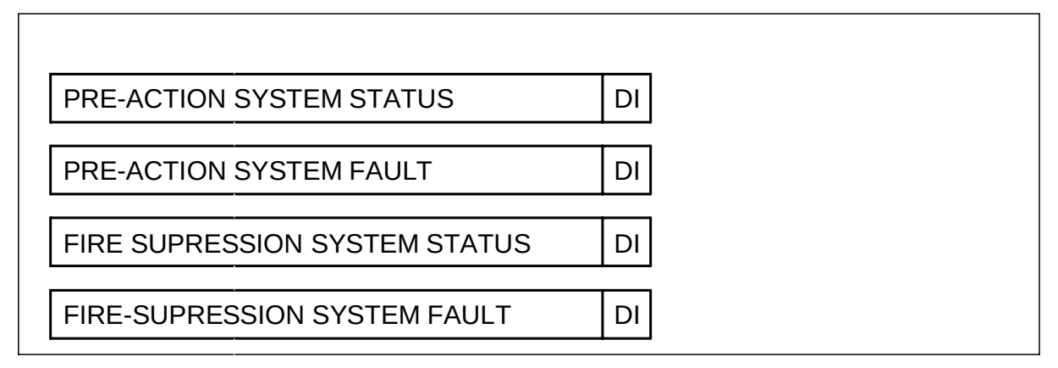
2 **TYPICAL HEAT TRACING**
50-M-636 NTS



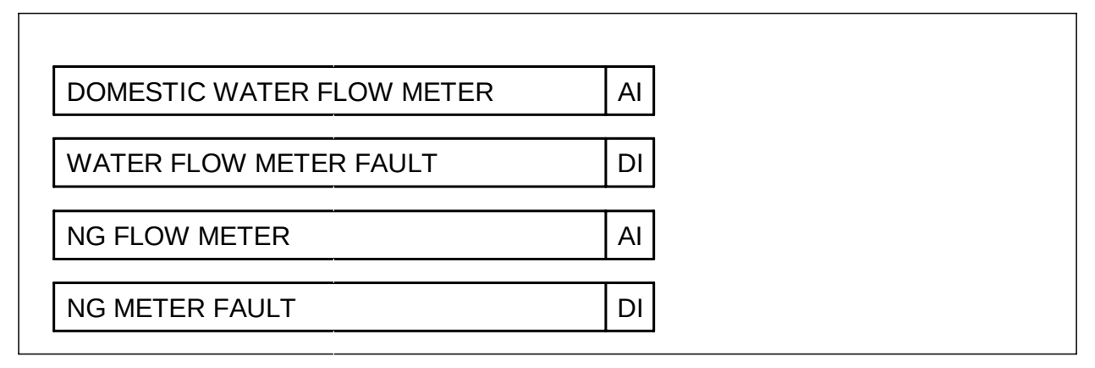
3 **TYPICAL COMPRESSED AIR SYSTEM**
50-M-636 NTS


FIRE ALARM STATUS DI
FIRE ALARM FAULT DI
FIRE ALARM:
UPON ACTIVATION, THE BUILDING FIRE ALARM WILL PROVIDE HARD WIRED SIGNAL TO SHUT DOWN THE FOLLOWING SYSTEMS:
ELECTRICAL PUMPS:
DIESEL FUEL PUMP POWER (PUMPHOUSE) DI
DIESEL FUEL DISPENSER POWER (INTERIOR) DI
DIESEL FUEL DISPENSER POWER (EXTERIOR) DI
GASOLINE DISPENSER/PUMP (EXTERIOR) DI
WINDSHIELD WASHER DISPENSER POWER (INT) DI
PNEUMATIC PUMPS:
GREASE DISTRIBUTION PUMP COMPRESSED AIR DI
ENGINE OIL PUMP COMPRESSED AIR DI
HYDRAULIC OIL DISTRIBUTION PUMP COMP. AIR DI

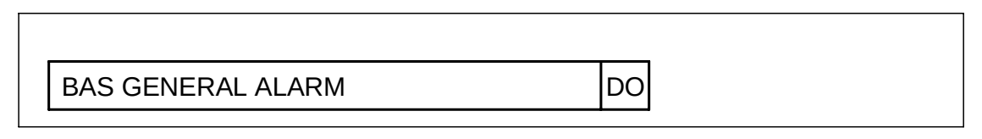
4 **TYPICAL FIRE ALARM SYSTEM**
50-M-636 NTS


PRE-ACTION SYSTEM STATUS DI
PRE-ACTION SYSTEM FAULT DI
FIRE SUPRESSION SYSTEM STATUS DI
FIRE-SUPRESSION SYSTEM FAULT DI

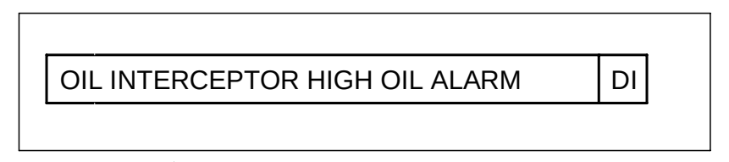
5 **TYPICAL FIRE PROTECTION/SUPRESSION SYSTEM**
50-M-636 NTS



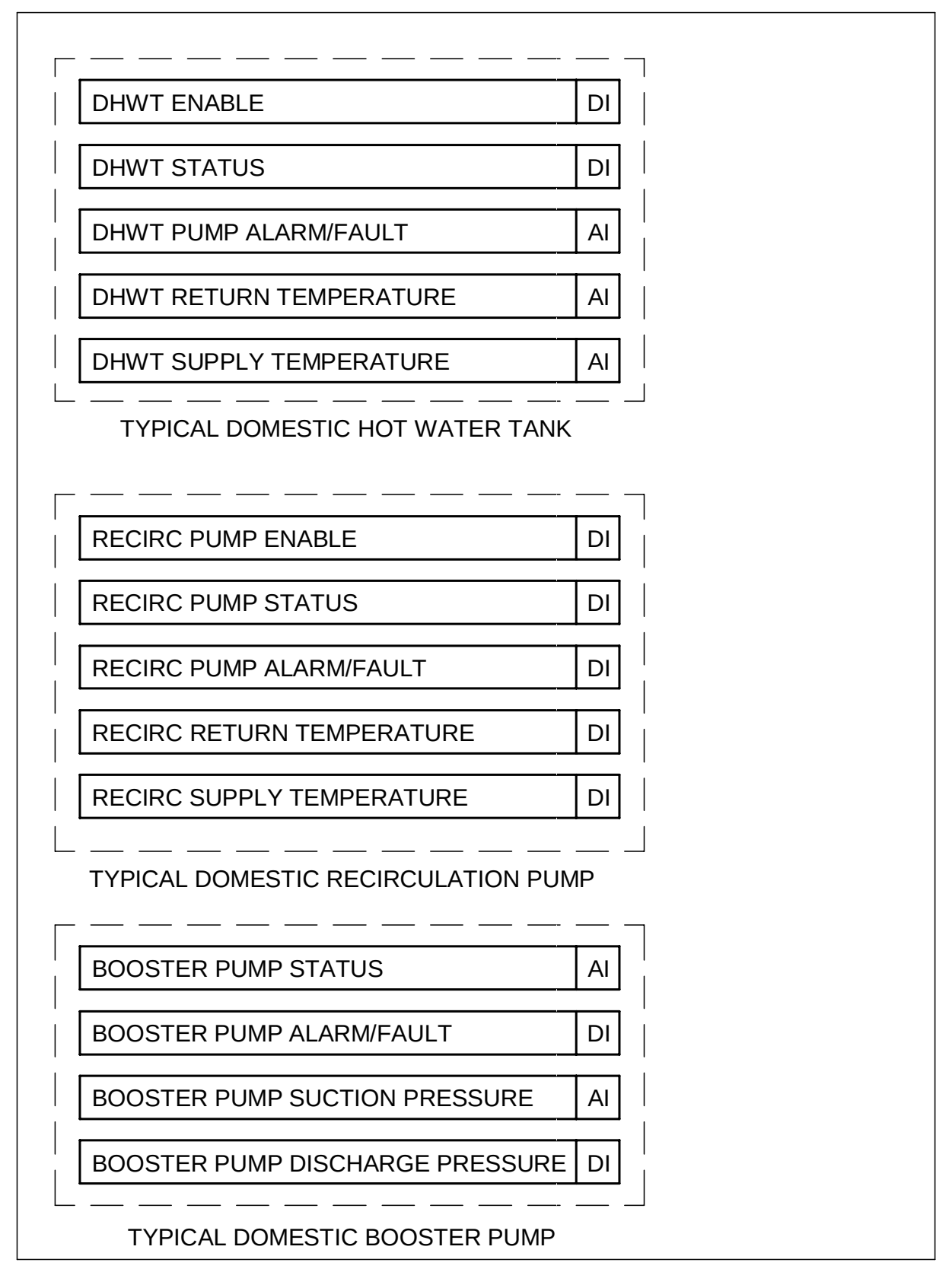
6 **TYPICAL SUB-METERING**
50-M-636 NTS



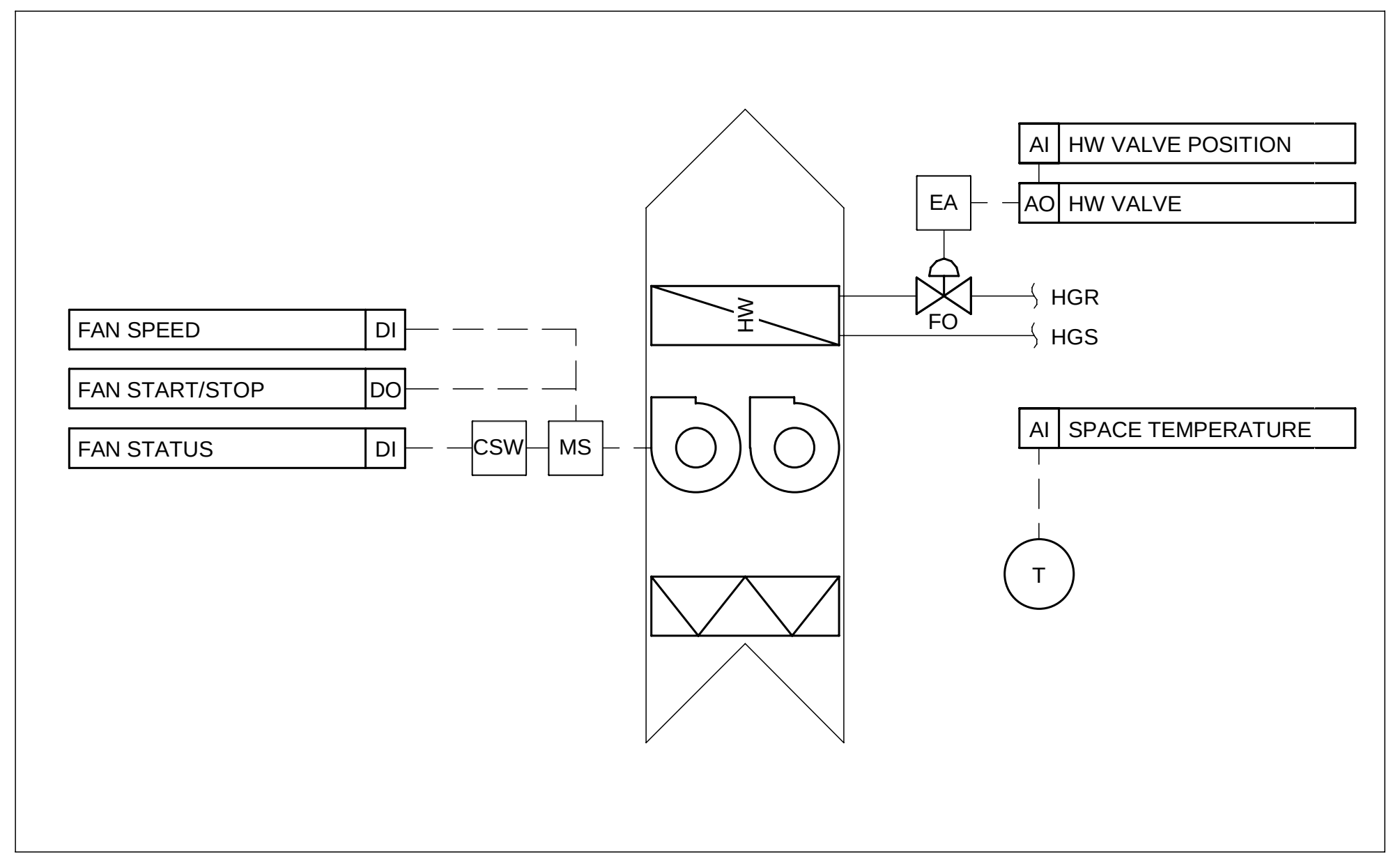
7 **TYPICAL BAS/SECURITY INTERFACE**
50-M-636 NTS



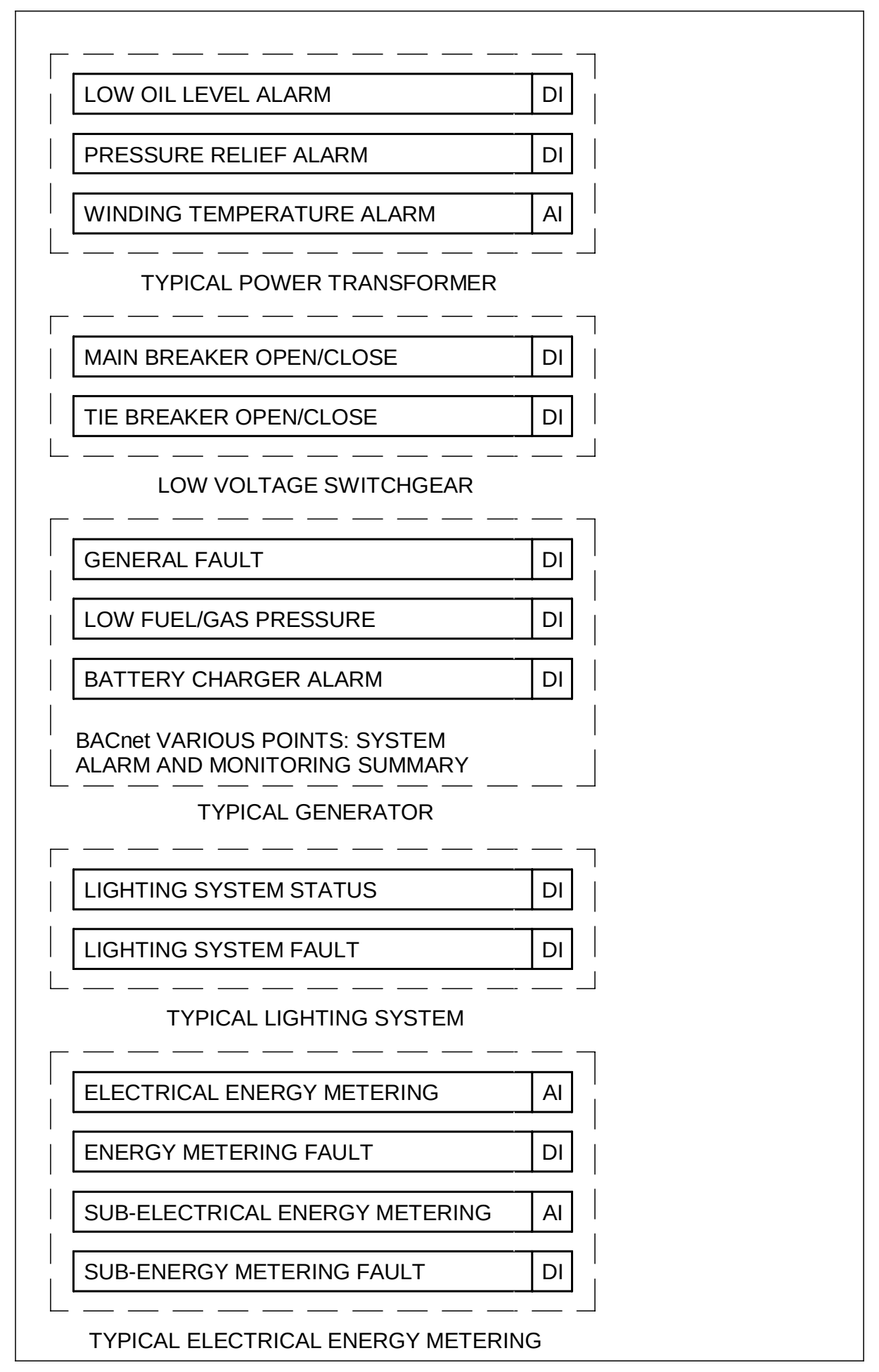
8 **TYPICAL ELEVATOR SUMP/OIL DETECTOR**
50-M-636 NTS


DHWT ENABLE DI
DHWT STATUS DI
DHWT PUMP ALARM/FAULT AI
DHWT RETURN TEMPERATURE AI
DHWT SUPPLY TEMPERATURE AI
TYPICAL DOMESTIC HOT WATER TANK
RECIRC PUMP ENABLE DI
RECIRC PUMP STATUS DI
RECIRC PUMP ALARM/FAULT DI
RECIRC RETURN TEMPERATURE DI
RECIRC SUPPLY TEMPERATURE DI
TYPICAL DOMESTIC RECIRCULATION PUMP
BOOSTER PUMP STATUS AI
BOOSTER PUMP ALARM/FAULT DI
BOOSTER PUMP SUCTION PRESSURE AI
BOOSTER PUMP DISCHARGE PRESSURE DI
TYPICAL DOMESTIC BOOSTER PUMP

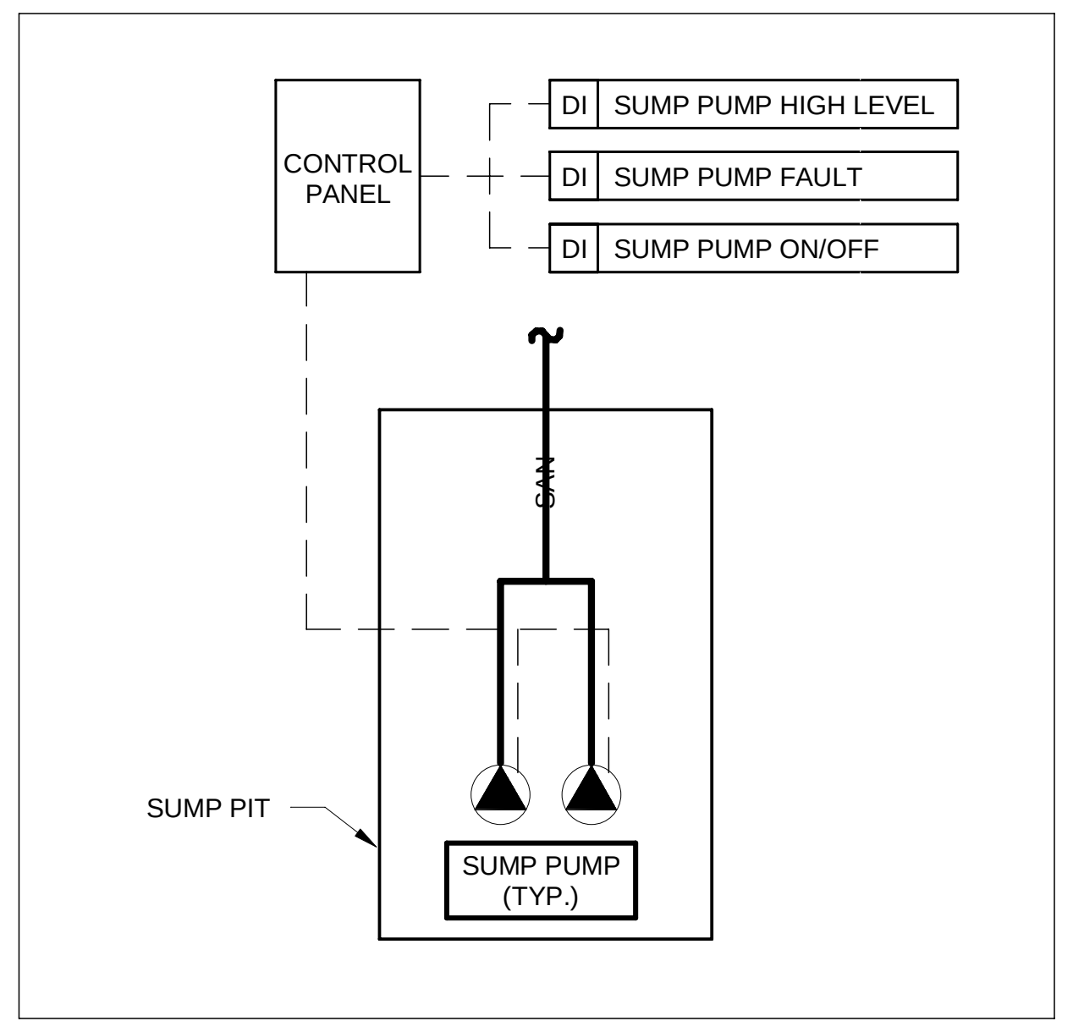
9 **TYPICAL PLUMBING SYSTEMS**
50-M-636 NTS



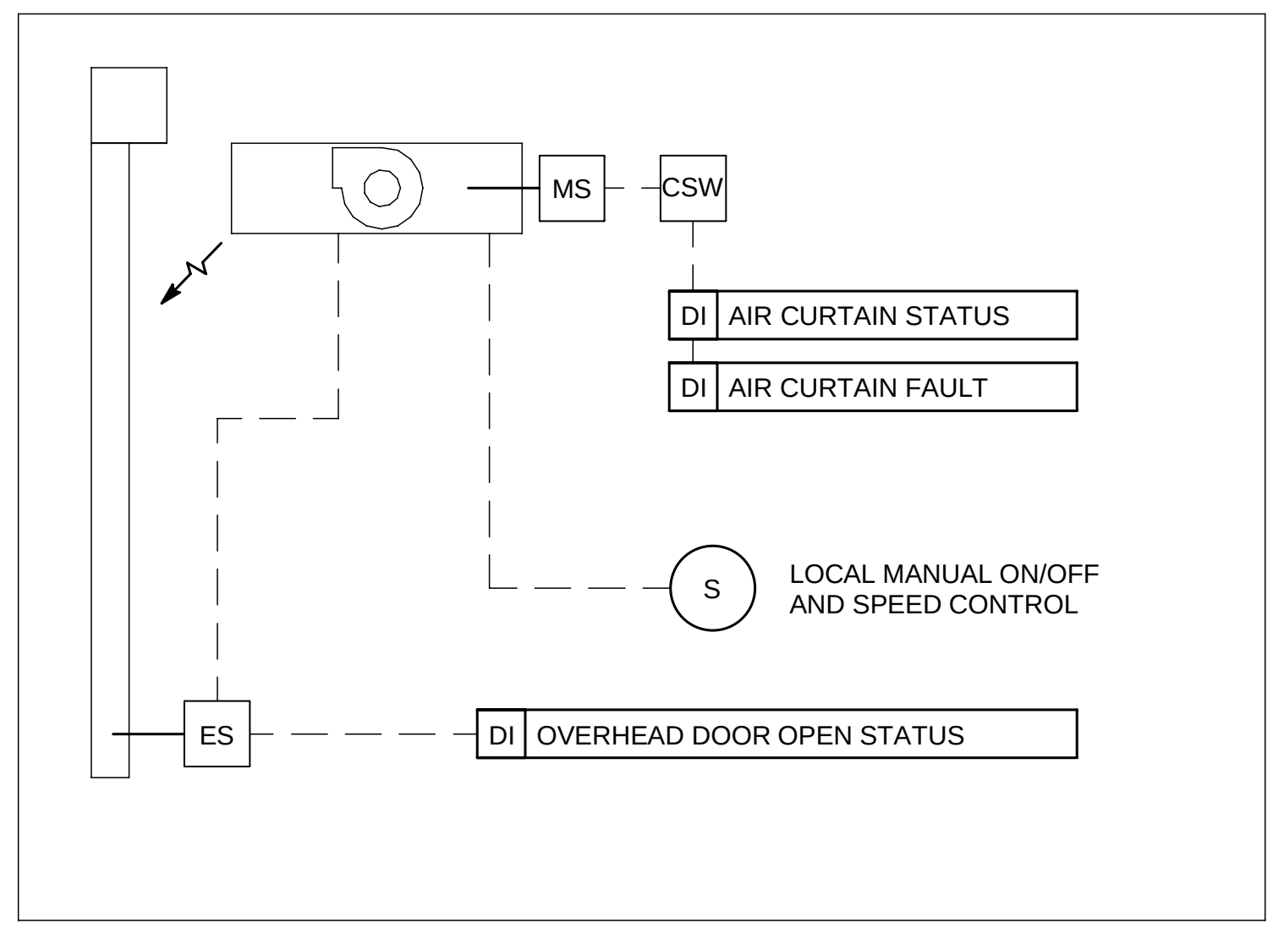
10 **TYPICAL CABINET, FORCE FLOW & UNIT HEATER**
50-M-636 NTS


LOW OIL LEVEL ALARM DI
PRESSURE RELIEF ALARM DI
WINDING TEMPERATURE ALARM AI
TYPICAL POWER TRANSFORMER
MAIN BREAKER OPEN/CLOSE DI
TIE BREAKER OPEN/CLOSE DI
LOW VOLTAGE SWITCHGEAR
GENERAL FAULT DI
LOW FUEL/GAS PRESSURE DI
BATTERY CHARGER ALARM DI
BACnet VARIOUS POINTS: SYSTEM ALARM AND MONITORING SUMMARY
TYPICAL GENERATOR
LIGHTING SYSTEM STATUS DI
LIGHTING SYSTEM FAULT DI
TYPICAL LIGHTING SYSTEM
ELECTRICAL ENERGY METERING AI
ENERGY METERING FAULT DI
SUB-ELECTRICAL ENERGY METERING AI
SUB-ENERGY METERING FAULT DI
TYPICAL ELECTRICAL ENERGY METERING

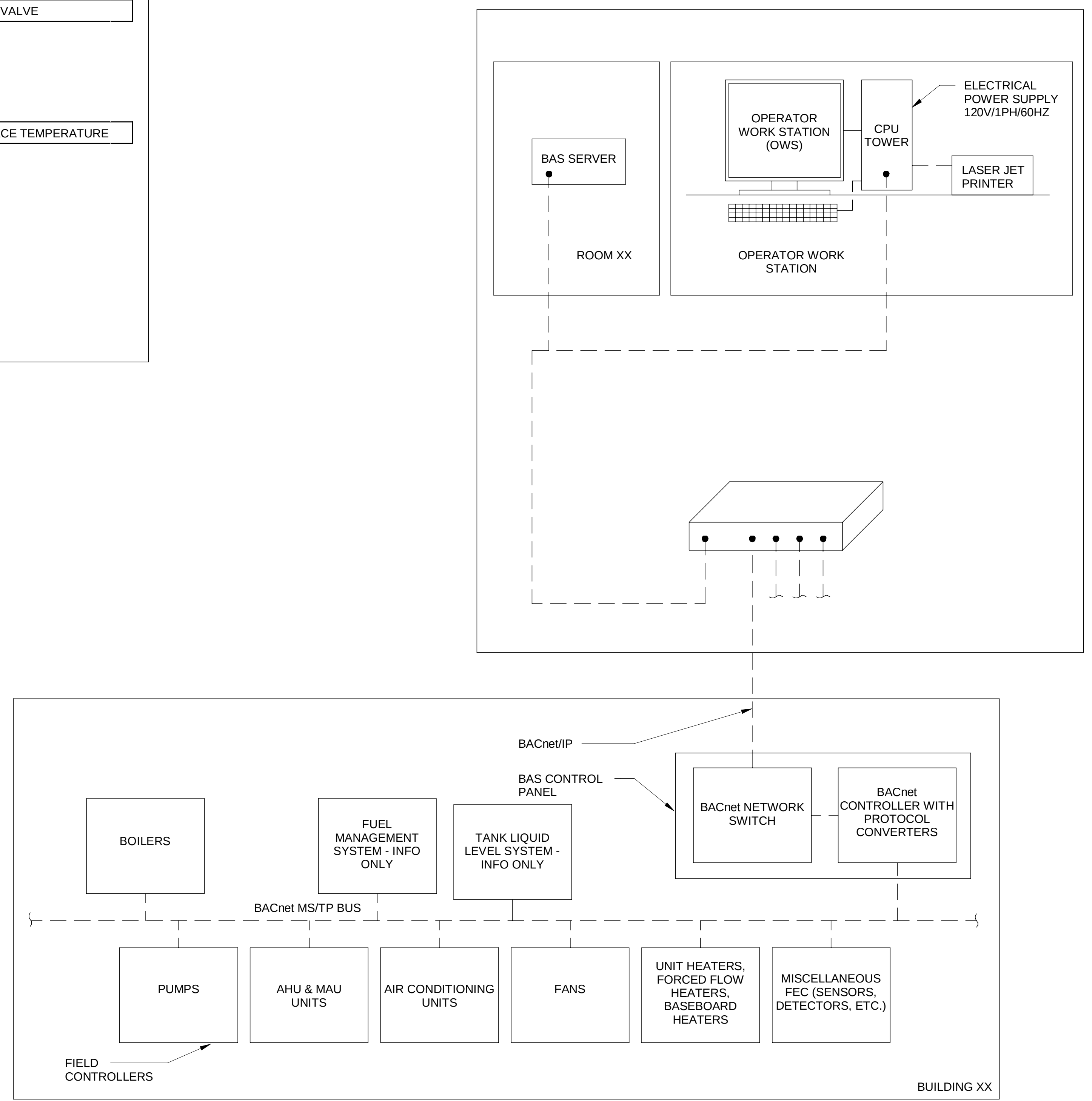
11 **TYPICAL ELECTRICAL SYSTEMS**
50-M-636 NTS



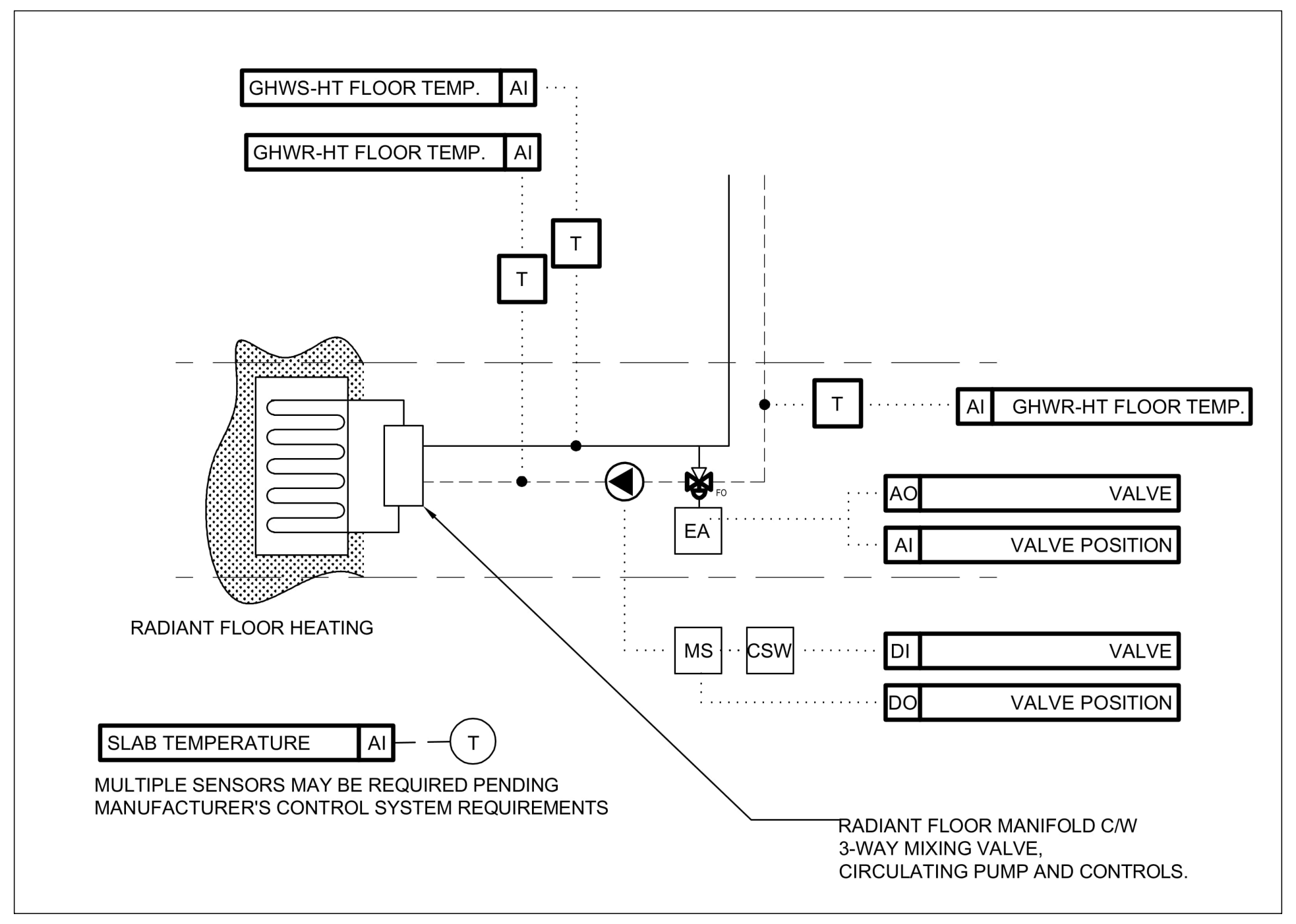
12 **SUMP PUMP CONTROLS**
50-M-636 NTS


MS
CSW
DI AIR CURTAIN STATUS
DI AIR CURTAIN FAULT
S
LOCAL MANUAL ON/OFF AND SPEED CONTROL
ES
DI OVERHEAD DOOR OPEN STATUS

13 **TYPICAL AIR CURTAIN**
50-M-636 NTS


BAS SERVER
ROOM XX
OPERATOR WORK STATION (OWS)
CPU TOWER
ELECTRICAL POWER SUPPLY 120V/1PH/60HZ
LASER JET PRINTER
OPERATOR WORK STATION
BACnet/IP
BAS CONTROL PANEL
BACnet NETWORK SWITCH
BACnet CONTROLLER WITH PROTOCOL CONVERTERS
BOILERS
FUEL MANAGEMENT SYSTEM - INFO ONLY
TANK LIQUID LEVEL SYSTEM - INFO ONLY
BACnet MS/TP BUS
PUMPS
AHU & MAU UNITS
AIR CONDITIONING UNITS
FANS
UNIT HEATERS, FORCED FLOW HEATERS, BASEBOARD HEATERS
MISCELLANEOUS FEC (SENSORS, DETECTORS, ETC.)
FIELD CONTROLLERS
BUILDING XX

14 **TYPICAL BACnet SYSTEM**
50-M-636 NTS

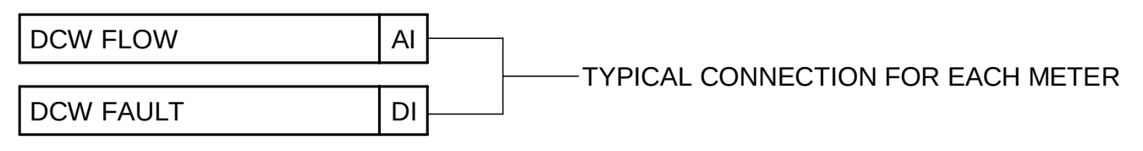


15 **TYPICAL INFLOOR HEATING/SNOW MELTING SYSTEM**
50-M-636 NTS

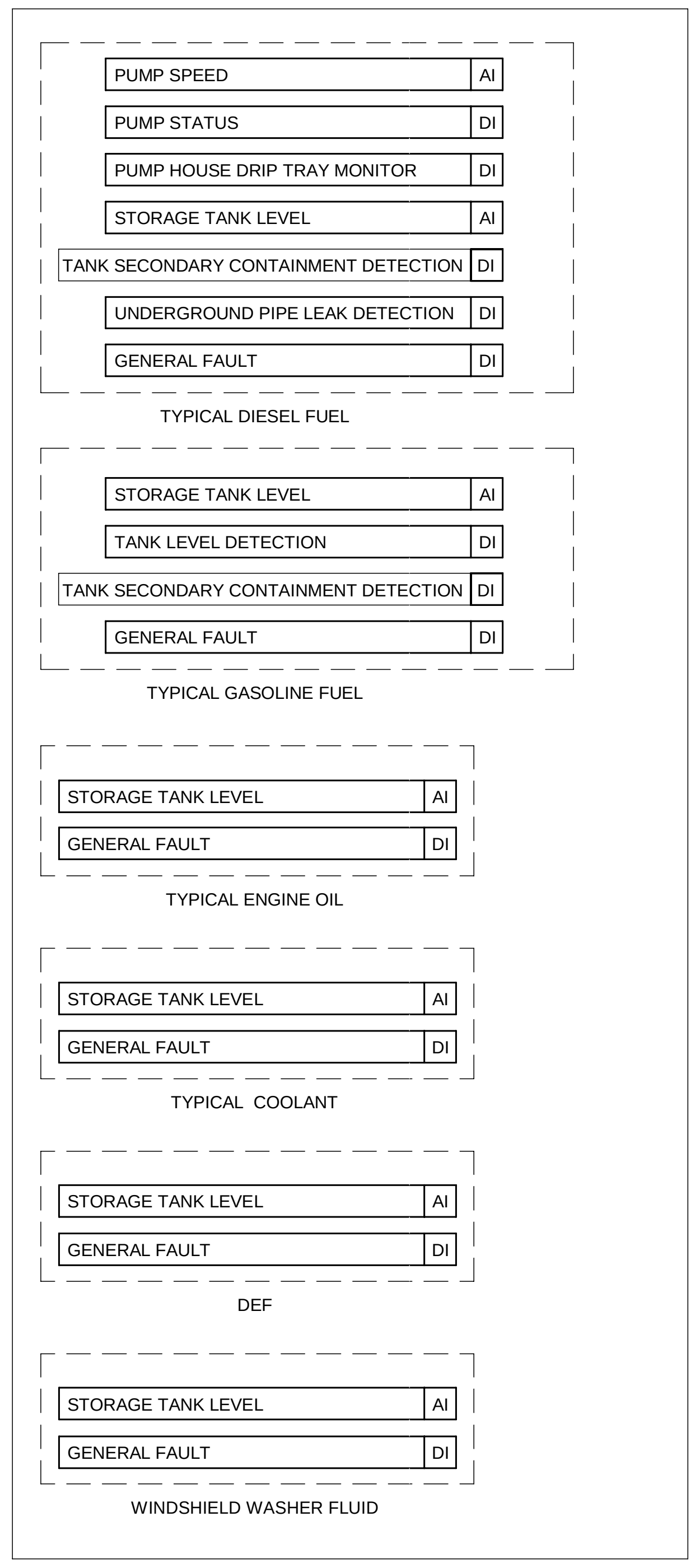
FOR LOCATION REFER TO PLUMBING DRAWINGS AND PLUMBING SCHEDULES

TAG	TYPE	LOCATION	SERVICE	SIZE	REMARKS
WM-01	WATER METER	MECH. ROOM-02(SV)	DOMESTIC	150ø	UTILITY...
SM-02	SUB METER	MECH. ROOM-02(SV)	DOMESTIC	100ø	
SM-03	SUB METER	MECH. ROOM-02(SV)	WASHDOWN HOSES/HOSE BIBB	100ø	
SM-04	SUB METER	MECH. ROOM-01(SV)	HOT WATER TANK	32ø	
SM-05	SUB METER	MECH. ROOM-01(SP)	BOILERS	32ø	
SM-06	SUB METER	MECH. ROOM-01(SP)	CHILLED WATER	32ø	
SM-07	SUB METER	MECH. ROOM-MEZZ	HOT WATER TANK	65ø	
SM-08	SUB METER	JANITOR ROOM	AHU HUMIDIFIER(ROOF)	20ø	
SM-09	SUB METER	MECH. ROOM-01(SV)	HUMIDIFIER	32ø	

NOTES: ALL METERS SHALL BE CONNECTED TO BAS

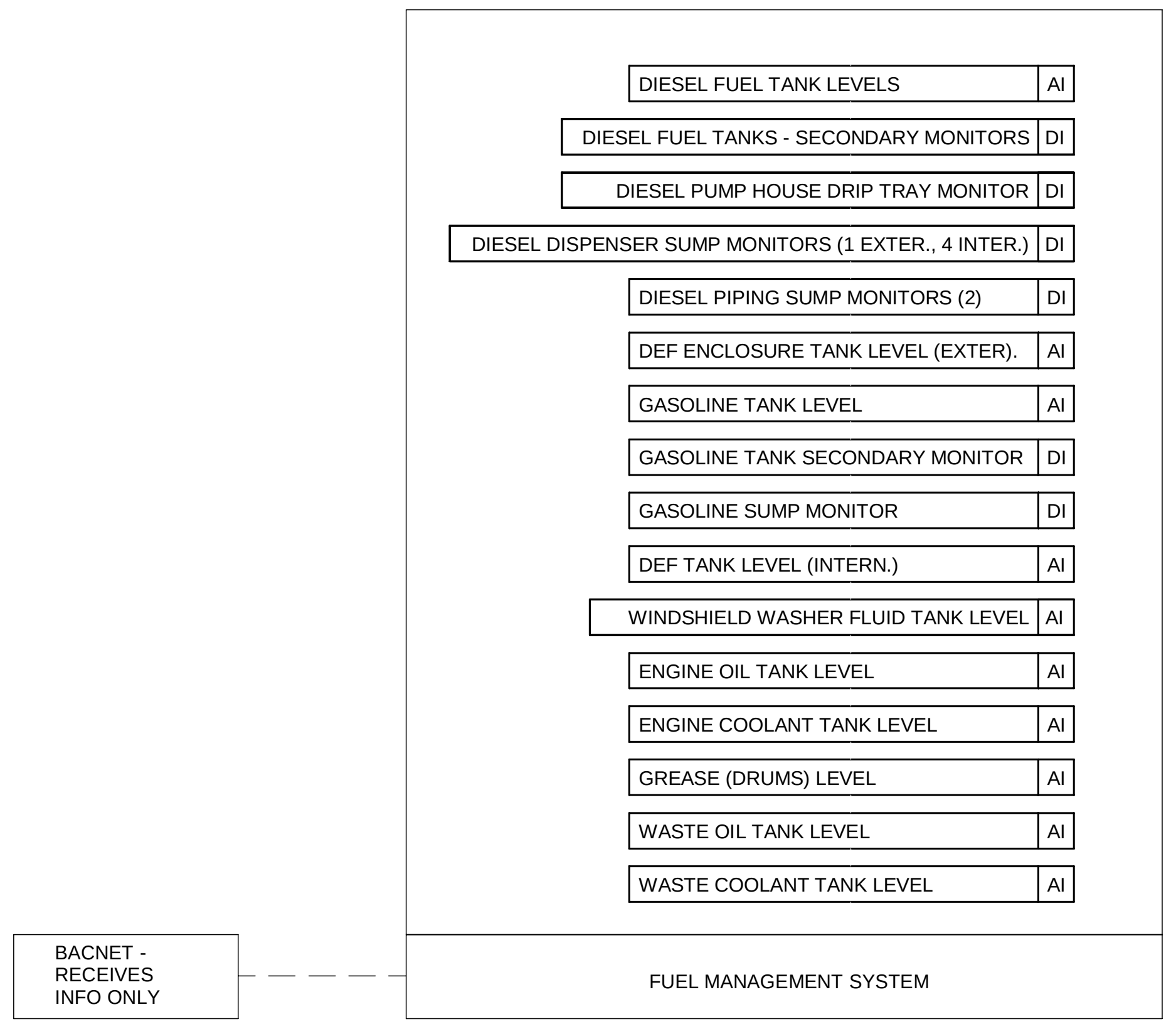


16 **DOMESTIC WATER AND SUBWATER METERS**
50-M-636 NTS

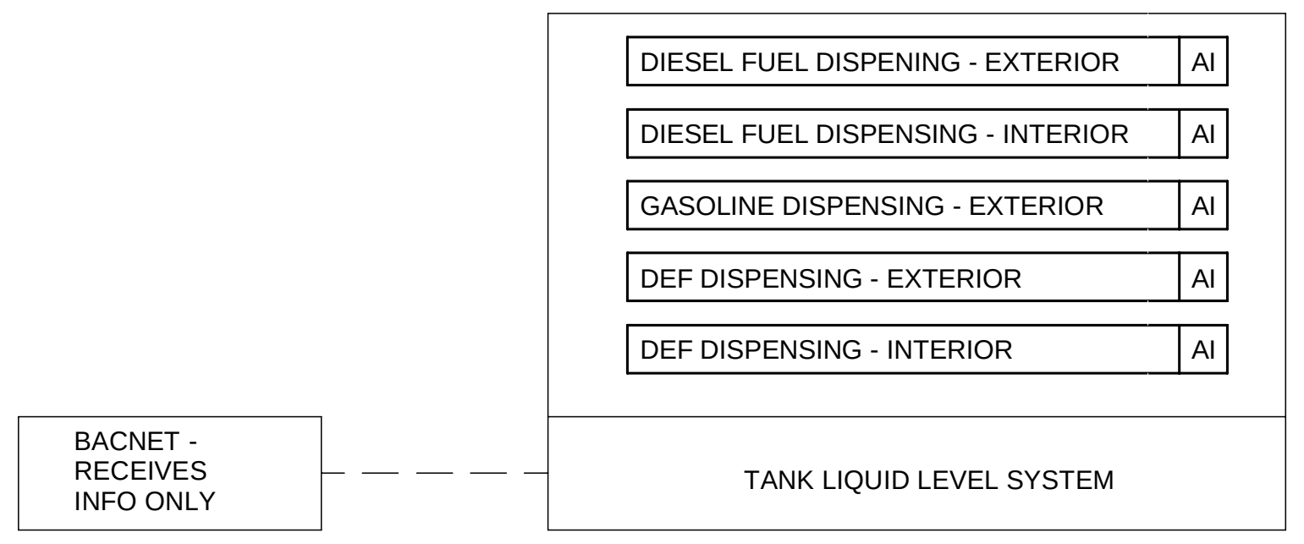


17 **TYPICAL INDUSTRIAL/PROCESS SYSTEMS**
50-M-636 NTS

NOTE: SEE ALSO TANK LIQUID LEVEL SYSTEM AND FUEL MANAGEMENT SYSTEM DETAILS.


DIESEL FUEL TANK LEVELS AI
DIESEL FUEL TANKS - SECONDARY MONITORS DI
DIESEL PUMP HOUSE DRIP TRAY MONITOR DI
DIESEL DISPENSER SUMP MONITORS (1 EXTER., 4 INTER.) DI
DIESEL PIPING SUMP MONITORS (2) DI
DEF ENCLOSURE TANK LEVEL (EXTER). AI
GASOLINE TANK LEVEL AI
GASOLINE TANK SECONDARY MONITOR DI
GASOLINE SUMP MONITOR DI
DEF TANK LEVEL (INTERN.) AI
WINDSHIELD WASHER FLUID TANK LEVEL AI
ENGINE OIL TANK LEVEL AI
ENGINE COOLANT TANK LEVEL AI
GREASE (DRUMS) LEVEL AI
WASTE OIL TANK LEVEL AI
WASTE COOLANT TANK LEVEL AI
BACNET - RECEIVES INFO ONLY
FUEL MANAGEMENT SYSTEM

18 **TYPICAL TANK LIQUID LEVEL SYSTEM**
50-M-636 NTS


DIESEL FUEL DISPENSING - EXTERIOR AI
DIESEL FUEL DISPENSING - INTERIOR AI
GASOLINE DISPENSING - EXTERIOR AI
DEF DISPENSING - EXTERIOR AI
DEF DISPENSING - INTERIOR AI
BACNET - RECEIVES INFO ONLY
TANK LIQUID LEVEL SYSTEM

19 **TYPICAL FUEL MANAGEMENT SYSTEM**
50-M-636 NTS

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION

PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS MISCELLANEOUS

SHEET NUMBER

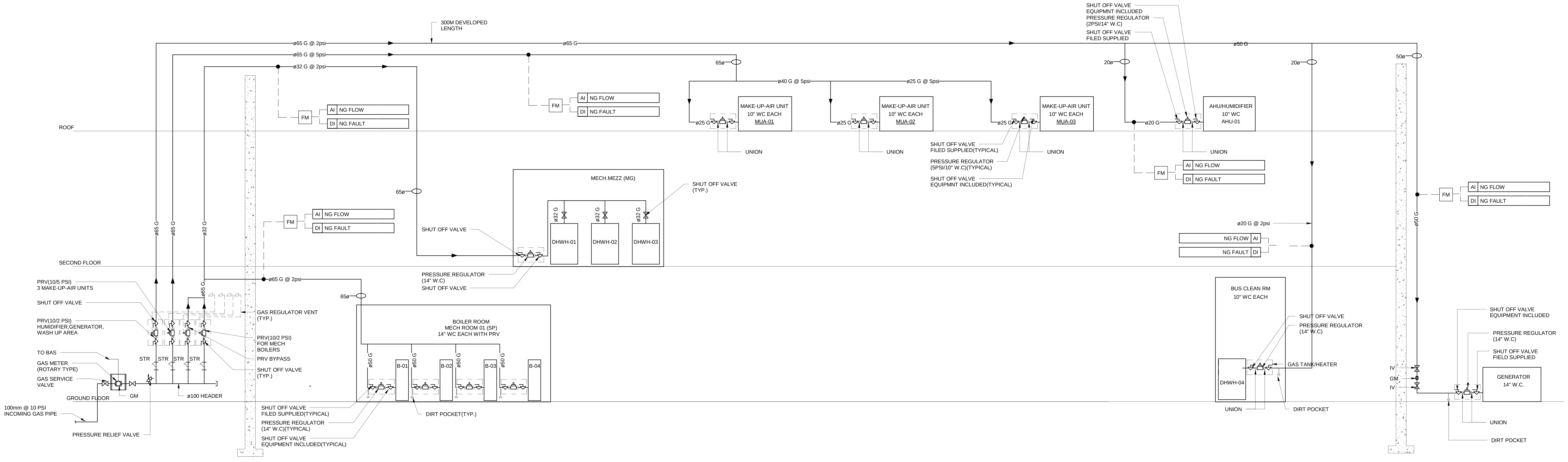
50-M-636

50-M-636-CONTROLS MISCELLANEOUS
Last Plotted: 14-02-2025 22:37:25
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

Project Management Initials: Designer: Designer   Checked: Checker   Approved: Approver   A0 33.1"x46.8"

NOTES:-

1. ALL MECHANICAL BOILER EQUIPMENTS REQUIRE GAS PRESSURE OF 7" W.C. (1740 Pa) MINIMUM TO 14" W.C.(3485 Pa) MAXIMUM.
2. CONTRACTOR SHALL PROVIDE SHUTOFF VALVE INTERLOCKED WITH FIRE ALARM / ANSUL SYSTEM FOR ALL EQUIPMENTS.
3. ALL INSIDE REGULATORS SHALL BE VENT LIMITED DEVICE.
4. GAS LOAD TO ALL MECHANICAL EQUIPMENTS ARE TENTATIVE. SIZING IS DONE AS PER TENTATIVE LOAD. THESE LOADS WILL VARY.


300M DEVELOPED LENGTH
ø65 G @ 2psi
ø65 G @ 5psi
ø32 G @ 2psi
ø65 G
ø50 G
65ø
20ø
50ø
ø40 G @ 5psi
ø25 G @ 5psi
ROOF
SECOND FLOOR
GROUND FLOOR
FM
AI NG FLOW
DI NG FAULT
MAKE-UP-AIR UNIT 10" WC EACH MUA-01
MAKE-UP-AIR UNIT 10" WC EACH MUA-02
MAKE-UP-AIR UNIT 10" WC EACH MUA-03
AHU/HUMIDIFIER 10" WC AHU-01
ø25 G
ø20 G
UNION
SHUT OFF VALVE EQUIPMNT INCLUDED
PRESSURE REGULATOR (2PSI/14" W.C)
SHUT OFF VALVE FILED SUPPLIED
SHUT OFF VALVE FILED SUPPLIED(TYPICAL)
PRESSURE REGULATOR (5PSI/10" W.C)(TYPICAL)
SHUT OFF VALVE EQUIPMNT INCLUDED(TYPICAL)
MECH.MEZZ (MG)
ø32 G
DHWH-01
DHWH-02
DHWH-03
SHUT OFF VALVE (TYP.)
SHUT OFF VALVE
PRESSURE REGULATOR (14" W.C)
SHUT OFF VALVE
ø20 G @ 2psi
NG FLOW AI
NG FAULT DI
ø65 G
ø32 G
PRV(10/5 PSI) 3 MAKE-UP-AIR UNITS
SHUT OFF VALVE
PRV(10/2 PSI) HUMIDIFIER,GENERATOR, WASH UP AREA
TO BAS
GAS METER (ROTARY TYPE)
GAS SERVICE VALVE
GM
STR
ø100 HEADER
100mm @ 10 PSI INCOMING GAS PIPE
PRESSURE RELIEF VALVE
GAS REGULATOR VENT (TYP.)
PRV(10/2 PSI) FOR MECH BOILERS
PRV BYPASS
SHUT OFF VALVE (TYP.)
BOILER ROOM MECH ROOM 01 (SP) 14" WC EACH WITH PRV
ø50 G
B-01
B-02
B-03
B-04
SHUT OFF VALVE FILED SUPPLIED(TYPICAL)
PRESSURE REGULATOR (14" W.C)(TYPICAL)
SHUT OFF VALVE EQUIPMENT INCLUDED(TYPICAL)
DIRT POCKET(TYP.)
BUS CLEAN RM 10" WC EACH
SHUT OFF VALVE
PRESSURE REGULATOR (14" W.C)
GAS TANK/HEATER
DHWH-04
UNION
DIRT POCKET
IV
GM
IV
SHUT OFF VALVE EQUIPMENT INCLUDED
PRESSURE REGULATOR (14" W.C)
SHUT OFF VALVE FIELD SUPPLIED
GENERATOR 14" W.C.
UNION
DIRT POCKET

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

City of Winnipeg
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Winnipeg, MB R3B 1B9
1.877.311.4974

Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
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PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS GAS SCHEMATIC

SHEET NUMBER

50-M-637

50-M-637-CONTROLS GAS SCHEMATIC
Last Plotted: 15-02-2025 00:04:53
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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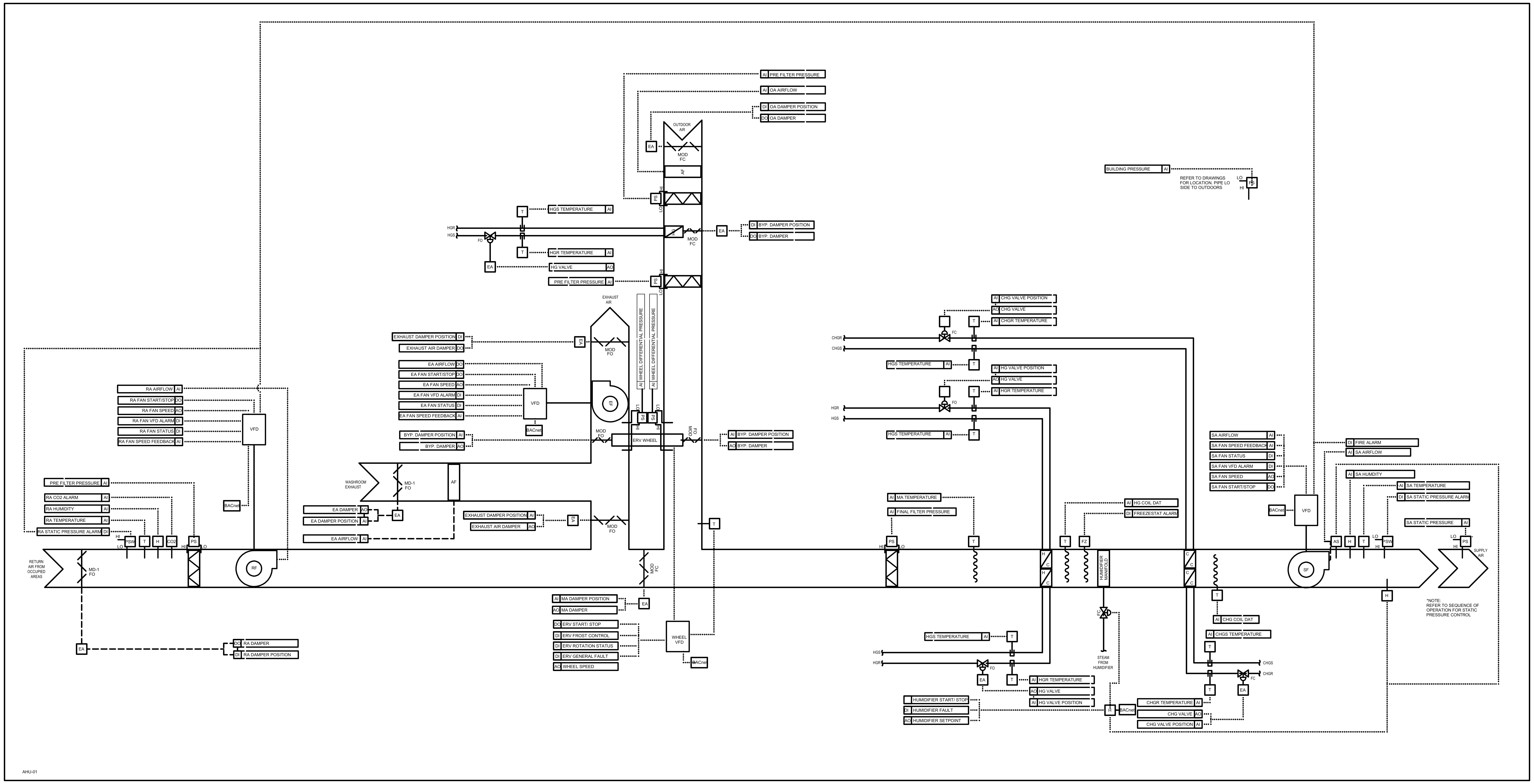

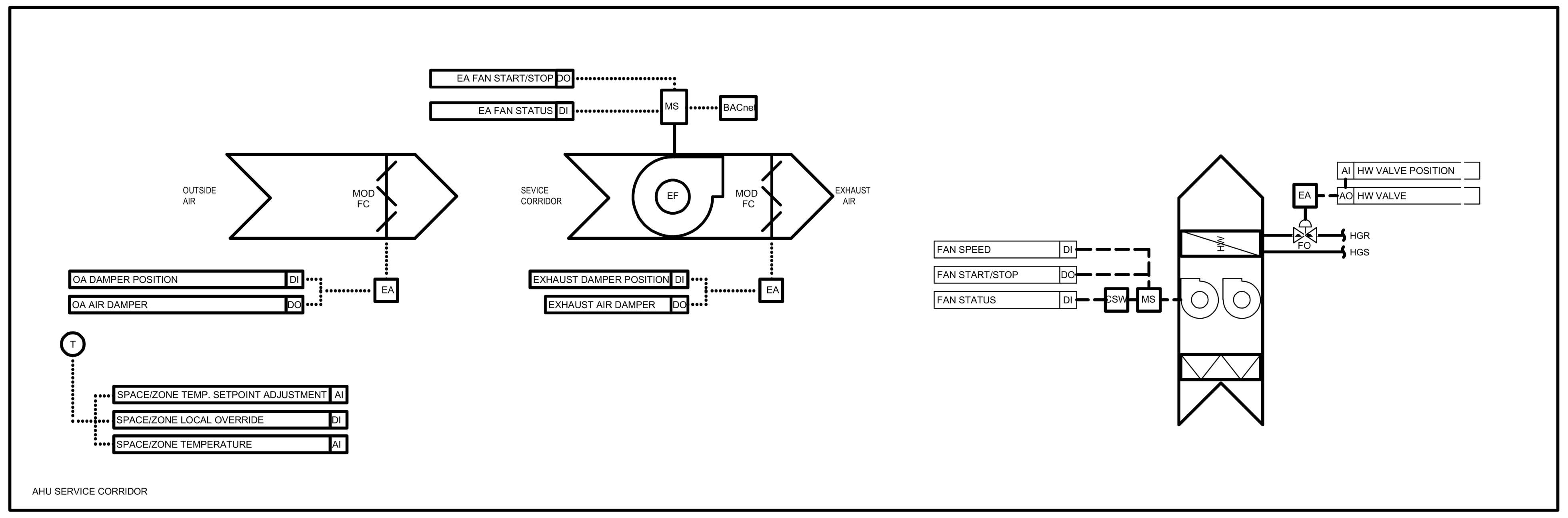

1 **CONTROLS AHU-01**
50-M-640 NTS

AECOM

PROJECT
WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

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510 Main St.
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Winnipeg Transit
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Winnipeg, MB R3L 2A1

CONSULTANT
AECOM CANADA ULC
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Winnipeg, MB R3P 0Y7

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60721079

SHEET TITLE
CONTROLS AHU-01

SHEET NUMBER
50-M-640

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"
Project Management Initials:
50-M-640-CONTROLS AHU-01
Last Plotted: 14-02-2025 22:37:30
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt

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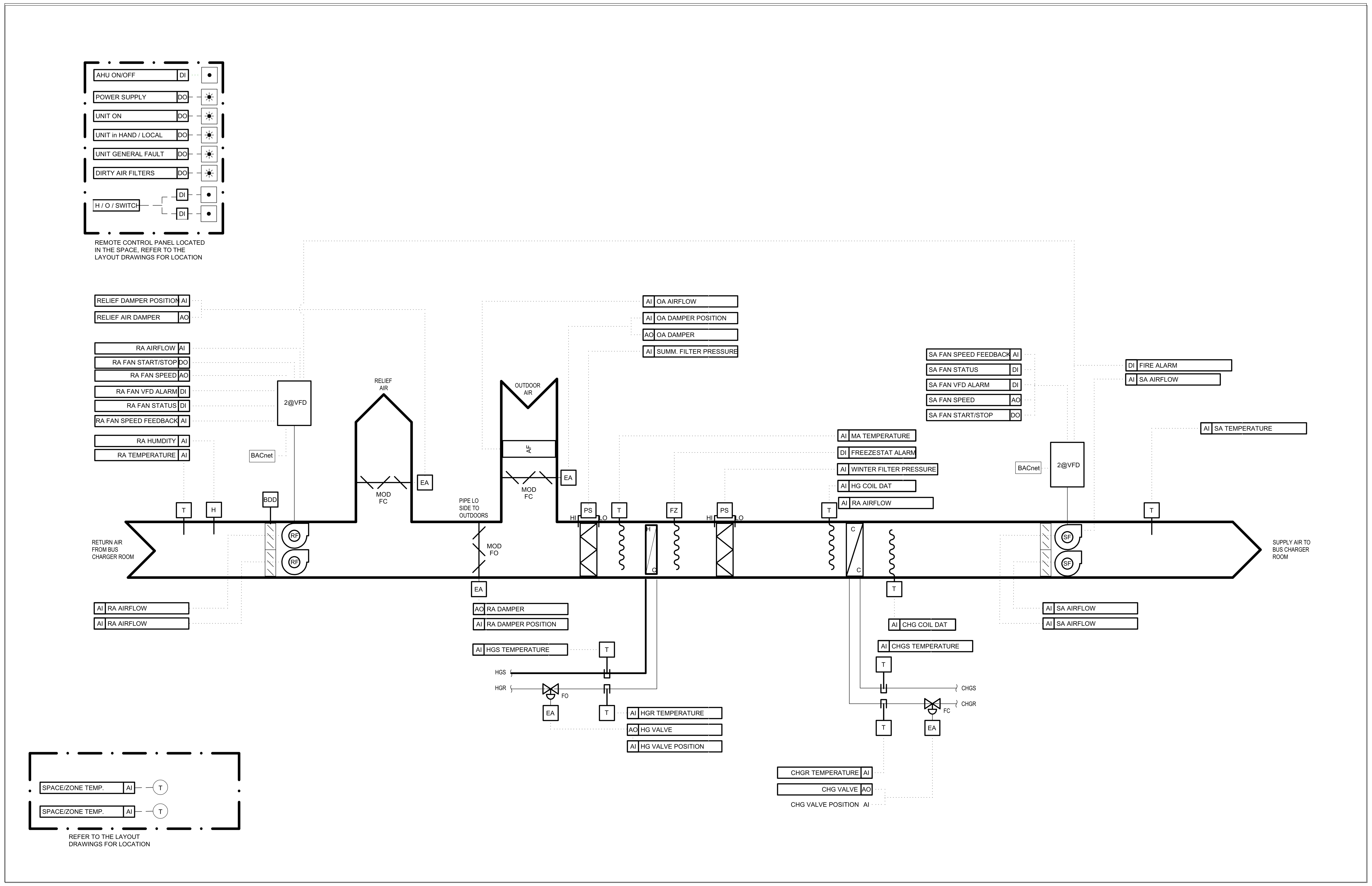
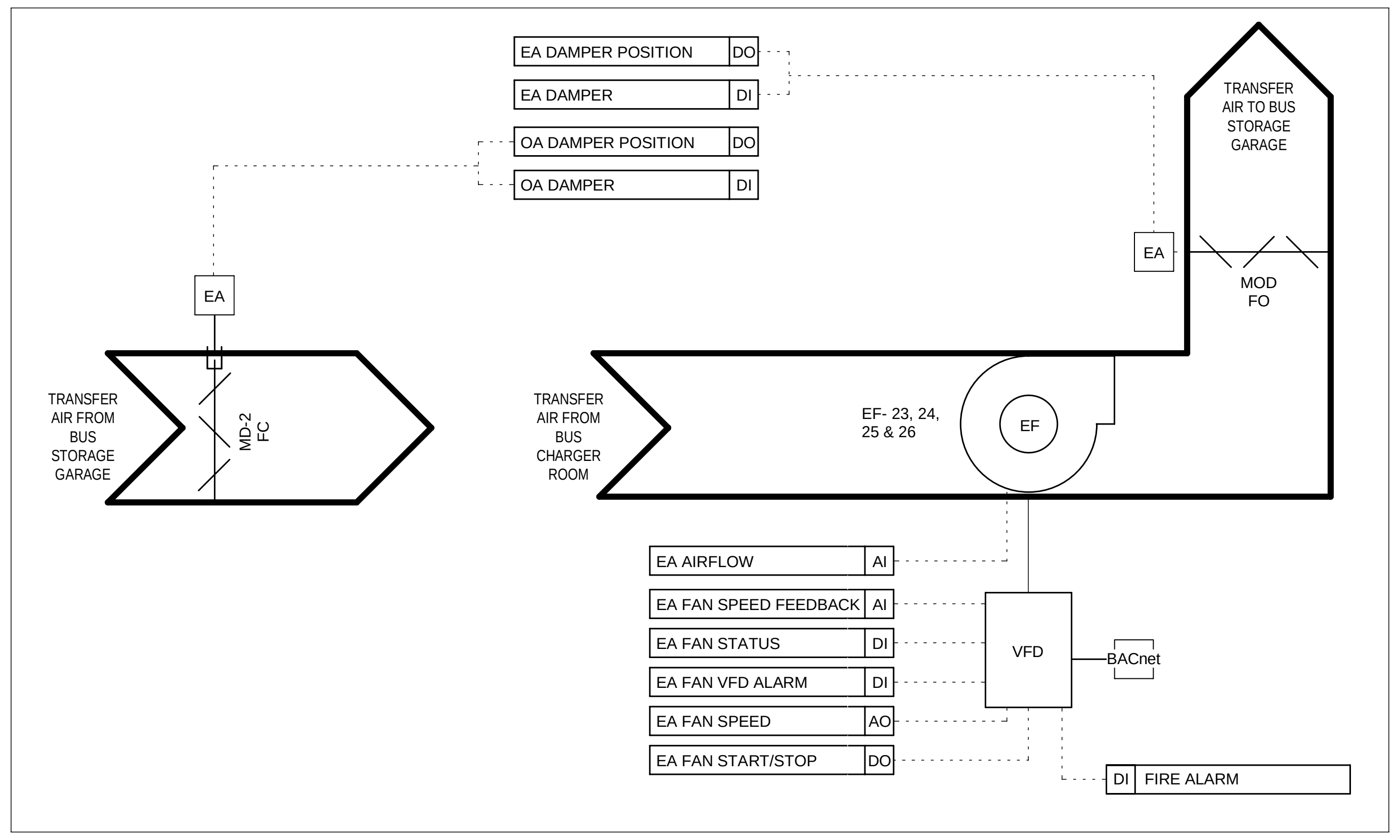
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"
Project Management Initials:



1 CONTROLS AHU-02

50-M-641 NTS

NOTE: THESE UNITS ARE INTEGRATED AND SERVING THE SAME SPACE AS EF-23 TO 26.



2 ELECTRICAL BUS CHARGER ROOM

50-M-641 NTS

NOTE: THESE UNITS ARE INTEGRATED AND SERVING THE SAME SPACE AS AHU-02.

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

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Winnipeg Transit
B-414 Osborne St.
Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr.
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION

PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS AHU-02

SHEET NUMBER

50-M-641

50-M-641-CONTROLS AHU-02
Last Plotted: 14-02-2025 22:37:34
Filename: Autodesk Docs://BP-AMER (CAN) 60721079-Winnipeg North Transit Garage Replacement/60721079-Winnipeg Transit North Garage-M.rvt
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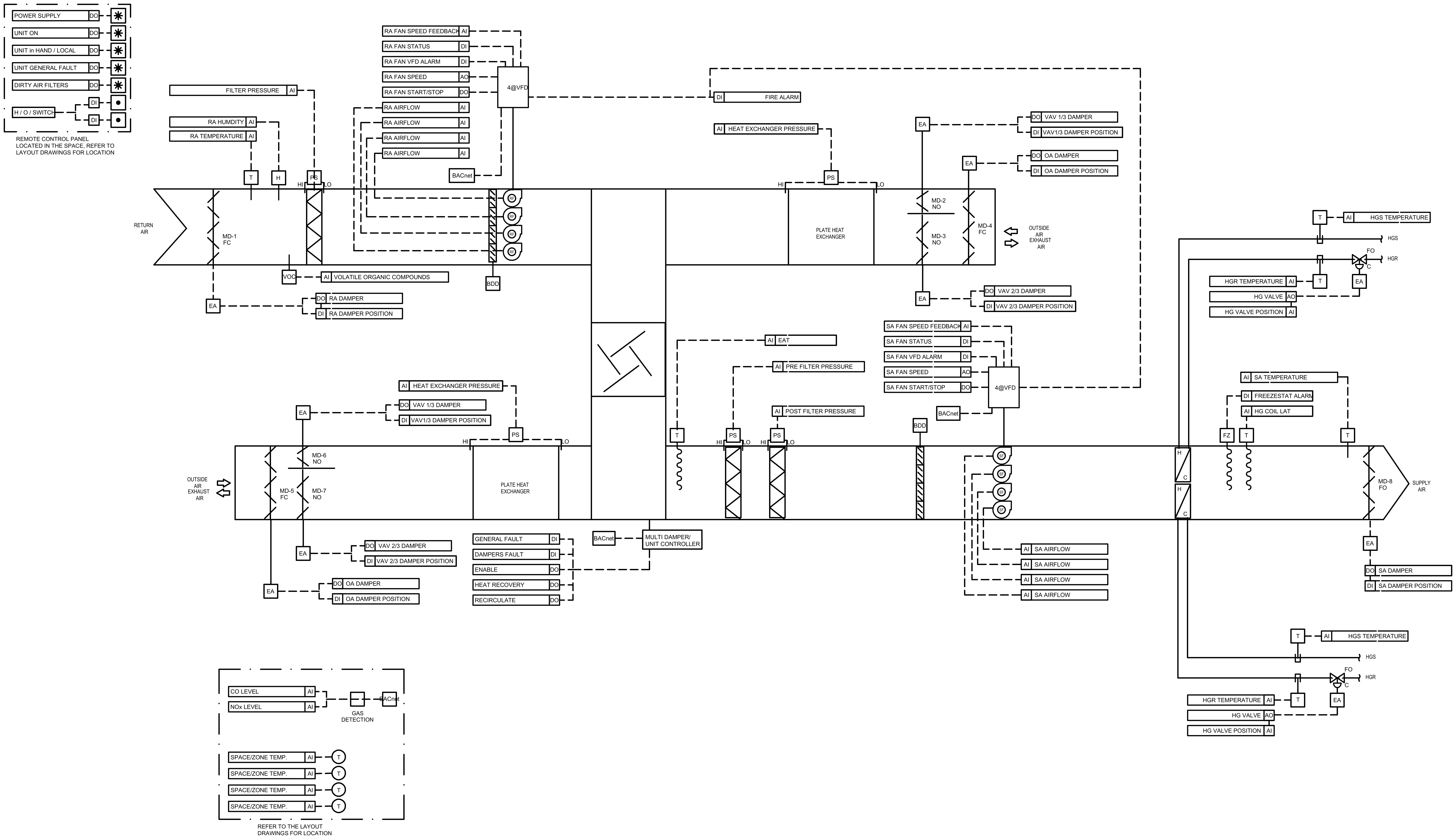

1 CONTROLS HRU-01-AB, HRU-01C
50-M-642 NTS

NOTE: THESE UNITS ARE INTEGRATED AND SERVING THE SAME SPACE AS MUA-01A,B,C AND EF-27, 28, 29 UNITS.

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

50-M-642-CONTROLS HRU-01-AB, HRU-01C
Last Plotted: 14-02-2025 22:37:39
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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
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1.877.311.4974

Winnipeg Transit
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Winnipeg, MB R3L 2A1

CONSULTANT

AECOM CANADA ULC
99 Commerce Dr,
Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60721079

SHEET TITLE

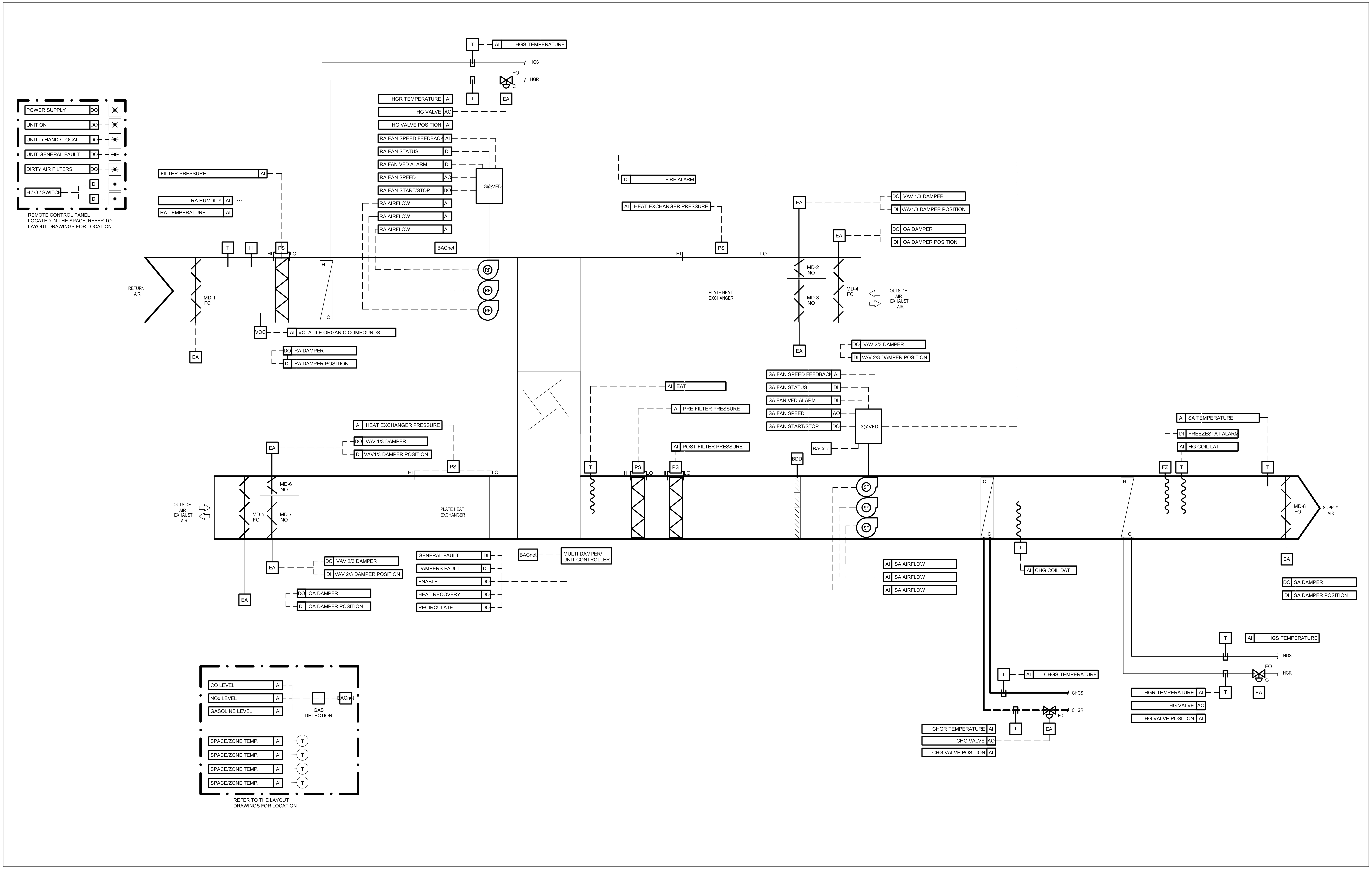
CONTROLS HRU-01-AB, HRU-01C

SHEET NUMBER

50-M-642

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:



1 **CONTROLS HRU-02,HRU-05AB**
50-M-643 NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

City of Winnipeg
510 Main St.
Winnipeg, MB R3B 1B9
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CONSULTANT

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99 Commerce Dr,
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REGISTRATION

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PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS HRU-02,HRU-05AB

SHEET NUMBER

50-M-643

50-M-643-CONTROLS HRU-02,HRU-05AB
Last Plotted: 14-02-2025 22:37:43
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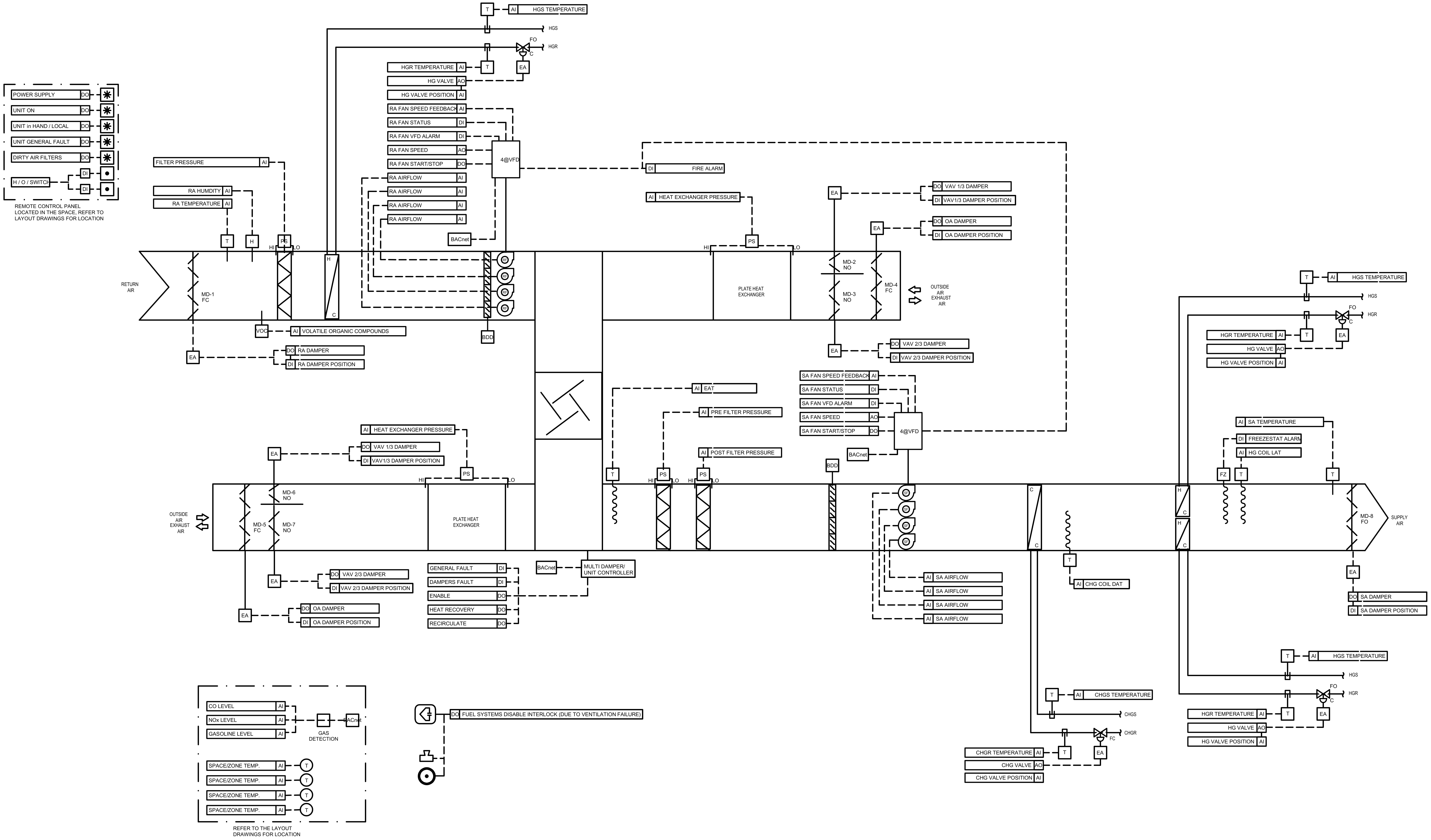
Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:



1 **CONTROLS HRU-03**

50-M-644 NTS

50-M-644-CONTROLS HRU-03

Last Plotted: 14-02-2025 22:37:47

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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT

100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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City of Winnipeg
510 Main St.
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Winnipeg Transit
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CONSULTANT

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Winnipeg, MB R3P 0Y7

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	02/19/2025	ISSUED FOR TENDER
C	12/06/2024	ISSUED FOR 66% DESIGN RESUBMISSION

PROJECT NUMBER

60721079

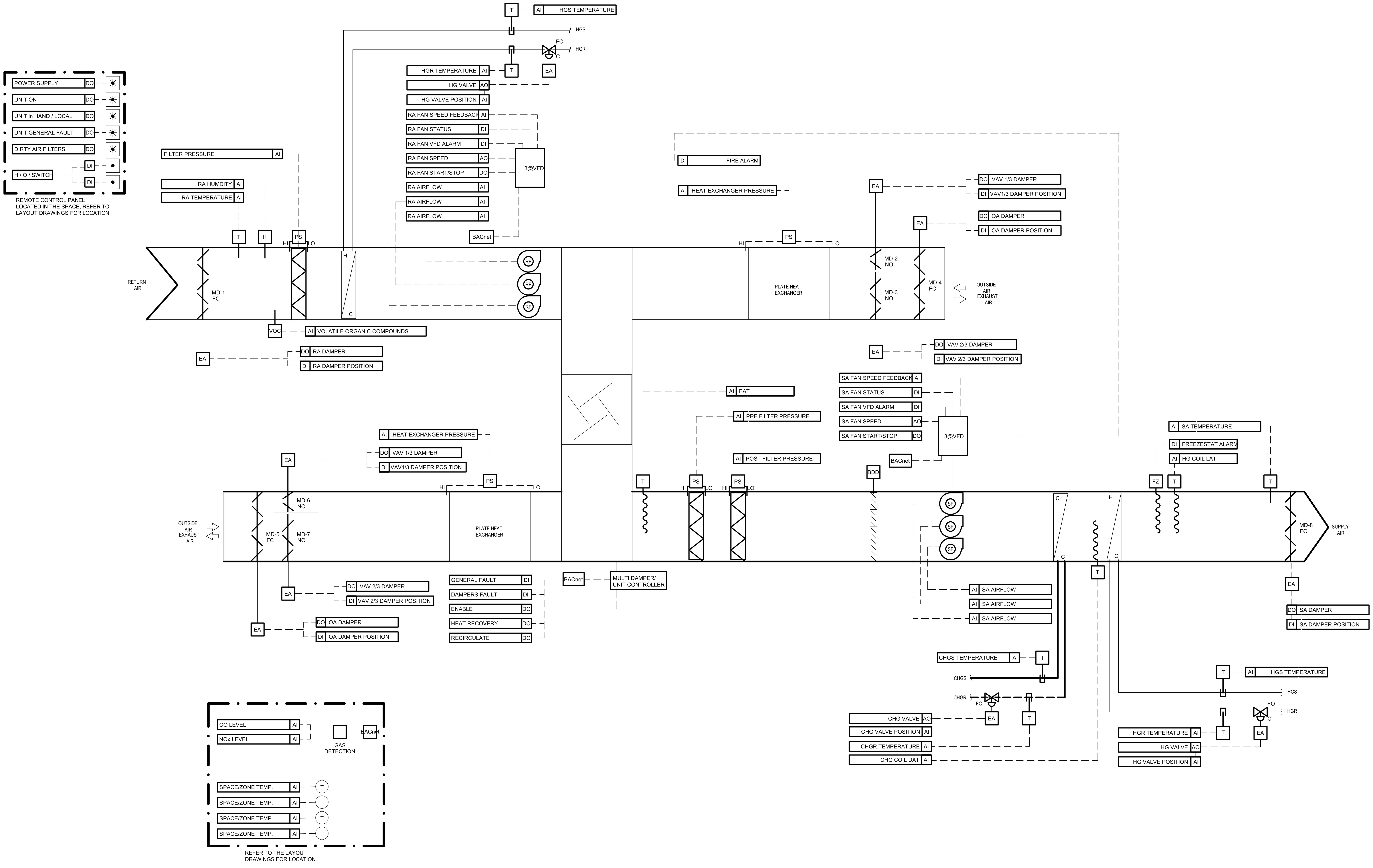
SHEET TITLE

CONTROLS HRU-03

SHEET NUMBER

50-M-644

Project Management Initials: Designer: Designer   Checked: Checker   Approved: Approver   A0 33.1"x46.8"



1 **CONTROLS HRU-04A**
50-M-645 NTS

50-M-645-CONTROLS HRU-04A
Last Plotted: 14-02-2025 22:37:51
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PROJECT
WINNIPEG NORTH GARAGE
REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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REGISTRATION

ISSUE/REVISION

0	02/19/2025	ISSUED FOR TENDER
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I/R	DATE	DESCRIPTION

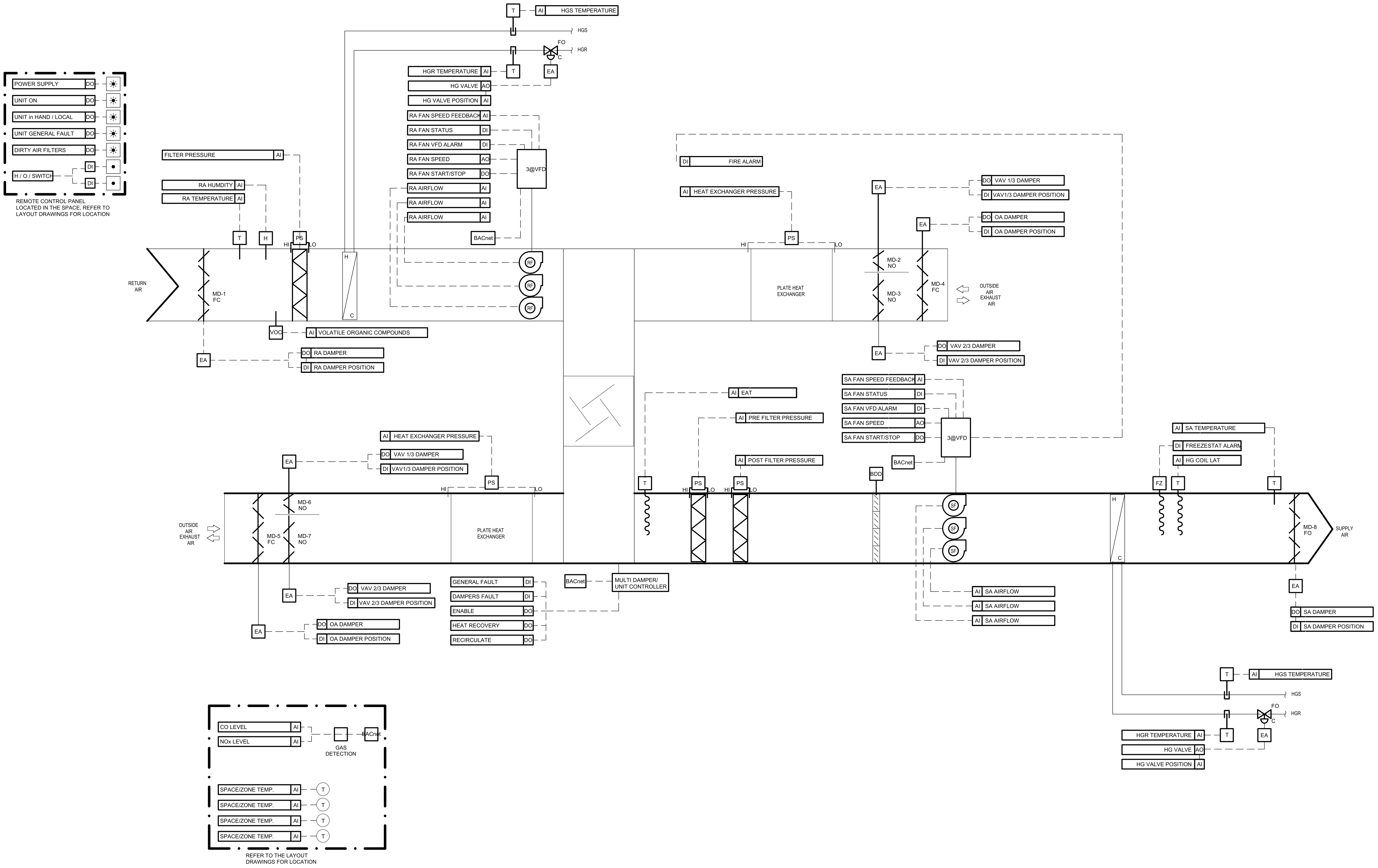
PROJECT NUMBER
60721079

SHEET TITLE
CONTROLS HRU-04A

SHEET NUMBER
50-M-645

Designer: Designer   Checked: Checker   Approved: Approver   A0 33.1"x46.8"

Project Management Initials:



1 **CONTROLS HRU-04B**
50-M-646 NTS

AECOM

PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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0	02/19/2025	ISSUED FOR TENDER
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PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS HRU-04B

SHEET NUMBER

50-M-646

50-M-646-CONTROLS HRU-04B
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Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

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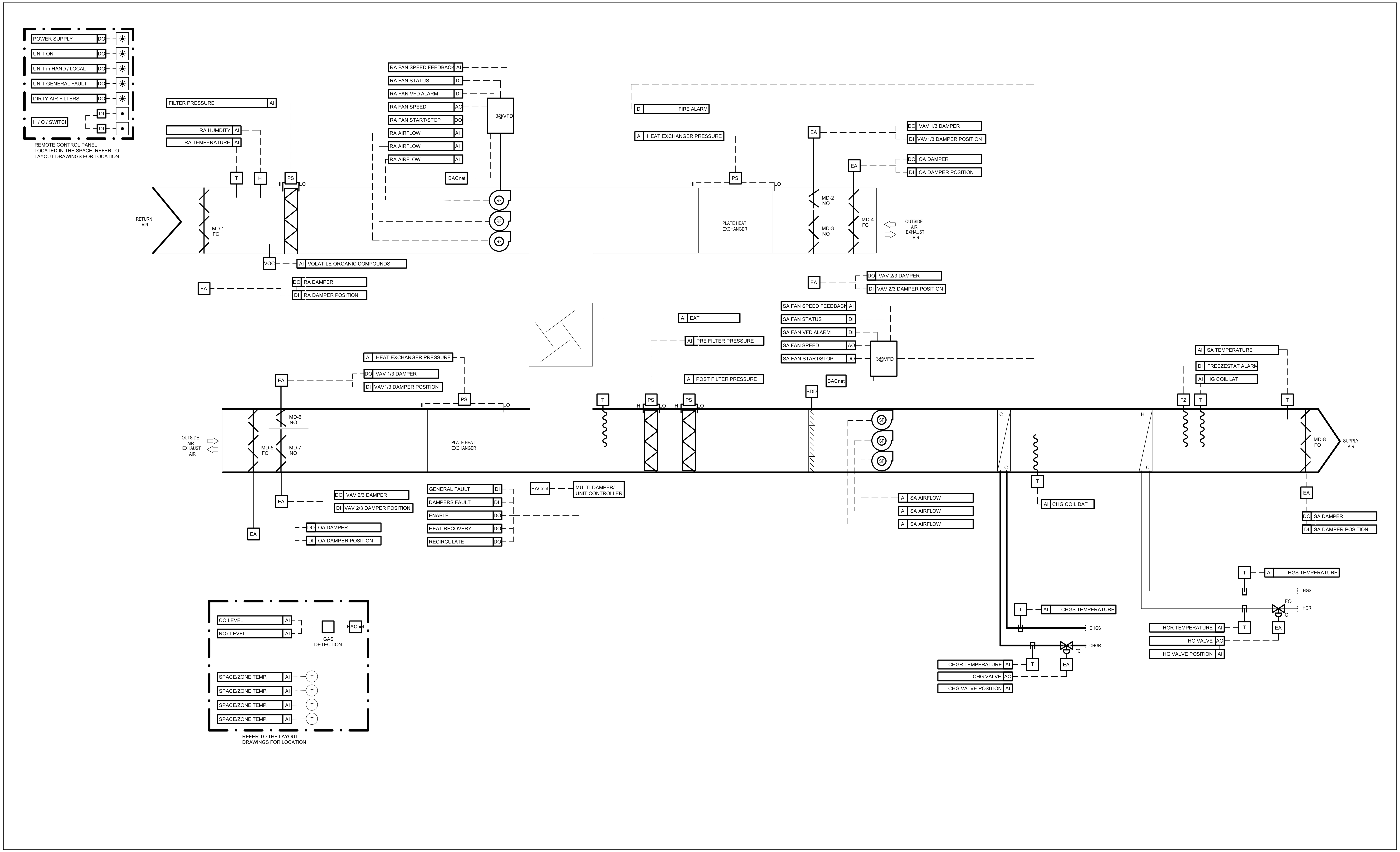

1 **CONTROLS HRU-06**
50-M-647 NTS

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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS HRU-06

SHEET NUMBER

50-M-647

50-M-647-CONTROLS HRU-06
Last Plotted: 14-02-2025 22:38:00
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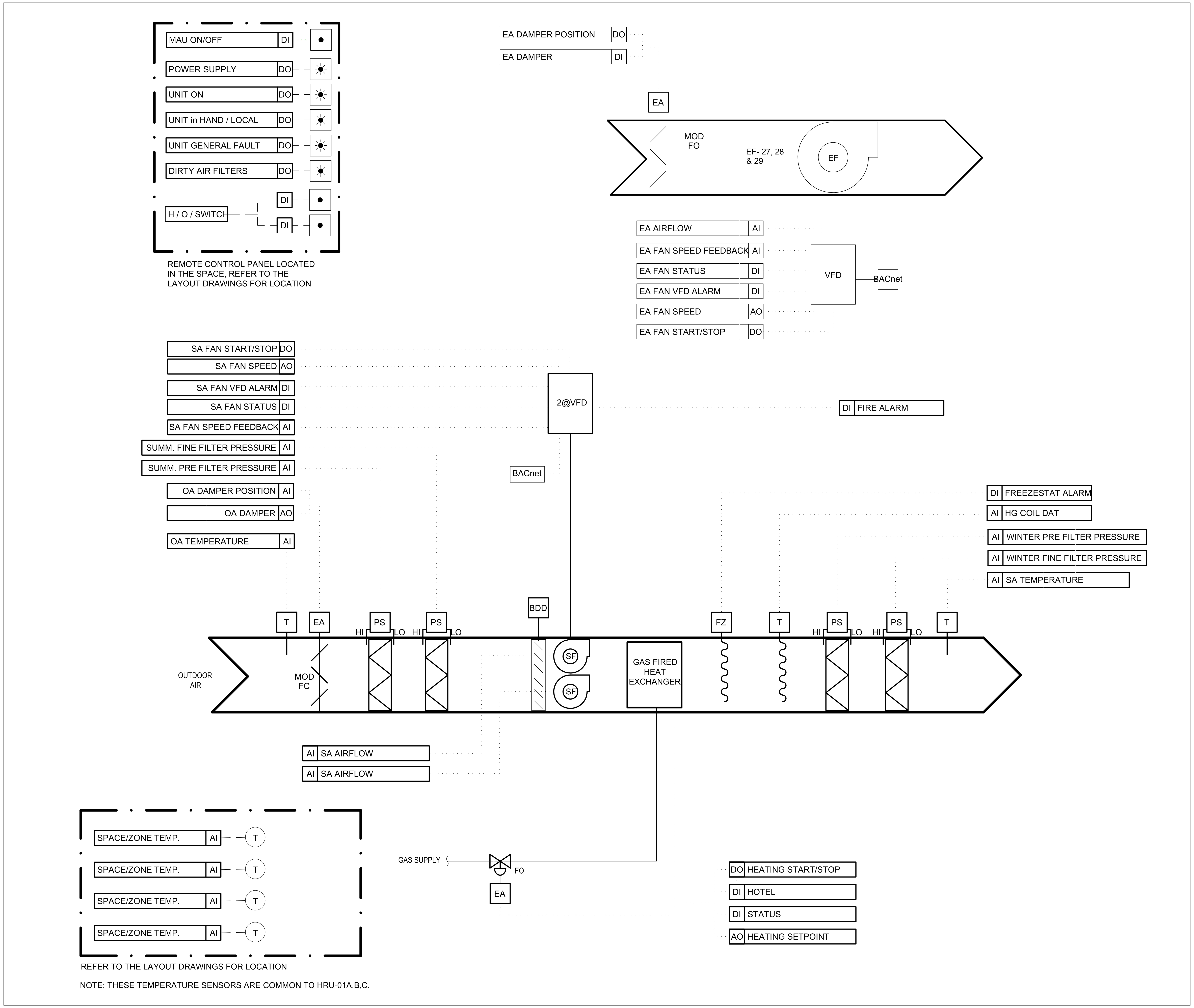

REMOTE CONTROL PANEL LOCATED
IN THE SPACE, REFER TO THE
LAYOUT DRAWINGS FOR LOCATION

REFER TO THE LAYOUT DRAWINGS FOR LOCATION

NOTE: THESE TEMPERATURE SENSORS ARE COMMON TO HRU-01A,B,C.

1 **CONTROLS MAU-01ABC AND EF-27,28,29**
50-M-648 NTS

NOTE: THESE UNITS ARE INTEGRATED AND SERVING THE SAME SPACE AS HRU-01A,B,C UNITS.

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PROJECT

WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

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PROJECT NUMBER

60721079

SHEET TITLE

CONTROLS MAU-01ABC

SHEET NUMBER

50-M-648

50-M-648-CONTROLS MAU-01ABC
Last Plotted: 14-02-2025 22:38:04
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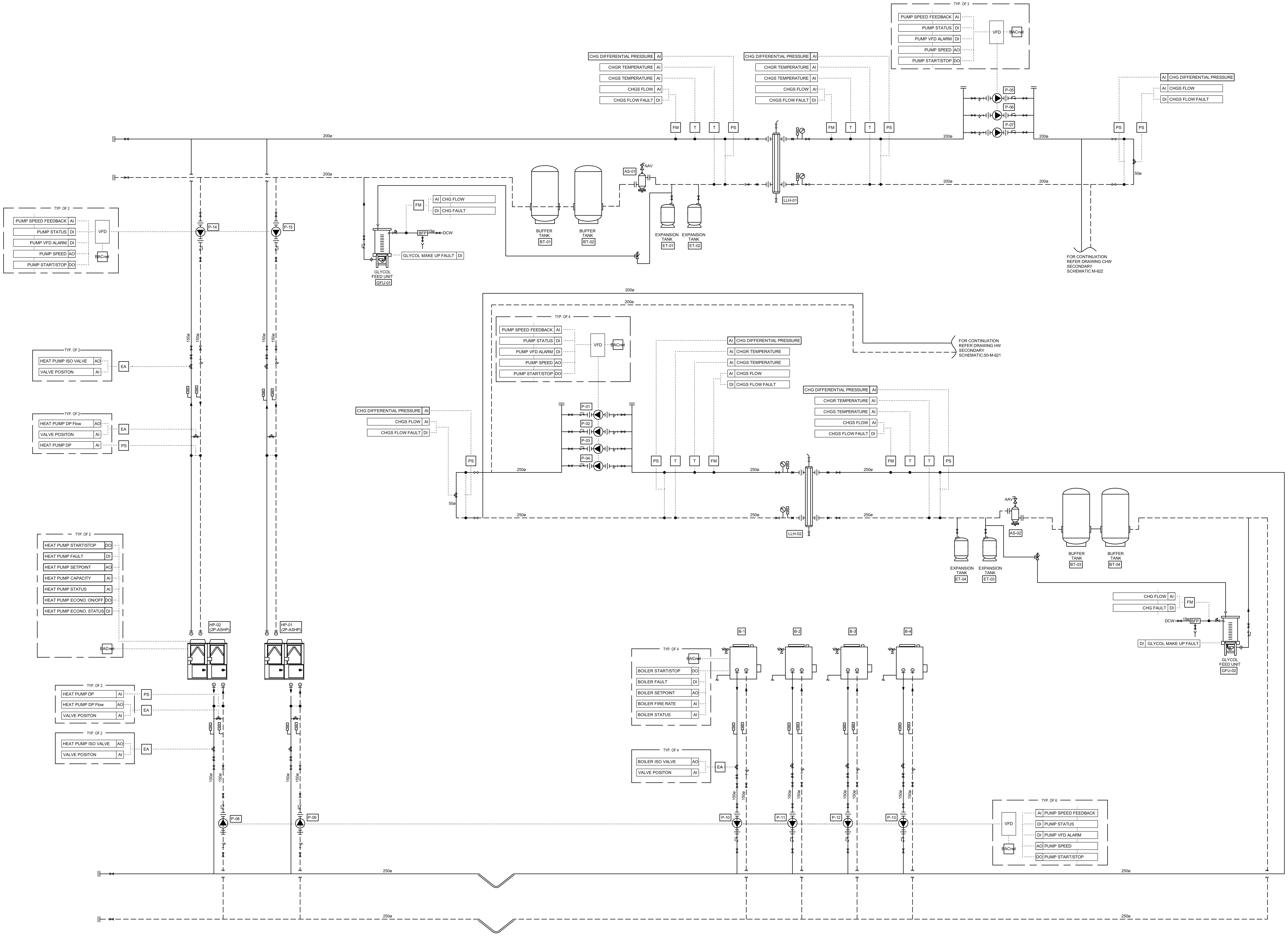
GENERAL NOTES:

1. REFER TO AND PROVIDE PIPING CONNECTIONS TO EACH UNIT AS PER TYPICAL DETAILS.



1 CONTROLS HYDRONIC SCHEMATIC
50-M-649 NTS

Designer: Designer Checked: Checker Approved: Approver A0 33.1"x46.8"

Project Management Initials:

50-M-649-CONTROLS HYDRONIC SCHEMATIC
Last Plotted: 14-02-2025 22:38:09
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WINNIPEG NORTH GARAGE REPLACEMENT
100 Oak Point Hwy, Winnipeg, MB R2R 1V1

CLIENT

Winnipeg

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CONSULTANT
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Winnipeg, MB R3P 0Y7

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PROJECT NUMBER
60721079

SHEET TITLE
CONTROLS HYDRONIC SCHEMATIC

SHEET NUMBER
50-M-649