

DEMO NOTES

1. NOT ALL EXISTING CONDITIONS HAVE BEEN SHOWN. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO DEMO.
2. CONTRACTOR SHALL PROTECT ALL WORK AND EXISTING CONDITIONS ASSOCIATED WITH THIS CONTRACT FROM DAMAGE. COVER ENDS OF PIPING AND DUCTWORK NOT ACTIVELY BEING WORKED ON. IT IS THE CONTRACTOR RESPONSIBILITY TO REPAIR OR REPLACE ANY DAMAGED ITEMS THAT OCCURS DURING THIS CONSTRUCTION PROJECT AT NO COST TO THE OWNER.
3. DEMOLISH ALL REQUIRED EQUIPMENT, DUCTWORK, PIPING, HANGERS, CONTROLS AND ALL ASSOCIATED EXISTING SYSTEMS AS REQUIRED. TO REPLACE EACH SYSTEM. CONTRACTOR SHALL COORDINATE DEMOLITION WITH EXISTING SYSTEMS AND COMPONENTS TO REMAIN PRIOR TO WORK COMMENCING.
4. IT IS THE CONTRACTOR RESPONSIBILITY TO CLEAN UP ALL DEBRIS FROM SITE AT THE END OF EACH WORK DAY AND DISPOSE OFF EITHER IN LAY DOWN RECYCLE BINS PROVIDED BY THE CONTRACTOR OR OFFSITE ALL TOGETHER.
5. ALL DEMOLISHED EQUIPMENT SHALL BE TURNED OVER TO THE OWNER UNLESS DIRECTED OTHERWISE. IF NOT REQUIRED BY OWNER, DISPOSE AS REQUIRED.

GENERAL NOTES

1. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND ARE BASED ON ONE MANUFACTURERS EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL OF THE DETAILS FOR THE EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT AND ENSURE THAT IT WILL FIT IN THE AVAILABLE SPACE.
2. MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF COMPLETED AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
3. IT IS THE CONTRACTOR RESPONSIBILITY TO FIELD VERIFY ALL CONNECTION POINTS PRIOR TO INSTALL. NOT ALL CONNECTION SIZES ARE SHOWN, BUT THOSE THAT ARE APPROXIMATE AND TAKEN FROM EXISTING AS-BUILTS AND FIELD OBSERVATIONS.
4. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER PIPING AND ELECTRICAL, POWERLIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
5. CONTRACTORS TO VERIFY ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH WORK. NOTIFY PRIME CONSULTANT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL CONDITIONS BEFORE INSTALLATION.
6. EQUIPMENT AND SYSTEMS SHALL COMPLY WITH 2018 WASHINGTON STATE ENERGY AND MECHANICAL CODES.
7. COORDINATE INSTALLATION OF PIPING AND DUCTWORK WITH ELECTRICAL CONTRACTOR AND OTHER TRADES.
8. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS NEEDED TO CONSTRUCT WORK SHOULD IN THE CONSTRUCTION DOCUMENTS AND ACCOMPANYING SPECIFICATIONS.
9. IF THERE IS A CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, THE MOST STRINGENT WILL APPLY.
10. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS. CONTRACTOR TO PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
11. SYSTEMS ADHERE TO 2018 WSEC SECTION C403.2.3 VARIABLE FLOW CAPACITY FOR FAN AND PUMP MOTORS 7.5 HP AND GREATER, INCLUDING MOTORS IN OR SERVING CUSTOM AND PACKAGED AIR HANDLERS SERVING VARIABLE AIR VOLUME SYSTEMS, CONSTANT VOLUME FANS, HEATING AND COOLING HYDRONIC PUMPING SYSTEMS, AND OTHER PUMP OR FAN MOTORS WHERE VARIABLE FLOWS ARE REQUIRED SHALL BE EQUIPPED WITH VARIABLE SPEED DRIVES.
12. SYSTEMS ADHERE TO SECTION C403.3.2 HVAC EQUIPMENT PERFORMANCE REQUIREMENTS: EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C403.3.2(1) THROUGH C403.3.2(2) WHEN TESTED AND RATED IN ACCORDANCE WITH THE APPLICABLE TEST PROCEDURE.
13. SYSTEMS ADHERE TO C405.8 ELECTRIC MOTOR EFFICIENCY:
A. ALL ELECTRIC MOTORS, FRACTIONAL OR OTHERWISE, SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THROUGH C405.8(4) WHEN TESTED IN ACCORDANCE WITH DOE 10 CFR UNLESS OTHER EXCEPTIONS ARE QUALIFIED AND MET BY THIS SECTION.
B. FRACTIONAL HP FAN MOTORS THAT ARE 1/2 HP OR GREATER AND LESS THAN 1 HP (BASED ON THE OUTPUT POWER) WHICH ARE NOT COVERED IN TABLES C405.8(3) AND C405.8(4) SHALL BE ELECTRONICALLY COMMUTATED MOTORS OR SHALL HAVE A MINIMUM MOTOR EFFICIENCY OF 70 PERCENT WHEN RATED IN ACCORDANCE WITH DOE 10 CFR 431.
14. PENETRATIONS OF DUCTS, PIPES, CONDUITS, ETC IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. FIRE STOP MATERIAL SHALL BE A UL/ULC-LISTED ASSEMBLY APPROPRIATE FOR FIRE OR SMOKE PENETRATIONS AS APPLICABLE AND AS APPROVED BY THE FIRE MARSHAL.
15. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION SMOKE/FIRE DAMPERS AND ACCESS PANELS COMMENSURATE WITH THE RATING OF THE WALL IN ALL DUCTWORK THAT PENETRATES FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITION IN ALL DUCTWORK THAT PENETRATES A HORIZONTAL OR VERTICAL FIRE PARTITION, OR AS OTHERWISE SHOWN ON THE DRAWINGS.
16. ALL BRANCH DUCTS SHALL HAVE VOLUME DAMPERS.
17. WHERE FLOW EXCEEDS 150 CFM, THE CONTRACTOR SHALL USE SMOOTH RADIUS ELBOWS OR TURNING VANES.
18. ALL DUCT JOINTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA STANDARDS.
19. ALL DUCT DIMENSIONS ARE NET INSIDE VALUES. DIMENSIONS MAY BE CHANGED PROVIDED THAT THE NET FREE AREA IS MAINTAINED.
20. ALL CONCEALED DUCTWORK SHALL BE INSULATED WITH 1" FIBERGLASS INSULATING BLANKET WITH ALUMINUM FOIL FACING.
21. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA).
22. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC.
23. DUCTWORK SHALL MEET THE AIR LEAKAGE REQUIREMENTS OF 2018 WSEC C402.5 AND VAPOR RETARDER REQUIREMENTS PER THE IBC.
24. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE OR METAL STRAPS TO SUPPORT PIPES WILL NOT BE PERMITTED. REFER TO SPECIFICATIONS FOR MINIMUM SPACING OF PIPE SUPPORTS.
25. ALL EQUIPMENT TO BE INSTALLED ON MIN 6" THICK CONCRETE HOUSEKEEPING PADS.
26. ALL EQUIPMENT, DUCTS PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
27. MECHANICAL EQUIPMENT, DUCTS AND PIPING ARE TO BE COORDINATED WITH STRUCTURAL JOISTS AND CROSS BRACING.
28. ALL EXPOSED PIPING IN OCCUPIED SPACES SUBJECT TO ARCHITECTURAL APPROVAL PRIOR TO INSTALLATION.
29. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC.
30. DUCTWORK SHALL MEET THE AIR LEAKAGE REQUIREMENTS OF 2018 WSEC C402.5 AND VAPOR RETARDER REQUIREMENTS PER THE IBC.
31. THE HVAC SYSTEMS SHALL BE TESTED AND BALANCED BY AN INDEPENDENT AGENCY, UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER PRIOR TO COMMISSIONING. A SEALED TYPE WRITTEN REPORT SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER.
32. A BUILDING COMMISSIONING PROCESS AND FUNCTIONAL TESTING OF MECHANICAL SYSTEMS SHALL BE CARRIED OUT BY A CERTIFIED COMMISSIONING PROFESSIONAL IN ACCORDANCE WITH 2018 WSEC SECTION C408. THE MECHANICAL, ELECTRICAL, PLUMBING, AND CONTROL CONTRACTORS ARE REQUIRED TO PERFORM FUNCTIONAL PERFORMANCE TESTING OF ALL EQUIPMENT PRIOR TO TESTING BY THE COMMISSIONING AGENT. CONTRACTORS SHALL PROVIDE THE NECESSARY ASSISTANCE TO THE COMMISSIONING AGENT TO PERFORM COMMISSIONING DUTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING CORRECTIVE ACTION IF ANY DEFICIENCIES ARE FOUND DURING COMMISSIONING.
33. SYSTEMS ADHERE TO 2018 WSEC SECTION C408 SYSTEM COMMISSIONING.
A. A CERTIFIED COMMISSIONING PROFESSIONAL (CCP) SHALL LEAD THE COMMISSIONING PROCESS. A CCP IS AN INDIVIDUAL WHO IS CERTIFIED BY AN ANSULC-TESTED 2012 ACCREDITED ORGANIZATION TO LEAD, PLAN, COORDINATE, AND MANAGE COMMISSIONING TEAMS AND IMPLEMENT THE COMMISSIONING PROCESS.
B. A CERTIFIED COMMISSIONING PROFESSIONAL SHALL PERFORM THE FOLLOWING:
a. DEVELOP A COMMISSIONING PLAN.
b. REVIEW BUILDING DOCUMENTATION AND CLOSE-OUT SUBMITTALS.
c. PROVIDE A COMMISSIONING REPORT.
d. LIST SPECIFIC EQUIPMENT, APPLIANCES AND SYSTEMS COMMISSIONED.
C. FUNCTIONAL TESTING SHALL BE COMPLETED FOR THE FOLLOWING SYSTEMS AND THEIR ASSOCIATED CONTROL SYSTEMS:
a. MECHANICAL SYSTEMS
b. SERVICE WATER HEATING SYSTEMS
c. CONTROLLED RECEPTACLE AND LIGHTING SYSTEMS
d. EQUIPMENT APPLIANCE AND SYSTEMS
e. ENERGY METERING
f. REFRIGERATION SYSTEMS
D. A COMMISSIONING REPORT SHALL BE DELIVERED TO THE BUILDING OWNER AND INCLUDE:
a. RESULTS OF THE FUNCTIONAL PERFORMANCE TESTS
b. LIST OF DEFICIENCIES AND CORRECTIVE MEASURES IMPLEMENTED OR PROPOSED.
c. FUNCTIONAL PERFORMANCE TEST PROCEDURES.
d. COMMISSIONING PLAN.
e. TAB REPORT.
34. TESTING AND BALANCING: ALL HVAC SYSTEMS SHALL BE BALANCED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH ACCEPTED ENGINEERING STANDARDS AND SPECIFICATIONS PRIOR TO COMMISSIONING.
35. OWNER TRAINING BY CONTRACTORS FOR EACH PIECE OF EQUIPMENT OR SYSTEM SHALL INCLUDE: SYSTEM/EQUIPMENT OVERVIEW (WHAT IT IS, WHAT IT DOES, AND WHICH OTHER SYSTEMS OR EQUIPMENT DOES IT INTERFACE WITH), REVIEW OF THE AVAILABLE O&M MATERIALS, REVIEW OF THE RECORD DRAWINGS ON THE SUBJECT SYSTEM/EQUIPMENT, HANDS-ON DEMONSTRATION OF ALL NORMAL MAINTENANCE PROCEDURES, NORMAL OPERATING MODES, AND ALL EMERGENCY SHUTDOWN AND START-UP PROCEDURES.



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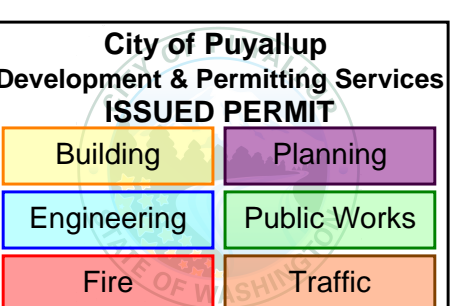
MECHANICAL DRAWINGS

CENTERS
VOLTAGE PARK UPS
1019 39th AVENUE SE
PUYALLUP, WA 98374

PRMH20240272



Revision No.	Description	Date
	PERMIT SET	2/2/2024
	UPS TAB EQUIPMENT PERMIT SET	2/8/2024
	DATA HALL PERMIT	2/16/2024
	UPS & BATTERY ROOM INTERIORS	2/16/2024



Drawn By: JLV Checked By: BO

MECHANICAL GENERAL NOTES

Title

Sheet **M.VP.002**



FAN WALL SCHEDULE table with columns for Unit Identification, Fan Wheel, Individual Fan, and Electrical. Includes notes: 1. PROVIDE BACKDRAFT DAMPER AT EACH INDIVIDUAL FAN. 2. PROVIDE BMS COMMUNICATING CONTROL PANEL WITH SINGLE POINT POWER CONNECTION FOR FAN GROUPINGS.

EXISTING EXHAUST FAN SCHEDULE table with columns for Unit Identification, Fan Wheel, Fan Motor, and Electrical. Includes note: 1.

PIPING SYSTEM APPLICATION SCHEDULE table with columns for System, Pipe Size, Design, Construction, Location, Material, Joints, Insulation, Factory Jacket, and Field Jacket. Includes note: 1. PIPE INSULATION THICKNESS BASED ON 2018 WSEC.

NEW INTAKE HOOD SCHEDULE table with columns for Unit Identification, Throat, Hood, Operating Weight, Manufacturer, Model Number, and Notes. Includes notes: 1. PROVIDE MOTORIZED DAMPER 120X60 RUSKIN GMB24-SR. 2. 24X33.375 REMOVABLE LOUVER PANEL, BOLTED IN PLACE BLADES TO MATCH SAME PENTHOUSE PROFILE, LOCATED CENTER OF PENTHOUSE.

DUCT SYSTEM APPLICATION SCHEDULE table with columns for System, Application, Location, Design Criteria, Construction, Product, Material, Liner, Insulation, Factory Jacket, Field Jacket, and Notes. Includes note: 1. DUCT INSULATION THICKNESS BASED ON 2018 WSEC.

City of Puyallup Development & Permitting Services ISSUED PERMIT logo with Engineering, Planning, Fire, and Traffic sub-logos.



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**MECHANICAL
DRAWINGS**

**CENTERS
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PUYALLUP, WA 98374

PRMH20240272



Revision No. Description Date
DATA HALL PERMIT 2/16/2024

Mech_Energy25% Calculation table with columns for IT Load, Ambient Temperature, ASHRAE TMY Hours, Chiller Capacity, Chiller Energy, Total Air Handler Fan Airflow, Per Air Handler, Per Air Handler Fan Brake Power, No. of Air Handlers, Air Handler Fan Energy, Air Handler Fan Energy (kWh), Total Heat Rejection, Heat Rejection Fan Airflow, Heat Rejection Fan Energy, No. Fans Operating, Heat Rejection Fan Energy (kWh), Primary Pump Flow, Pump Brake Power, Pump Motor Efficiency, No. of Pumps, Pump Energy, Pump Energy (kWh), MLC.

Mech_Energy50% Calculation table with columns for IT Load, Ambient Temperature, ASHRAE TMY Hours, Chiller Capacity, Chiller Energy, Total Air Handler Fan Airflow, Per Air Handler, Per Air Handler Fan Brake Power, No. of Air Handlers, Air Handler Fan Energy, Air Handler Fan Energy (kWh), Total Heat Rejection, Heat Rejection Fan Airflow, Heat Rejection Fan Energy, No. Fans Operating, Heat Rejection Fan Energy (kWh), Pump Flow, Pump Brake Power, Pump Motor Efficiency, No. of Pumps, Pump Energy, Pump Energy (kWh), MLC.

Mech_Energy75% Calculation table with columns for IT Load, Ambient Temperature, ASHRAE TMY Hours, Chiller Capacity, Chiller Energy, Total Air Handler Fan Airflow, Per Air Handler, Per Air Handler Fan Brake Power, No. of Air Handlers, Air Handler Fan Energy, Air Handler Fan Energy (kWh), Total Heat Rejection, Heat Rejection Fan Airflow, Heat Rejection Fan Energy, No. Fans Operating, Heat Rejection Fan Energy (kWh), Pump Flow, Pump Brake Power, Pump Motor Efficiency, No. of Pumps, Pump Energy, Pump Energy (kWh), MLC.

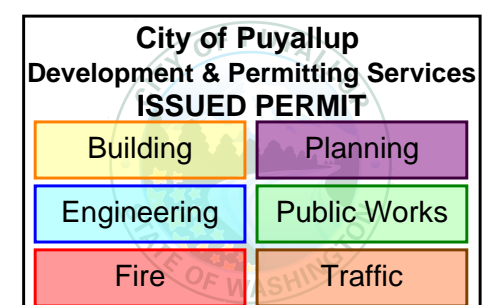
Mech_Energy100% Calculation table with columns for IT Load, Ambient Temperature, ASHRAE TMY Hours, Chiller Capacity, Chiller Energy, Total Air Handler Fan Airflow, Per Air Handler, Per Air Handler Fan Brake Power, No. of Air Handlers, Air Handler Fan Energy, Air Handler Fan Energy (kWh), Total Heat Rejection, Heat Rejection Fan Airflow, Heat Rejection Fan Energy, No. Fans Operating, Heat Rejection Fan Energy (kWh), Pump Flow, Pump Brake Power, Pump Motor Efficiency, No. of Pumps, Pump Energy, Pump Energy (kWh), MLC.

CENTERS LEVEL 2 EVAPORATIVE COOLING ANALYSIS table. Includes sections for Existing Operational RAU, Existing RAU with Filter/EVAP, New RAU, RAU Airflow, RAU Quantity, Existing L2 Capacity, and New Total L2 Capacity.

Mech_Energy Summary table showing Cooling Energy, Air-Handler Fan Energy, Heat Rejection Fan Energy, Pump Energy, and Total (kWh) for Mech_Energy25-100.0.

MLC Check 100% = Full Capacity table showing IT capacity, IT capacity/kW, IT capacity/kWh, Project Annualized MLC, and Max Allowable Annualized MLC for 25%, 50%, 75%, and 100% load conditions.

MLC Load Summary table showing Total Prescribed Overall IT Load, Total Quantity of RAU, Total New RAU, % Total IT Load for new RAU, and Total IT Load for new RAU (MW).



Drawn By: JLV Checked By: BO

WSEC CALCUATIONS



Revision No.	Description	Date
1	PERMIT SET	02/23/2024
2	DATA HALL PERMIT	2/16/2024

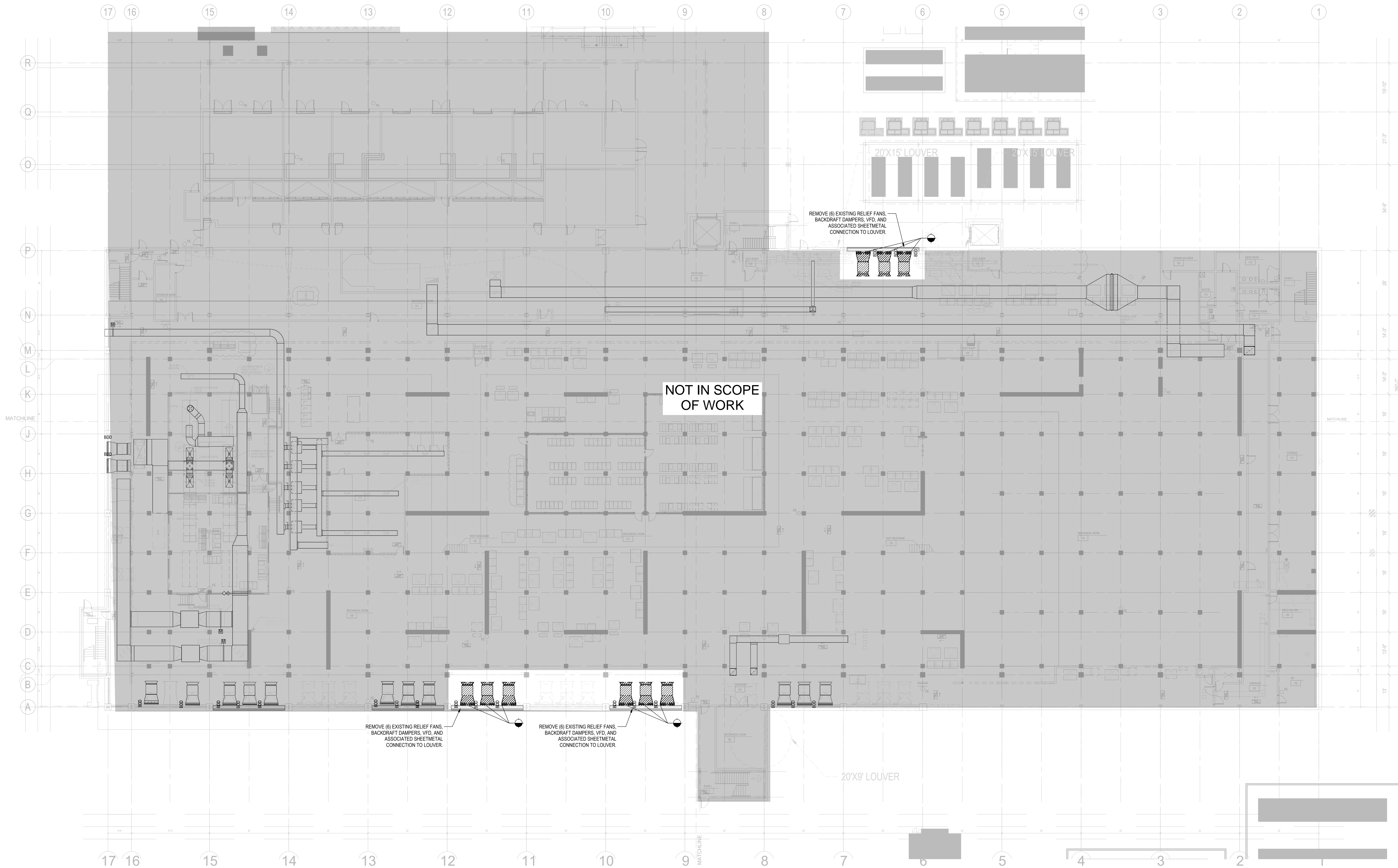
City of Puyallup Development & Permitting Services ISSUED PERMIT	
Building	Planning
Engineering	Public Works
Fire	Traffic

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MECHANICAL LEVEL
1 DEMO PLAN

Sheet **MD.VP.102**

KEY NOTES



1 LEVEL 1 MECHANICAL PLAN
MD.VP.102 1/16" = 1'-0"

KEY NOTES

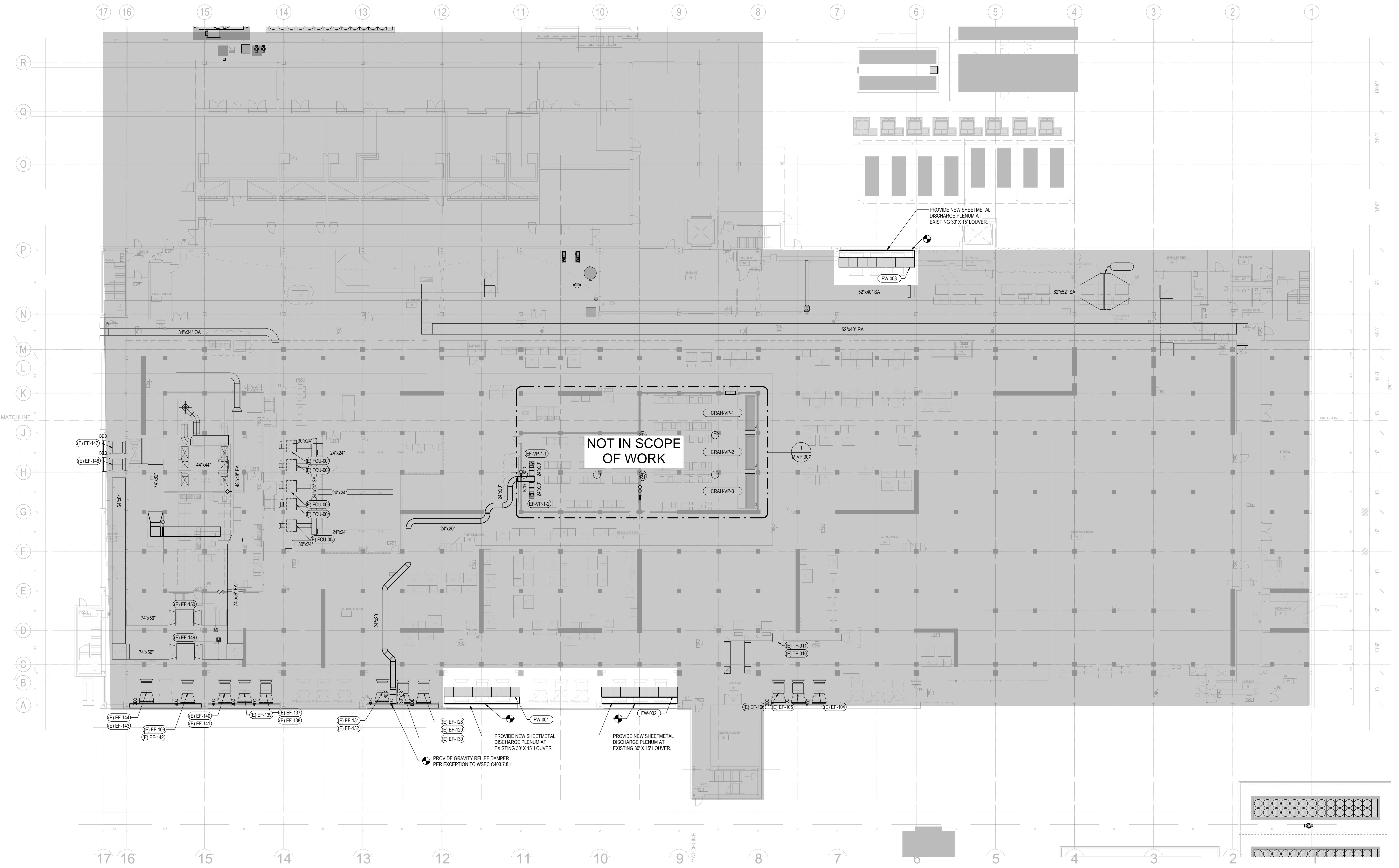
MECHANICAL DRAWINGS

CENTERIS
VOLTAGE PARK UPS
1019 39th AVENUE SE
PUYALLUP, WA 98374

PRMH20240272



Revision No. Description Date
PERMIT SET 2/2/2024
DATA HALL PERMIT 2/16/2024
UPS & BATTERY ROOM INTERIORS 2/16/2024



1 LEVEL 1 MECHANICAL PLAN
M.V.P.102 1/16" = 1'-0"

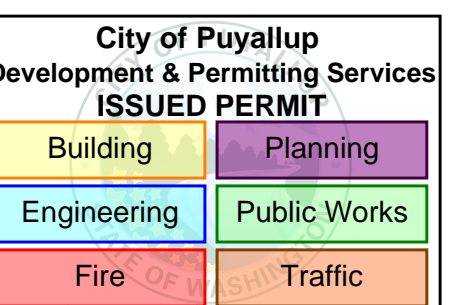
City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Drawn By: JLV Checked By: BO

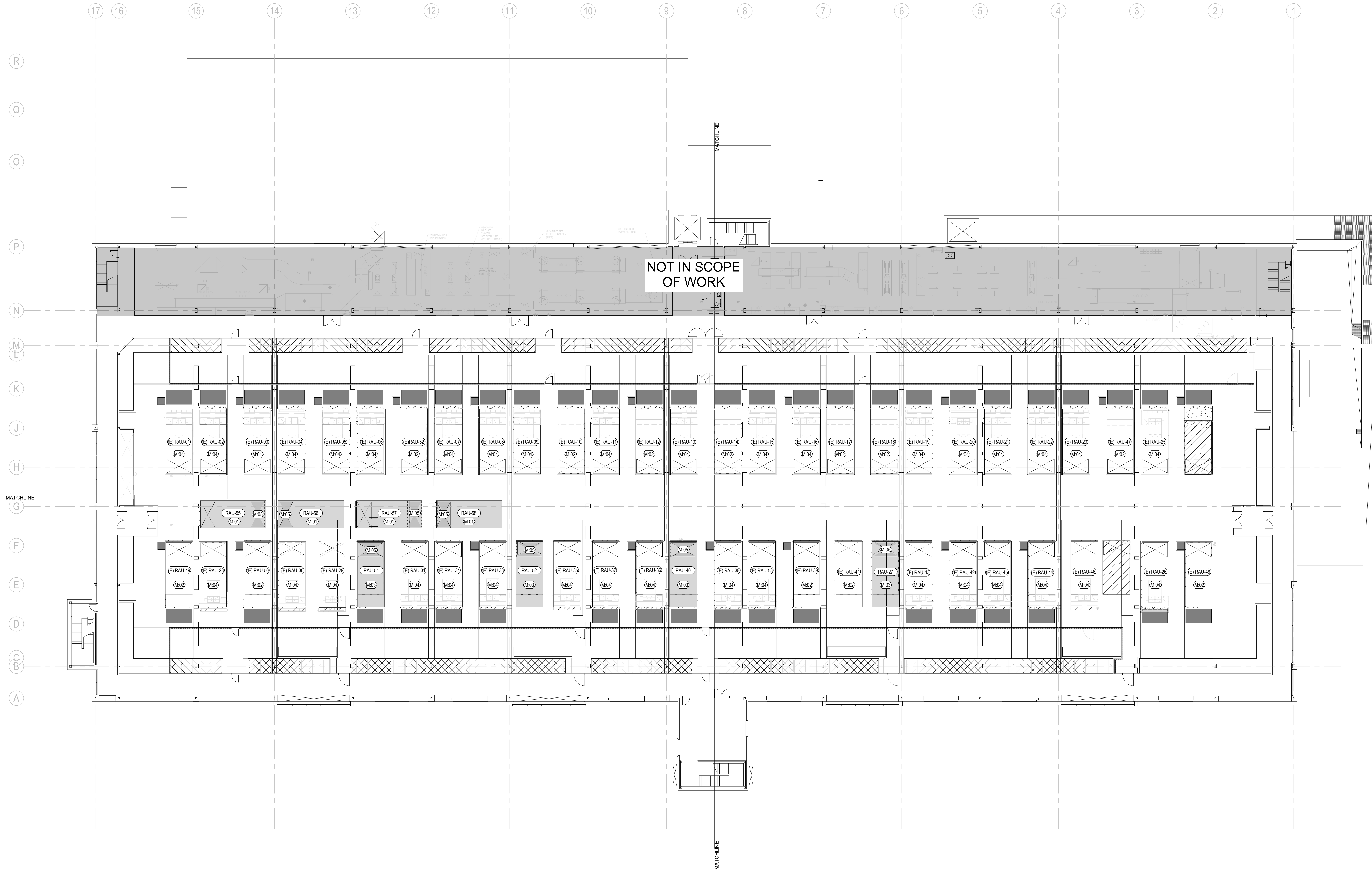
MECHANICAL LEVEL 1 PLAN

M.V.P.102



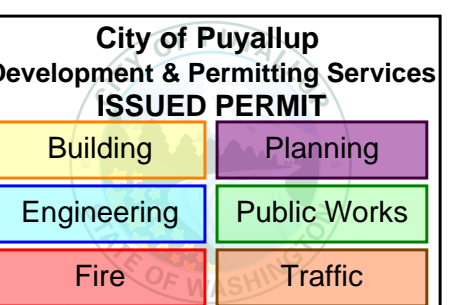
KEY NOTES

- M01 NEW UNIT. REFER TO RAU SCHEDULE ON SHEET M.VP.011.
- M02 EXISTING UNIT WITH NEW EVAPILFITER. REFER TO RAU SCHEDULE ON SHEET M.VP.011.
- M03 EXISTING UNIT TO BE ASSEMBLED. REFER TO RAU SCHEDULE ON SHEET M.VP.011.
- M04 EXISTING UNIT. REFER TO RAU SCHEDULE ON SHEET M.VP.011.
- M05 PROVIDE DIFFUSION PLATE FOR AIR DISTRIBUTION BELOW SIMILAR TO EXISTING.





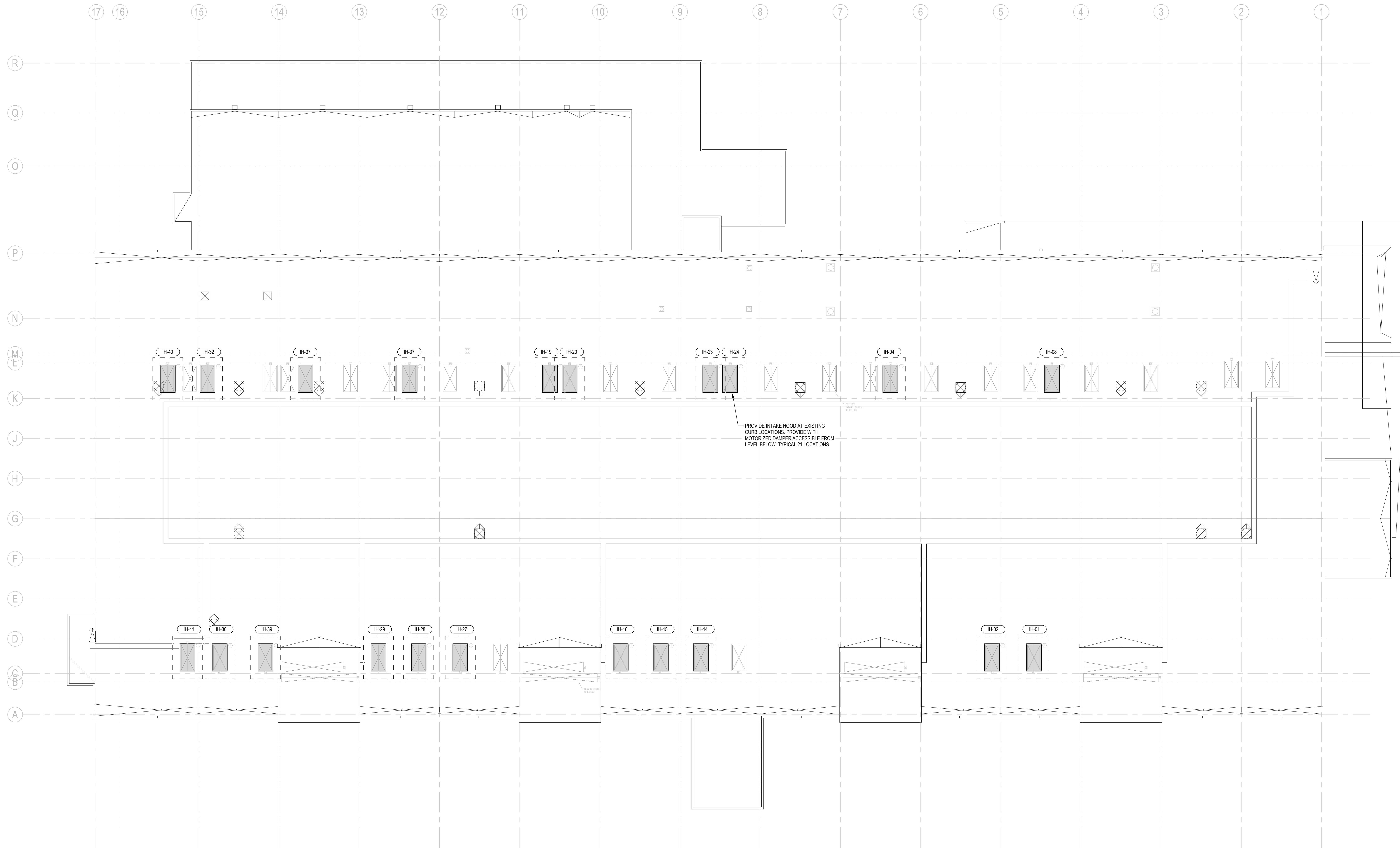
Revision No.	Description	Date
PERMIT SET		2/2/2024
DATA HALL PERMIT		2/16/2024

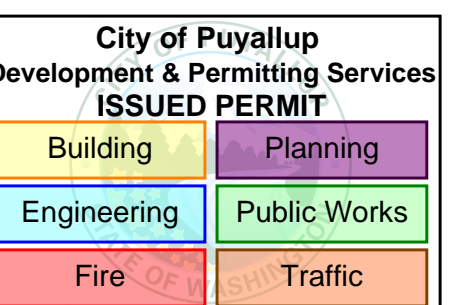


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KEY NOTES

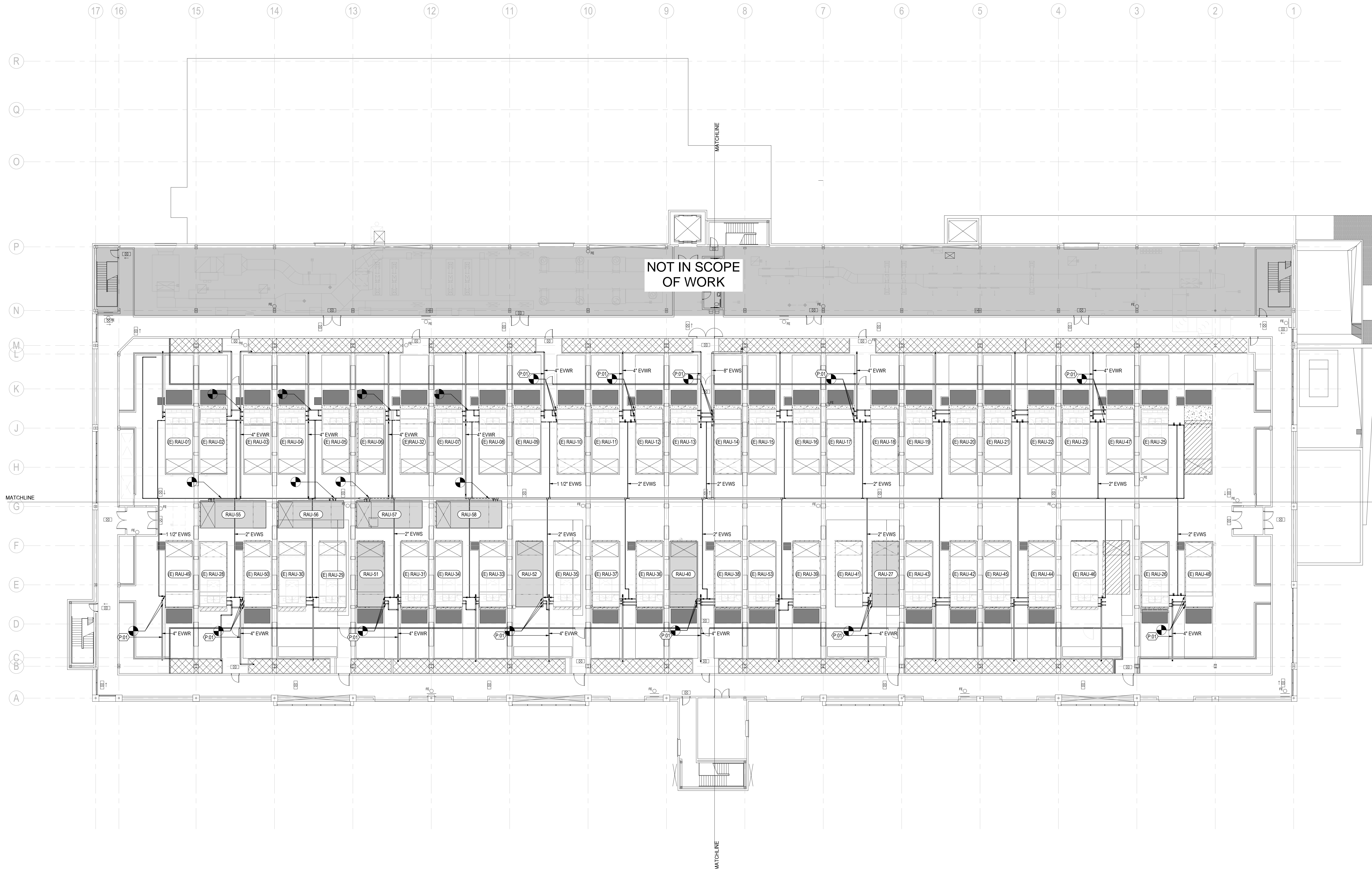
PROVIDE INTAKE HOOD AT EXISTING CURB LOCATIONS. PROVIDE WITH MOTORIZED DAMPER ACCESSIBLE FROM LEVEL BELOW. TYPICAL 21 LOCATIONS.





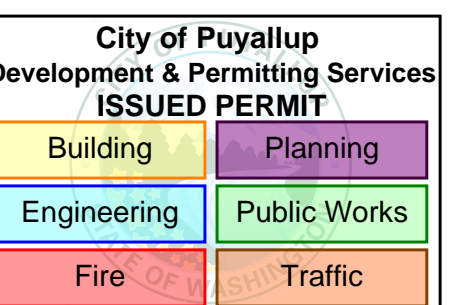
KEY NOTES

P-01 CONNECT TO 1-1/2" EWWS, 1-1/2" EWWR AND 3" DRAIN CONNECTIONS PREVIOUSLY CAPPED FOR FUTURE.

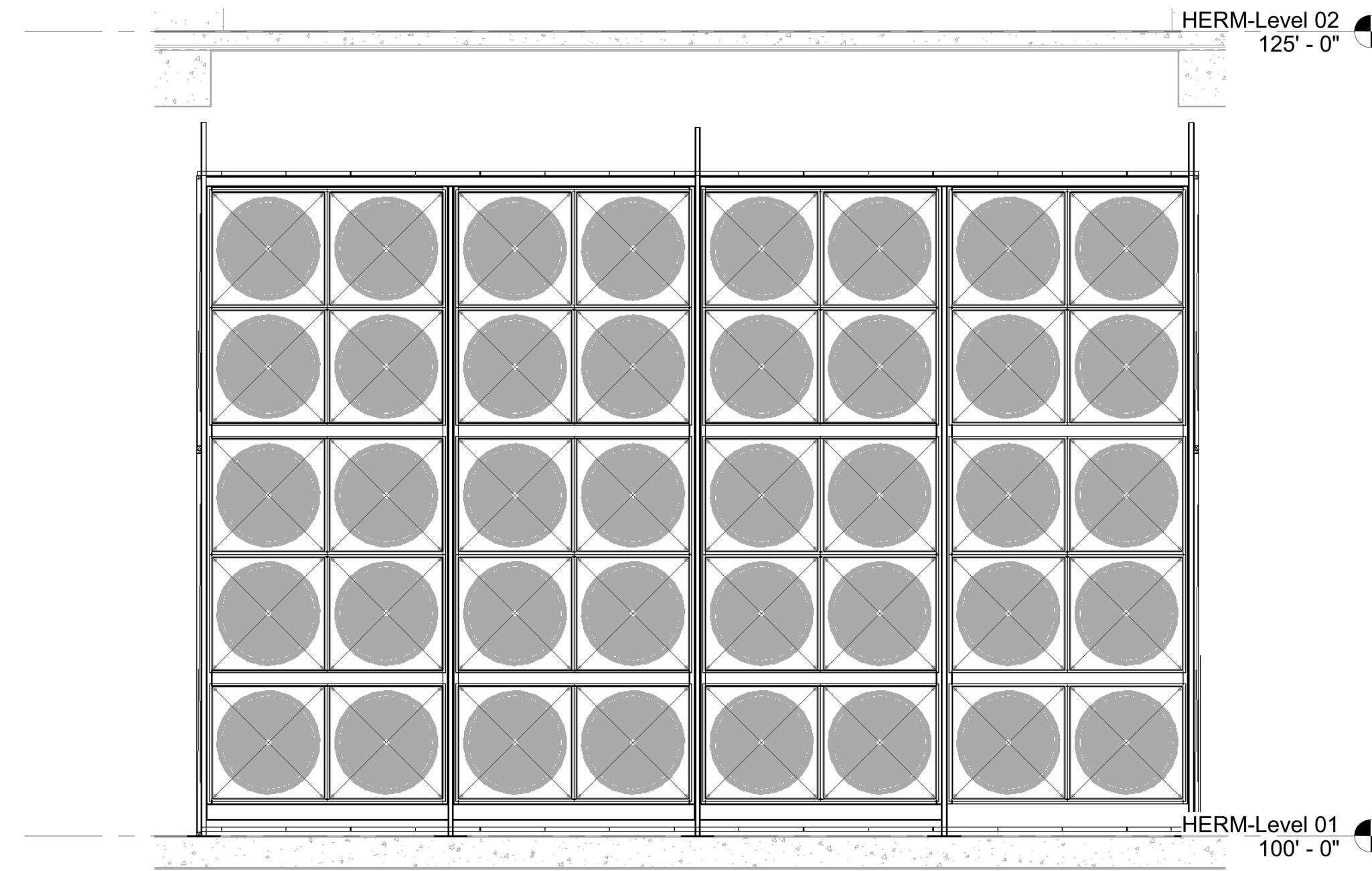




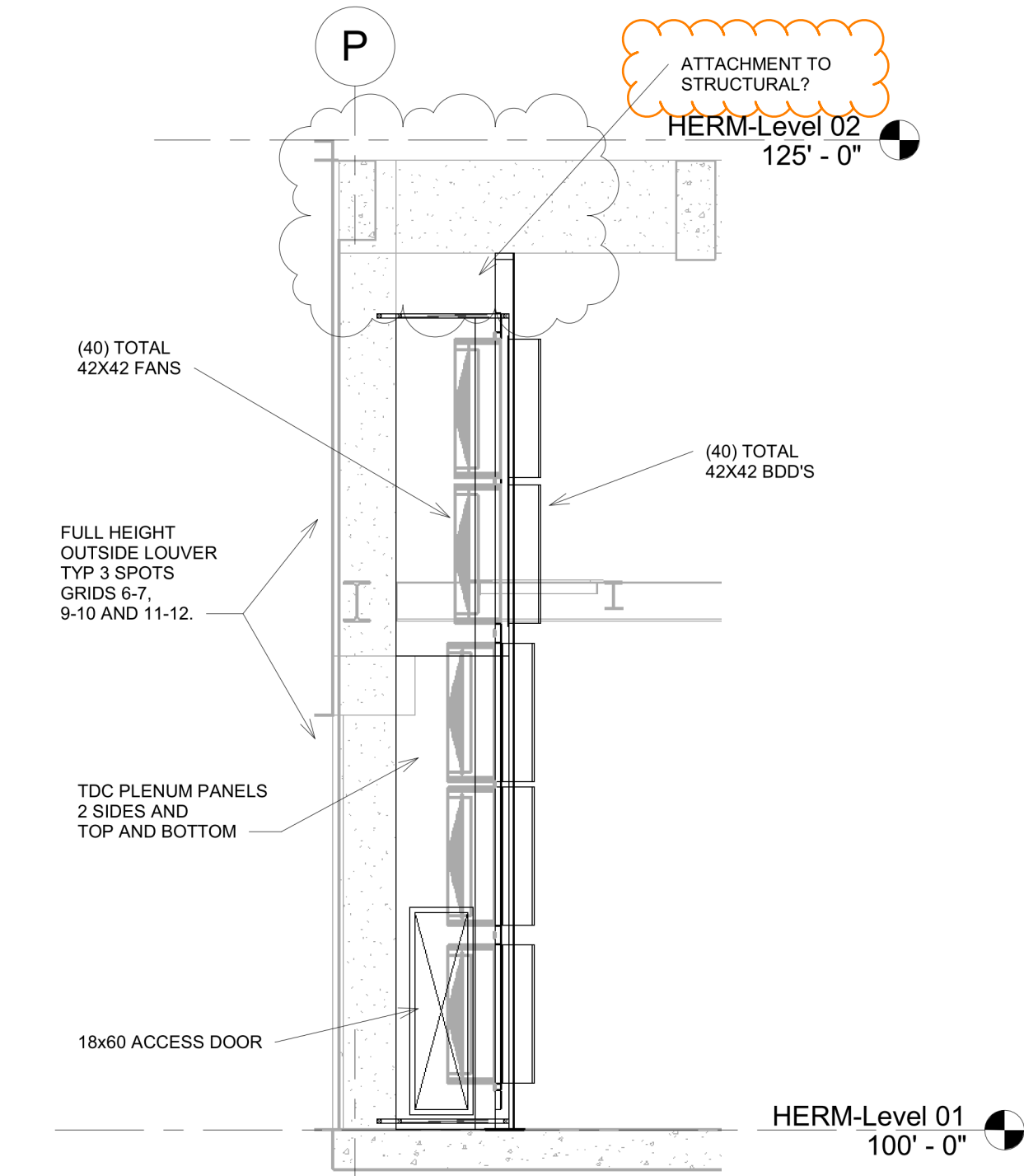
Revision No.	Description	Date
PERMIT SET		02/2024
DATA HALL PERMIT		2/16/2024



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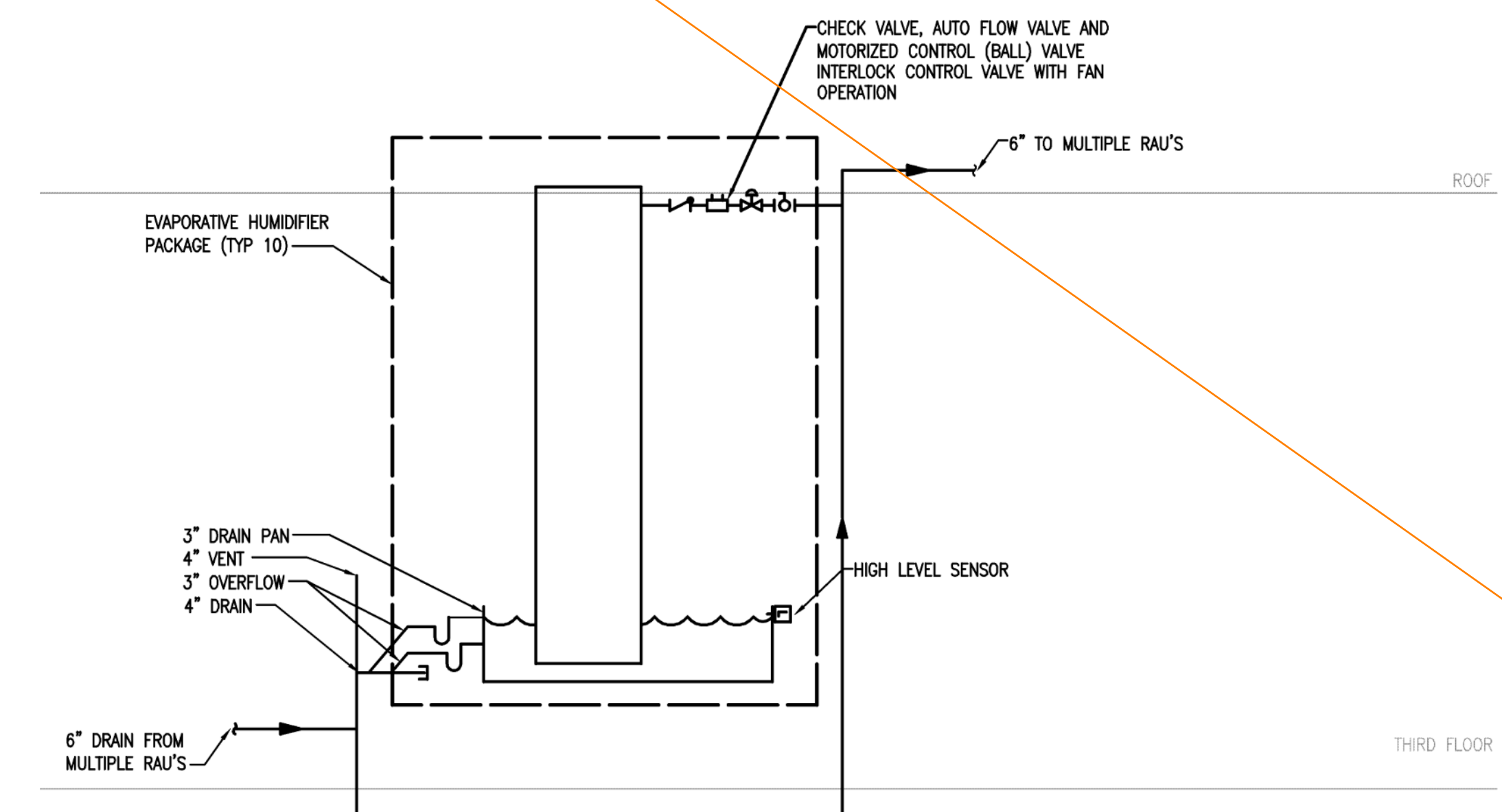


3 FANWALL DETAIL
M.VP.501 NTS



2 FANWALL SECTION
M.VP.501 NTS

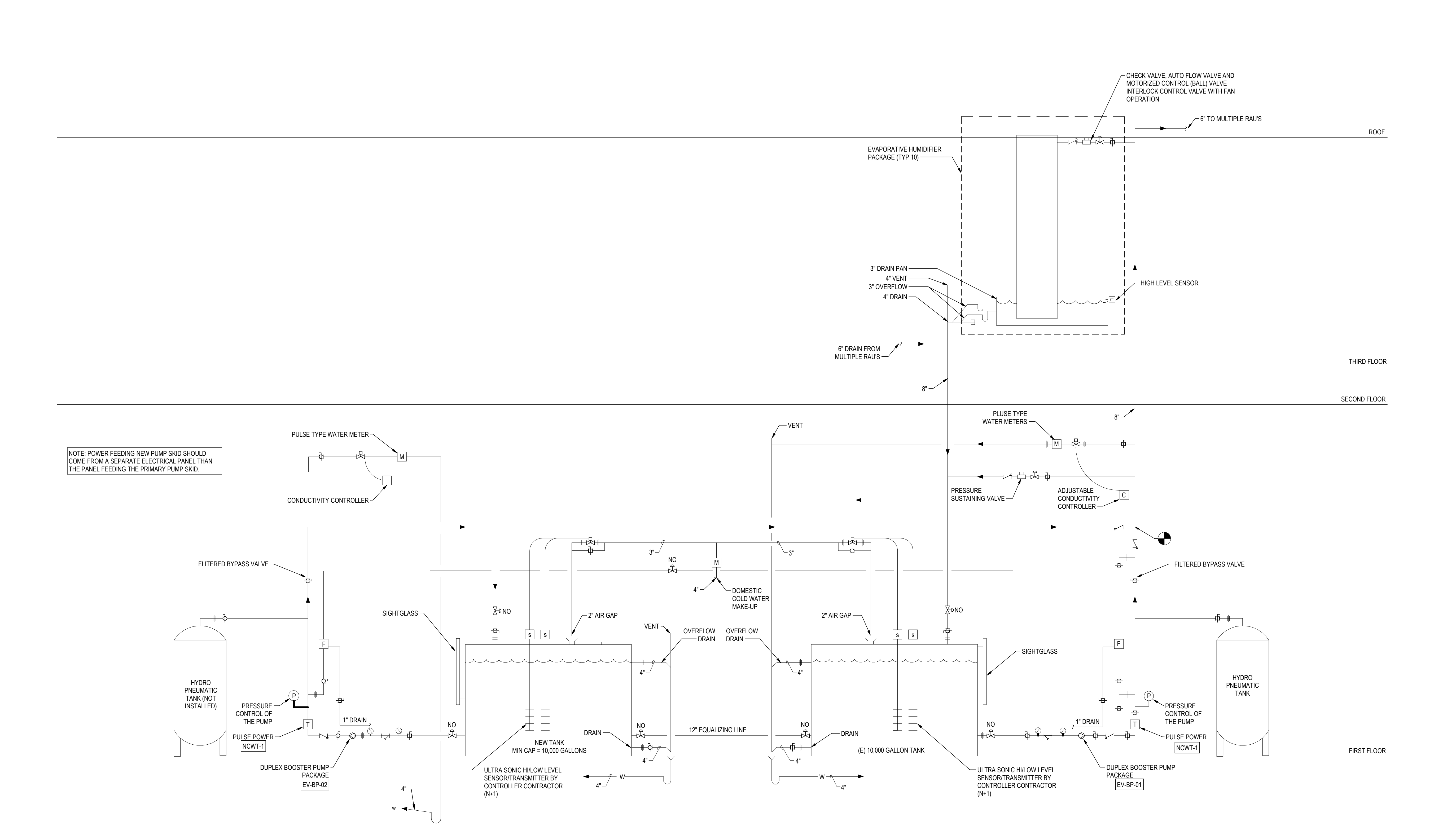
SEE REVISION DELTA 3/5/2024



1 RAU PIPING CONNECTION DETAIL
M.VP.501 NTS

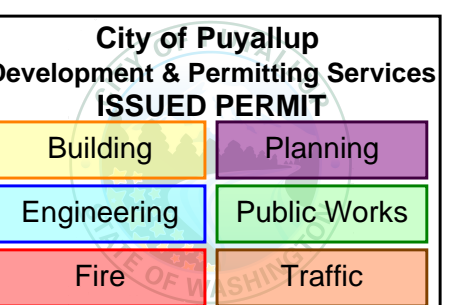


Revision No.	Description	Date
PERMIT SET		2/2/2024
DATA HALL PERMIT		2/16/2024
UPS & BATTERY ROOM INTERIORS		2/16/2024



EVAPORATIVE COOLING PIPING
DIAGRAM

1
M.VP.502 NTS

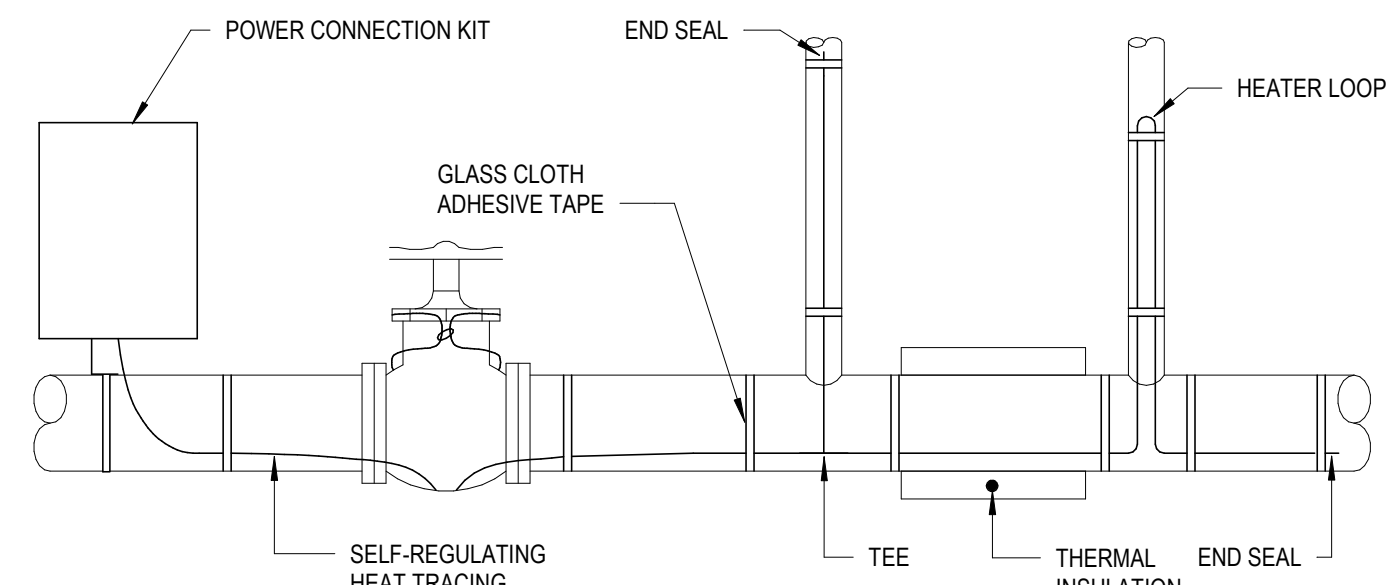


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MECHANICAL
DETAILS

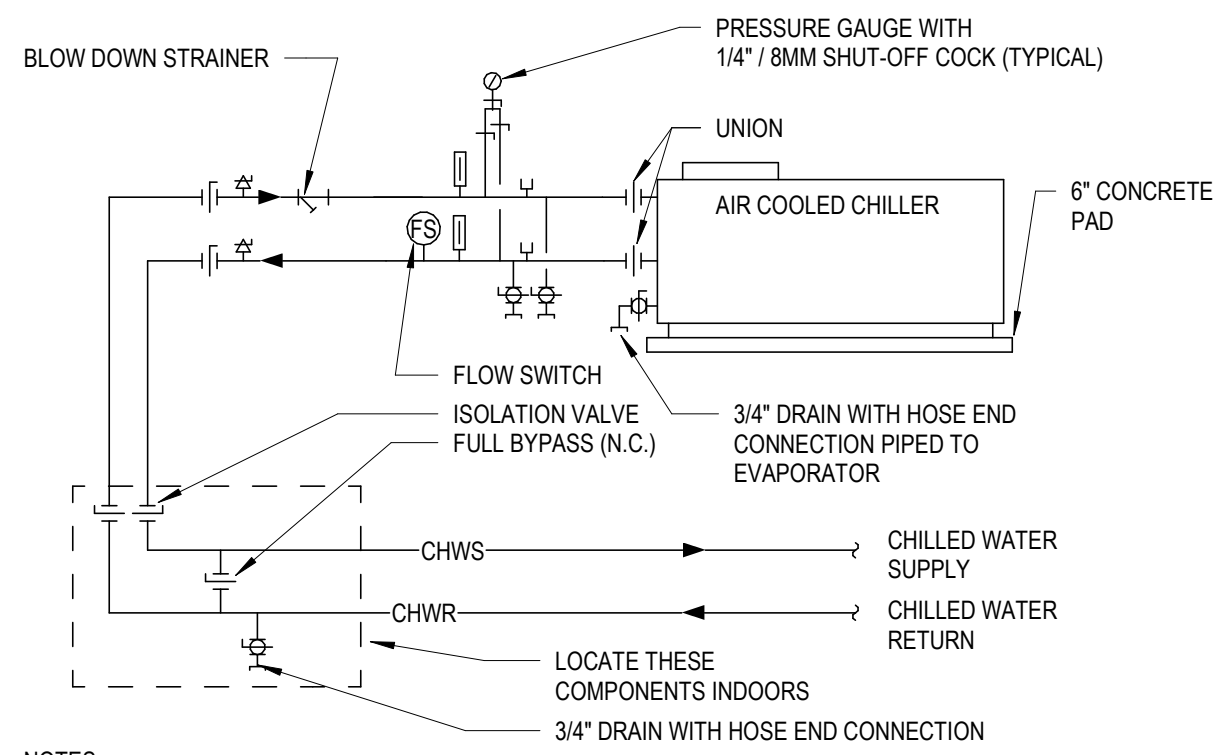
M.VP.502

Sheet



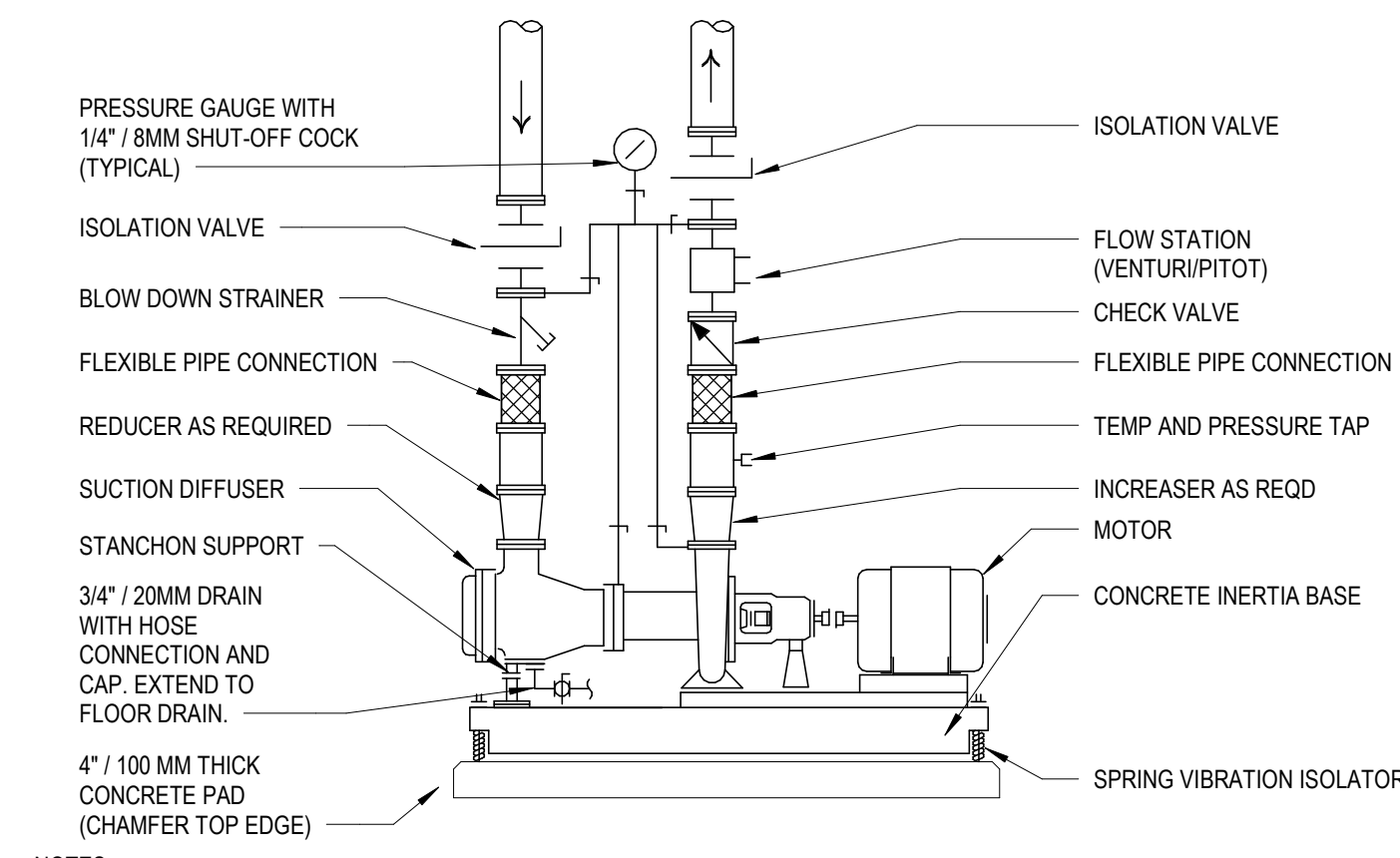
- NOTES:**
1. PROVIDE HEAT TRACE FOR ALL WATER PIPING LOCATED OUTDOORS
 2. INSULATE THE PIPING.
 3. REFER TO THE CONTRACT DOCUMENTS FOR PIPE MATERIAL AND INSULATION REQUIREMENTS.
 4. FOLLOW MFRS INSTALLATION DETAILS FOR THE REQUIRED CABLE COVERAGE TO FULLY PROTECT THE SYSTEM.

3 HEAT TRACE DETAIL
M.V.P.503 NTS



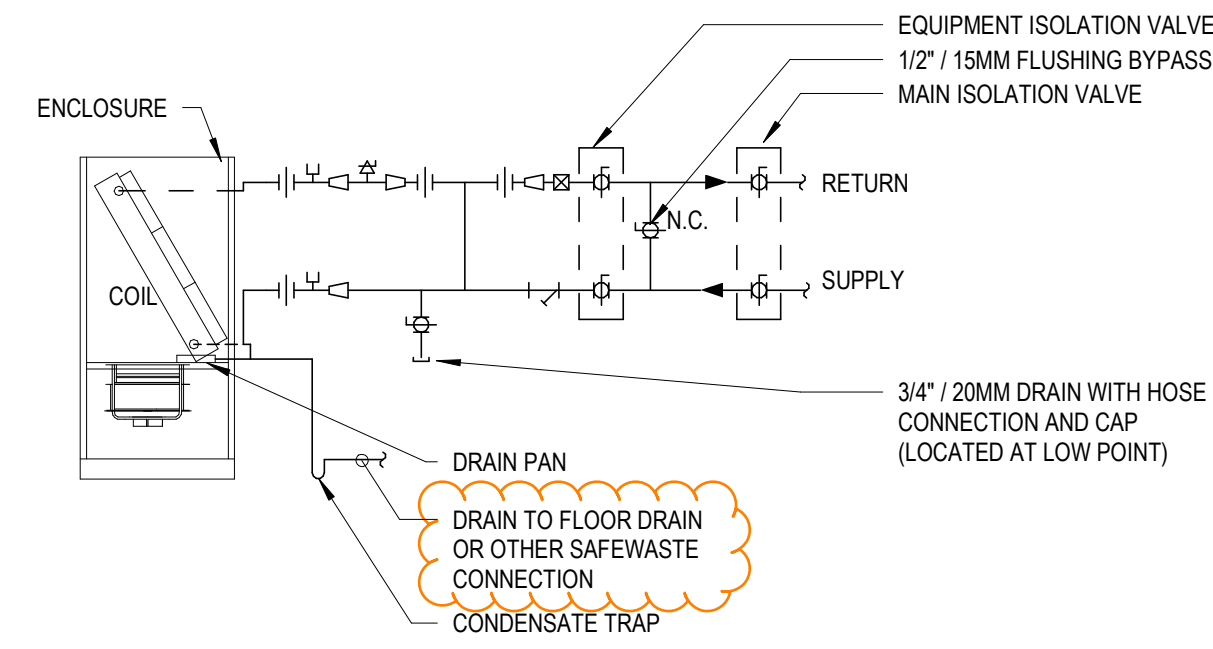
- NOTES:**
1. HEAT TRACE ALL EXTERIOR CHILLED WATER PIPING AND CHILLER BUNDLE.
 2. LOCATE PIPING TO FACILITATE THE REQUIRED ACCESS AND REMOVAL OF CHILLER COMPONENTS.
 3. COORDINATE THE COIL PULL SIDE WITH THE PIPING LAYOUT AND ALLOCATED ACCESS AREAS.
 4. PIPE MULTIPLE CHILLERS IN REVERSE RETURN SO THAT THE FLOW SELF-BALANCES
 5. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS THE SYSTEM PIPING. TRANSITION TO THE CHILLER INLET/OUTLET SIZES AT THE CHILLER
 6. ISOLATION VALVES ARE SHOWN AS BUTTERFLY VALVES. REFER TO THE SPECIFICATIONS FOR THE SPECIFIC VALVE TYPE BASED ON THE PIPE SIZE AND APPLICATION.
 7. QUICK CONNECT KITS ARE NOT TO BE USED. ALL VALVES SHALL BE INDEPENDENT COMPONENTS.

6 AIR COOLED CHILLERS DETAIL
M.V.P.503 NTS



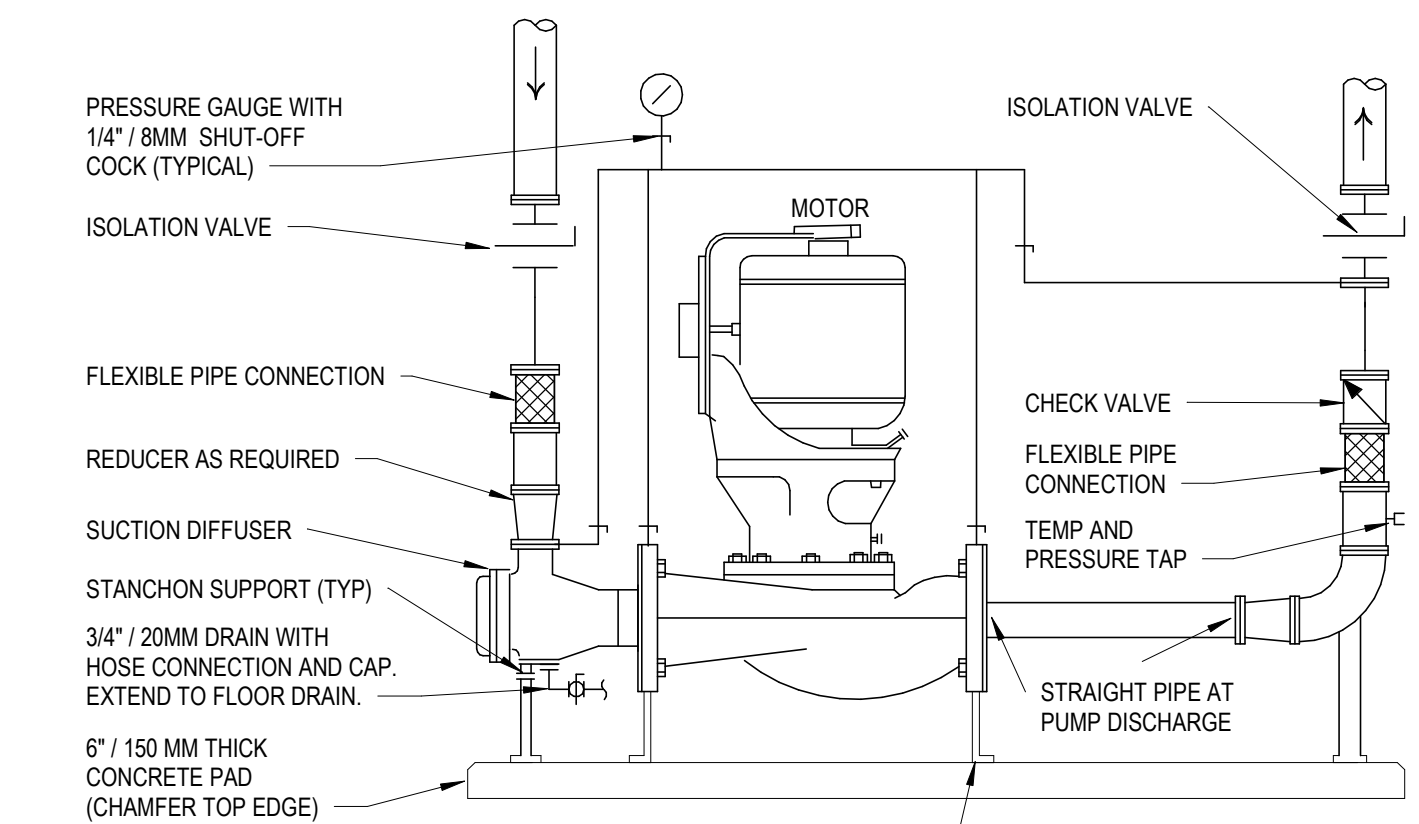
- NOTES:**
1. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS SYSTEM PIPING.
 2. PROVIDE A SPOOL SECTION BETWEEN THE SUCTION DIFFUSER AND PUMP INLET AS REQUIRED.
 3. AFTER START-UP AND THE COMPLETION OF THE SYSTEM FLUSHING, REMOVE THE START-UP STRAINER FROM THE SUCTION DIFFUSER.
 4. PROVIDE REMOVABLE INSULATION FOR CHILLED WATER PUMPS TO PREVENT CONDENSATION.
 5. ISOLATION VALVES ARE SHOWN AS BUTTERFLY VALVES. REFER TO THE SPECIFICATIONS FOR THE SPECIFIC VALVE TYPE BASED ON THE PIPE SIZE AND APPLICATION.
 6. PIPING ASSOCIATED WITH THE PRESSURE GAUGES SHALL BE RUN SO AS TO NOT BLOCK THE REMOVAL OF THE PUMP OR BLOCK ACCESS TO ANY COMPONENT. PROVIDE ADDITIONAL SHUT OFF VALVES AS REQUIRED TO FACILITATE THE REMOVAL AND RE-INSTALLATION OF THE SENSING LINES AS NEEDED.

2 BASE MOUNT PUMP DETAIL - VARIABLE SPEED
M.V.P.503 NTS



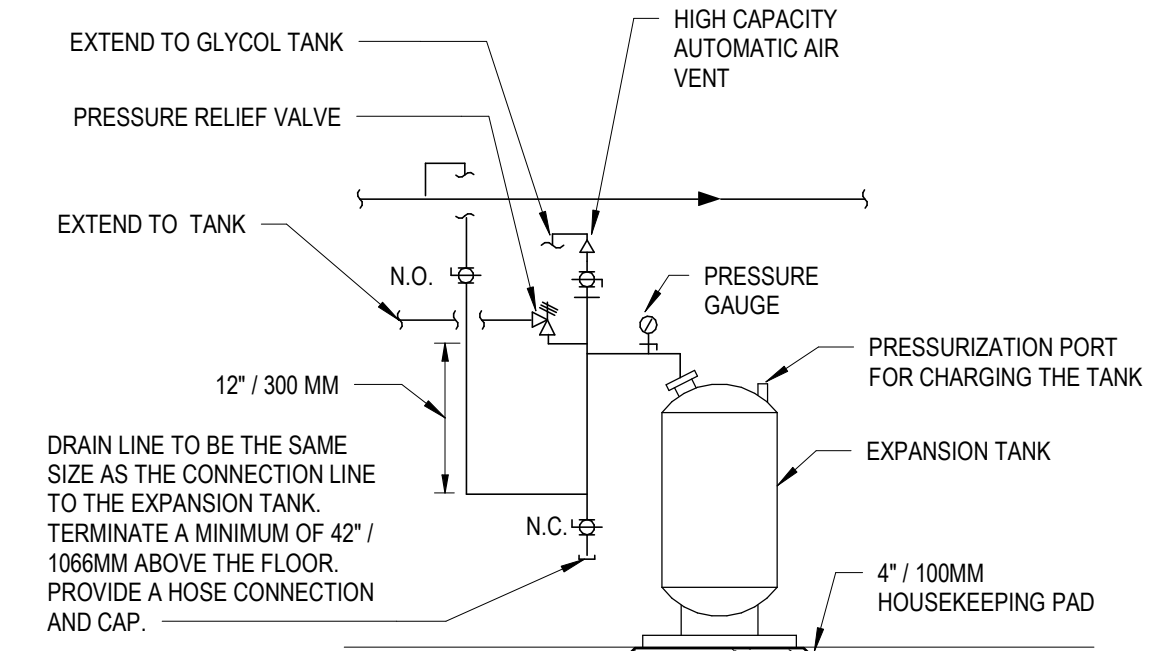
- NOTES:**
1. INSULATE THE HEATING COIL TO PREVENT HEAT LOSS / CONDENSATION.
 2. THE EQUIPMENT DRAIN IS SEPARATE FROM THE BLOW DOWN STRAINER DRAIN.
 3. PIPE TAPS FROM THE MAIN SHALL BE OFF OF THE TOP OF THE MAIN EXCEPT WHERE NOTED OTHERWISE.
 4. THE EQUIPMENT ISOLATION VALVES SHALL BE CLOSED WHEN INSTALLED AND THE FLUSHING BYPASS VALVE SHALL BE OPEN. AFTER THE INITIAL FLUSHING, THE FLUSHING BYPASS VALVE SHALL BE CLOSED AND THE HANDLE REMOVED. THE EQUIPMENT ISOLATION VALVES SHALL BE OPENED.
 5. ALL CONTROL VALVES SHALL BE 2-WAY VALVES EXCEPT THOSE NOTED IN THE CONTRACT DOCUMENTS TO BE 3-WAY VALVES.
 6. IF THE MECHANICAL CONTRACTOR USES QUICK CONNECT KITS, WHERE THE EQUIPMENT ISOLATION VALVE IS PART OF ANOTHER COMPONENT, THEN PROVIDE THE MAIN ISOLATION VALVES (OTHERWISE THEY ARE NOT REQUIRED).
 7. ISOLATION VALVES ARE SHOWN AS BALL VALVES. REFER TO THE CONTRACT DOCUMENTS FOR THE SPECIFIC VALVE TYPE BASED ON THE PIPE SIZE AND APPLICATION.
 8. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS THE SYSTEM PIPING. TRANSITION TO THE COIL CONNECTION SIZE AT THE COIL.
 9. ALL STRAINERS SHALL BE BLOW DOWN TYPE WITH AN ISOLATION VALVE AND CAP.
 10. PROVIDE A HIGH LIMIT DRAIN PAN SENSOR AND HARD WIRE TO THE FAN / CONTROLLER TO SHUT OFF THE UNIT BASED ON A HIGH LEVEL LIMIT.
 11. FOR 4-PIPE UNITS, THE ASSEMBLY FOR THE SECOND SET IS THE SAME AS THE SINGLE ASSEMBLY SHOWN IN THE DETAIL.

5 CRAH PIPING DETAIL
M.V.P.503 NTS



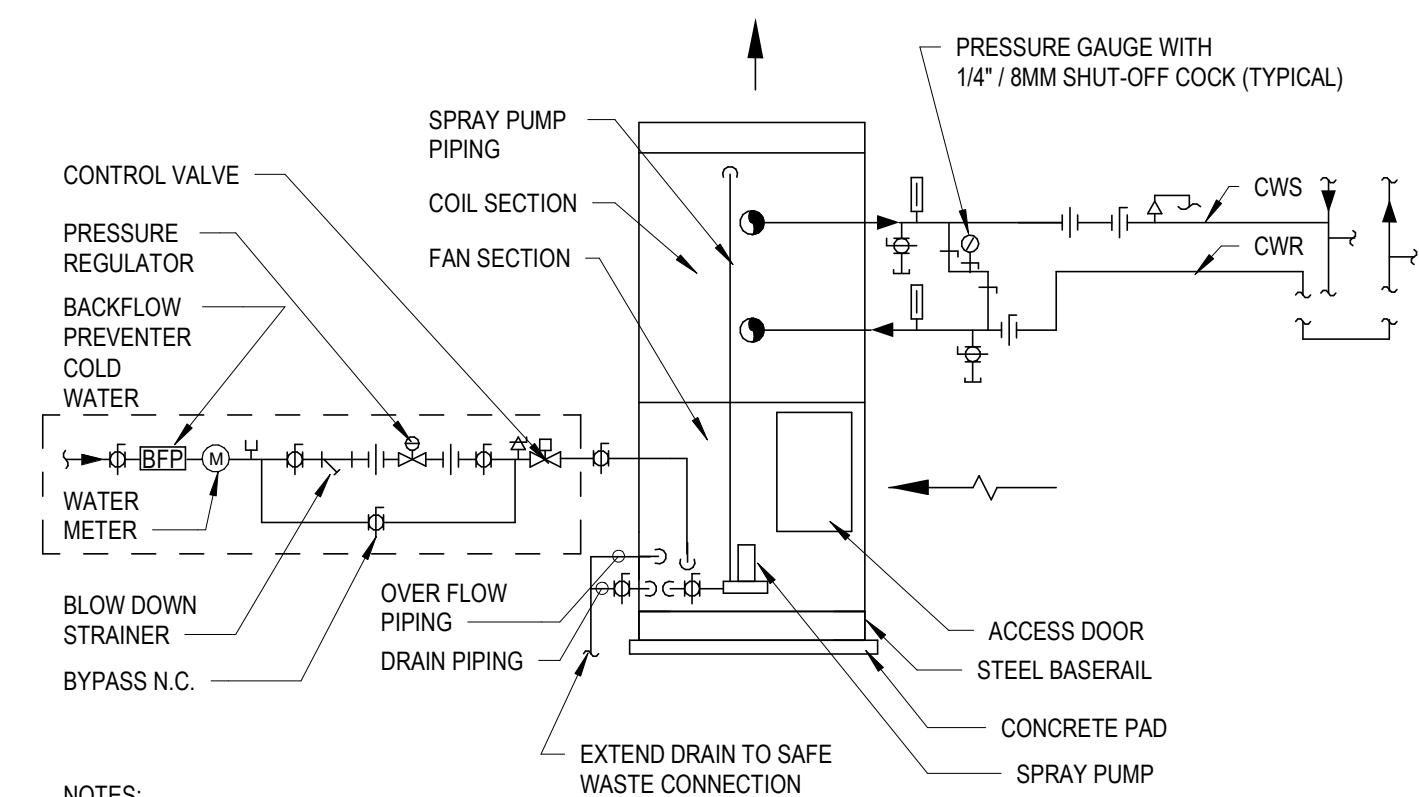
- NOTES:**
1. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS SYSTEM PIPING.
 2. PROVIDE A SPOOL SECTION BETWEEN THE SUCTION DIFFUSER AND PUMP INLET AS REQUIRED.
 3. AFTER START-UP AND THE COMPLETION OF THE SYSTEM FLUSHING, REMOVE THE START-UP STRAINER FROM THE SUCTION DIFFUSER. CLEAN THE STRAINER, AND THEN REINSTALL.
 4. PROVIDE REMOVABLE INSULATION FOR CHILLED WATER PUMPS TO PREVENT CONDENSATION.
 5. ISOLATION VALVES ARE SHOWN AS BUTTERFLY VALVES. REFER TO THE SPECIFICATIONS FOR THE SPECIFIC VALVE TYPE BASED ON THE PIPE SIZE AND APPLICATION.
 6. PIPING ASSOCIATED WITH THE PRESSURE GAUGES SHALL BE RUN SO AS TO NOT BLOCK THE REMOVAL OF THE PUMP OR BLOCK ACCESS TO ANY COMPONENT. PROVIDE ADDITIONAL SHUT OFF VALVES AS REQUIRED TO FACILITATE THE REMOVAL AND RE-INSTALLATION OF THE SENSING LINES AS NEEDED.
 7. PROVIDE MINIMUM LENGTH OF STRAIGHT PIPE AT PUMP DISCHARGE AS PER MANUFACTURER'S RECOMMENDATIONS.

1 LARGE INLINE PUMP DETAIL - VARIABLE SPEED
M.V.P.503 NTS



- NOTES:**
1. PITCH ALL PIPING FOR PROPER DRAINAGE.
 2. ISOLATION VALVES ARE SHOWN AS BALL VALVES. REFER TO THE SPECIFICATIONS FOR THE SPECIFIC VALVE TYPE BASED ON THE PIPE SIZE AND APPLICATION.
 3. PROVIDE INSULATION FOR EXPANSION TANK FOR CHILLED WATER APPLICATIONS TO PREVENT CONDENSATION.
 4. PROVIDE A 55 GALLON DRUM AND LOCATE UNDER THE DRAIN LINE. PROVIDE A SHORT HOSE TO EXTEND FROM THE HOSE CONNECTION TO THE DRUM.
 5. IF IT IS NOT POSSIBLE TO EXTEND THE PRESSURE RELIEF PIPING TO THE GLYCOL FILL STATION, EXTEND IT TO THE DRAIN DRUM.
 6. THE PIPING TO THE EXPANSION TANK SHALL BE A MINIMUM OF 1\"/>

4 EXPANSION TANK W/ FILL
M.V.P.503 NTS



- NOTES:**
1. PROVIDE HEAT TRACE ON ALL OUTDOOR PIPING AS SPECIFIED, INCLUDING COLD WATER MAKE-UP, SPRAY PUMP AND SPRAY PIPING AND CONDENSER WATER PIPING.
 2. LOCATE PIPING TO FACILITATE THE REQUIRED ACCESS AND REMOVAL OF COMPONENTS.
 3. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS THE SYSTEM PIPING. TRANSITION TO THE COOLER INLET/OUTLET SIZES AT THE EQUIPMENT CONNECTION.
 4. ISOLATION VALVES ARE SHOWN AS BUTTERFLY VALVES. REFER TO THE SPECIFICATIONS FOR THE SPECIFIC VALVE TYPE BASED ON THE PIPE SIZE AND APPLICATION.
 5. LOCATE THE COLD WATER MAKE-UP ASSEMBLY IN A HEATED SPACE UNLESS SHOWN OTHERWISE ON THE CONTRACT DOCUMENTS.
 6. PIPE MULTIPLE UNITS IN REVERSE RETURN FOR SELF-BALANCING. REFER TO THE CONTRACT DOCUMENTS FOR THE QUANTITY OF UNITS.
 7. QUICK CONNECT KITS ARE NOT TO BE USED. ALL VALVES SHALL BE INDEPENDENT COMPONENTS.

7 CLOSED CIRCUIT EVAPORATIVE COOLER DETAIL
M.V.P.503 NTS



Revision No.	Description	Date
PERMIT SET		2/2/2024
UPS YARD EQUIPMENT PERMIT SET		2/8/2024
DATA HALL PERMIT		2/16/2024
UPS & BATTERY ROOM INTERIORS		2/16/2024

City of Puyallup Development & Permitting Services ISSUED PERMIT			
Building	Planning	Engineering	Public Works
Fire	Traffic		

Drawn By: JLV Checked By: BO

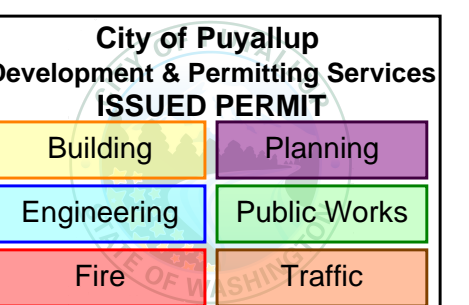
MECHANICAL DRAWINGS

CENTERS
VOLTAGE PARK UPS
1019 39th AVENUE SE
PUYALLUP, WA 98374

PRMH20240272



Revision No.	Description	Date
	DATA HALL PERMIT	2/16/2024



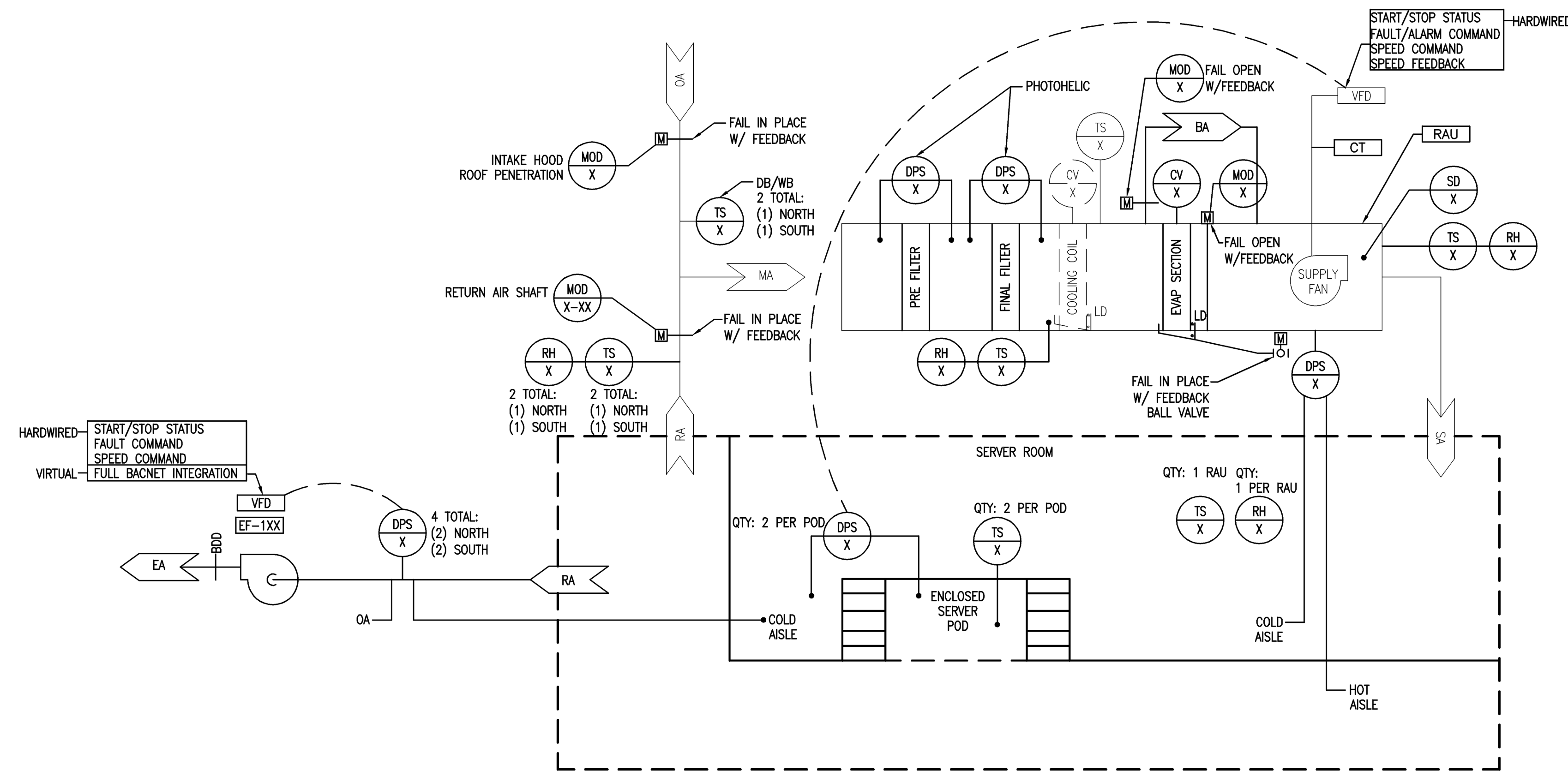
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MECHANICAL DIAGRAMS - DATA HALL

Sheet **M.VP.602**

DESCRIPTION OF OPERATIONS:

- 1.0 RECIRCULATION AIR HANDLING UNIT (RAU)
- A. GENERAL
- a. THE FOUR (4) NEW RECIRCULATION UNITS ADDED FOR THE VOLTAGE PARK PROJECT SHALL HAVE NEW CONTROLS PROVIDED TO MATCH EXISTING CONTROLS FOR RECIRCULATION UNITS. NEW RECIRCULATION UNITS SHALL BE ADDED TO EXISTING GROUPINGS AND STAGED PER THE EXISTING SEQUENCE USING EQUIVALENT SIGNALS AS DETAILED THERE-IN. CONTROL CONTRACTOR SHALL ADD POINTS AND MODULES AS REQUIRED TO THE GLOBAL CONTROLLER AND ALL ASSOCIATED LOCAL CONTROL COMPONENTS TO PROVIDE THE ALARM POINTS BELOW MATCHING THE EXISTING RECIRCULATION AIR HANDLING UNIT INSTALLATION.
- B. RECIRCULATION AIR HANDLING UNIT ALARM LIST
- HIGH ZONE TEMPERATURE ALARM
 - LOW ZONE TEMPERATURE ALARM
 - HIGH ZONE HUMIDITY RATIO
 - LOW ZONE HUMIDITY RATIO
 - TEMPERATURE SENSOR FAILURE
 - HUMIDITY SENSOR FAILURE
 - OUTSIDE AIR DAMPER FAILURE
 - OUTSIDE AIR DAMPER IN-HAND
 - SUPPLY FAN FAILURE
 - SUPPLY FAN IN-HAND
 - SUPPLY FAN RUNTIME EXCEEDED
 - PRESSURE SENSOR FAILURE
 - LOSS OF COMMUNICATIONS
 - PRESSURE OUT OF RANGE
 - MOTORIZED EVAPORATIVE COOLING VALVE FAILURE
 - DRAIN PAN OVERFLOW
 - RH SENSOR OUT OF RANGE
 - FACE AND BYPASS DAMPER FAILURE
 - FILTER CHANGE REQUIRED
 - MEDIA CHANGE REQUIRED
 - HIGH DISCHARGE AIR TEMPERATURE, ABOVE 85°F (ADJ)
 - LOW DISCHARGE AIR TEMPERATURE, BELOW 40°F (ADJ)
 - HIGH ZONE HUMIDITY, ABOVE 80% (ADJ)
 - LOW ZONE HUMIDITY, BELOW 25% (ADJ)
 - SMOKE DETECTION
- 2.0 FAN WALL ASSEMBLY (FW-001, FW-002, & FW-003)
- A. GENERAL
- a. THREE (3) NEW FAN WALL ASSEMBLIES REPLACE (18) RELIEF EXHAUST FANS. FAN WALL ASSEMBLIES RELIEVE THE BUILDING OF AIR FROM RECIRCULATION UNITS DURING MINIMUM OUTSIDE AIR CONDITIONS AND FOR FULL ECONOMIZER RELIEF. IN GENERAL NEW CONTROLS PROVIDED WILL MATCH EXISTING CONTROLS FOR RELIEF EXHAUST FANS. NEW FAN WALL ASSEMBLIES SHALL BE ADDED TO THE EXISTING SEQUENCE USING EQUIVALENT SIGNALS AS DETAILED THERE-IN. CONTROL CONTRACTOR SHALL ADD POINTS AND MODULES AS REQUIRED TO THE GLOBAL CONTROLLER AND ALL ASSOCIATED LOCAL CONTROL COMPONENTS TO PROVIDE THE ALARM POINTS BELOW MATCHING THE EXISTING RELIEF EXHAUST FAN SYSTEM INSTALLATION.
- b. EACH FAN WALL ASSEMBLY IS ENABLED STARTING AT 50% (ADJ) AT THE SAME TIME AS THE GROUP OF RECIRCULATION AIR HANDLING UNITS TO WHICH IT IS ASSIGNED TO. ADJUST RAMP SPEED AS REQUIRED TO MATCH RECIRCULATION UNIT AIR HANDLING UNITS RAMP SEQUENCES, AND STAGING. ENSURE BUILDING IS CONTINUOUSLY KEPT AT SAFE PRESSURES DURING START-UP, AND AS GROUPINGS ARE ADDED OR SUBTRACTED, AS WELL AS DURING NORMAL OPERATION.
- c. THE CONTROL CONTRACTOR SHALL PROVIDE ADDITIONAL HARDWARE AS REQUIRED TO MODULATE THE FAN WALL ASSEMBLY DOWN TO A MINIMUM SPEED OF 7% OF FULL SPEED CORRESPONDING TO 3.5 VDC, AND MODULATE UP TO 100% AT 50 VDC.
- d. FAN WALL ASSEMBLIES SHALL BE THE FIRST STAGE OF BUILDING RELIEF AND SHALL FINE TUNE THE BUILDING PRESSURE TO REMAIN SLIGHTLY POSITIVE IN INSON.
- e. IF THE FAN WALL ASSEMBLY SPEED IS ABOVE 90% (ADJ), THEN EXHAUST RELIEF FAN SHALL BE STAGED ON IN AN ORDER AS DETERMINED IN COMMISSIONING. ADDITIONAL FANS SHALL BE STAGED ON WITH A RESET SCHEDULE UPON AN INCREASE OF 5% (ADJ), AND OFF ON A RESET SCHEDULE OF MINUS 5% (ADJ) THEREAFTER. THERE SHALL BE A DELAY TO START A AND A DELAY TO STOP TO PREVENT SHORT-CYCLING OF THE RELIEF EXHAUST FANS.
- f. THE BAS SHALL CONNECT TO EACH FAN WALL ASSEMBLY WITH A RS485 MODBUS RTU CONNECTION.
- B. FAN WALL ASSEMBLY ALARM LIST
- HIGH BUILDING PRESSURE ALARM
 - LOW BUILDING PRESSURE ALARM
 - BUILDING PRESSURE SENSOR FAILURE
 - EXHAUST FAN FAILURE
 - EXHAUST FAN IN-HAND
 - EXHAUST FAN VOLTAGE FREQUENCY OUT OF RANGE
 - PRESSURE SENSOR FAILURE
 - FAN WALL ASSEMBLY LOSS OF COMMUNICATIONS
 - PRESSURE OUT OF RANGE



1 RAU CONTROL DIAGRAM (EXISTING FOR REFERENCE)
M.VP.602 NTS