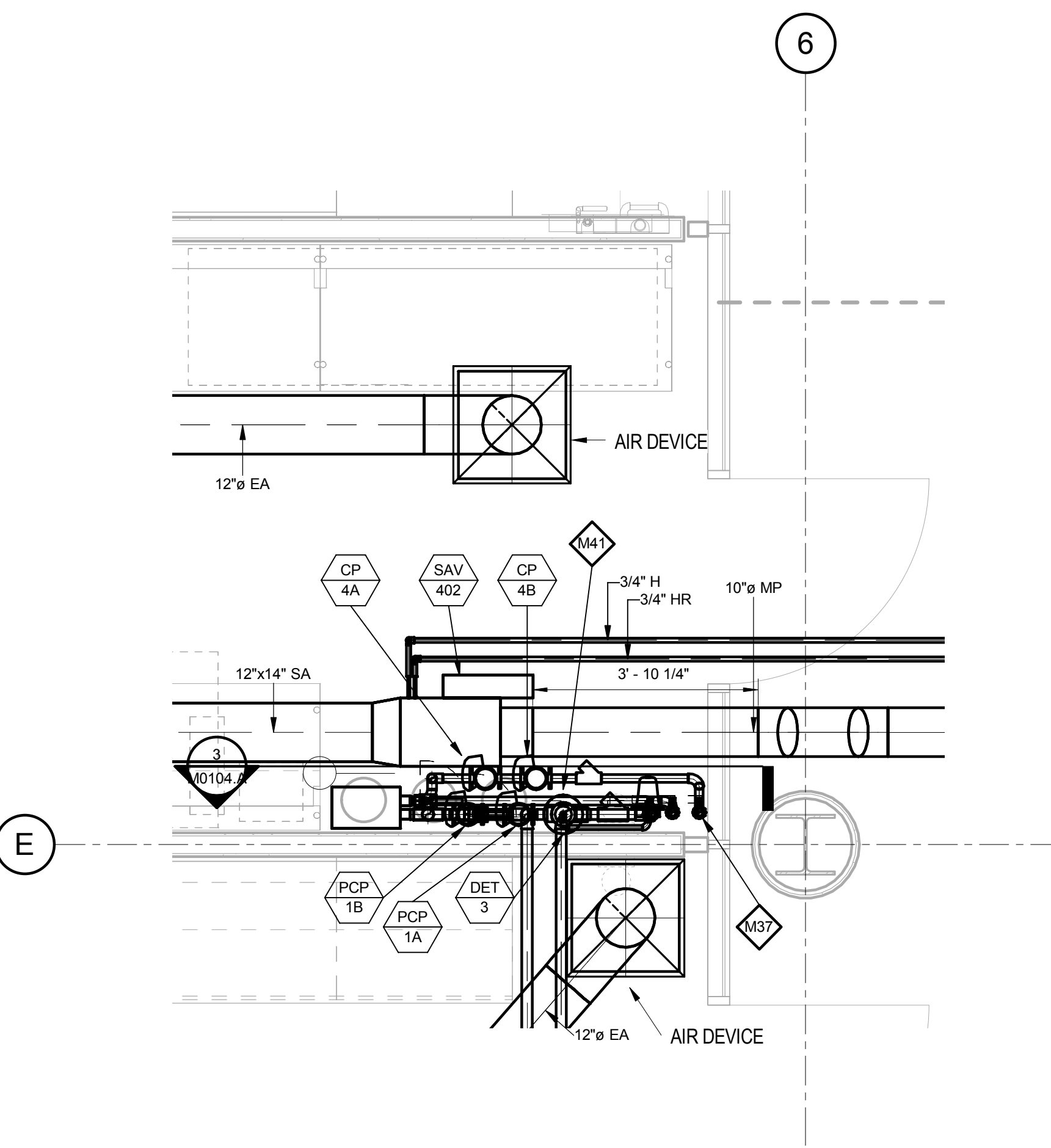
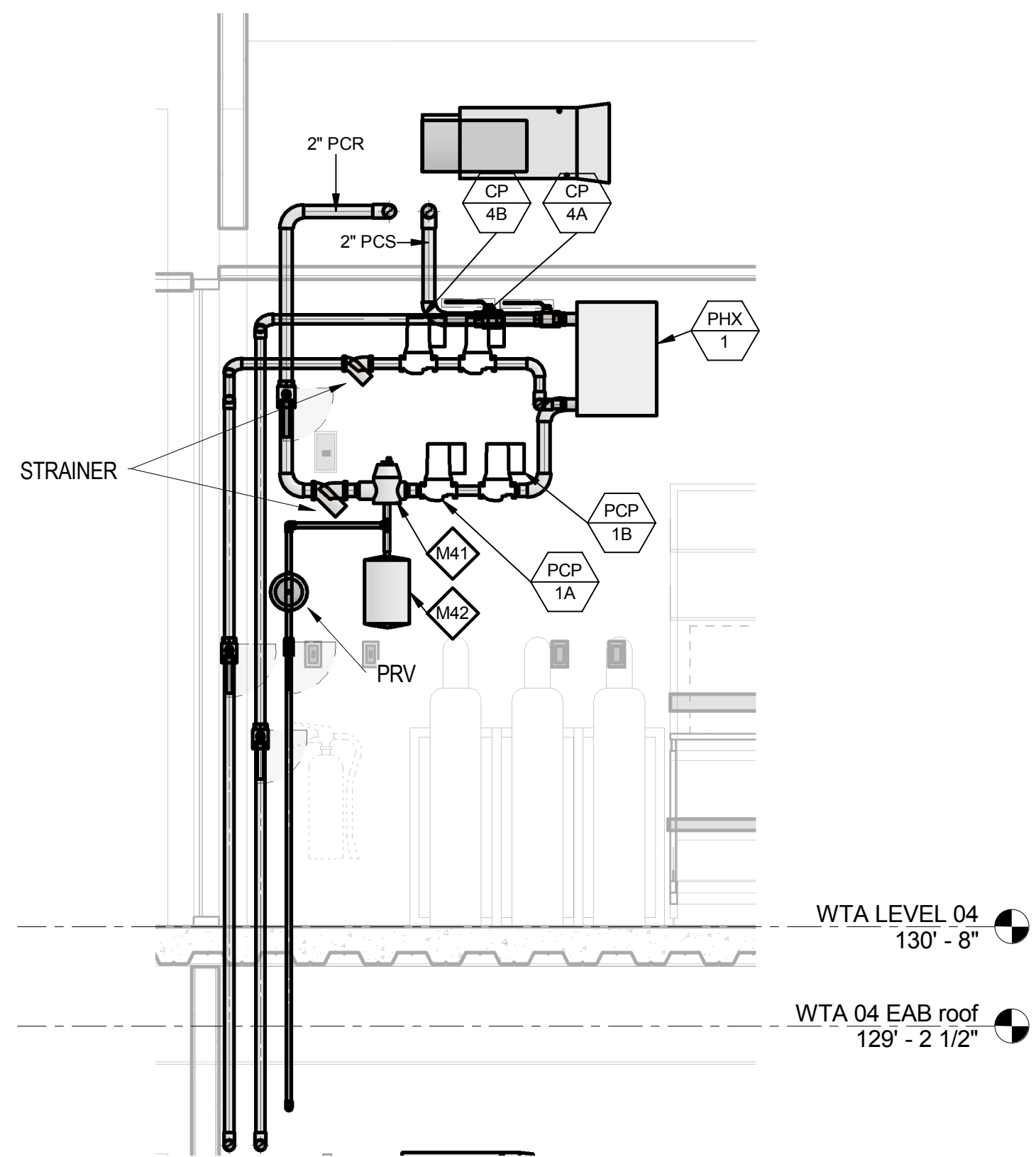
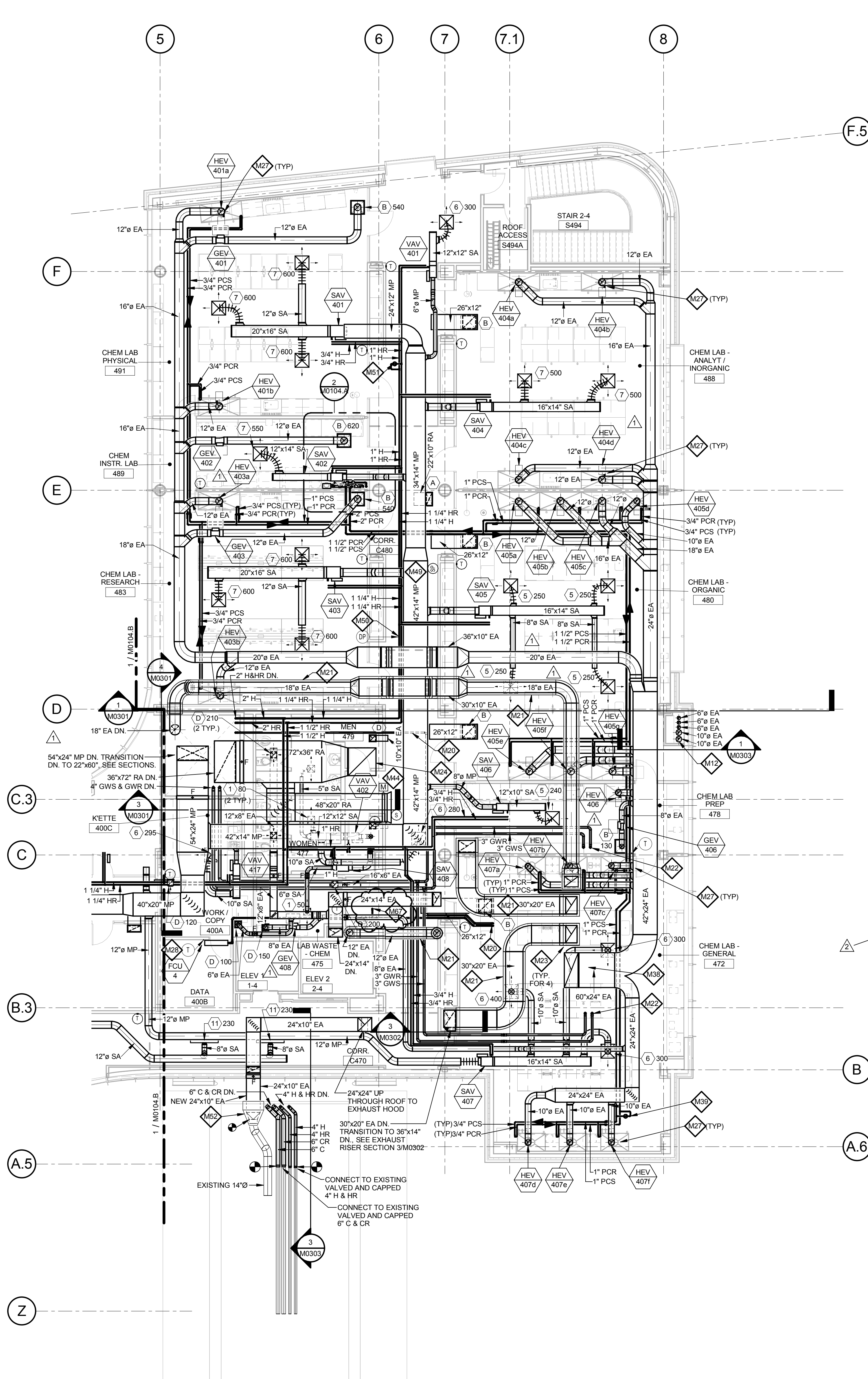




2 PARTIAL LEVEL 04 - PROCESS CHILLED WATER PLAN
1/2" = 1'-0"



3 L04 - SECTION AT PROCESS CHILLED WATER SYSTEM
1/2" = 1'-0"



1 LEVEL 04 - AREA A - MECHANICAL PLAN
1/8" = 1'-0"

GENERAL NOTES:

- Because of the limited space available to install all of the mechanical work, coordination between the various trades is of the utmost importance. This contractor shall coordinate with all other trades prior to the fabrication and installation of any work.
- Refer to the reflected ceiling plans for ceiling construction, ceiling grid layout, ceiling mounted devices, and coordinate exact location and mounting type of all air devices.
- All ductwork upstream of terminal units shall be Medium Pressure (MP). All ductwork downstream of terminal units shall be Low Pressure (LP). Refer to specifications.
- All ductwork dimensions indicated on plans are sheet metal sizes. All medium pressure ductwork shall be unlined, externally insulated. All low pressure ductwork shall be lined. See specifications.
- All mitered 90° rectangular elbows shall be furnished with turning vanes having maximum $c = 0.12$. All smooth radius rectangular elbows shall have a throat radius greater than one half the duct width, unless furnished with splitter vanes. Under no circumstances shall the throat radius be less than one third the duct width. Unless otherwise noted or specified.
- Contractor shall furnish and install volume dampers for each duct take-off unless otherwise noted. See detail.
- Maximum length of Low Pressure (LP) flexible ductwork shall be 8'-0". Round LP duct of lengths greater than 8'-0" shall be rigid round. Flexible duct sizes on plans shall be neck size of diffusers or as indicated. See specifications.
- Maximum length of Medium Pressure (MP) flexible ductwork shall be 2'-0". Round MP duct of lengths greater than 2'-0" shall be rigid round. Flexible duct sizes on plans shall be air Terminal Unit inlet size or as indicated. See specifications.
- All ductwork runouts to Air Terminal Units and diffusers shall be the connection size unless otherwise noted.
- Piping runouts to terminal units shall be 3/4" unless otherwise noted. Refer to reheat box schedule.
- Verify exact location of thermostats, humidistats, BAS sensors, and other exposed control sensors with architectural elevations and drawings before installation.
- Schedule systems or equipment shut downs required for new construction with owner two weeks in advance. Some premium time work may be required.
- Refer to piping details for final connections to equipment.
- Provide service shut-off valves in major piping branch lines. All connections to risers and each building wing: A & B.

KEYED NOTES

- M12** BOILER AND DOMESTIC WATER HEATER FLUES UP THROUGH ROOF.
- M20** REFRIGERANT LIQUID AND SUCTION PIPING BETWEEN DX COOLING COILS AND CONDENSING UNITS. COORDINATE PIPE SIZES WITH MANUFACTURER.
- M21** PROVIDE FIRE WRAP AROUND LAB EXHAUST DUCTWORK FROM RATED CHASE PENETRATION TO ROOF.
- M22** GLYCOL WATER SUPPLY & RETURN PIPING UP THROUGH ROOF TO HEAT RECOVERY COILS. PROVIDE ROOF PENETRATION CURB/SEAL.
- M23** EXHAUST DUCT UP THROUGH ROOF.
- M24** RELIEF AIR DUCT UP THRU ROOF TO RELIEF AIR FAN.
- M27** INSTALL HOOD EXHAUST VALVE IN VERTICAL POSITION NEAR HOOD. ELBOWS SHALL HAVE 1.5 DIAMETER RADIUS, USE 1.0 DIAMETER RADIUS ELBOWS ONLY WHERE NECESSARY.
- M28** BAS TEMPERATURE SENSOR TO MONITOR IT/TCOM SPACES. FCU CONTROLLED BY UNIT MOUNTED THERMOSTAT.
- M37** 1-1/2" C & CR, AND 3/4" MWL UP TO LEVEL 04.
- M38** PROVIDE ELBOW SOUND ATTENUATOR, KINETICS MODEL 24KCES-P/5.5 - 60x24x60-6/30, 60" WIDE BY 24" HIGH BY 60" LONG, ELBOW CONFIGURATION, 20,000-CFM AT 0.48" PD, DYNAMIC INSERTION LOSS (H₂/dB): 634, 1257, 2501/1, 500/19, 1000/18, 2000/18, 4000/20, 8000/16.
- M39** 1" BACKPRESSURE REGULATING VALVE (5 GPM) FOR PROCESS CHILLED WATER MINIMUM PUMP FLOW.
- M41** 2-INCH AIR SEPARATOR, SEE PIPING DIAGRAM.
- M42** DIAPHRAGM EXPANSION TANK, SEE PIPING DIAGRAM AND SCHEDULE.
- M44** AIRFLOW MEASURING STATION, KELE MODEL KOAMS FURNISHED WITH INLET BELL FOR PLENUM APPLICATIONS LOCATED IN MINIMUM OA DUCT OR RETURN AIR INLET ON EACH FLOOR.
- M49** DUCT STATIC PRESSURE SENSOR.
- M50** PIPING DIFFERENTIAL PRESSURE SENSOR
- M51** 1" HEATING HOT WATER BYPASS WITH BACKPRESSURE CONTROL VALVE (5 GPM).
- M52** REMOVE EXISTING RELIEF LOUVER AND PORTION OF EXISTING DUCT. ROUTE NEW DUCT THROUGH EXISTING OPENING.
- M67** LOCATION FOR REFRIGERANT PIPING FOR COOLER. SEE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS. PIPING SHALL BE INSTALLED PER COOLER SUPPLIERS REQUIREMENTS.

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.



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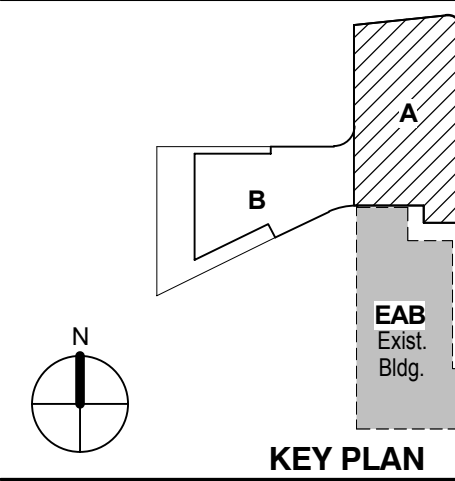
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CONFORMED SET 01 JUL 2016

2	ADDENDUM 2-2	19 APRIL 2016
1	ADDENDUM 2-1	17 MAR 2016
-	ISSUED FOR CONSTRUCTION (BP2)	01 MAR 2016
No.	Description	Date



Drawing Title:

**LEVEL 04 AREA A FLOOR
PLAN - MECHANICAL**

Project No.: 04561.01 Checked by:

M0104.A