

MECHANICAL LEGEND: (not all may apply)

GENERAL ABBREVIATIONS:

| | | | | | | | | | | | |
|--------|----------------------------|-------|----------------------------|-------|-----------------------------|--------|----------------------------------|---------|--------------------------------|--------|--------------------------------|
| AAD | AUTOMATIC AIR DAMPER | CH | CHILLER | ET | EXPANSION TANK | KEC | KITCHEN EQUIPMENT CONTRACTOR | PF | PRE-FILTER | SR | SUPPLY REGISTER |
| AAV | AUTOMATIC AIR VENT | CHWP | CHILLED WATER PUMP | EHT | ENTERING WATER TEMPERATURE | KH | KITCHEN HOOD | PH | PHASE | SS | STAINLESS STEEL |
| AB | AIR BLENDER | CHWR | CHILLED WATER RETURN | EXCL | EXCLUDING | KV | KITCHEN VENT | PHWP | PRIMARY HOT WATER PUMP | STD | STANDARD |
| AC | AIR CONDITIONING UNIT | CHWS | CHILLED WATER SUPPLY | EXIST | EXISTING | KW | KILOWATT | PI | PRESSURE INDICATOR | STL | STEEL |
| ACC | AIR COOLED CONDENSER | CI | CAST IRON | EXP | EXPANSION | | | PLBG | PLUMBING | STRUCT | STRUCTURAL |
| ACCU | AIR COOLED CONDENSING UNIT | CO | CLEANOUT | | | LAT | LEAVING AIR TEMPERATURE | PRESS | PRESSURE | TCC | TEMPERATURE CONTROL CONTRACTOR |
| AD | ACCESS DOOR | COL | COLUMN | *F | DEGREE FAHRENHEIT | LB | POUND | PRV | PRESSURE REDUCING VALVE | TCV | TEMPERATURE CONTROL VALVE |
| ADDL | ADDITIONAL | CONN | CONNECTION | FD | FLOOR DRAIN | LD | LINEAR DIFFUSER | PS | PRESSURE SWITCH | TE | TOP ELEVATION |
| ADJ | ADJUSTABLE | CUH | CONDENSING UNIT | FF | FINISHED FLOOR | LWT | LEAVING WATER TEMPERATURE | PSD | PLENUM SLOT DIFFUSER | TI | TEMPERATURE INDICATOR |
| AF | AIR FILTER | CJ | CABINET UNIT HEATER | FH | FIRE HYDRANT | FL | FLOOR | PSI | POUND PER SQUARE INCH | TMV | THERMOSTATIC MIXING VALVE |
| AFF | ABOVE FINISHED FLOOR | CU FT | CUBIC FEET | FL | FLOOR | FLA | FULL LOAD AMPS | PSIG | POUND PER SQUARE INCH ABSOLUTE | TSP | TOTAL STATIC PRESSURE |
| AHU | AIR HANDLING UNIT | CU IN | CUBIC INCH | FLA | FLAT ON TOP | FOB | FLAT ON BOTTOM | PTTS | PRESSURE TEMP. TEST STATION | TS/TAT | THERMOSTAT |
| ALT | ALTERNATE | CW | CLOCKWISE | FOR | FUEL OIL RETURN | FOS | FUEL OIL SUPPLY | PVC | POLYVINYL CHLORIDE | TXV | THERMAL EXPANSION VALVE |
| ALUM | ALUMINUM | CWP | CONDENSING WATER PUMP | FOT | FLAT ON TOP | MCA | MINIMUM CIRCUIT AMPACITY | RCP | RECIRCULATION PUMP | TYP | TYPICAL |
| A(MP) | AMPERE | CWS | CONDENSING WATER SUPPLY | FPC | FIRE PROTECTION CONTRACTOR | MCH | MECHANICAL CONTRACTOR | RD | ROOF DRAIN | TW | TEMPERED WATER |
| AP | ACCESS PANEL | CWR | CONDENSING WATER RETURN | FPM | FEET PER MINUTE | MFG(R) | MANUFACTURER | REF | REFERENCE | UG/UDG | UNDERGROUND UNIT HEATER |
| APPROX | APPROXIMATE | DB | DRY BULB TEMPERATURE | FS | FAN POWERED VAV | MIN | MINIMUM | REQD | REQUIRED | UO | UNLESS OTHERWISE NOTED |
| ARCH | ARCHITECTURAL | DDC | DIRECT DIGITAL CONTROL | FS | FLOOR SINK | MISC | MISCELLANEOUS | REV | REVISE(D) (ION) | UNO | UNLESS NOTED OTHERWISE |
| AUTO | AUTOMATIC | DET | DETAIL | FTR | FIN TUBE RADIATION | MOC | MAX OVERCURRENT PROTECTION | RG | RETURN GRILLE | | |
| AVG | AVERAGE | DIA | DIAMETER | DN | DOWN | MUW | MAKEUP WATER | RH | RELATIVE HUMIDITY | | |
| BAS | BUILDING AUTOMATION SYSTEM | DPR | DAMPER | GA | Gauge | N/A | NOT APPLICABLE | RM | ROOM | VA | VENTILATION AIR |
| BBD | BALANCED BACKDRAFT DAMPER | DPT | DEW POINT TEMPERATURE | GALV | GALVANIZED | NIA | NORMALLY CLOSED / NOISE CRITERIA | RPM | REVOLUTIONS PER MINUTE | VAC | VACUUM |
| BE | BOTTOM ELEVATION | DR | DRAIN | GC | GENERAL CONTRACTOR | NC | NORMALLY CLOSED / NOISE CRITERIA | RR | RETURN REGISTER | VAV | VARIABLE AIR VOLUME |
| BFP | BACKFLOW PREVENTER | DWG | DRAWING | GPH | GALLONS PER HOUR | NG | NATURAL GAS | RTU | ROOF TOP UNIT | VD | VOLUME DAMPER |
| BHP | BRAKE HORSEPOWER | GPM | GALLONS PER MINUTE | | | NIC | NOT IN CONTRACT | RV | ROOF VENT | VERT | VERTICAL |
| BLDG | BUILDING | | | | | NO | NORMALLY OPEN | | | VFD | VARIABLE FREQUENCY DRIVE |
| BLR | BOILER | EAH | EACH / EXHAUST AIR | H | HUMIDITY | NOM | NOMINAL | SJA | SUPPLY AIR SCHEDULE | VOL | VOLUME |
| BOD | BOTTOM OF DUCT | EAL | EXHAUST AIR HOOD | HORIZ | HORIZONTAL | NTS | NOT TO SCALE | SCHED | SCHEDULE | VRF | VARIABLE REFRIGERANT FLOW |
| BOP | BOTTOM OF PIPE | EAT | ENTERING AIR TEMPERATURE | HP | HORSEPOWER | OA | OUTSIDE AIR | SCHWP | SECONDARY CHILLED WATER PUMP | VRM | VARIBLE REFRIGERANT FLOW |
| BOT | BOTTOM | EC | ELECTRIC CONTRACTOR | HR | HOUR | OAH | OUTSIDE AIR HOOD | SD | SUCTION DIFFUSER | VRF | VARIABLE REFRIGERANT FLOW |
| BP | BOOSTER PUMP | EDH | ELECTRIC DUCT HEATER | HS | HUMIDITY SENSOR | OAL | OUTSIDE AIR LOUVER | SECT | SECTION | VRHP | VARIABLE REFRIGERANT FLOW PUMP |
| BTU | BRITISH THERMAL UNIT | EF | EXHAUST FAN | HT | HEAT TRACE | OAL | OUTSIDE AIR LOUVER | SF | SUPPLY FAN | W | WITH |
| BTUH | BTUS PER HOUR | ELEV | ELEVATION | HVAC | HEATING, VENTILATING AND AC | OC | ON CENTER | SG | SUPPLY GRILLE | W/O | WITHOUT |
| BV | BALL VALVE | EL | ELECTRIC/ELECTRICAL | HWP | HOT WATER PUMP | OCC | OCCUPANCY SENSOR | SHWP | SECONDARY HOT WATER PUMP | WB | WET BULB TEMPERATURE |
| BWV | BACKWATER VALVE | ELEC | ELECTRIC/ELECTRICAL | HWR | HOT WATER RETURN | OPG | OPENING | SHT | SHEET | WC | WATER COLUMN |
| | | EG | EXHAUST GRILLE | HWS | HOT WATER SUPPLY | OS&Y | OUTSIDE SCREW AND YOKE | SL | SOUND LINING | WG | WATER GAUGE |
| CA | COMPRESSED AIR | EQ | EQUAL | HX | HEAT EXCHANGER | OZ | OUNCE | SM | SURFACE MOUNT | WP | WEATHER-PROOF |
| CAF | COMBUSTION AIR FAN | EQUIP | EQUIPMENT | IA | INSTRUMENT AIR | PC | PLUMBING CONTRACTOR | SPEC | SPECIFICATIONS | XP | EXPLOSION-PROOF |
| CW | COUNTER CLOCKWISE | EQUIV | EQUIVALENT | IE | INVERT ELEVATION | PCHWP | PRIMARY CHILLED WATER PUMP | SPT | STATIC PRESSURE TRANSMITTER | | |
| CD | CLOCKWISE | ER | EXHAUST RECISTER | IN | INCH | PERIM | PERIMETER | SQ FT/F | SQUARE FOOT (FEET) | | |
| CFM | CUBIC FEET PER MINUTE | ERV | ENERGY RECOVERY VENTILATOR | | | | | SQ IN | SQUARE INCHES | | |
| CHV | CHECK VALVE | ESP | EXTERNAL STATIC PRESSURE | | | | | | | | |

MECHANICAL SYMBOLS:

| | | | | | | | |
|--|--|--|--|--|---|--|---|
| | BALANCING VALVE | | PRESSURE-TEMPERATURE TEST STATION (PTTS) | | TEMPERATURE TRANSMITTER | | RECTANGULAR DUCT SIZE (S = SUPPLY, R = RETURN, E = EXHAUST, OA = OUTSIDE AIR) |
| | A = AUTOMATIC M = MANUAL CALIBRATED | | THERMOMETER | | BALANCED BACKDRAFT DAMPER | | ROUND DUCT SIZE (S = SUPPLY, R = RETURN, E = EXHAUST, OA = OUTSIDE AIR) |
| | CIRCUIT SENSOR (VENTURI) | | AIR VENT (A = AUTOMATIC, M = MANUAL) | | AUTOMATIC AIR DAMPER | | MANUAL DAMPER |
| | GATE VALVE | | WATER FLOW TRANSMITTER | | STATIC PRESSURE TRANSMITTER | | AIR GRILLE DESIGNATION, SIZE, AND CFM (S = SUPPLY, R = RETURN, E = EXHAUST, OA = OUTSIDE AIR) |
| | BALANCING VALVE | | SUPPLY DIFFUSER | | CONTROL SYMBOL (A = ANALOG, D = DIGITAL, I = INPUT, O = OUTPUT) | | DUCT TURN UP / DOWN |
| | BUTTERFLY VALVE | | RETURN DIFFUSER | | THERMOSTAT | | INSULATED DUCTWORK (DIMENSIONS INDICATED ARE SHEET METAL DIMENSIONS) |
| | GLOBE VALVE | | EXHAUST DIFFUSER | | HUMIDITY SENSOR | | PIPE ELBOW UP |
| | BALL VALVE | | PLENUM SLOT DIFFUSER | | CARBON MONOXIDE SENSOR | | PIPE ELBOW DOWN |
| | CHECK VALVE | | DUCT TAP | | CARBON DIOXIDE SENSOR | | EXISTING DUCT OR PIPING TO REMAIN |
| | PLUG VALVE | | AIR FLOW DIRECTION | | FLEXIBLE DUCT | | EXISTING DUCT OR PIPING TO BE REMOVED |
| | GAS COCK | | OPPOSED BLADE DAMPER | | FLEXIBLE PIPE | | NEW DUCT OR PIPING |
| | 2-WAY TEMPERATURE REGULATING VALVE | | PARALLEL BLADE DAMPER | | POINT OF CONNECTION / REMOVAL | | DUCT SLOPE UP IN THE DIRECTION OF AIR FLOW |
| | PRESSURE RELIEF VALVE | | FIRE DAMPER | | DUCT SLOPE DOWN IN THE DIRECTION OF AIR FLOW | | CHWR - CHILLED WATER RETURN |
| | RELIEF VALVE | | SMOKE DAMPER | | COMBINATION FIRE / SMOKE DAMPER | | HWR - HOT WATER RETURN |
| | STRAINER | | DUCT SMOKE DETECTOR | | | | |
| | 3-WAY VALVE | | | | | | |
| | END CAP | | | | | | |
| | UNION | | | | | | |
| | FLANGED CONNECTION | | | | | | |
| | REDUCER | | | | | | |

GENERAL NOTES: DEMO

- ALL DEMOLITION WORK SHALL BE WITHIN STRICT COMPLIANCE TO THE 2024 OHIO BUILDING CODE AND THE 2024 OHIO MECHANICAL CODE.
- ALL DEMOLITION WORK IS TO BE ACCOMPLISHED WITHIN STRICT COMPLIANCE WITH THE PROJECT SCHEDULE AND THE PROJECT PHASING REQUIREMENTS.
- UNLESS OTHERWISE NOTED, ALL DUCTWORK AND PIPING SHOWN DASHED AND DARK IS TO BE REMOVED.
- REFER TO 0001 FOR ADDITIONAL GENERAL NOTES AND ABBREVIATIONS.
- PRIOR TO BID, THE MECHANICAL CONTRACTOR SHALL PERFORM A DETAILED WALK-THROUGH FIELD INSPECTION REVIEWING EXISTING CONDITIONS, STRUCTURE, DEVICE/EQUIPMENT LOCATIONS, AND SHALL MAKE ALL NECESSARY ALLOWANCES FOR ALL REQUIRED DEMOLITION AND NEW WORK PER CONSTRUCTION DOCUMENTATION.
- CONTRACTOR SHALL TAKE OVERALL CFM MEASUREMENTS ON ALL EXISTING TO REMAIN PRIOR TO COMMENCING ANY DEMOLITION WORK. INFORMATION GATHERED SHALL BE UTILIZED FOR RE-BALANCING SYSTEM. CONTRACTOR SHALL RE-BALANCE ALL SYSTEMS AT THE CONCLUSION OF THE PROJECT.
- COORDINATE ALL NEW MECHANICAL WORK WITH WORK BY ALL OTHER TRADES PRIOR TO BEGINNING CONSTRUCTION. NO WORK IS TO BE INSTALLED OR FABRICATED UNTIL AFTER THE PROJECT COORDINATION PROCESS HAS BEEN COMPLETED BY ALL APPLICABLE CONTRACTORS AND APPROVED BY THE OWNER'S REPRESENTATIVE.
- ALL REMOVED EQUIPMENT IN WORKING ORDER SHALL BE REVIEWED BY THE OWNER'S REPRESENTATIVE. IF OWNER'S REPRESENTATIVE WISHES TO RETAIN THE EQUIPMENT, CONTRACTOR REMOVING EQUIPMENT SHALL DELIVER EQUIPMENT TO LOCATION AS DIRECTED BY THE OWNER'S REPRESENTATIVE. IF THE OWNER'S REPRESENTATIVE WISHES THE EQUIPMENT TO BE DISPOSED OF, THE CONTRACTOR REMOVING THE EQUIPMENT SHALL DISPOSE OF EQUIPMENT WITH NO ADDITIONAL COST TO THE OWNER.
- THE DEMOLITION CONTRACTOR IS TO BE RESPONSIBLE FOR DETERMINING THE EXIT PATH OF ALL MATERIALS THAT ARE REMOVED FROM THE BUILDING. ALL NEW OPENINGS THAT ARE UTILIZED TO REMOVE MATERIALS AND ALL DAMAGE TO THE EXISTING BUILDING CONDITIONS THAT RESULTS FROM DEMOLITION WORK ARE TO BE REPAIRED BY THE CONTRACTOR WITH MATERIALS AND FINISHES TO MATCH THE EXISTING CONDITIONS.
- THE DESIGNATED DEMOLITION CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE REMOVAL OF ALL MATERIALS AND ALL RELATED ACCESSORIES AND COMPONENTS FOR SYSTEMS AS INDICATED ON THIS DRAWING. ALL EXISTING HANGERS AND SUPPORT FRAMING THAT SERVE THE REMOVED EQUIPMENT, PIPING OR DUCTWORK ARE TO ALSO BE REMOVED UNLESS NOTED OTHERWISE.
- THIS CONTRACTOR SHALL PATCH AND REPAIR ALL HOLES, DAMAGE OR MODIFICATIONS LEFT BY REMOVAL OF DUCTWORK AND PIPING AND REPAIR WALLS, FLOORS, CEILINGS AND ROOF OPENINGS. TO MATCH EXISTING. ALL PATCHING AND FINISHING SHALL BE PERFORMED BY A QUALIFIED TRADESPERSONS. ALL DEMOLITION WORK AND INSTALLATION SHALL BE COORDINATED WITH OWNER PRIOR TO STARTING.

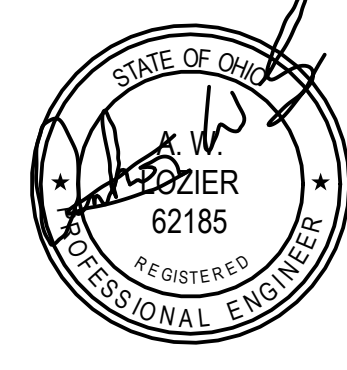
GENERAL NOTES: PIPING

- ALL WORK SHALL BE INSTALLED PER THE 2024 OHIO BUILDING CODE, 2024 OHIO MECHANICAL CODE AND ALL LOCAL APPLICABLE CODES.
- DO NOT SCALE THE DRAWINGS. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET, FITTING, AND COMPONENT. DO NOT USE THE PLANS FOR THE EXACT LOCATION OF EQUIPMENT, FIXTURES, OR PIPING. ARCHITECTURAL ITEMS SUCH AS WALLS AND OVERALL DIMENSIONS OF BUILDING COMPONENTS ARE TO BE OBTAINED FROM ARCHITECTURAL DRAWINGS WHEN AVAILABLE.
- ALL WORK IS TO BE ACCOMPLISHED WITHIN STRICT COMPLIANCE WITH THE PROJECT SCHEDULE AND THE PROJECT PHASING REQUIREMENTS.
- PRIOR TO BID, THE MECHANICAL CONTRACTOR SHALL PERFORM A DETAILED WALK-THROUGH FIELD INSPECTION REVIEWING EXISTING CONDITIONS, STRUCTURE, DEVICE/EQUIPMENT LOCATIONS, AND SHALL MAKE ALL NECESSARY ALLOWANCES FOR ALL REQUIRED DEMOLITION AND NEW WORK PER CONSTRUCTION DOCUMENTATION.
- WHERE CONFLICTS EXIST AMONG DRAWINGS, SPECIFICATIONS AND EQUIPMENT SCHEDULES, THE MORE STRINGENT SHALL APPLY.
- REFER TO DRAWINGS M400, M500 AND M600 FOR HVAC LEGEND, DETAILS, DIAGRAMS, AND SCHEDULES.
- PIPING CONTRACTOR SHALL CAREFULLY COORDINATE PIPING LOCATIONS WITH ALL OTHER TRADES. ALL PIPING SHALL BE INSTALLED AS TIGHT TO THE STRUCTURE AS POSSIBLE. ALL CONDITIONS SHALL BE FIELD VERIFIED PRIOR TO INSTALLATION.
- PIPING CONTRACTOR TO COORDINATE NEW WORK WITH OTHER TRADES PRIOR TO BEGINNING CONSTRUCTION. NO WORK IS TO BE INSTALLED OR FABRICATED UNTIL AFTER THE PROJECT COORDINATION HAS BEEN APPROVED BY THE OWNER'S REPRESENTATIVE.
- INSTALL A SHUT OFF VALVE IN ALL BRANCHES.
- PIPING SHALL BE SUPPORTED INDEPENDENT OF CEILING, CONDUIT, DUCTWORK, ETC.
- PIPING CONTRACTOR SHALL PROVIDE ALL ADDITIONAL SUPPORT STRUCTURE AS REQUIRED TO INSTALL EQUIPMENT AND PIPING.
- ALL VALVES AND CONTROL COMPONENTS THAT ARE LOCATED ABOVE CEILINGS SHALL BE INSTALLED WHERE COMPLETELY ACCESSIBLE. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE REQUIRED.
- IN AREAS WHERE CEILINGS ARE NOT BEING REPLACED, AND CONTRACTOR HAS WORK ABOVE CEILINGS, CONTRACTOR SHALL PATCH AND REPAIR CEILINGS TO MATCH EXISTING.
- PIPING CONTRACTOR SHALL COORDINATE ALL REQUIRED WALL PENETRATIONS FOR PIPE WITH GENERAL CONTRACTOR PRIOR TO CONSTRUCTION OF NEW WALLS. ALL PIPE PENETRATIONS SHALL BE IN COMPLIANCE WITH THE PROJECT SPECIFICATIONS. THE PIPING CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED FOR PIPE PENETRATIONS THROUGH WALLS.
- CONTRACTOR TO VERIFY EXISTING SUPPLY AND RETURN PIPING SYSTEM, SIZE, AND PIPE TYPE PRIOR TO MAKING CONNECTIONS.
- CONTRACTOR SHALL INSTALL ALL PIPING, VALVES, INSULATION, SUPPORTS ETC. AS INDICATED OR AS REQUIRED TO ALLOW OPERATION AND USE OF ALL AREAS AND ALL SYSTEMS REQUIRED FOR OCCUPIED USE DURING CONSTRUCTION.
- UL LISTED FIRESTOPPING SHALL BE USED AT ANY PENETRATION THROUGH A FIRE RATED ASSEMBLY. REFER TO ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR LOCATIONS OF RATED ASSEMBLIES. PIPING CONTRACTOR SHALL USE UL LISTED FIRESTOP SYSTEM METHODS FOR "THROUGH-PENETRATION ASSEMBLIES." TYPICAL OF ALL FIRE RATED WALLS.

GENERAL NOTES: SHEET METAL

- ALL WORK SHALL BE INSTALLED PER THE 2024 OHIO BUILDING CODE, 2024 OHIO MECHANICAL CODE AND ALL LOCAL APPLICABLE CODES.
- DO NOT SCALE THE DRAWINGS. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET, FITTING, AND COMPONENT. DO NOT USE THE PLANS FOR THE EXACT LOCATION OF EQUIPMENT, FIXTURES, OR DUCTWORK. ARCHITECTURAL ITEMS SUCH AS WALLS AND OVERALL DIMENSIONS OF BUILDING COMPONENTS ARE TO BE OBTAINED FROM ARCHITECTURAL DRAWINGS WHEN AVAILABLE.
- ALL WORK IS TO BE ACCOMPLISHED WITHIN STRICT COMPLIANCE WITH THE PROJECT SCHEDULE AND THE PROJECT PHASING REQUIREMENTS.
- PRIOR TO BID, THE MECHANICAL CONTRACTOR SHALL PERFORM A DETAILED WALK-THROUGH FIELD INSPECTION REVIEWING EXISTING CONDITIONS, STRUCTURE, DEVICE/EQUIPMENT LOCATIONS, AND SHALL MAKE ALL NECESSARY ALLOWANCES FOR ALL REQUIRED DEMOLITION AND NEW WORK PER CONSTRUCTION DOCUMENTATION.
- WHERE CONFLICTS EXIST AMONG DRAWINGS, SPECIFICATIONS AND EQUIPMENT SCHEDULES, THE MORE STRINGENT SHALL APPLY.
- REFER TO DRAWINGS M400, M500 AND M600 FOR HVAC LEGEND, DETAILS, DIAGRAMS, AND SCHEDULES.
- CONTRACTOR SHALL CAREFULLY COORDINATE DUCTWORK PATHWAY AND LOCATIONS WITH OTHER TRADES AND EXISTING CONDITIONS. ALL DUCTWORK SHALL BE INSTALLED AS TIGHT TO THE STRUCTURE AS POSSIBLE. CONNECTIONS TO THE SUPPLY AIR DEVICES MAY BE MADE WITH FLEXIBLE DUCTWORK. REFER TO THE DETAIL ON DRAWING M500 FOR FLEXIBLE DUCT CONNECTIONS. ALL CONDITIONS SHALL BE FIELD VERIFIED BEFORE ORDERING EQUIPMENT OR FABRICATED MATERIAL.
- CONTRACTOR SHALL PROVIDE ALL WALL, NON-COMBUSTIBLE FRAMING AS REQUIRED TO INSTALL EQUIPMENT AND DUCTWORK. COORDINATE NEW WORK WITH OTHER TRADES PRIOR TO BEGINNING CONSTRUCTION. NO WORK IS TO BE INSTALLED OR FABRICATED UNTIL AFTER THE PROJECT COORDINATION HAS BEEN APPROVED BY THE OWNER'S REPRESENTATIVE.
- INSTALL A MANUAL BALANCE DAMPER IN ALL BRANCH DUCTS, INCLUDING ALL SUPPLY AND EXHAUST GRILLES.
- ALL SQUARE THROATED ELBOWS SHALL HAVE AIRFOIL TURNING VANES AND SHALL ONLY BE USED WHEN RADIUS ELBOWS WILL NOT FIT.
- ALL ROUND BRANCH DUCT CONNECTIONS SHALL BE MADE WITH BELLMOUTH FITTINGS OR ANGLED TEES. STRAIGHT SPIN-IN TAP COLLARS SHALL NOT BE ACCEPTABLE.
- ALL DAMPERS AND CONTROL COMPONENTS THAT ARE LOCATED ABOVE CEILINGS SHALL BE INSTALLED WHERE COMPLETELY ACCESSIBLE. CONTRACTOR SHALL PROVIDE ACCESS PANELS AS REQUIRED.
- ALL NEW LAB AIRFLOW CONTROL UNITS ARE TO BE INSTALLED WHERE COMPONENTS ARE COMPLETELY ACCESSIBLE. CONTRACTOR SHALL COORDINATE TO PROVIDE THE UNIT WITH A CONTROL ENCLOSURE AND PIPE CONNECTIONS ON THE MOST ACCESSIBLE SIDE OF THE UNIT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE CORRECT LEFT TO RIGHT HAND CONFIGURATION. REFER TO THE APPLICABLE DETAIL ON DRAWING M500 FOR ADDITIONAL REQUIREMENTS.
- UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE FABRICATED FROM 316 STAINLESS STEEL METAL, INSTALLED IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR GAUGE, REINFORCEMENT, AND SUPPORT. 2" W.G. PRESSURE CLASS FOR ALL DUCTWORK. ALL JOINTS AND SEAMS SHALL BE SEALED AND FASTENED AND MADE AIRTIGHT IN ACCORDANCE OF CHAPTER 13 OF THE 08c SEAMS IN EXHAUST DUCTWORK SHALL BE VANSTONE FLANGES OR WELDED.
- CONTRACTOR SHALL TAKE OVERALL CFM MEASUREMENTS ON ALL EXISTING DUCTWORK TO REMAIN PRIOR TO COMMENCING ANY WORK. INFORMATION GATHERED SHALL BE UTILIZED FOR REBALANCING SYSTEM. CONTRACTOR SHALL REBALANCE ALL SYSTEMS AT THE CONCLUSION OF THE PROJECT.
- DUCTWORK CONNECTION TO DIFFUSER TO BE THE SAME SIZE AS THE DIFFUSER NECK SIZE.
- DUCTWORK SHALL BE SUPPORTED INDEPENDENT OF CEILING, CONDUIT, PIPING, ETC.
- IN AREAS WHERE CEILINGS ARE NOT BEING REPLACED, AND CONTRACTOR HAS WORK ABOVE CEILINGS, CONTRACTOR SHALL PATCH AND REPAIR CEILINGS TO MATCH EXISTING.
- CONTRACTOR SHALL COORDINATE ALL REQUIRED WALL OPENINGS FOR DUCTWORK WITH GENERAL CONTRACTOR PRIOR TO CONSTRUCTION OF NEW WALLS. ALL DUCT PENETRATIONS SHALL BE IN COMPLIANCE WITH THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED FOR DUCT PENETRATIONS THROUGH WALLS.
- UL LISTED FIRESTOPPING SHALL BE USED AT ANY PENETRATION THROUGH A FIRE RATED ASSEMBLY. REFER TO ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR LOCATIONS OF RATED ASSEMBLIES. CONTRACTOR SHALL USE UL LISTED FIRESTOP SYSTEM METHODS FOR "THROUGH-PENETRATION ASSEMBLIES." TYPICAL OF ALL FIRE RATED WALLS.

KETTERING LABORATORY COMPLEX 2ND FLOOR -
 COM ZEBRAFISH LAB RM 248
 LON-251088
 160 PANZECA WAY, CINCINNATI, OH 45220
 UNIVERSITY OF CINCINNATI DESIGN+PLANNING+CONSTRUCTION
 UNIVERSITY HALL, SUITE 600.51 GOODMAN DRIVE, CINCINNATI, OH 45221-0186



ISSUED DATE

BID/PERMIT 08/12/2025

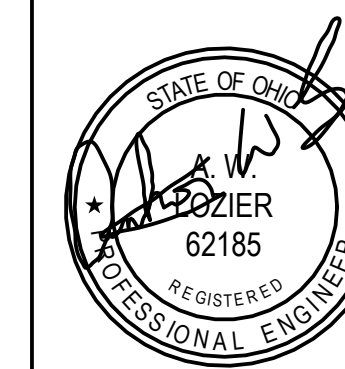
SHEET TITLE
**MECHANICAL
 LEGEND &
 ABBREVIATIONS**

| | |
|-------------------------|---------------------|
| SHEET SIZE 24" x 36" | COMM No. E-12772 |
| DRAWN BY CBP | DATE 08/12/2025 |

SHEET #
M000

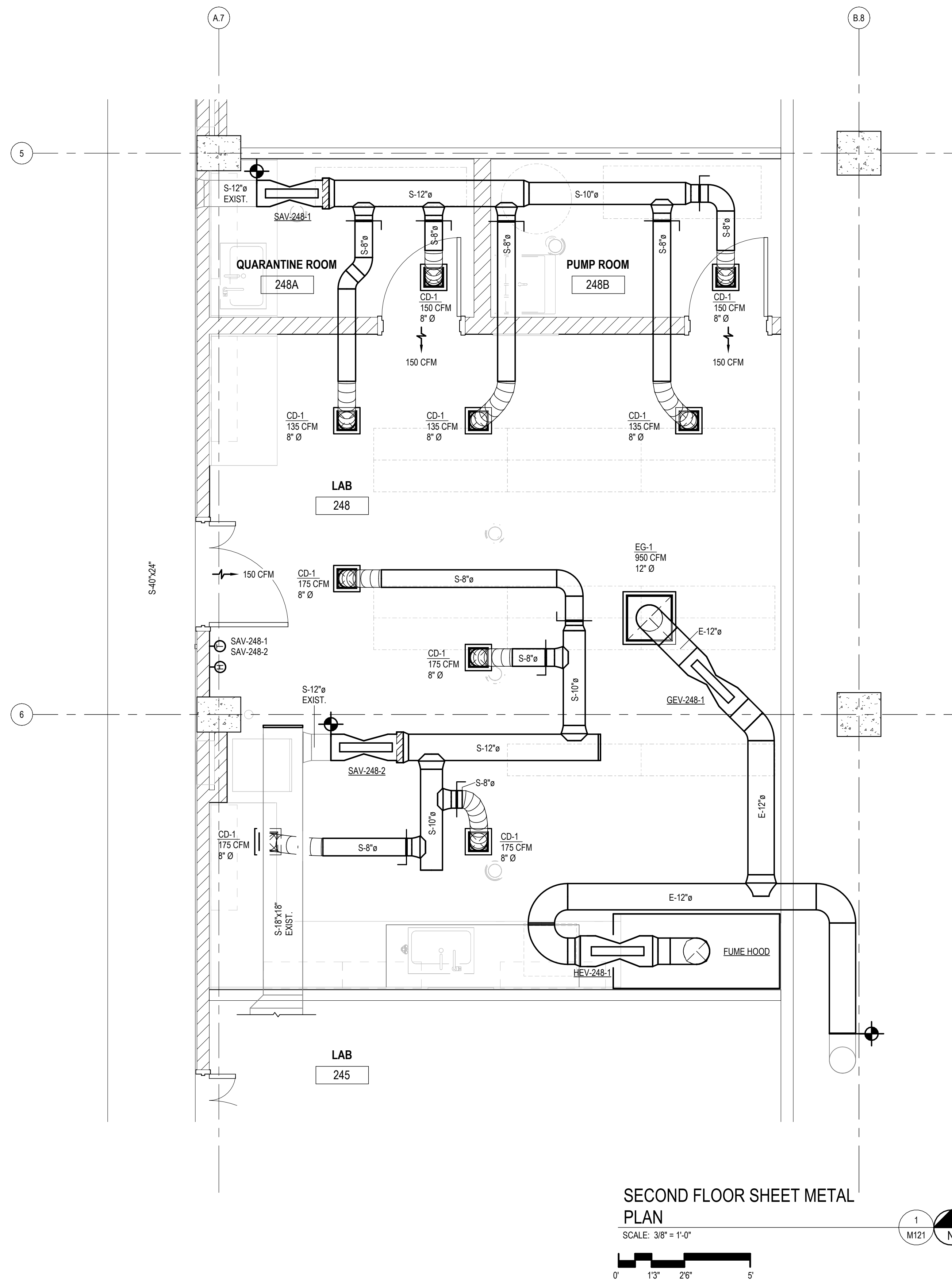
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CODED NOTES:



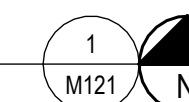
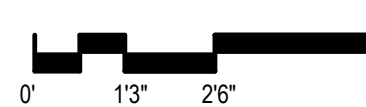
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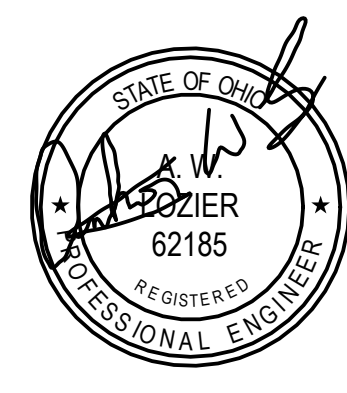
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| SHEET TITLE | |
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| SHEET SIZE | COMM No. |
| 24" x 36" | E-12772 |
| DRAWN BY | DATE |
| CBP | 08/12/2025 |
| SHEET # | |
| M121 | |



SECOND FLOOR SHEET METAL PLAN

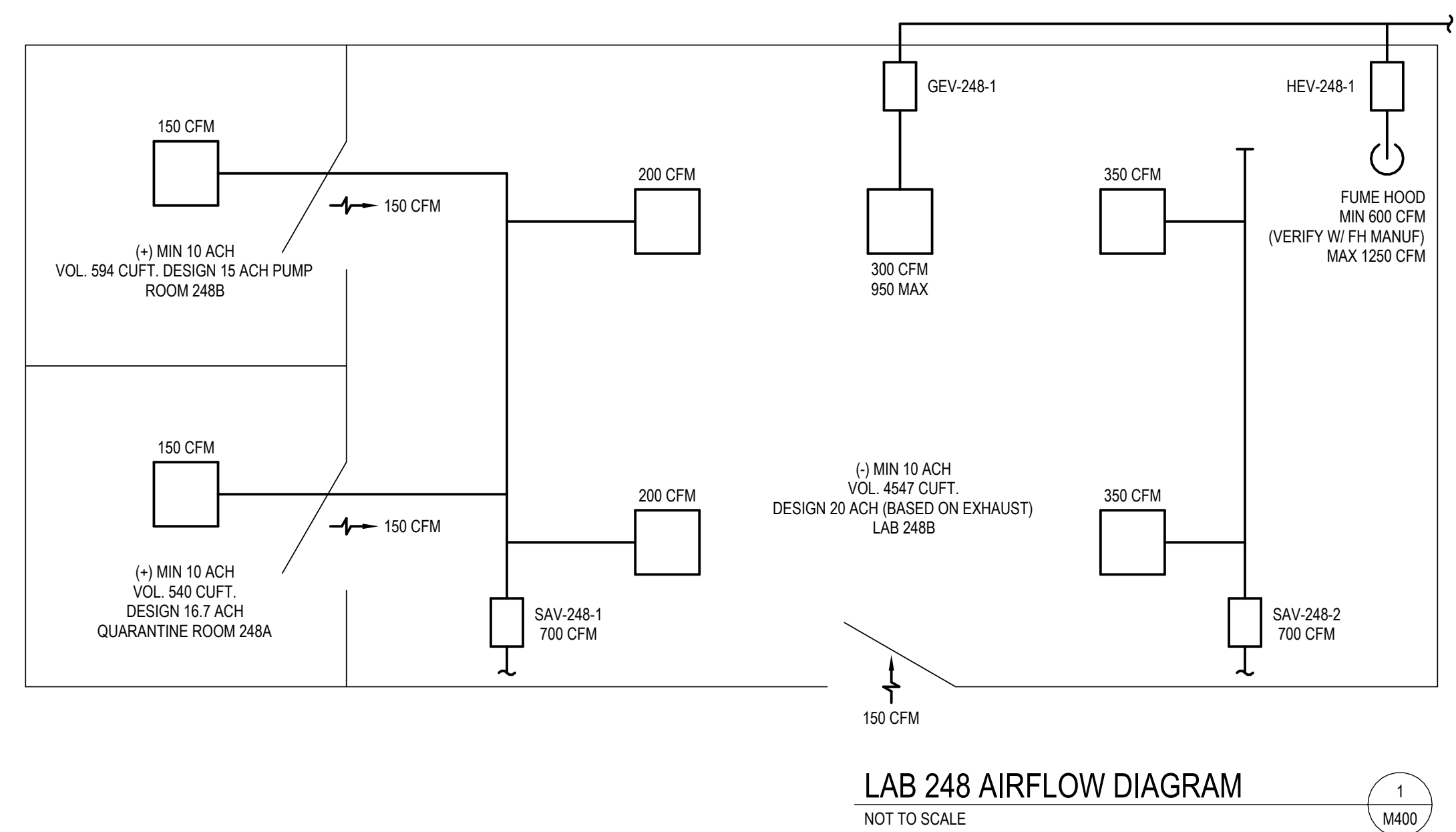
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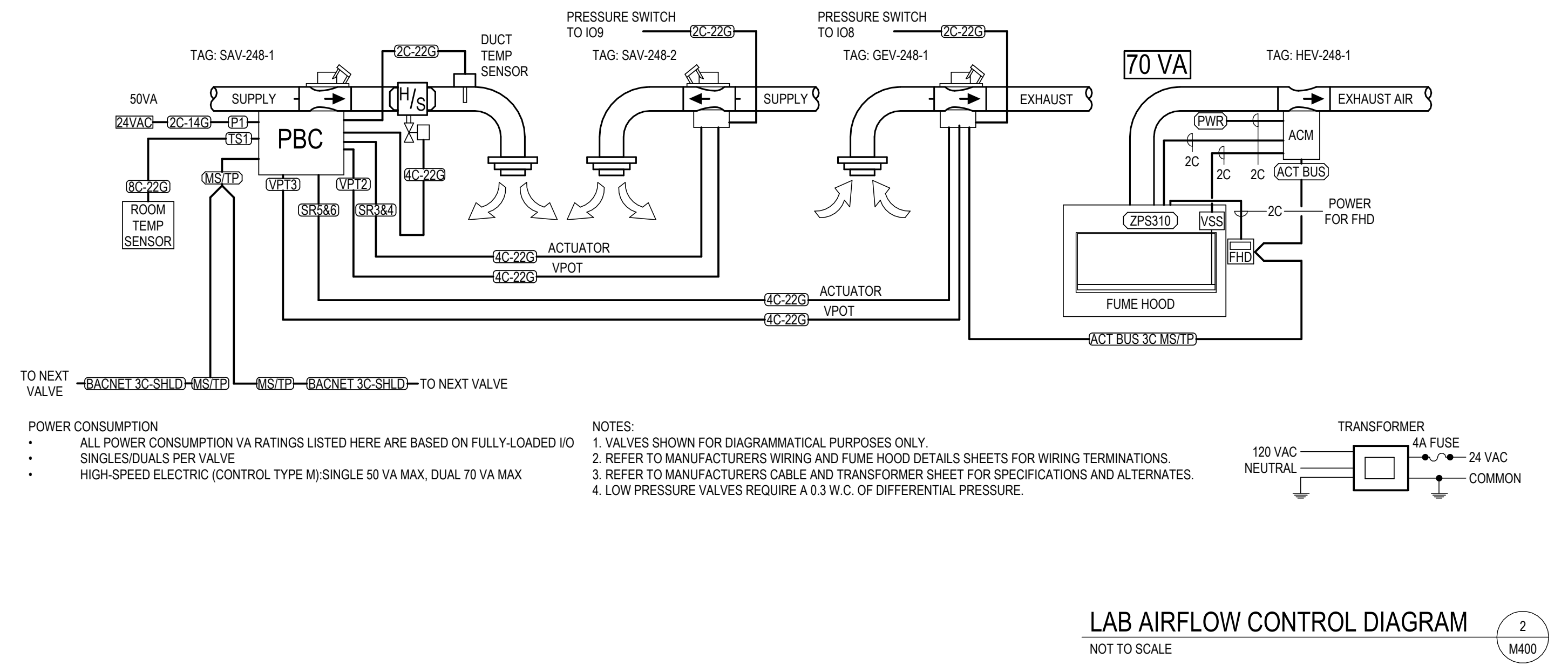


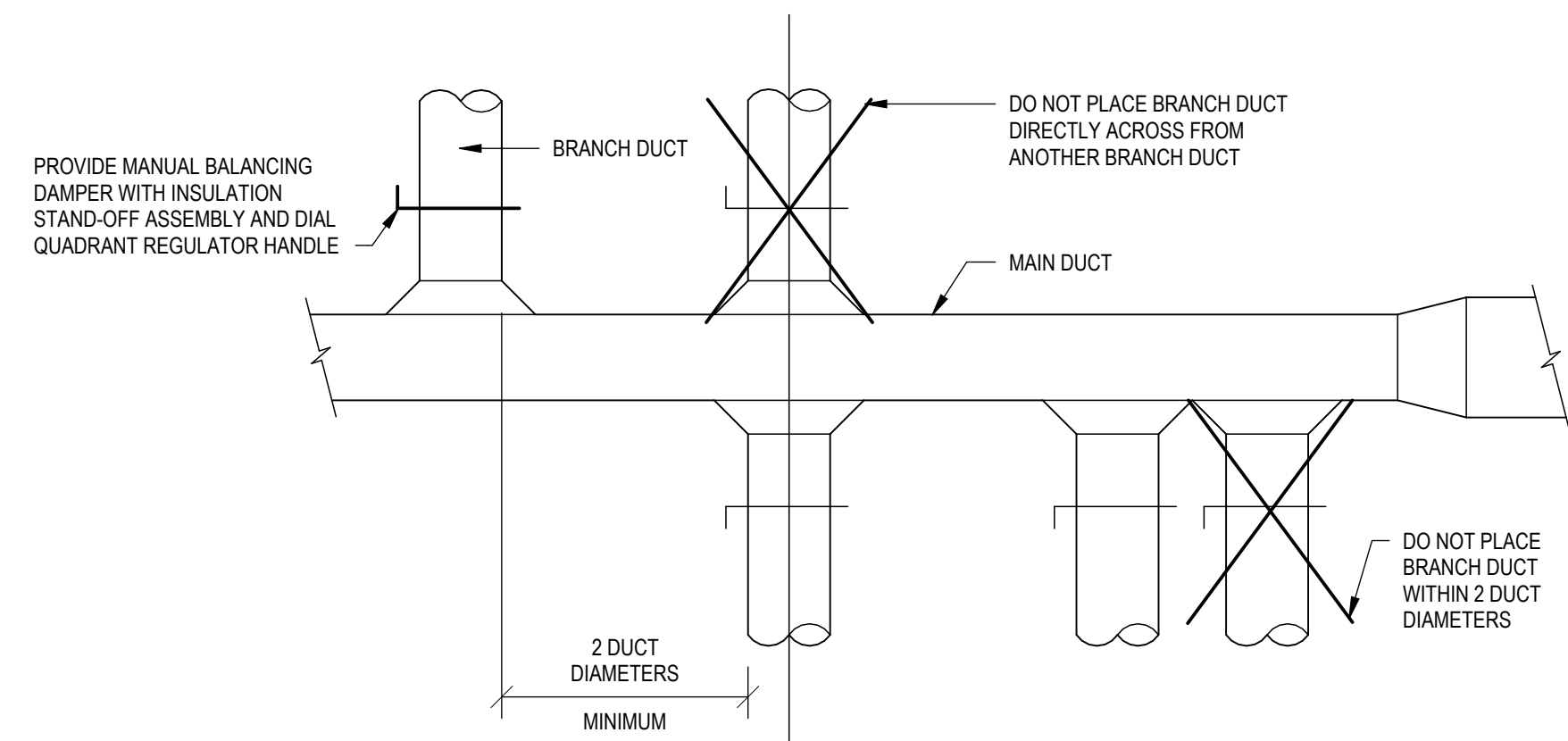
ISSUED DATE
 BID/PERMIT 08/12/2025

SHEET TITLE
MECHANICAL DIAGRAMS
 SHEET SIZE: 24" x 36" COMM No: E-12772
 DRAWN BY: CBP DATE: 08/12/2025
 SHEET #
M400



| LAB POINTS LIST TO BAS | |
|---|---|
| ROOM (1) | |
| • | THERMOSTAT SETPOINT |
| • | ROOM TEMPERATURE |
| • | HUMIDITY |
| SUPPLY VALVE (2) | |
| • | LOW AIR FLOW (DIFFERENTIAL PRESSURE SWITCH) |
| • | AIR FLOW SETPOINT |
| • | AIR FLOW PRESENT VALUE |
| • | DISCHARGE AIR TEMPERATURE |
| • | TRV % OPEN |
| GENERAL EXHAUST VALVE (1) | |
| • | LOW AIR FLOW (DIFFERENTIAL PRESSURE SWITCH) |
| • | AIR FLOW SETPOINT |
| • | AIR FLOW PRESENT VALUE |
| • | TOTAL ROOM SUPPLY |
| • | TOTAL ROOM EXHAUST |
| • | OCCUPIED MIN AIR FLOW SETPOINT |
| • | UNOCCUPIED MIN AIR FLOW SETPOINT |
| HOOD VALVE (1) | |
| • | LOW AIR FLOW (DIFFERENTIAL PRESSURE SWITCH) |
| • | BROKEN SASH SENSOR |
| • | SASH IS OPENED PAST PROGRAMMED STOP |
| • | AIR FLOW SETPOINT |
| • | AIR FLOW PRESENT VALUE |
| • | SASH POSITION |
| • | CALCULATED FACE VELOCITY |
| NOTES: | |
| 1. POINTS LIST TO BE REPORTED TO BAS. | |
| 2. REMOVE POINTS IN BAS THAT ARE NOT REUSED FOR LAB 248. | |
| 3. MODIFY EXISTING GRAPHICS IN BAS FOR LAB 248 TO MATCH NEW LAYOUT OF ROOMS AND NEW LAB AIRFLOW CONTROL SYSTEM. | |

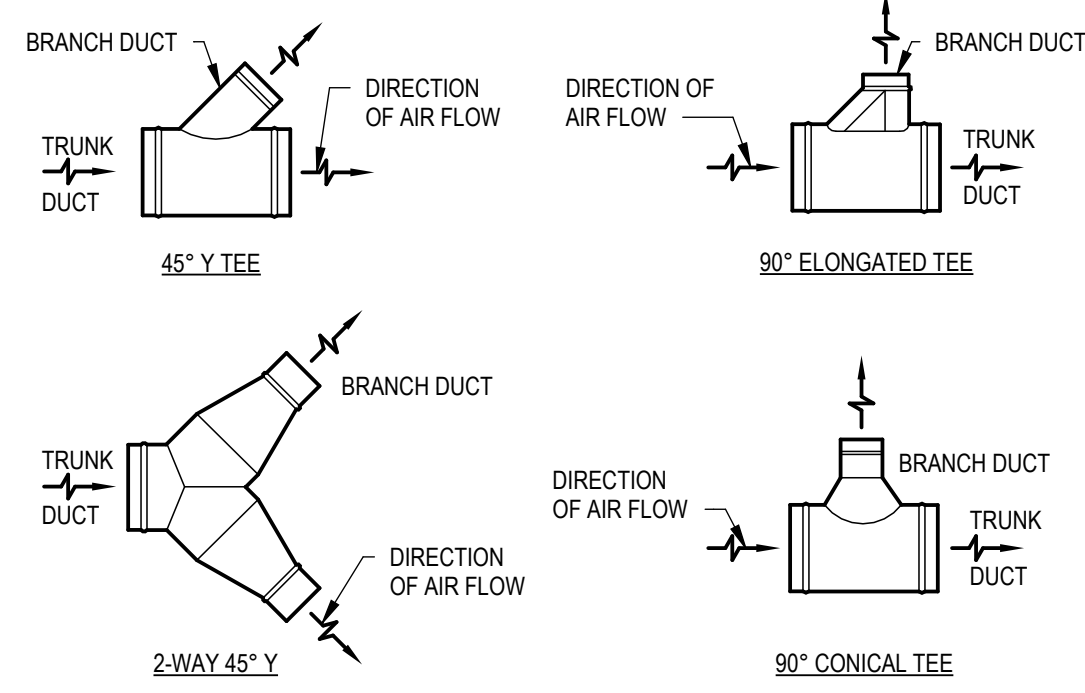




BRANCH DUCT CONNECTIONS

NOT TO SCALE

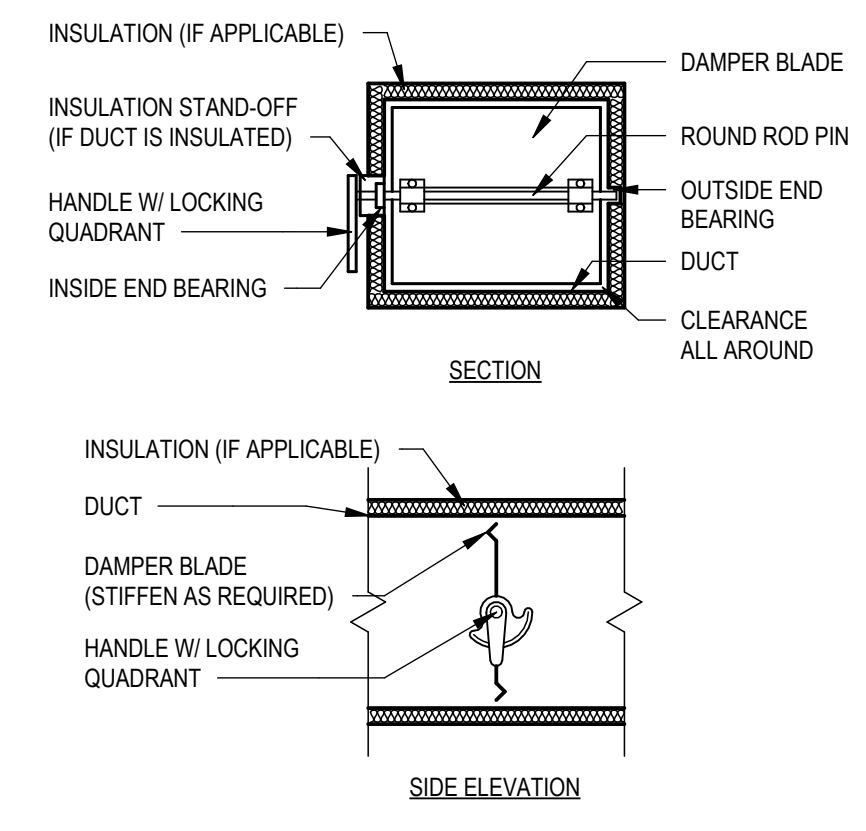
1
M500



ROUND DUCT BRANCH TAKE-OFF

NOT TO SCALE

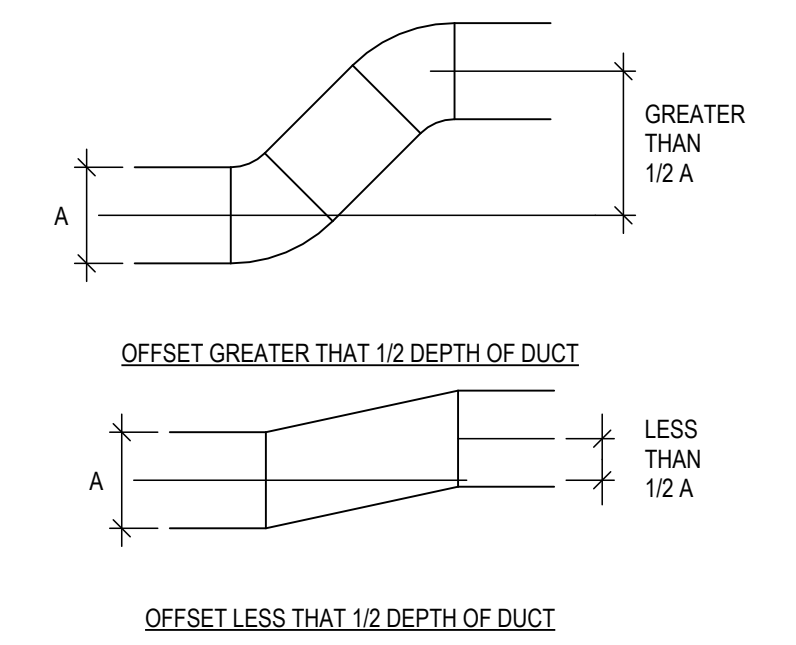
2
M500



VOLUME DAMPER

NOT TO SCALE

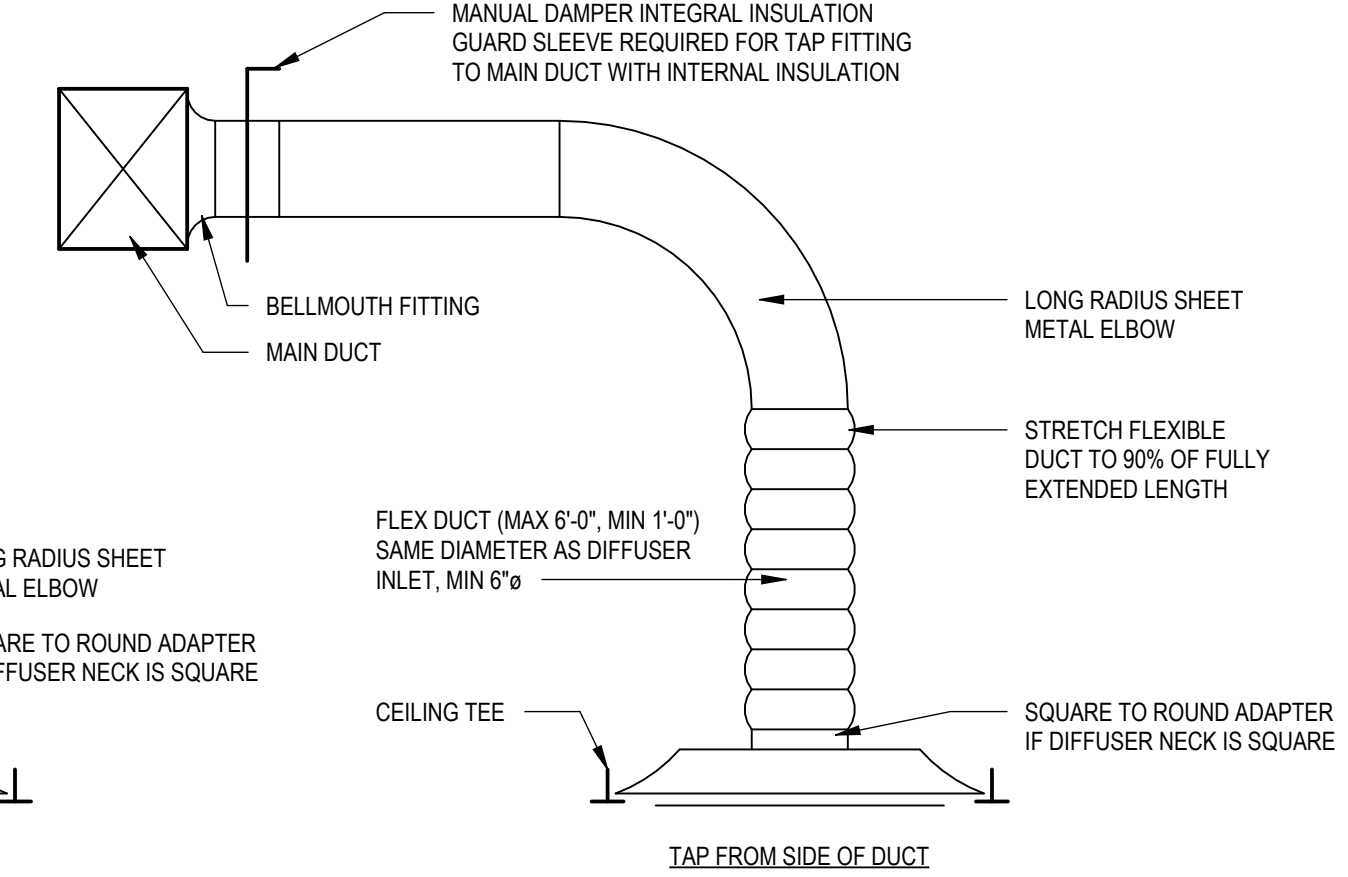
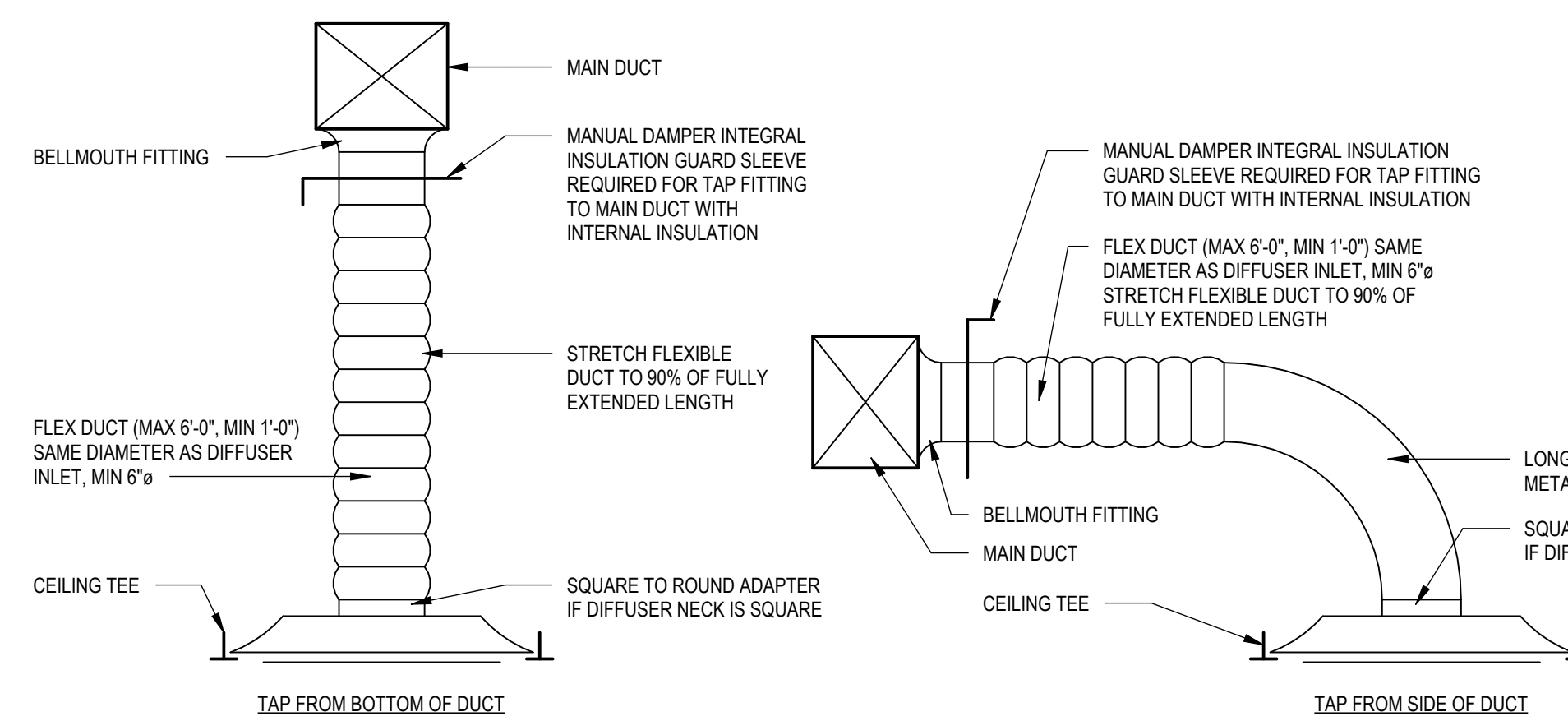
3
M500



DUCT OFFSET DETAIL

12" = 1'-0"

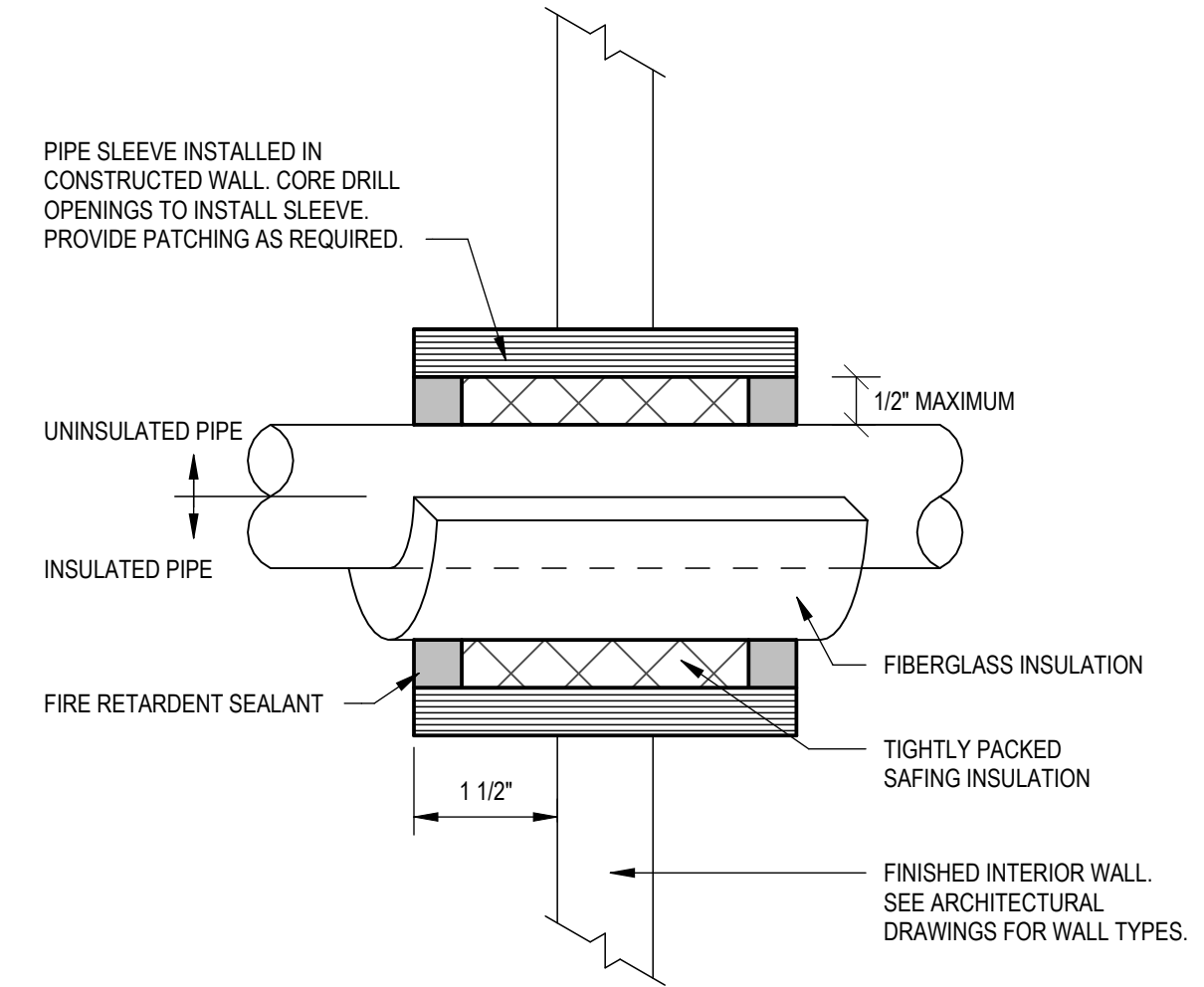
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M500



CEILING DIFFUSER CONNECTIONS

NOT TO SCALE

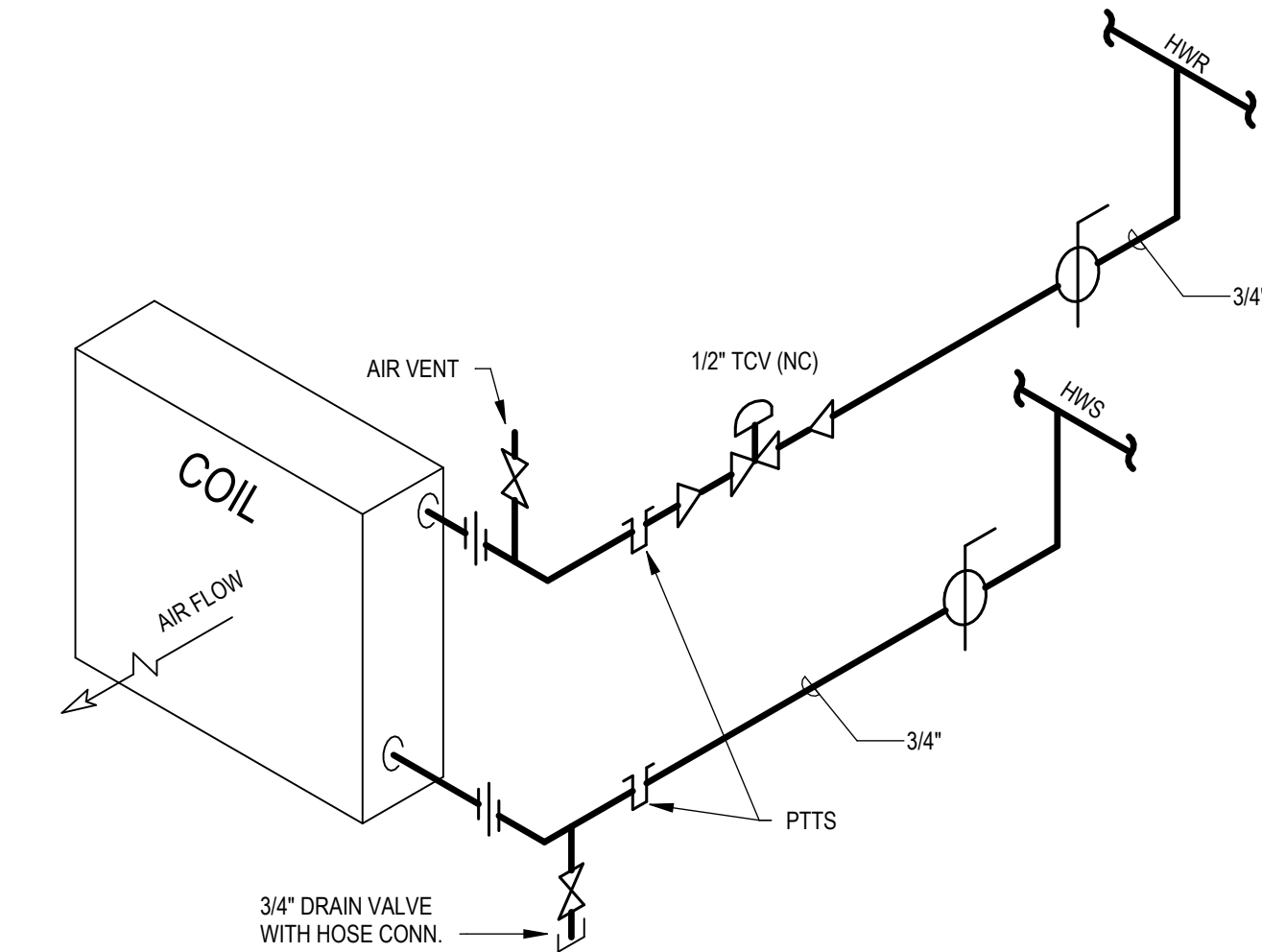
5
M500



WALL PIPING PENETRATION

6" = 1'-0"

6
M500



HOT WATER COIL PIPING DETAIL

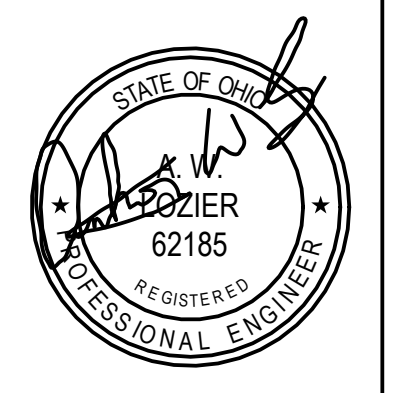
12" = 1'-0"

7
M500

| Mark | DUCT SIZE - INCHES | CFM | | MAX AIR ΔP IN W.G. | MAX NC | WATER | | | ROWS | MANUFACTURER | MODEL |
|-----------|--------------------|---------|----------|--------------------|--------|---------|---------------|------------|------|--------------|-----------------------|
| | | MIN. | MAX. | | | GPM | BTUH | MAX ΔP FT. | | | |
| GEV-248-1 | 12" | 300 CFM | 950 CFM | 0.30 in-wg | 30 | 0.0 GPM | 0.0 Btu/h | 0.00 in-wg | 0 | PHOENIX | PVEA112L-AMBHY-500PSL |
| HEV-248-1 | 14" | 600 CFM | 1250 CFM | 0.30 in-wg | 30 | 0.0 GPM | 0.0 Btu/h | 0.00 in-wg | 0 | PHOENIX | PVEA114L-AMBHY-BMT |
| SAV-248-1 | 12" | 700 CFM | 700 CFM | 0.30 in-wg | 35 | 2.7 GPM | 27000.0 Btu/h | 2.00 in-wg | 1 | PHOENIX | PVSA112L-AMHDY-500PSL |
| SAV-248-2 | 12" | 700 CFM | 700 CFM | 0.30 in-wg | 35 | 2.7 GPM | 27000.0 Btu/h | 2.00 in-wg | 1 | PHOENIX | PVSA112L-AMHDY-500PSL |

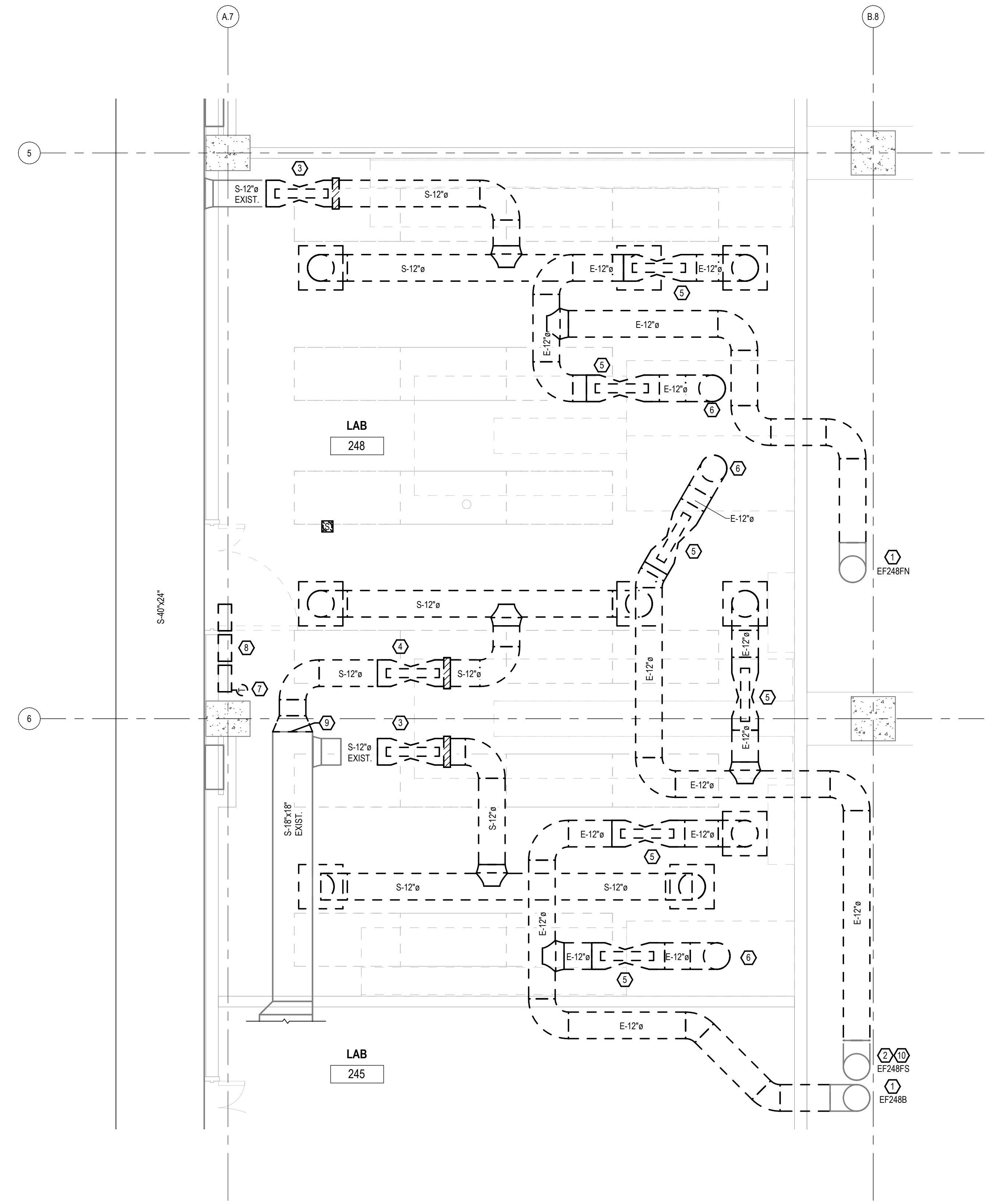
| DESIGNATION | TYPE | SIZE | CONSTRUCTION MATERIAL | FINISH COLOR | BASIS OF DESIGN | | ACCESSORIES | COMMENTS |
|-------------|-------------------------------|-------|-----------------------|--------------|-----------------|-----------|--------------------------------|-------------------|
| | | | | | MFGR. | MODEL NO. | | |
| CD-1 | CRITICAL ENVIRONMENT DIFFUSER | 12x12 | ALUMINIUM | WHITE | TITUS | OMNI-AA | OPPOSED BLADE DAMPER | |
| EG-1 | EGGCRATE GRILLE | 24x24 | STAINLESS STEEL | MILL | TITUS | 50R-SS | ST. STEEL OPPOSED BLADE DAMPER | CONE 1/2"x1/2"x1" |

NOTE:
• NECK SIZE OF DIFFUSERS IS INDICATED ON FLOOR PLANS



ISSUED DATE
 BID/PERMIT 08/12/2025

8/11/2025 10:00:51 AM



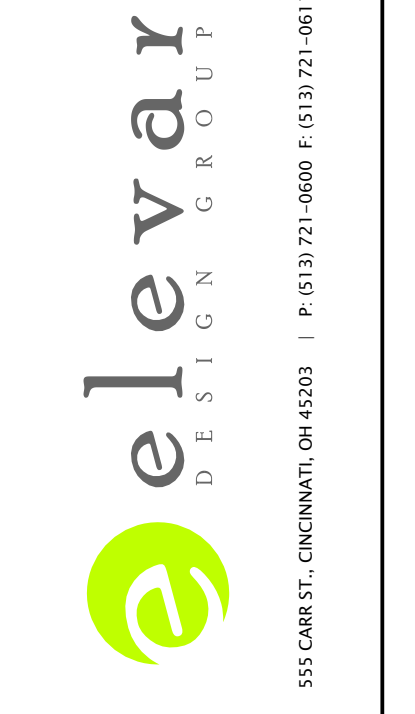
SECOND FLOOR DEMOLITION PLAN
 SCALE: 3/8" = 1'-0"
 1 MD121 N

CODED NOTES:

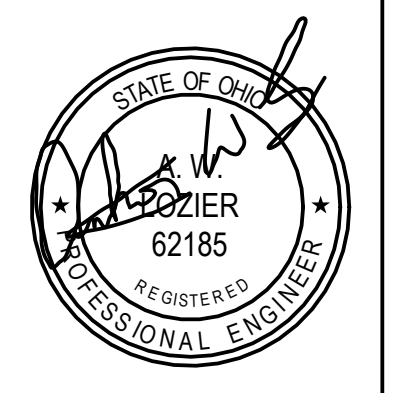
- EXHAUST FAN NUMBER INDICATED ON PLANS. REMOVE ALL EXHAUST DUCTWORK FROM ELBOW CONNECTION INTO ROOM 248 AND ASSOC. GRILLES. CAP ABANDONED DUCTWORK. REPAIR OPENING IN BLOCK WALL TO MATCH EXIST. ADJACENCY. TURN OFF, LOCK OUT / TAG OUT AND ABANDON EXHAUST FAN ON ROOF. TAG FAN AS "ABANDONED IN PLACE".
- EXHAUST FAN NUMBER INDICATED ON PLANS. REMOVE ALL EXHAUST DUCTWORK FROM ELBOW CONNECTION INTO ROOM 248 AND ASSOC. GRILLES. CAP ABANDONED DUCTWORK. REPAIR OPENING IN BLOCK WALL TO MATCH EXIST. ADJACENCY. FAN TO BE REUSED IN NEW ARRANGEMENT
- REMOVE EXISTING 12" Ø LAB AIRFLOW SUPPLY CONTROL VALVE. REMOVE HOT WATER REHEAT COIL, ALL ASSOC. DISCHARGE DUCTWORK AND DIFFUSERS, TRV. PREPARE PIPING FOR CONNECTION TO NEW COIL.
- REMOVE EXISTING 12" Ø LAB AIRFLOW SUPPLY CONTROL VALVE. REMOVE HOT WATER REHEAT COIL, ALL ASSOC. DISCHARGE DUCTWORK AND DIFFUSERS, TRV. REMOVE PIPING TO SHUTOFF VALVES AND CAP PIPING OR PLUG VALVES.
- REMOVE EXISTING 12" Ø LAB AIRFLOW EXHAUST VALVE. REMOVE ALL ASSOC. DUCTWORK AND GRILLES.
- REMOVE CONNECTION TO EXISTING FUME HOOD OR BIO-SAFETY CABINET.
- REMOVE TSTAT. IF LOCATION IS NOT REUSED, INSTALL ST. STEEL BLANK COVER PLATE.
- REMOVE EXIST. PHOENIX CONTROL PANELS. REMOVE ALL ASSOC. PNEUMATIC TUBING AND WIRING.
- CAP OPENING IN EXISTING DUCTWORK WHERE DEMOLITION STOPS
- OPERATION OF EXHAUST FAN SHALL REMAIN AS IS (VARIABLE SPEED). IF STATIC PRESSURE SENSOR FOR EXHAUST FAN CONTROL IS LOCATED IN REMOVED SECTION OF DUCTWORK, SENSOR SHALL BE REPLACED WITH NEW SENSOR INSTALLED IN NEW SECTION OF EXHAUST DUCTWORK.

LEGEND:

- - - - - EXISTING TO BE REMOVED
- — — — — EXISTING TO REMAIN
- (H) HUMIDITY SENSOR
- (T) THERMOSTAT
- (V) LAB AIRFLOW CONTROL VALVE
- (R) HOT WATER REHEAT COIL
- (TRV) TEMPERATURE REGULATING VALVE
- (ACH) AIR CHANGES PER HOUR



**KETTERING LABORATORY COMPLEX 2ND FLOOR -
 COM ZEBRAFISH LAB RM 248**
 LCN-25108B
 160 PANZECA WAY, CINCINNATI, OH 45220
UNIVERSITY OF CINCINNATI DESIGN+PLANNING+CONSTRUCTION
 UNIVERSITY HALL, SUITE 600, 51 GOODMAN DRIVE, CINCINNATI, OH 45221-0186



| | |
|--|------------|
| ISSUED | DATE |
| <input checked="" type="checkbox"/> BID/PERMIT | 08/12/2025 |

| | |
|--------------------------------|------------|
| SHEET TITLE | |
| 2ND FLOOR MECHANICAL DEMO PLAN | |
| SHEET SIZE | COMM. No. |
| 24" x 36" | E-12772 |
| DRAWN BY | DATE |
| CBP | 08/12/2025 |
| SHEET # | |
| MD121 | |