

MECHANICAL SYMBOLS AND ABBREVIATIONS

NOTE: SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.

ABBREVIATIONS

| | | | |
|------|--|------|---------------------------------------|
| AC | AIR CONDITIONING UNIT/ AIR COMPRESSOR | GA | GAUGE |
| ACC | AIR COOLED CONDENSER | GC | GENERAL CONTRACTOR |
| ACU | AIR COOLED CONDENSING UNIT | GE | GENERAL EXHAUST |
| ADU | AIR CONDITIONING UNIT | GPM | GALLONS PER MINUTE |
| AF | AIR FLOW | GS | GALVANIZED STEEL |
| AFF | ABOVE FINISHED FLOOR | H | HUMIDIFIER |
| AHU | AIR HANDLING UNIT | HC | HEATING COIL |
| AL | ALUMINUM | HP | HEAT PUMP/HORSE POWER/HIGH POINT |
| ALD | ALTERNATE | HR | HEAT RECOVERY COIL |
| AMD | AIR MIXING DEVICE | HRD | HEAT RECLAIM DEVICE |
| AMS | AIRFLOW MEASURING STATION | HT | HEAT TRACE |
| AP | ACCESS PANEL | HX | HEAT EXCHANGER |
| AR | AIR RECEIVER | IE | INVERT ELEVATION |
| AS | AIR SEPARATOR | IH | INTAKE HOOD |
| AT | AIR TERMINAL DEVICE | KO | KNOCK-OUT |
| B | BOILER | LAT | LEAVING AIR TEMPERATURE |
| BAS | BUILDING AUTOMATION SYSTEM | LP | LOW POINT |
| BBS | BOILER BLOWDOWN SEPARATOR | LWT | LEAVING WATER TEMPERATURE |
| BFS | BOILER FEEDWATER SYSTEM | MCC | MOTOR CONTROL CENTER |
| BH | BOOSTER HUMIDIFIER | MBH | THOUSANDS OF BTU PER HOUR |
| BHP | BRAKE HORSEPOWER | MC | MECHANICAL CONTRACTOR |
| BOD | BOTTOM OF DUCT | MEP | MECHANICAL ELECTRICAL AND PIPING |
| BOI | BOTTOM OF PIPE | MER | MECHANICAL EQUIPMENT ROOM |
| BTU | BRITISH THERMAL UNIT | NA | NOT APPLICABLE |
| BTUH | BRITISH THERMAL UNITS PER HOUR | NC | NORMALLY CLOSED |
| C | CONVECTOR | NC | NOT IN CONTRACT |
| CA | COMBUSTION AIR | NO | NORMALLY OPEN |
| CAV | CONSTANT AIR VOLUME | NPS | NOMINAL PIPE SIZE |
| CC | COOLING COIL | NPT | NATIONAL PIPE THREAD |
| CFCI | CONTRACTOR FURNISHED, CONTRACTOR INSTALLED | NTS | NOT TO SCALE |
| CFM | CUBIC FEET PER MINUTE | OA | OUTSIDE AIR |
| CH | CHILLER | OC | ON CENTER |
| CL | CENTERLINE | OED | OPEN END DUCT |
| CLG | CEILING | OCFI | OWNER FURNISHED, CONTRACTOR INSTALLED |
| COND | CONDENSATE CONDENSER | OFOI | OWNER FURNISHED, OWNER INSTALLED |
| COP | CENTER OF PIPE | OV | OUTLET VELOCITY |
| CP | CONDENSATE PUMP/ CONTROL PANEL | P | PUMP |
| CS | CARBON STEEL | PA | PLANT AIR |
| CT | COOLING TOWER | PC | PLUMBING CONTRACTOR |
| CU | COPPER | PCF | POUNDS PER CUBIC FOOT |
| CUH | CABINET UNIT HEATER | PD | PRESSURE DROP |
| CV | CONVERTOR | PH | PHASE |
| D | DAMPER | PP | POLYPROPYLENE |
| DB | DRY BULB | PSF | POUNDS PER SQUARE FOOT |
| DC | DUST COLLECTOR | PSI | POUNDS PER SQUARE INCH |
| DOW | DOMESTIC COLD WATER | PSIA | POUNDS PER SQUARE INCH ABSOLUTE |
| DDC | DIRECT DIGITAL CONTROL | PSIG | POUNDS PER SQUARE INCH GAUGE |
| DHW | DOMESTIC HOT WATER | PVC | POLYVINYL CHLORIDE |
| DX | DIRECT EXPANSION | RA | RETURN AIR |
| EA | EXHAUST AIR | RAH | ROOFTOP AIR HANDLING UNIT |
| EAT | ENTERING AIR TEMPERATURE | RC | REHEAT COIL |
| EC | ELECTRICAL CONTRACTOR | RCP | RADIANT CEILING PANEL |
| EDR | EQUIVALENT DIRECT RADIATION | REF | ROOF EXHAUST FAN |
| EF | EXHAUST FAN | RF | RETURN FAN |
| EJ | EXHAUST HOOD/ ELECTRIC HEATER | RH | RELIEF HOOD |
| EA | EXHAUST AIR | RPM | REVOLUTIONS PER MINUTE |
| EXP | EXPANSION JOINT | SA | SUPPLY AIR |
| EL | ELEVATION | SAD | SOUND ATTENUATING DEVICE |
| ESP | EXTERNAL STATIC PRESSURE | SAN | SANITARY SEWER |
| ET | EXPANSION TANK | SCH | SCHEDULE |
| ETR | EXISTING TO REMAIN | SD | SUCTION DIFFUSER |
| EV | EXHAUST VALVE | SF | SUPPLY FAN |
| EWT | ENTERING WATER TEMPERATURE | SP | STATIC PRESSURE |
| EXH | EXHAUST | SS | STAINLESS STEEL |
| F | FILTER | ST | STORAGE TANK/STEAM TRAP |
| FA | FRESH AIR INTAKE/ FIELD ADJUSTABLE | T | TANK |
| FAT | FINAL AIR TEMPERATURE | TA | TRANSFER AIR |
| FC | FAIL CLOSED | TBR | TO BE REMOVED |
| FCU | FAN COIL UNIT | TC | TEMPERATURE CONTROL |
| FD | FLOOR DRAIN | TOB | TOP OF BEAM |
| FE | FUME HOOD EXHAUST | TOO | TOP OF DUCT/TOP OF DECK |
| FLA | FULL LOAD AMPS | TOJ | TOP OF JOIST |
| FLR | FLOOR | TOP | TOP OF PIPE |
| FO | FAIL OPEN | TOS | TOP OF SLAB |
| FOP | FUEL OIL PUMP | TSP | TOTAL STATIC PRESSURE |
| FOT | FUEL OIL TANK | TXV | THERMAL EXPANSION VALVE |
| FPM | FEET PER MINUTE | UH | UNIT HEATER |
| FPS | FEET PER SECOND | UV | UNDERGROUND STORAGE TANK |
| FR | FLASH TANK | UV | UNIT VENTILATOR |
| FT | FIN TUBE RADIATION | V | VOLTS/VENT |
| FTG | FOOTING | VAV | VARIABLE AIR VOLUME |
| FU | FURNACE | VFD | VARIABLE FREQUENCY DRIVE |
| | | VP | VELOCITY PRESSURE |
| | | WB | WET BULB |
| | | WC | WATER COLUMN |
| | | WCC | WATER COOLED CONDENSER |
| | | WF | WATER FILTER |
| | | WG | WATER GAUGE |
| | | WPD | WATER PRESSURE DROP |
| | | X | EXISTING |

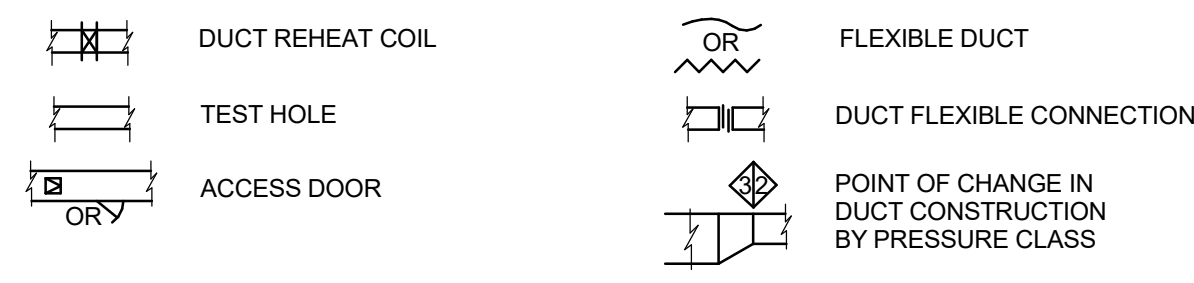
GENERAL NOTES

- PRIOR TO DEMOLITION, CONTRACTOR TO VERIFY EXISTING CONDITIONS AND NOTE ANY UTILITIES SERVING OUTSIDE OF SCOPE AREA AND NOTIFY EOR OF ANY CONFLICTS.
- ALL WORK MUST COMPLY WITH MHM STANDARDS SPECIFICATION.
- SLOPE CONDENSATE DRAIN PIPING NOT LESS THAN 2% (1/8" PER FT.).
- ALL CONTROL ZONES TO BE PROVIDED WITH THERMOSTAT.
- FLOOR PLANS INCLUDE PIPE ROUTING, MAJOR VALVING AND MAJOR PIPING SPECIALTIES. REFER TO FLOW DIAGRAMS, DETAILS, AND SPECIFICATIONS FOR ADDITIONAL VALVING, PIPING, AND SPECIALTIES.
- INSTALL BRANCH WATER PIPING TO EACH UNIT WITH A MINIMUM OF THREE ELBOWS TO ALLOW FOR EXPANSION AND CONTRACTION OF THE PIPING SYSTEM.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE TESTING AND BALANCING WORK OF LIQUID FLUID HANDLING SYSTEMS.
- CONTRACTOR TO PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR PIPING MATERIALS.
- PROVIDE ACCESS TO VALVES AND SPECIALTIES FOR MAINTENANCE.
- CONTRACTOR SHALL TEST AND DISINFECT PIPING SYSTEM AS REQUIRED BY CODE AND AUTHORITY HAVING JURISDICTION.
- PENETRATIONS THROUGH PARTITIONS AND FLOORS SHALL BE SLEEVED, SEALED AND FIRE SAFE TO MAINTAIN THE INTEGRITY OF THE WALL AND FLOOR UL FIRE RESISTANCE RATING.
- COORDINATE WATER, WASTE, RAIN WATER AND MEDICAL GAS PIPING WITH OTHER TRADES TO AVOID SPACING AND ROUTING PROBLEMS.
- CONTRACTOR SHALL COORDINATE EQUIPMENT CONNECTIONS WITH EQUIPMENT DRAWINGS AND SUPPLIER. INSTALL EQUIPMENT AND MAKE FINAL CONNECTIONS, FURNISHING CUT OFF VALVES, P-TAPS, PRVS AND PIPING AS REQUIRED.
- FIXTURE(S), EQUIPMENT, CONNECTIONS, AND PIPING SHALL BE FURNISHED AND INSTALLED TO MEET OR EXCEED STATE AND LOCAL CODES AND REQUIREMENTS.

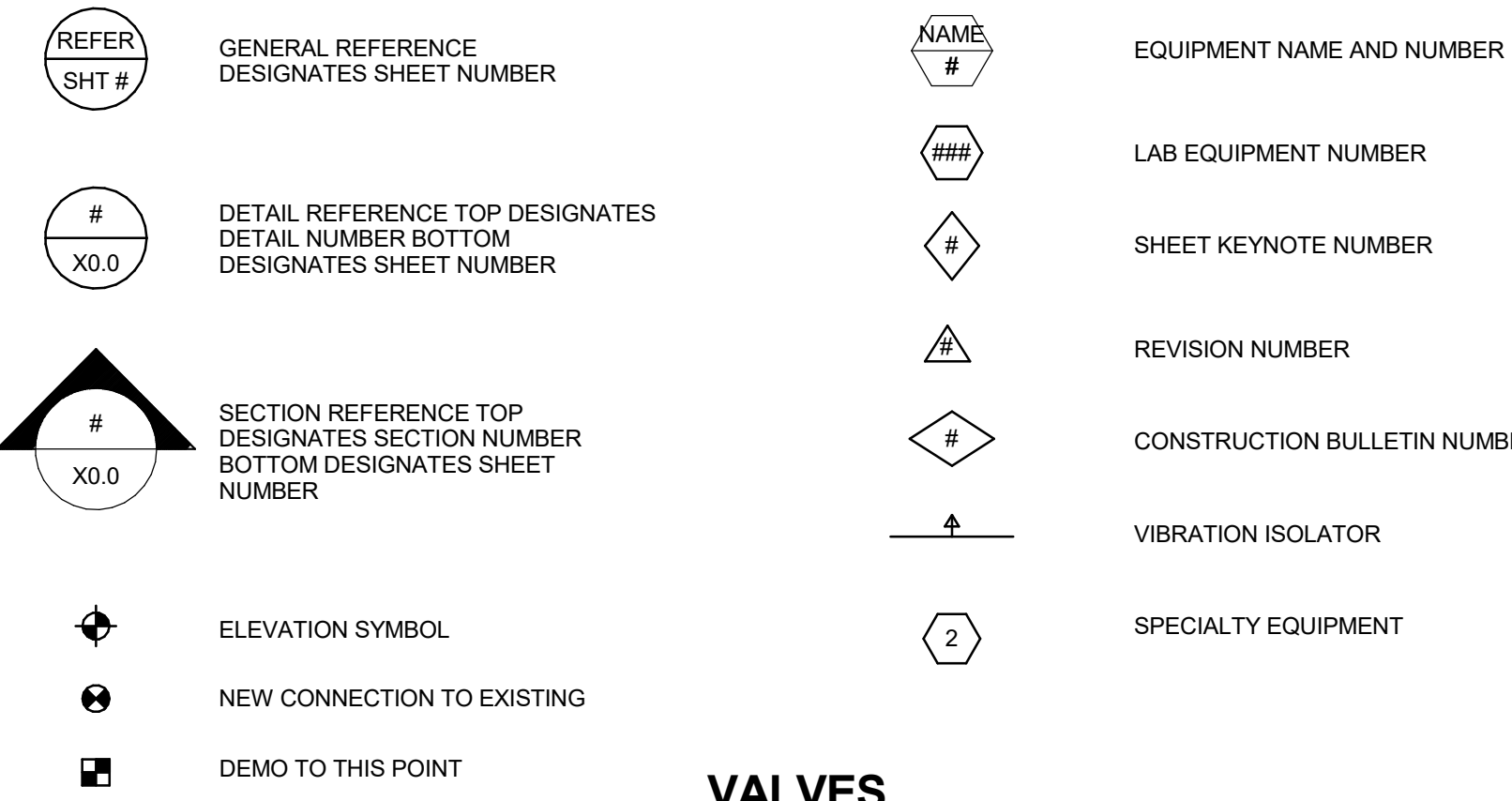
SHEET INDEX

| SHEET NUMBER | SHEET NAME |
|--------------|--|
| M000 | MECHANICAL SYMBOLS, ABBREVIATIONS & INDEX |
| MD205 | MECHANICAL DEMOLITION PLAN BROWN LEVEL 5 MECHANICAL ROOM |
| MD205 | MECHANICAL RENOVATION PLAN BROWN LEVEL 5 MECHANICAL ROOM |
| M001 | MECHANICAL RISERS |

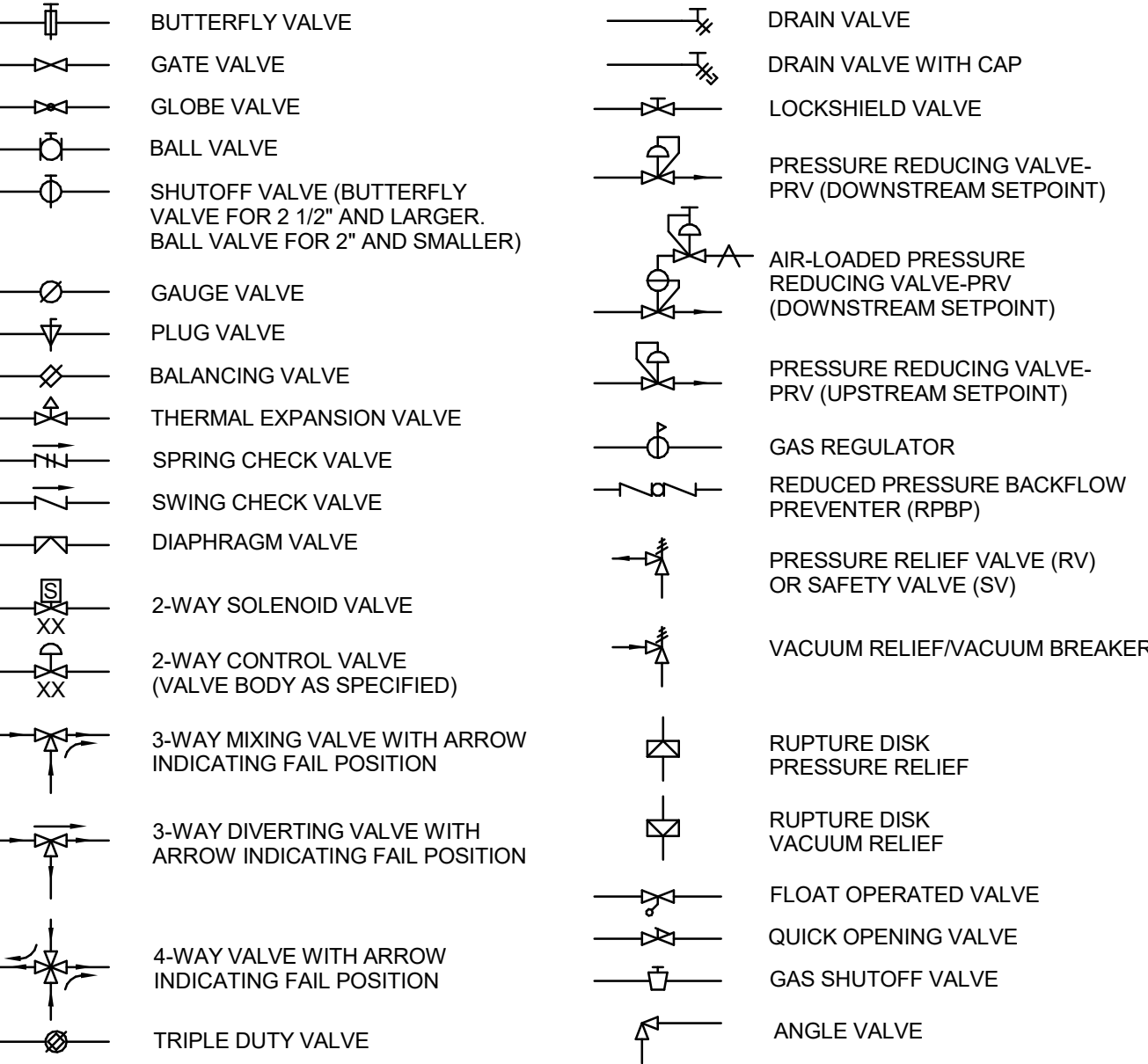
DUCTWORK SPECIALTIES



REFERENCE SYMBOLS

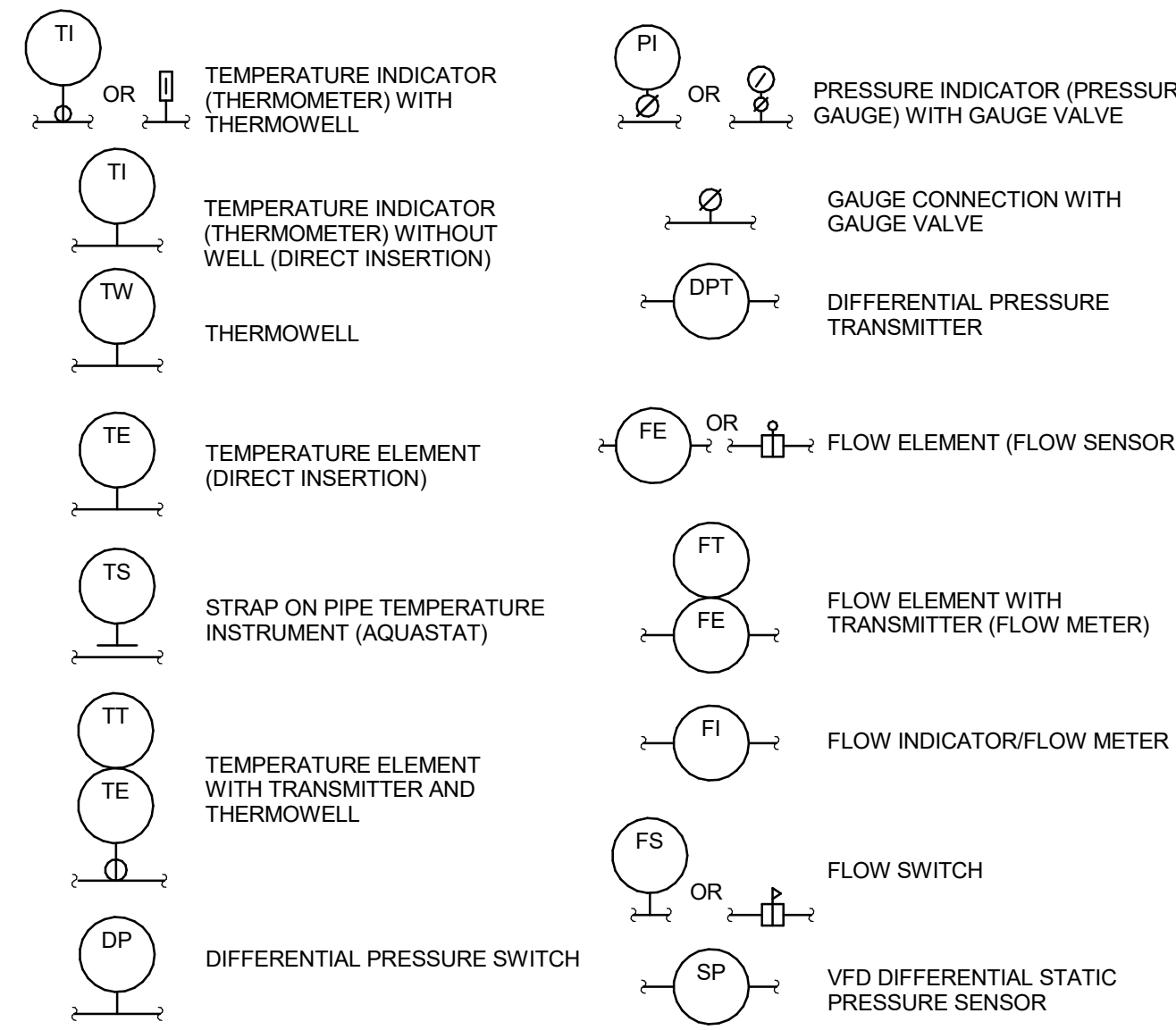


VALVES

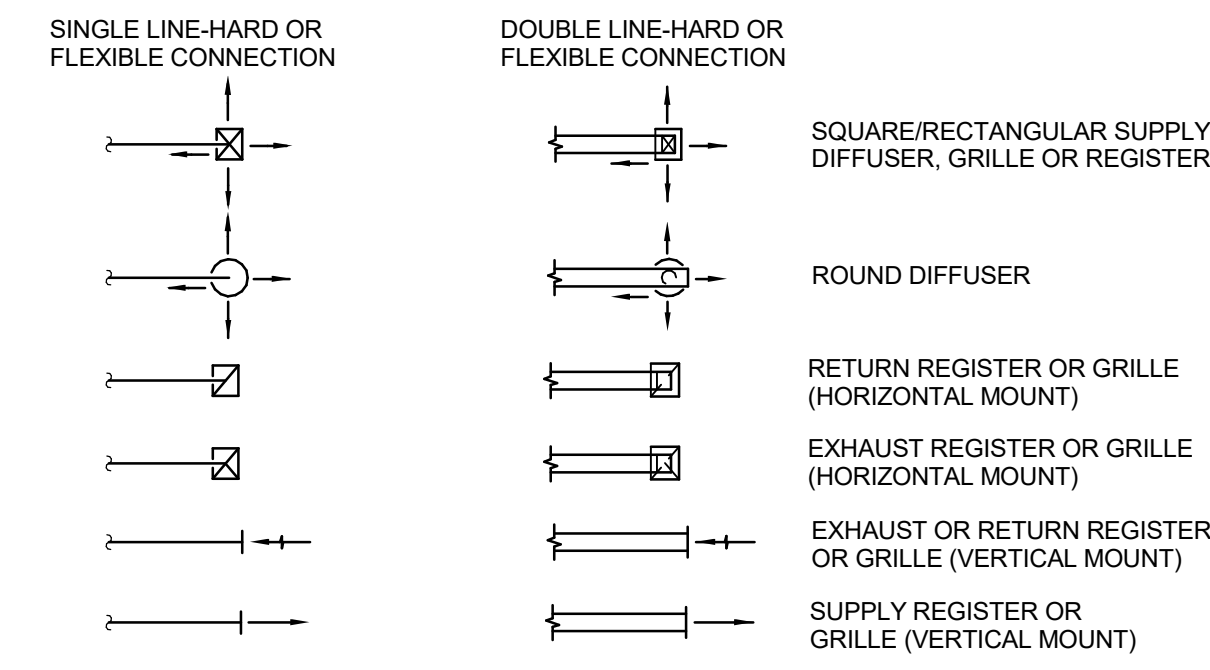


(XX)=DEFINES FAIL POSITION OR NORMAL POSITION
 FC=FAIL CLOSED (CONTROL VALVE OR DAMPER)
 FO=FAIL OPEN (CONTROL VALVE OR DAMPER)
 NC=NORMALLY CLOSED (CONTROL VALVE OR DAMPER)
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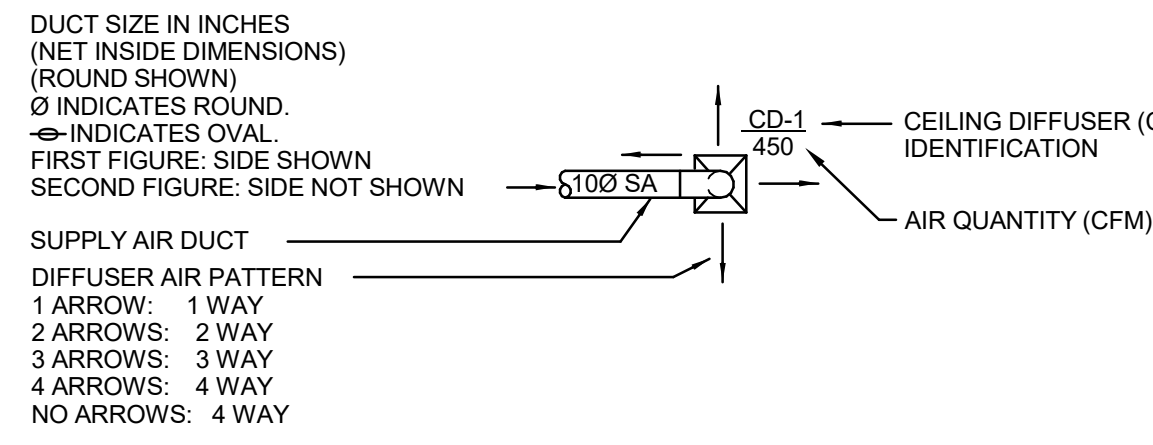
COMMON INSTRUMENTATION DEVICE



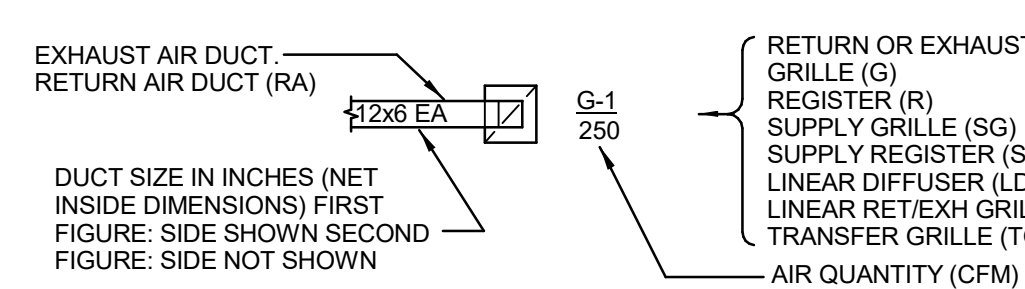
DUCTWORK AT DIFFUSERS AND GRILLES



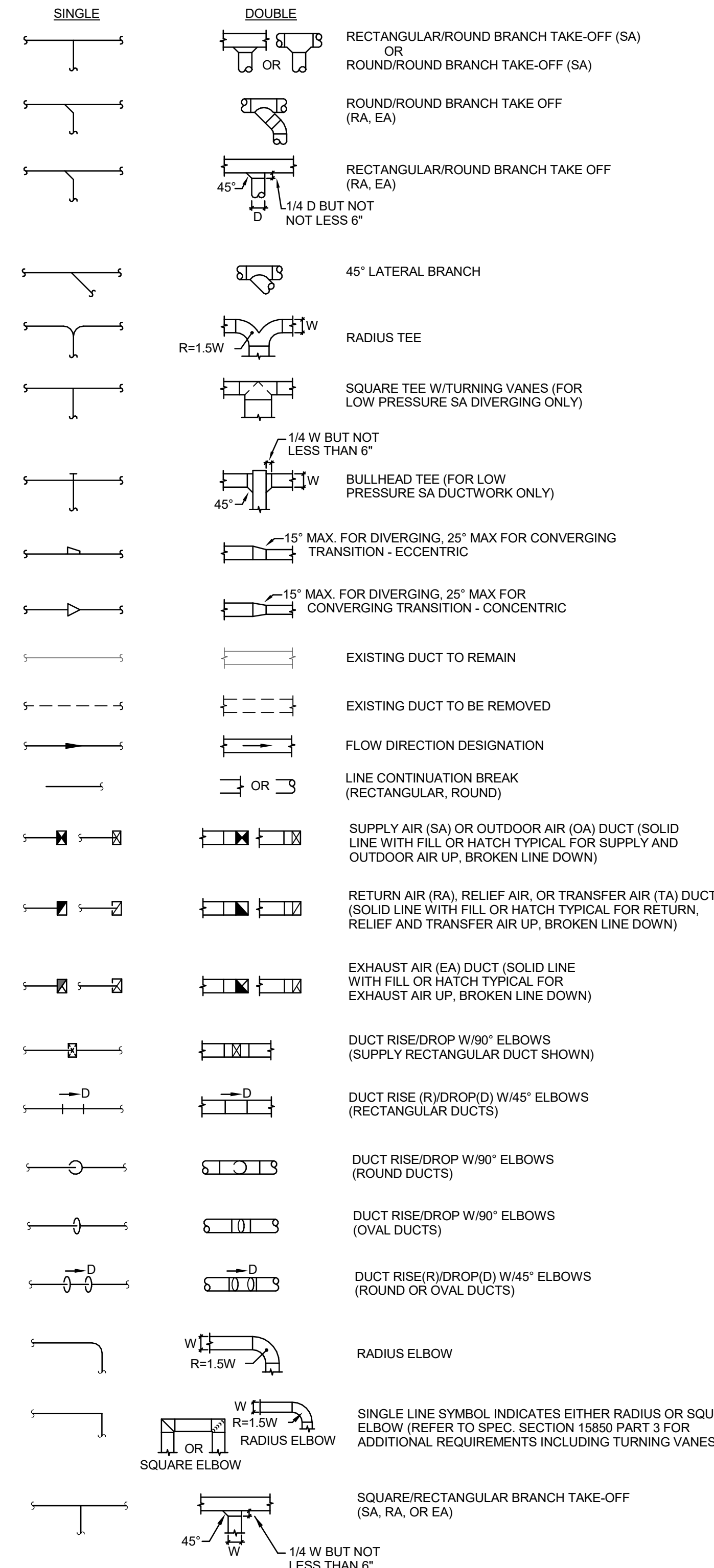
DIFFUSER NOTATION



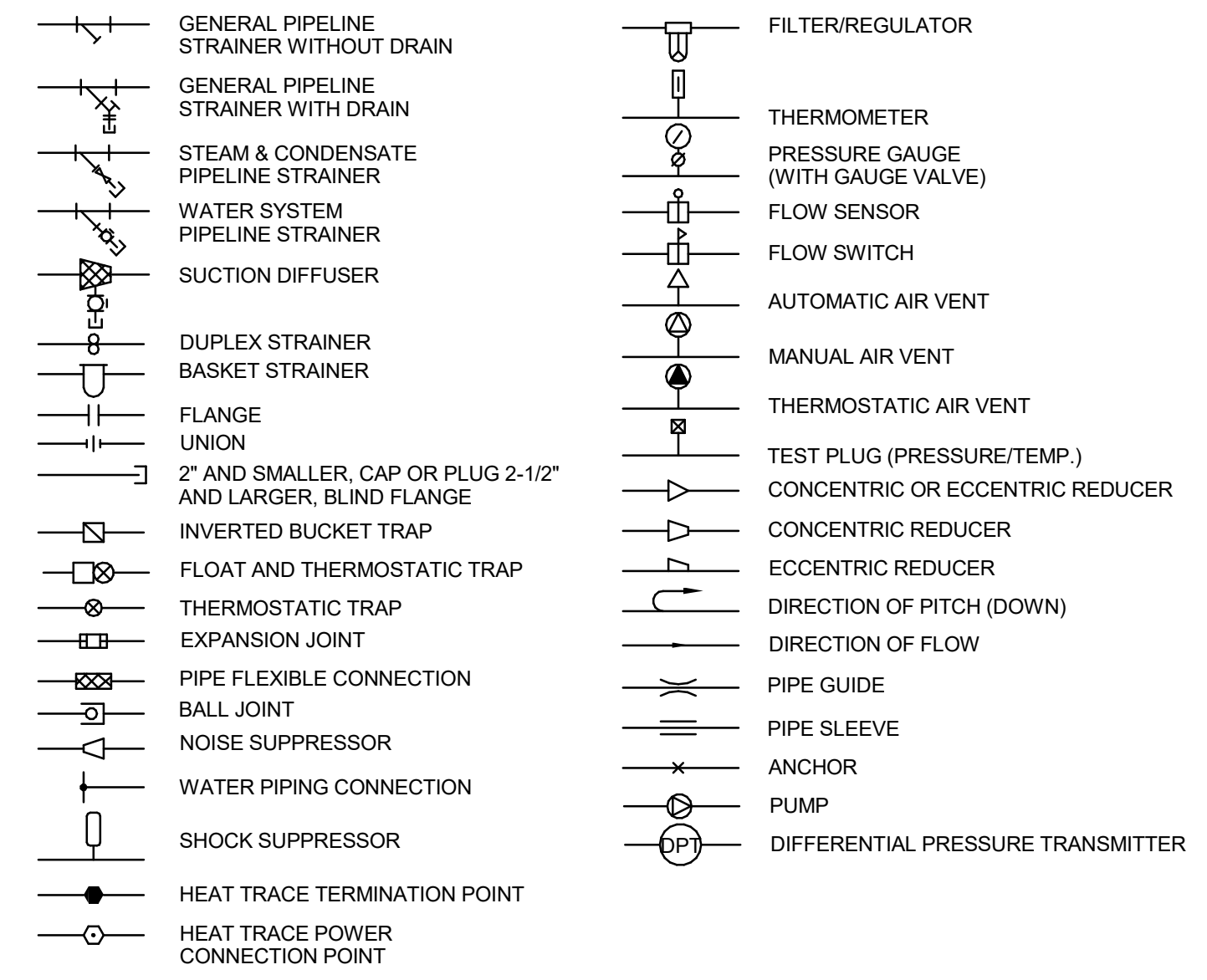
GRILLE, REGISTER NOTATION



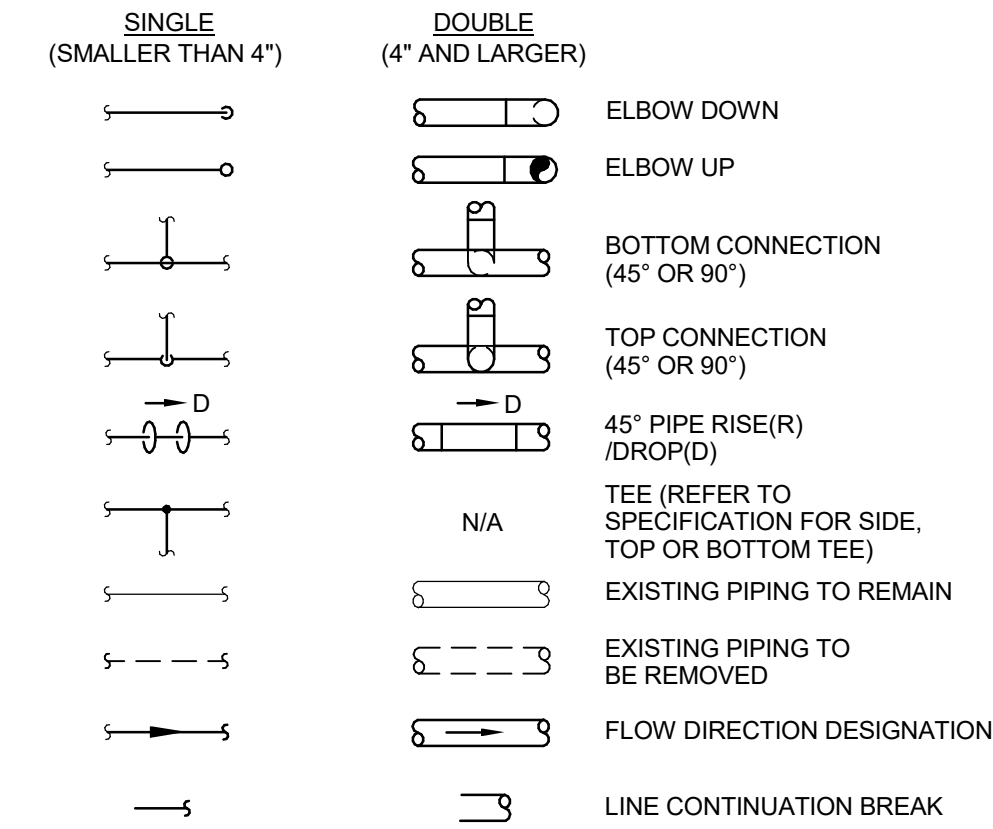
DUCTWORK



PIPING SPECIALTIES



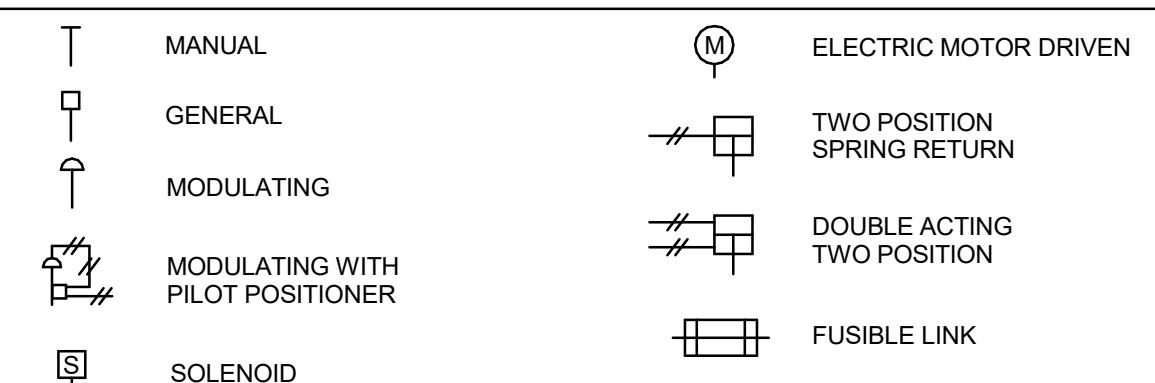
PIPING



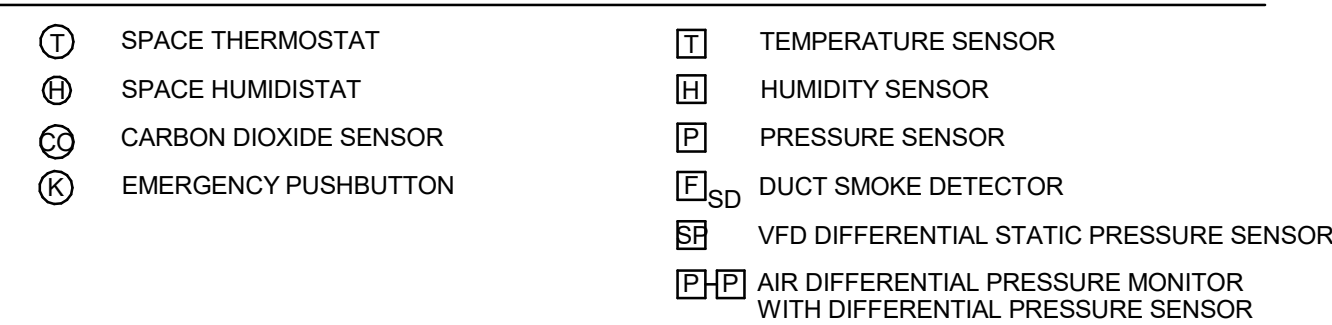
SYSTEM LABELS

| NEW | EXISTING | | |
|---------|---------------------------|-----------|---------------------------|
| BBD | BOILER BLOW DOWN | X-BBD | BOILER BLOW DOWN |
| BF | BOILER FEED | X-BF | BOILER FEED |
| CHR | CHILLED WATER RETURN | X-CHR | CHILLED WATER RETURN |
| CHS | CHILLED WATER SUPPLY | X-CHS | CHILLED WATER SUPPLY |
| CPD | CONDENSATE PUMP DISCHARGE | X-CPD | CONDENSATE PUMP DISCHARGE |
| CWR | CONDENSER WATER RETURN | X-CWR | CONDENSER WATER RETURN |
| CWS | CONDENSER WATER SUPPLY | X-CWS | CONDENSER WATER SUPPLY |
| D | DRAIN | X-D | DRAIN |
| DCW | DOMESTIC COLD WATER | X-DCW | DOMESTIC COLD WATER |
| DHW | DOMESTIC HOT WATER | X-DHW | DOMESTIC HOT WATER |
| F | FIRE | X-F | FIRE |
| FR | FUEL RETURN | X-FR | FUEL RETURN |
| FS | FUEL SUPPLY | X-FS | FUEL SUPPLY |
| FOF | FUEL OIL FILL | X-FOF | FUEL OIL FILL |
| FOG | FUEL OIL GAUGE | X-FOG | FUEL OIL GAUGE |
| FOR | FUEL OIL RETURN | X-FOR | FUEL OIL RETURN |
| FOS | FUEL OIL SUPPLY | X-FOS | FUEL OIL SUPPLY |
| FOV | FUEL OIL VENT | X-FOV | FUEL OIL VENT |
| GWR | GLYCOL WATER RETURN | X-GWR | GLYCOL WATER RETURN |
| GWS | GLYCOL WATER SUPPLY | X-GWS | GLYCOL WATER SUPPLY |
| HPC | HIGH PRESSURE CONDENSATE | X-HPC | HIGH PRESSURE CONDENSATE |
| HPG(XX) | HIGH PRESSURE GAS | X-HPG(XX) | HIGH PRESSURE GAS |
| HPS(XX) | HIGH PRESSURE STEAM | X-HPS(XX) | HIGH PRESSURE STEAM |
| HWR | HOT WATER RETURN | X-HWR | HOT WATER RETURN |
| HWS | HOT WATER SUPPLY | X-HWS | HOT WATER SUPPLY |
| LPC | LOW PRESSURE CONDENSATE | X-LPC | LOW PRESSURE CONDENSATE |
| LP(XX) | LOW PRESSURE STEAM | X-LP(XX) | LOW PRESSURE STEAM |
| RL | REFRIGERANT LIQUID | X-RL | REFRIGERANT LIQUID |
| RS | REFRIGERANT SUCTION | X-RS | REFRIGERANT SUCTION |
| RHG | REFRIGERANT HOT GAS | X-RHG | REFRIGERANT HOT GAS |
| SAN | SANITARY SEWER | X-SAN | SANITARY SEWER |
| SPR | SPRINKLER PIPE | X-SPR | SPRINKLER PIPE |
| TP | TRAP FILLER LINE | X-TP | TRAP FILLER LINE |
| TWS | TOWER WATER SUPPLY | X-TWS | TOWER WATER SUPPLY |
| TWR | TOWER WATER RETURN | X-TWR | TOWER WATER RETURN |

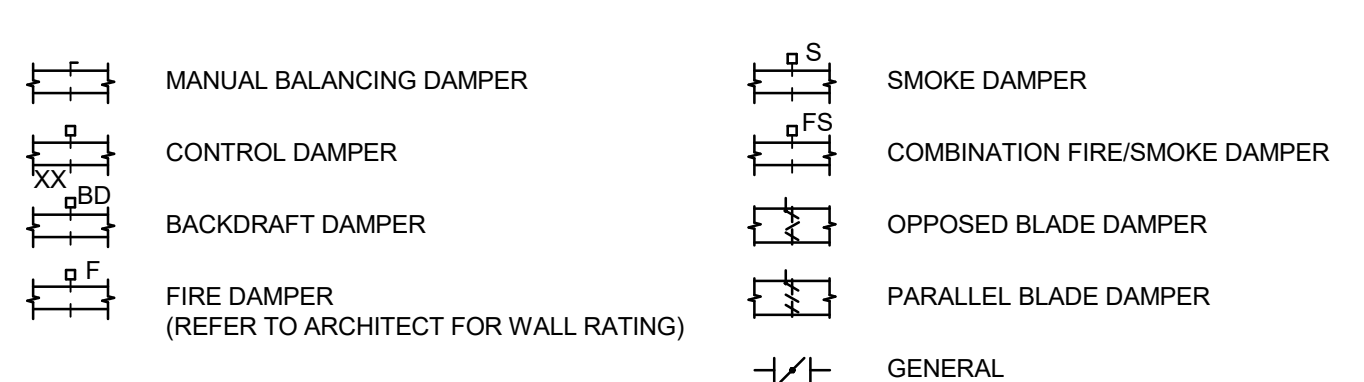
ACTUATORS



FIELD MOUNTED CONTROLS



DAMPERS

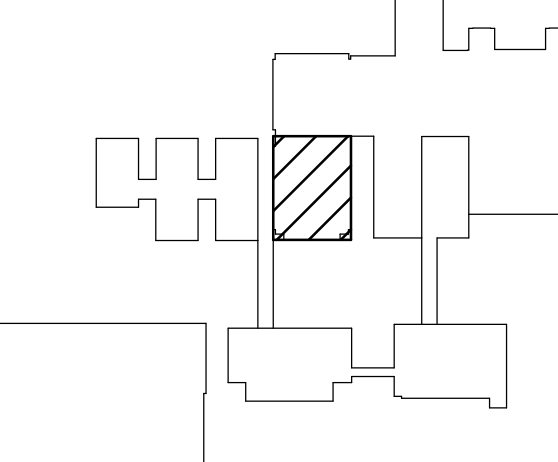


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METHODIST HOSPITAL P-TUBE UPGRADE BROWN LEVEL 5

| REVISIONS | DATE |
|-----------------------------|----------|
| 100% CONSTRUCTION DOCUMENTS | 05/02/17 |

KEY PLAN



SCALE

Date: 05/02/2017
 Expires: 12/31/2017
 Engineer of Record:
 Joshua J. VanLandingham
 State: TEXAS
 Registration No. 84644

SHEET TITLE
MECHANICAL SYMBOLS, ABBREVIATIONS & INDEX

SCALE
NOT TO SCALE

DATE: **05/02/17** DRAWN BY: **KWJ**

PROJECT NO.: **17442-00**

SHEET NO.

M000

SHEET KEYNOTES

1. EXISTING AHU-26B5-15 AND INERTIA PAD TO BE RELOCATED FROM CURRENT LOCATION AS SHOWN ON SHEET M205. DISCONNECT ALL ELECTRICAL AND CONTROL WIRES FOR RELOCATING ENTIRELY TO NEW LOCATION. REM205.
2. REMOVE EXISTING SUPPLY AIR DUCT AS INDICATED FOR AHU RELOCATION.
3. REMOVE EXISTING OUTSIDE AIR DUCT AS INDICATED FOR AHU RELOCATION. EXISTING AIR FLOW MEASURING STATION SHALL REMAIN/REUSE FOR OUTSIDE AIR DUCT CONNECTION.
4. REMOVE EXISTING RETURN AIR DUCT AS INDICATED FOR AHU RELOCATION.
5. REMOVE EXISTING CHILLED WATER SUPPLY/RETURN PIPING AS INDICATED FOR AHU RELOCATION. EXISTING CONTROL VALVE AND COOLING COIL FITTINGS SHALL REMAIN/REUSE.
6. REMOVE EXISTING VFD FOR AHU-26B5-15 AND RELOCATE IT TO NEW LOCATION. REM205.
7. EXISTING CONTROL PANEL FOR AHU-26B5-15 TO REMAIN.

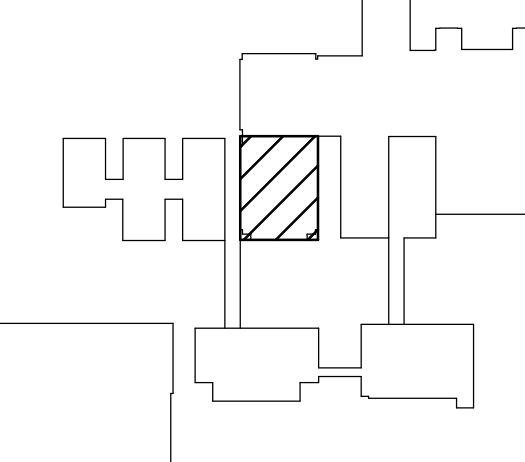
PROJECT

**METHODIST
 HOSPITAL P-TUBE
 UPGRADE
 BROWN LEVEL 5**

REVISIONS

100% CONSTRUCTION DOCUMENTS 05/02/17

KEY PLAN



SEAL

Date: 05/02/2017
 Expires: 12/31/2017
 Engineer of Record:
 Joshua J. Vandingham
 State: TEXAS
 Registration No. 84644

SHEET TITLE

**MECHANICAL
 DEMOLITION PLAN
 BROWN LEVEL 5
 MECHANICAL
 ROOM**

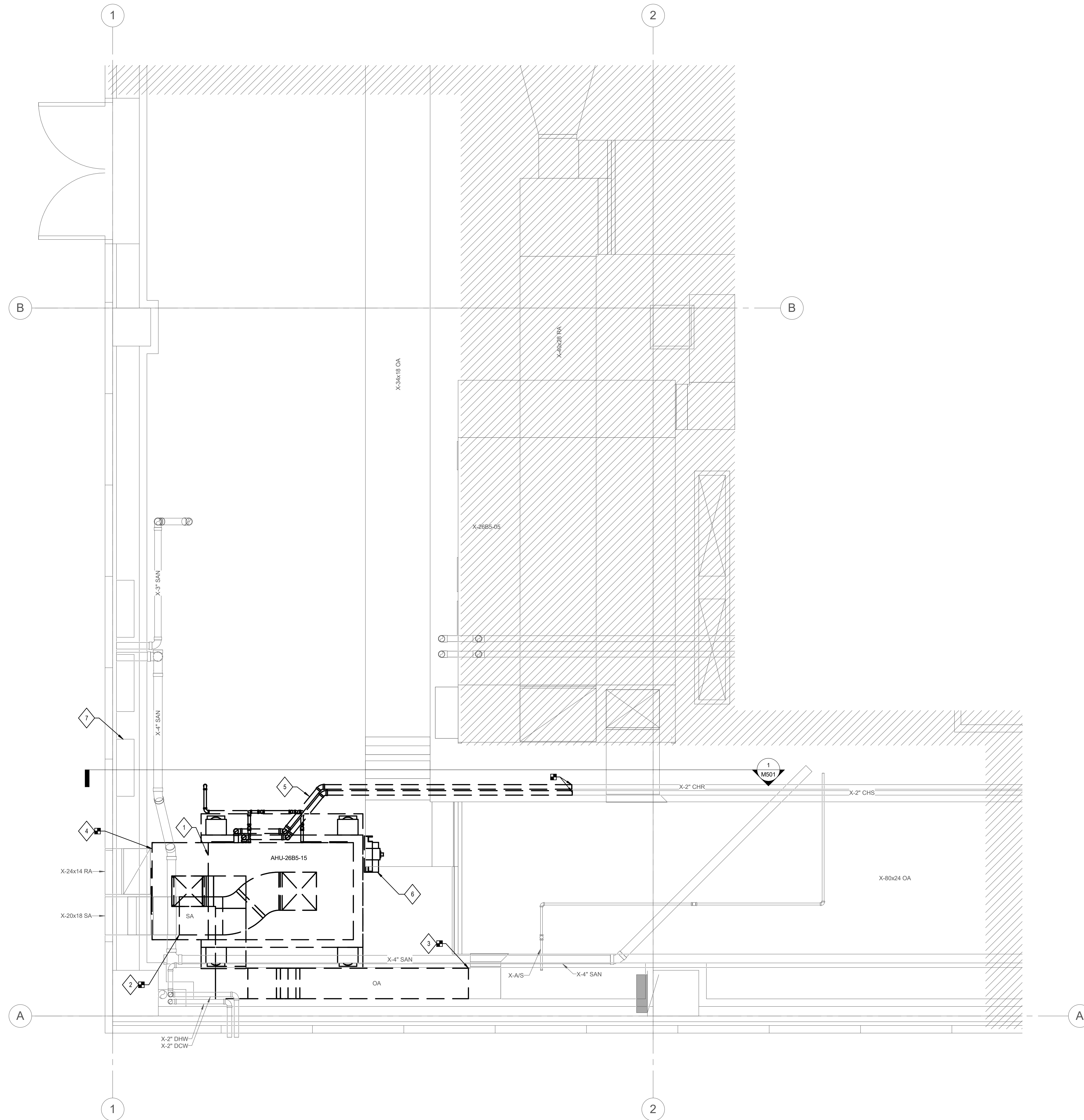
SCALE
1/2" = 1'-0"

DATE: **05/02/17** DRAWN BY: **KWJ**

PROJECT NO.
17442-00

SHEET NO.

MD205



1 MECHANICAL DEMOLITION PLAN BROWN LEVEL 5 MECHANICAL ROOM
 1/2" = 1'-0"

