# LEGEND

## DUCTWORK SYMBOLS

- XX/XX — DUCT WITH ACOUSTICAL LINING
- MANUAL VOLUME DAMPER (SEE BELOW FOR OTHER TYPES)
- DAMPER TYPE: FD - FIRE DAMPER; SD - SMOKE DAMPER; FSD - COMBINATION FIRE/SMOKE DAMPER; BD - GRAVITY BACKDRAFT DAMPER; M - CONTROL DAMPER; *NO MARK INDICATES MANUAL VOLUME DAMPER
- VERTICAL DAMPER IN DUCT (OR OPENING) AT FIRE-RATED PARTITION
- HORIZONTAL FIRE DAMPER AT FLOOR PENETRATION
- CONNECT NEW DUCT TO EXISTING
- MITERED ELBOW (PROVIDE VANES IN ALL SQUARE OR RECTANGULAR ELBOWS, UNLESS NOTED OTHERWISE)
- FAN POWERED TERMINAL UNIT
- TYPICAL SUPPLY AIR TEE WITH SPLITTER DAMPER
- STANDARD ROUND BRANCH DUCT (SPIN-IN)
- STANDARD ROUND BRANCH DUCT (CONICAL)
- STANDARD RECTANGULAR BRANCH DUCT (45° TAKE-OFF)
- STANDARD CONCENTRIC DUCT TRANSITION
- STANDARD ECCENTRIC DUCT TRANSITION
- RECTANGULAR-TO-ROUND DUCT TRANSITION
- SECTION THROUGH ROUND DUCT, SUPPLY OR EXHAUST AS NOTED
- SECTION THROUGH RECTANGULAR SUPPLY DUCT
- SECTION THROUGH RECTANGULAR RETURN DUCT
- SECTION THROUGH RECTAN-GULAR EXHAUST DUCT
- A.D. — ACCESS DOOR IN CEILING
- A.D. — DUCT ACCESS DOOR
- CEILING SUPPLY AIR DIFFUSER, ARROWS INDICATE PATTERN. NO PATTERN SHOWN EQUALS 4-WAY
- CEILING RETURN AIR GRILLE OR RETURN REGISTER
- CEILING EXHAUST AIR GRILLE OR EXHAUST REGISTER
- SIDEWALL SUPPLY OR RETURN REGISTER OR GRILLE
- SUPPLY OR OUTSIDE AIR DUCT UP
- SUPPLY OR OUTSIDE AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- RELIEF OR EXHAUST AIR DUCT UP
- RELIEF OR EXHAUST AIR DUCT DOWN
- IN-LINE 90 DEGREE DROP (RISE) IN DUCT
- UP — INCLINE RISE IN DUCT
- DOWN — INCLINE DROP IN DUCT
- VAV TERMINAL UNIT
- FLEXIBLE DUCT, SIZE AS SHOWN

## PIPING SYMBOLS

- PITCH DOWN IN DIRECTION OF ARROW
- DIRECTION OF FLOW
- PIPE ANCHOR
- PIPE GUIDE
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- STRAINER WITH BLOWDOWN VALVE
- BRANCH - SIDE CONNECTION
- BRANCH - TOP CONNECTION
- BRANCH - BOTTOM CONNECTION
- RISE OR DROP IN PIPE
- RISER DOWN (ELBOW)
- RISER UP (ELBOW)
- CAPPED PIPE
- BLIND FLANGE
- UNION (SCREWED)
- PUMP
- FLANGED CONNECTION
- TEMPERATURE & PRESSURE PORT
- FLEX PIPE
- FLEX CONNECTION
- BELLOWS CONNECTION (DOUBLE SPHERE NEOPRENE TYPE)
- THERMOMETER
- PRESSURE GAGE WITH COCK
- PS — PRESSURE SWITCH
- FS — FLOW SWITCH
- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- WELDED CONNECTION
- FLANGED CONNECTION
- SOLDERED CONNECTION
- THREADED OR "PRESS" CONNECTION
- BELL & SPIGOT CONNECTION
- SOLVENT CONNECTION

## EQUIPMENT SYMBOLS

- NEW EQUIPMENT
- EQUIPMENT CLEARANCE
- 001 — KEYNOTE
- POINT OF CONNECTION - NEW TO EXISTING
- FTR - A - B; A = SCHEDULE TYPE; B = FEET OF ACTIVE LENGTH

## CONTROLS SYMBOLS

- T — ROOM THERMOSTAT
- H — ROOM HUMIDISTAT
- T — TEMPERATURE SENSOR/TRANSMITTER
- H — HUMIDITY SENSOR/TRANSMITTER
- S — DUCT SMOKE DETECTOR
- R — RELAY
- ST — SLAB SENSOR
- VIBRATION SWITCH
- HT — DUCT HUMIDITY SENSOR/TRANSMITTER
- PT — PRESSURE TRANSMITTER
- MOTOR STARTER (LOCAL OR MCC)
- SP — STATIC PRESSURE SENSOR/TRANSMITTER
- DT — DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
- DP — DIFFERENTIAL PRESSURE SWITCH (DIGITAL)
- T — DUCT AVERAGING TEMPERATURE ELEMENT
- F — FLOW SENSOR
- FR — FREEZESTAT
- FS — FLOW SWITCH
- M — ELECTRIC MOTOR

| NORMAL OPEN | NORMAL CLOSED | |
|---|---|---|
| | | GATE VALVE |
| | | VALVE W/ REDUCERS (GATE VALVE SHOWN) |
| | | GLOBE VALVE |
| | | BUTTERFLY VALVE |
| | | NEEDLE VALVE/ INSTRUMENT VALVE |
| | | 3-WAY VALVE |
| | | BALL VALVE |
| | | PLUG VALVE |
| | | ANGLE VALVE |

- RS — REFRIGERANT SENSOR
- LIQUID FLOW METER
- RECEIVER PRESSURE GAUGE (PANEL MTD.)
- CT — CURRENT SENSING RELAY
- DA — ELECTRIC DAMPER ACTUATOR
- F — FIRESTAT
- HS — MANUALLY ACTIVATED SWITCH (PULL STAT., PUSH STAT., ETC)
- AQ — AQUASTAT
- LWCO — LOW WATER CUTOFF

CONTROL VALVE SYMBOLS:

- M — ELECTRIC ACTUATOR
- S — SOLENOID ACTUATOR

CONTROL DEFINITIONS:

NORMAL POSITION: INDICATES DEVICE POSITION WHEN THE SYSTEM IS DISABLED OR NOT ENERGIZED

FAIL POSITION: INDICATES DEVICE POSITION WHEN THE CONTROL SIGNAL IS LOST OR UPON A LOSS OF POWER.

NO - NORMALLY OPEN
NC - NORMALLY CLOSED
FO - FAIL OPEN
FC - FAIL CLOSED

AIR DEVICE TAG

AD - X | 380 — TAG; MAXIMUM AIRFLOW (CFM)

| | |
|---|---|
| 24x12 | INDICATES A 24"x12" RECTANGULAR DUCT (NET FREE AREA) |
| 24/12 | INDICATES A 24"x12" FLAT OVAL DUCT (NET FREE AREA) |
| 20"ø | INDICATES A 20" ROUND DUCT (NET FREE AREA) |

## VALVE SYMBOLS

- GATE VALVE
- GLOBE VALVE
- CHECK VALVE (NON SLAM)
- PLUG VALVE
- PRESSURE REDUCING VALVE (PRV)
- BUTTERFLY VALVE
- BALL VALVE
- NEEDLE VALVE
- VENTURI FLOW METER
- VALVE IN DROP
- VALVE IN CENTER DROP
- VALVE IN RISE
- S — SOLENOID VALVE
- GATE VALVE W/ 3/4" HOSE THREAD ADAPTER
- TWO-WAY CONTROL VALVE
- THREE-WAY CONTROL VALVE
- SAFETY VALVE OR PRESSURE RELIEF VALVE
- MANUAL BALANCING VALVE
- AUTOMATIC BALANCING VALVE
- TEMPERATURE WELL
- FLANGED VALVE (GATE VALVE SHOWN)
- P — PRESSURE INDEP. CONTROL VALVE (PICV)

| NO. | DATE | DSGN |
|---|---|---|
| 0 | 09/18/2024 | JWG |

100% ISSUED FOR CONSTRUCTION - EXPANSION

| REVISION | BY | APVD |
|---|---|---|
| | JWG | SJS |

DR: JWG | CHK: JWG | APVD: APVD | SJG

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Grinder
Camden OSD
Calhoun County, Arkansas
Aerojet Rocketdyne

Jacobs NABHOLZ

MECHANICAL SYMBOLS

SHEET NO
M002

| | |
|---|---|
| SCALE | NTS |
| DATE | 09/18/2024 |
| PROJ | D3754502 |
| DWG | CMDN-OSD_Grinder_M002 |

PLOT DATE/TIME: 9/17/2024 9:14:47 PM

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M002
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