GENERAL NOTES

A. REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.

B. WHERE CODES HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORY, AMERICAN CODES, ANSI, ASME, ASA, ASHRAE, ASTM, ARI, NEC, NFPA, SMACNA, OR THE STATE FIRE INSURANCE REGULATORY BODY, FOLLOW THESE STANDARDS WHETHER OR NOT INDICATED ON THE DRAWINGS.

C. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES, OR REGULATIONS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.

D. THE CONTRACTOR SHALL EXECUTE ALL WORK HEREINAFTER SPECIFIED OR INDICATED ON ACCOMPANYING DRAWINGS. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT NECESSARY AND USUALLY FURNISHED IN CONNECTION WITH SUCH WORK AND SYSTEMS WHETHER OR NOT MENTIONED SPECIFICALLY HEREIN OR ON THE DRAWINGS.

E. MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE NEW AND SHALL BEAR THE U.L. LABEL WHERE APPLICABLE UNLESS NOTED OTHERWISE.

F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FITTING HIS MATERIAL AND APPARATUS INTO THE BUILDING AND SHALL CAREFULLY LAY OUT HIS WORK AT THE SITE TO CONFORM TO THE STRUCTURAL CONDITIONS, TO AVOID ALL OBSTRUCTIONS, TO CONFORM TO THE DETAILS OF THE INSTALLATION AND THEREBY TO PROVIDE AN INTEGRATED SATISFACTORY OPERATING INSTALLATION.

G. THE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS ARE NECESSARILY DIAGRAMMATIC BY THEIR NATURE, AND ARE NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL OR EVERY PIPE OR CONDUIT IN ITS EXACT LOCATION. THESE DETAILS ARE SUBJECT TO THE REQUIREMENTS OF STANDARDS REFERENCED ELSEWHERE IN THESE SPECIFICATIONS, AND STRUCTURAL AND ARCHITECTURAL CONDITIONS.

H. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE STRUCTURAL AND FINISH CONDITIONS AND SHALL COORDINATE THE SEPARATE TRADES IN ORDER TO AVOID INTERFERENCE BETWEEN THE VARIOUS PHASES OF WORK. WORK SHALL BE ORGANIZED AND LAID OUT SO THAT IT WILL BE CONCEALED IN FURRED CHASES AND SUSPENDED CEILINGS, ETC., IN FINISHED PORTIONS OF THE BUILDING, UNLESS SPECIFICALLY NOTED OTHERWISE. ALL EXPOSED WORK SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO THE LINES OF THE BUILDING UNLESS OTHERWISE NOTED.

I. WHEN THE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS DO NOT GIVE EXACT DETAILS AS TO THE ELEVATION OF PIPE, CONDUIT AND DUCTS, THE CONTRACTOR SHALL PHYSICALLY ARRANGE THE SYSTEMS TO FIT IN THE SPACE AVAILABLE AT THE ELEVATIONS INTENDED WITH PROPER GRADES FOR THE FUNCTIONING OF THE SYSTEM INVOLVED.

J. PIPING, EXPOSED CONDUIT AND THE DUCT SYSTEMS ARE GENERALLY INTENDED TO BE INSTALLED TRUE AND SQUARE TO THE BUILDING CONSTRUCTION, AND LOCATED AS HIGH AS POSSIBLE AGAINST THE STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE DRAWINGS DO NOT SHOW ALL REQUIRED OFFSETS, CONTROL LINES, PILOT LINES AND OTHER LOCATION DETAILS. WORK SHALL BE CONCEALED IN ALL FINISHED AREAS.

K. TEST AND BALANCE SHALL BE PERFORMED FOR THE HVAC SYSTEMS FOR DESIGNATED AIR SHALL BE N.E.B.B. APPROVED. SUBMIT REPORT ON N.E.B.B. FORMS FOR APPROVAL BY THE ENGINEER.

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AC	AIR COMPRESSOR
A/C	AIR CONDITIONING
ACC	AIR COOLED CHILLER
ACFM	ACTUAL CUBIC FEET PER MINUTE
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
AMF	ABOVE MEZZANINE FLOOR
AP	ACCESS PANEL
AR	AIR ROTATION UNIT
ARCH	ARCHITECT(URAL)
ARS	ABOVE ROOF STRUCTURE
AS	AIR SEPARATOR
ASCP	BREATHING AIR SYSTEM CONTROL PANEL
ASD	ADJUSTABLE SPEED DRIVE
ASR	AUTOMATIC SPRINKLER RISER
ASHRAE	AMERICAN SOCIETY OF HEATING, RE FRIGERATING AND AIR CONDITIONING ENGINEERS
ATC	AUTOMATIC TEMPERATURE CONTROL
AUTO	AUTOMATIC
AVG	AVERAGE
BACNET	BUILDING AUTOMATION & CONTROL NETWORK
BAS	BUILDING AUTOMATION SYSTEM
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLV	BALANCING VALVE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BT	BUFFER TANK
BTU	BRITISH THERMAL UNIT
BTUH	BTU'S PER HOUR
BV	BALL VALVE
C	CELSIUS
CA	COMPRESSED AIR
CBF	CHEMICAL BYPASS FEEDER
CC	COOLING COIL
CL	CENTERLINE
CLG	CEILING
CLG.	COOLING
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHU	CHILLER UNIT
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
C.M.	CONSTRUCTION MANAGER
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
CP	CONDENSING PUMP
CT	COOLING TOWER
CU	CONDENSING UNIT
CU FT	CUBIC FEET
CU IN	CUBIC INCHES
CV	CONTROL VALVE
CWS	CONDENSING WATER SUPPLY
CWR	CONDENSING WATER RETURN
D	DRAIN FROM EQUIPMENT
DB	DRY BULB
DBA	DECIBEL SOUND SCALE
DC	DRY COOLER
DDC	DIRECT DIGITAL CONTROL
DET	DETAIL
DIA	DIAMETER
DIFF	DIFFUSER
DISC.	DISCONNECT
DN	DOWN
DWG	DRAWING
DU	DEHUMIDIFIER
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EA.	EACH
EAT	EXHAUST AIR TEMPERATURE
EAT	ENTERING AIR TEMPERATURE
EB	ELECTRIC POWERED BOILER
EC	ELECTRICAL CONTRACTOR
ECM	ELECTRICALLY COMMUTATED MOTOR
EDB	ENTERING DRY BULB TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFT	ENTERING FLUID TEMPERATURE
EH	EXHAUST HOOD
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATION
ENT	ENTERING
EQ	EQUAL/EQUIVALENT
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
EXT	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EV	COMBUSTION EXHAUST VENT
EWB	ENTERING WET BULB TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
EXT	EXTERNAL
F	FAHRENHEIT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FD	FIRE DAMPER
FF	FINAL FILTER
FH	FILTER HOUSING
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLTR	FILTER
FP	FIRE PUMP
FPI	FINS PER INCH
FPB	FAN-POWERED BOX
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPT	FEMALE PIPE THREAD
FS	FLOW SWITCH
FSD	COMBINATION FIRE/SMOKE DAMPER
FT	FEET
FV	FACE VELOCITY
GAL	GALLONS
G.C.	GENERAL CONTRACTOR
GFS	GLYCOL FEED SYSTEM
GLYR	GLYCOL RETURN
GLYS	GLYCOL SUPPLY
GPM	GALLONS PER MINUTE
GPH	GALLONS PER HOUR
GR	GRILLE
GUH	GAS UNIT HEATER
GV	GAS VENT
H/HT	HEIGHT
H2	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HEPA	HIGH EFFICIENCY PARTICULATE AIR FILTER
HG	HUMIDIFIER STEAM DISPERSION GRID
HOA	HAND/OFF/AUTO
HP	HORSEPOWER
HPC	HIGH PRESSURE CONDENSATE
HPU	HYDRAULIC POWER UNIT
HPV	HIGH POINT VENT
HR	HOUR
HTG	HEATING
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HVLS	HIGH-VOLUME LOW-SPEED FAN
HWP	HEATING WATER PUMP
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
I	INTAKE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
IH	INTAKE HOOD
IN	INCHE(S)
INC	INCREASE
IV	COMBUSTION AIR INTAKE VENT
KW	KILOWATT
KVA	KILOVOLT AMPERE
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND(S)
LDB	LEAVING DRY BULB TEMPERATURE
LFT	LEAVING FLUID TEMPERATURE
LRA	LOCKED ROTOR AMPS
LV	LOUVER
LVG	LEAVING
LWB	LEAVING WET BULB TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MA	MAKEUP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BTU/HOUR
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MD	MOTORIZED DAMPER
MDU	MECHANICAL DEHUMIDIFICATION UNIT
MECH	MECHANICAL
MFG(R)	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MOCP	MAXIMUM OVER CURRENT PROTECTION
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NC	NOISE CRITERIA
NG	NATURAL GAS
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NOX	NITROGEN OXIDE
NPT	NOMINAL PIPE THREAD
NPSH	NET POSITIVE SUCTION HEAD
NPSHA	NET POSITIVE SUCTION HEAD AVAILABLE
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
NTS	NOT TO SCALE
O3	OZONE
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCE
P	PUMP
PC	CONDENSATE PUMPED
P.C.	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PDT	PRESSURE DIFFERENTIAL TRANSMITTER
PF	PREFILTER
PFB	PARALLEL FAN BOX
PH	PHASE
PHC	PREHEAT COIL
PI	PRESSURE INDICATOR
P&ID	PIPING & INSTRUMENTATION DIAGRAM
PLBG	PLUMBING
POC	POINT OF CONNECTION
POD	POINT OF DEMOLITION
PPM	PARTS PER MILLION
PROP	PROPELLER
PRV	PRESSURE REDUCING VALVE
PSI	POUND PER SQUARE INCH
PSIA	POUND PER SQUARE INCH ABSOLUTE
PSIG	POUND PER SQUARE INCH GAUGE
PT	PRESSURE TRANSMITTER
PVC	POLYVINYL CHLORIDE
R	REGISTER/GRILLE
RA	RETURN AIR
R/A	RELIEF AIR
RAT	RETURN AIR TEMPERATURE
RCP	REFLECTED CEILING PLAN
RD	RELIEF DAMPER
RE	REMOTE EVAPORATOR
RED	REDUCE(D)
REV	REVISE(D)/REVISION
REG	REGISTER
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RL	REFRIGERATED LIQUID LINE
RLA	RUNNING LOAD AMPS
RPM	ROTATIONS PER MINUTE
RS	REFRIGERATED SUCTION LINE
RSD	REGISTER/GRILLE SMOKE DETECTOR
RTD	REFRIGERANT DETECTOR
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SCCR	SHORT CIRCUIT CURRENT RATING
SCFM	STANDARD CUBIC FEET PER MINUTE AT SEA LEVEL CONDITIONS
SD	SMOKE DETECTOR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SENS	SENSIBLE
SF	SUPPLY FAN
S.F.	SAFETY FACTOR
SFB	SERIES FAN BOX
SMACNA	SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SMD	SMOKE DAMPER
SOO	SEQUENCE OF OPERATION
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
SPK	SPRINKLER
SQ	SQUARE
SQ FT/SF	SQUARE FEET
SQ IN	SQUARE INCHES
SS	STAINLESS STEEL
SSAU	SPLIT SYSTEM AIR UNIT
SSCU	SPLIT SYSTEM CONDENSING UNIT
STD	STANDARD
STL	STEEL
STR	STRAINER
SV	STEAM VENT
T	TRANSFER REGISTER
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TEV	THERMAL EXPANSION VALVE
TG	TEMPERATURE GAUGE
TOD	TOP OF DUCT
TOP	TOP OF PIPE
TOT	TOTAL
TR	TEMPERATURE RISE
TSP	TOTAL STATIC PRESSURE
TTD	TIGHT TO DECK
TTJ	TIGHT TO STRUCTURAL JOISTS
TYP	TYPICAL
UG	UNDERGROUND
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W.	WIDTH
W	WATTS
W/	WITH
W/OUT	WITHOUT
WB	WET BULB
WCC	WATER COOLED CHILLER
WG	WATER GAUGE

HVAC DESIGN CRITERIA

PROJECT: CAMDEN OSD AEROJET ROCKETDYNE

DESIGN CONDITIONS FROM ASHRAE FUNDAMENTALS 2021

WEATHER STATION - HARRELL FIELD, AR, USA
STATION #: WMO 723425
ELEVATION: 132 FEET; LATITUDE: 33.617°N; LONGITUDE: 92.767°W
ASHRAE CLIMATE ZONE 3A

SITE SPECIFIC CONDITIONS AS PROVIDED BY AR:
WINTER: 5°F DRY BULB

SUMMER: 105°F DRY BULB
93°F WET BULB

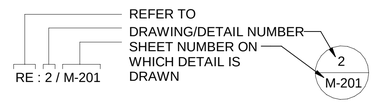
INDOOR DESIGN CONDITIONS

PROCESS AREA
WINTER: 70°F ± 2°F, >20% RH
SUMMER: 70°F ± 2°F, <40 GOM
TELECOM/IT ROOM
WINTER: 68°F ± 2°F
SUMMER: 73°F ± 2°F, 50% ±5 RH
ULITITY ROOM:
WINTER: 40°F
SUMMER: +10°F AMBIENT TEMPERATURE

ENERGY CODE COMPLIANCE

THE HVAC LOADS WERE PERFORMED IN ACCORDANCE WITH ASHRAE FUNDAMENTALS. ENERGY CALCULATIONS WERE PERFORMED IN ACCORDANCE WITH 2014 ARKANSAS ENERGY CODE WHICH ADOPTS 2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) .

DRAWING/DETAIL REFERENCE KEY



PIPING LABELS

AR	ARGON
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CON	STEAM CONDENSATE
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HYDS	HYDRAULIC SUPPLY
HYDR	HYDRAULIC RETURN
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
D	DRAIN
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
MU	MAKE-UP WATER
N	NITROGEN
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RFR	RADIANT FLOOR HEATING WATER RETURN
RFS	RADIANT FLOOR HEATING WATER SUPPLY
SMR	SNOW MELT HEATING WATER RETURN
SMS	SNOW MELT HEATING WATER SUPPLY
STM	STEAM
XX AAA XX	PIPE TO BE REMOVED, "AAA" DENOTES TYPE
AAA	EXISTING PIPE, "AAA" DENOTES TYPE
AAA	UNDERGROUND PIPE, "AAA" DENOTES TYPE

NO.	DATE	DSGN
0	09/18/2024	JWG

100% ISSUED FOR CONSTRUCTION - EXPANSION

REVISION	CHK	APVD
	JWG	APVD

BY	APVD	SJG
JWG	SJG	SJG

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STATE OF ARKANSAS
STEVE J. GOODELL
ENGINEER
No. 9593
REGISTERED PROFESSIONAL ENGINEER
09/18/2024
SEAL

Grinder
Camden OSD
Calhoun County, Arkansas
Aerojet Rocketdyne

Jacobs NABHOLZ

MECHANICAL
GENERAL NOTES AND
ABBREVIATIONS

SHEET NO
M001

SCALE	NTS
DATE	09/18/2024
PROJ	D3754502
DWG	CMDN-OSD_Grinder_M001

PLOT DATE/TIME: 9/17/2024 9:14:46 PM

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