HVAC DRAWINGS FOR: BROOKFIELD SUFFERN SPECS BLDG. 2 SUFFERN, NEW YORK

SYMBOLS

- AUTOMATIC AIR VENT
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- CIRCUIT SETTER
- FLANGE BREAK
- FLEX CONNECTOR
- FLOW DIRECTION
- FLOW SWITCH
- GATE VALVE
- GLOBE VALVE
- HOSE END VALVE
- MOTORIZED VALVE
- PIPE ANCHOR
- PIPE DOWN
- PIPE UP
- PIPE "T" UP
- PIPE "T" DOWN
- PIPE GUIDE
- PETE'S PLUG
- PNEUMATIC VALVE
- PRESSURE GAUGE
- PRESSURE REDUCING VALVE
- PRESSURE REDUCING VALVE w/ SENSING PORT
- PRESSURE SAFETY VALVE
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- SLOPED PIPE (2%)
- SOLENOID VALVE
- STRAINER
- SUCTION DIFFUSER
- THERMOMETER
- THREE WAY VALVE
- TRIPLE DUTY VALVE
- UNION
- DEMO PIPE OR EQUIPMENT
- CO2 — CARBON DIOXIDE DETECTOR
- CO — CARBON MONOXIDE SENSOR
- CONNECT NEW TO EXISTING
- DEMOLITION EXTENTS
- H — HUMIDISTAT
- SD — SMOKE DETECTOR
- T — THERMOSTAT
- S — THERMOSTATIC SENSOR
- SECTION CUT (SECTION NUMBER / SHEET SECTION APPEARS ON)
- MATCH LINE

- SUPPLY AIR DOWN
- SUPPLY AIR UP
- RETURN AIR DOWN
- RETURN AIR UP
- EXHAUST AIR / OUTSIDE AIR UP
- EXHAUST AIR / OUTSIDE AIR DN
- RECTANGULAR VANED ELBOW
- RECTANGULAR RADIUS ELBOW
- ROUND ELBOW
- SQUARE TO SQUARE 45° TAP
- ROUND TO ROUND 45° TAP
- 90° CONICAL TAP
- VOLUME DAMPER
- B — BACKDRAFT DAMPER
- M — MOTORIZED DAMPER
- 10x8 — RECTANGULAR DUCTWORK
- 8Ø — ROUND DUCTWORK
- 10/8 — OVAL DUCTWORK
- RECT. TO ROUND TRANSITION
- LINED ACOUSTICAL DUCT
- WRAPPED DUCT DIMENSIONS FOR FREE NET AREA
- R — DUCT RISE (R) OR DROP (D) IN DIRECTION OF AIRFLOW

- SPIN-IN FITTING WITH DAMPER (SIDE OF DUCT)
- ROUND FLEXIBLE DUCT
- # / SHEET — DETAIL REFERENCE TAG
- EQUIP / # — EQUIPMENT TAG
- TYPE / CFM — DIFFUSER TAG
- U — UNDERCUT DOOR
- UNIT HEATER
- CABINET UNIT HEATER
- EXHAUST FAN
- FIRE DAMPER
- SMOKE DAMPER
- FIRE / SMOKE DAMPER

PIPING LINE TYPES

CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN PIPING
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
FO	FUEL OIL
G	GAS PIPING
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HG	REFRIGERANT HOT GAS
LP	LIQUID PETROLEM GAS
LPS	LOW PRESSURE STEAM
LPC	LOW PRESSURE CONDENSATE
MPS	MEDIUM PRESSURE STEAM
MPC	MEDIUM PRESSURE CONDENSATE
HPS	HIGH PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

* NOTE: NOT ALL PIPING LINE TYPES, SYMBOLS, OR ABBREVIATIONS ARE UTILIZED ON EVERY PROJECT.

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AC	AIR CURTAIN
ACC	AIR COOLED CONDENSER
ACH	AIR CHANGES PER HOUR
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARU	AIR ROTATION UNIT
AS	AIR SEPERATOR
ATR	ALL THREAD ROD
AV	MANUAL AIR VENT
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BB	BASEBOARD HEATER
BD	BYPASS DAMPER
BDD	BACK DRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOE	BOTTOM OF EQUIPMENT
BOL	BOTTOM OF LOUVER
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STEEL
BP	BYPASS
BTUH	BTU PER HOUR
BWE	BAKED WHITE ENAMEL
CAP.	CAPACITY
CEF	CEILING EXHAUST FAN
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWP	CHILLED WATER PUMP
CLG	CEILING
CONN.	CONNECTION
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CRU	CONDENSATE RETURN UNIT
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CWP	CONDENSER WATER PUMP
DB	DRY BULB, (°F)
DDC	DIRECT DIGITAL CONTROL
DDHU	DESICANT DEHUMIDIFICATION UNIT
DISC	DISCONNECT
DN	DOWN
DOAS	DEDICATED OUTSIDE AIR SUPPLY UNIT
DP	DEW POINT
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE, (°F) (DB/WB)
EBBH	ELECTRIC BASEBOARD HEATER
EC	ELECTRICAL WORK CONTRACTOR
EF	EXHAUST FAN
ECM	ELECTRONICALLY COMPUTATED MOTOR
EMS	ENERGY MANAGEMENT SYSTEM
ENT	ENTERING
EQPT	EQUIPMENT
ERU	ENERGY RECOVERY UNIT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EVAP	EVAPORATOR (REFRIGERATION)
EWH	ELECTRIC WALL HEATER
EWT	ENTERING WATER TEMPERATURE (°F)
EXF	EXFILTRATION AIR
EXH	EXHAUST
FA	FIRE ALARM
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FF	FINISHED FLOOR
FIN	FINISH
FLA	FULL LOAD AMPS
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FSD	FIRE / SMOKE DAMPER
FT. HD	FEET OF HEAD (PRESSURE DROP)
FTU	FAN TERMINAL UNIT
FV	FIELD VERIFY
GAL	GALLONS
GC	GENERAL WORK CONTRACTOR
GPM	WATER FLOW, (GALLONS PER MINUTE)
GPR	GAS PRESSURE REGULATOR
GUH	GAS UNIT HEATER
GWH	GAS WATER HEATER
H	HUMIDITY SENSOR
HEV	HOSE END VALVE
HP	HORSEPOWER
HVLS	HIGH VOLUME LOW SPEED
HWP	HOT WATER PUMP
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IH	INTAKE HOOD
IN W.C.	INCHES OF WATER COLUMN
IOM	INSTALLATION AND OPERATION MANUAL
KW	KILOWATT
L	LOUVER
LAT	LEAVING AIR TEMPERATURE, (°F)
LBS	POUNDS
LLSV	LIQUID LINE SOLENOID VALVE
LP	LIQUID PETROLEUM GAS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE (°F)
MA	MIXED AIR (OA + RA)
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1,000 BTU PER HOUR
MC	MECHANICAL WORK CONTRACTOR
MCA	MINIMUM CIRCUIT AMPERES
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MUW	MAKE-UP WATER
MVD	MANUAL VOLUME DAMPER
NC	NORMALLY CLOSED
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NPPW	NON POTABLE PROCESS WATER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
PC	PLUMBING WORK CONTRACTOR
PCF	POUNDS/CUBIC FOOT (DENSITY)
PH	PHASE (ELECTRICAL)
POS.	POSITION
PPH	POUNDS PER HOUR
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS/SQUARE FOOT (PRESSURE)
PSI	POUNDS/SQUARE INCH (ABSOLUTE PRESSURE)
PSIG	POUNDS/SQUARE INCH (GAUGE PRESSURE)
PTAC	PACKAGE TERMINAL AIR CONDITIONER
QTY	QUANTITY
RA	RETURN AIR
RC	REFRIGERATION CONTRACTOR
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RLF	RELIEF AIR
RLH	RELIEF HOOD
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT (PACKAGED)
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SEN	SENSIBLE COOLING CAPACITY, (BTU/ HR)
SF	SUPPLY FAN
SFT	SOFT WATER
SS	STAINLESS STEEL
ST	STORAGE TANK
STD	STANDARD
STL	STEEL
TA	TRANSFER AIR
TAB	TEST AND BALANCE CONTRACTOR
TCC	TEMPERATURE CONTROL CONTRACTOR
TDV	TRIPLE DUTY VALVE
TEMP	TEMPORARY
TOT	TOTAL NET CAPACITY, (BTU/HR)
TSP	TOTAL STATIC PRESSURE
TXV	THERMAL EXPANSION VALVE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UTR	UP THOUGH ROOF
V	VOLT
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
VTA	VENT TO ATMOSPHERE
VTR	VENT TO ROOM
W	WATT
W/	WITH
WB	WET BULB, (°F)
WG	WATER GAUGE
WP	WEATHERPROOF
WPD	WATER PRESSURE DROP

PROJECT DESIGN CONDITIONS

OUTDOOR DESIGN CONDITIONS	LOCATION		ZONE	SUMMER 1% (F DB / F WB)	WINTER 99% (F DB)	SEISMIC DESIGN CAT	SEISMIC SITE CLASS	WIND (MPH)
	SUFFERN, NY		5A	89.5 / 73.4	12.8	-	-	-
ENVELOPE CONDITIONS	AREA	DOCK WALL R-VALUE	OTHER WALLS R-VALUE	ROOF R-VALUE	GLASS U-VALUE	GLASS SC	PARTITION U-VALUE	
	WAREHOUSE	1.5 / 15.8	15.8	20	0.5	N/A	N/A	
	UTILITY ROOMS	1.5 / 15.8	15.8	20	N/A	N/A	N/A	
APPLICABLE CODES	2020 BUILDING CODE OF NEW YORK STATE							
	2020 MECHANICAL CODE OF NEW YORK STATE							
	2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE							
	2020 FUEL GAS CODE OF NEW YORK STATE							

LOAD ASSUMPTIONS

ROOM DESIGN PARAMETERS	SPACE TYPE	COOLING	HEATING	PEOPLE			LIGHTING	MISC	OUTDOOR AIR		
		F / MAX RH	F / MIN RH	SQFT / PERSON	SENS. GAIN / PERSON (BTUH)	LATENT GAIN / PERSON (BTUH)	W / SQFT	W / SQFT	CFM / PERSON	CFM / SQFT	SUMMER VENTILATION RATE
	WAREHOUSE	N/A	50	N/A	N/A	N/A	N/A	N/A	N/A	0.06	0.5 ACH
	UTILITY ROOMS	N/A	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:
1) INCLUDES ALL LOCAL CODES AND AMMENDMENTS.
2) DOCK WALL IS INSULATED WITH R-15.8 FROM 13' AFF TO BMD. ALL OTHER WALLS WILL HAVE FULL HEIGHT INSTALLATION.

HVAC SHEET LIST

SHEET NUMBER	SHEET NAME	CURRENT REVISION	CURRENT REVISION DESCRIPTION
M000	COVER SHEET	02/09/2024	PERMIT SET
M100	OVERALL FLOOR PLAN	02/09/2024	PERMIT SET
M200	OVERALL ROOF PLAN	02/09/2024	PERMIT SET
M300	SCHEDULES	02/09/2024	PERMIT SET
M400	DETAILS	02/09/2024	PERMIT SET

SPECIFICATIONS:

SECTION 1 – HVAC CRITERIA

1.0 GENERAL

A. THESE DOCUMENTS ARE INTENDED TO PROVIDE ALL DRAWINGS, NOTATIONS, DETAILS, AND SCHEDULES NECESSARY FOR THE INSTALLATION OF A COMPLETE HVAC SYSTEM. THESE DOCUMENTS ARE PREPARED TO EXCLUDE ALL WORK NOT SPECIFICALLY INCLUDED IN THE SET.

B. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY LABOR AND MATERIALS FOR A COMPLETE SYSTEM TO MEET THE INTENT OF THE DESIGN AND AS INDICATED IN THE DESIGN DOCUMENTS. ANY ACCESSORIES OR MATERIALS OBVIOUSLY A PART OF THE SYSTEM AND INTEGRAL IN ITS OPERATION, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL.

C. THIS CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING COMPLETE AND OPERATING SYSTEMS. THIS CONTRACTOR ACKNOWLEDGES AND UNDERSTANDS THAT THE CONTRACT DOCUMENTS ARE A TWO-DIMENSIONAL REPRESENTATION OF A THREE-DIMENSIONAL OBJECT, SUBJECT TO HUMAN INTERPRETATION. THIS REPRESENTATION MAY INCLUDE IMPERFECT DATA, INTERPRETED CODES, UTILITY GUIDELINES, THREE-DIMENSIONAL CONFLICTS, AND REQUIRED FIELD COORDINATION ITEMS. SUCH DEFICIENCIES CAN BE CORRECTED WHEN IDENTIFIED PRIOR TO ORDERING MATERIAL AND STARTING INSTALLATION. THIS CONTRACTOR AGREES TO CAREFULLY STUDY AND COMPARE THE INDIVIDUAL CONTRACT DOCUMENTS AND REPORT AT ONCE IN WRITING TO THE DESIGN TEAM ANY DEFICIENCIES THIS CONTRACTOR MAY DISCOVER. THIS CONTRACTOR FURTHER AGREES TO REQUIRE EACH SUBCONTRACTOR TO LIKEWISE STUDY THE DOCUMENTS AND REPORT AT ONCE ANY DEFICIENCIES DISCOVERED.

D. ALL MATERIAL AND EQUIPMENT USED SHALL BE NEW AND FREE FROM DEFECTS.

E. PROVIDE MECHANICAL SYSTEMS IDENTIFICATION TO INDICATE THE TAG, TYPE, FLOW, TEMPERATURE RANGE, CAPACITY, ETC. OF EACH ITEM OF EQUIPMENT AND ALL CONVEYANCES (DUCTWORK AND PIPING SYSTEMS). ALL MAJOR EQUIPMENT SHALL BE PROVIDED WITH LAMINATED PLASTIC NAME PLATES IDENTIFYING THE EQUIPMENT WITH NOMENCLATURE CORRESPONDING TO THE MARKINGS ON THE DRAWINGS. LETTERING SHALL BE 1/2" HIGH. PROVIDE ADHESIVE BACKED PLASTICIZED MARKERS FOR DUCTWORK. PIPING IDENTIFICATION TO FOLLOW ASME 13 STANDARDS. LOCATE LABELING TO BE ABLE TO EASILY IDENTIFY PIPING SERVICE. PROVIDED ENGRAVED BRASS OR LAMINATED PLASTIC VALVE TAGS WITH STAINLESS STEEL BALL CHAIN FASTENER. PROVIDE VALVE TAG SCHEDULE WITH CLOSEOUT DOCUMENTS.

F. THIS CONTRACTOR SHALL PERFORM WORK IN A SAFE MANNER. COMPLY WITH ALL APPLICABLE OSHA SAFETY GUIDELINES IN ACCORDANCE WITH 29 CFR 1926 OSHA CONSTRUCTION INDUSTRY REGULATIONS DURING THE COURSE OF COMPLETING THE WORK DESCRIBED IN THESE DOCUMENTS.

G. THIS CONTRACTOR SHALL KEEP AND MAINTAIN ON SITE A COPY OF ALL SAFETY DATA SHEETS FOR ALL PRODUCTS AND MATERIALS ON SITE WHICH COMPLY WITH THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICALS. THIS INCLUDES:

1. MAINTAINING A HAZARD COMMUNICATION PROGRAM DETAILING THE PLANS IN PLACE FOR THE SAFE HANDLING OF CHEMICALS
2. MAINTAINING A WRITTEN CHEMICAL INVENTORY OF EVERY HAZARD CHEMICAL IN THE FACILITY TO WHICH EMPLOYEES ARE EXPOSED
3. MAINTAINING PROPER LABELS AND WARNING SIGNS ASSOCIATED WITH SAID CHEMICALS
4. TRAINING EMPLOYEES ON CHEMICAL HAZARDS AND NECESSARY PRECAUTIONS

H. NO CHEMICALS MAY BE STORED IN ANY CONTAINERS OTHER THAN THE ORIGINAL MANUFACTURER'S CONTAINERS.

1. INSTALL ALL ITEMS PER THE MANUFACTURER'S INSTRUCTIONS AND PROVIDE PROPER ELECTRICAL AND MAINTENANCE CLEARANCES.

1.1 COORDINATION

A. COORDINATE THE ROUTING OF ALL MECHANICAL SYSTEMS WITH THE OTHER TRADES TO AVOID CONFLICTS WITH DUCTS, PIPES, ETC. ITEMS REQUIRING PITCH MUST BE CONSIDERED FOR THEIR RIGHT-OF-WAY.

B. GENERAL CONTRACTOR (G.C.) SHALL PROVIDE AND INSTALL ALL PRIMARY STRUCTURAL SUPPORT, UNIFORM LEVEL, FOR ALL FLOOR, CEILING, OR ROOF MOUNTED EQUIPMENT OR COMPONENTS AS DESIGNED BY ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY THE JURISDICTION OF AUTHORITY.

C. THIS CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES. ANY DISCREPANCIES SHALL BE RELAYED TO NDBS FOR COMMENT AND CORRECTIVE ACTION AS NEEDED.

D. ALL LINTELS, FRAMING, FURRING, PATCHING, AND PAINTING REQUIRED WILL BE PROVIDED BY THE G.C.

E. ALL GAS PIPING EXPOSED TO WEATHER SHALL BE PAINTED BY THE G.C.

F. THE G.C. SHALL PROVIDE ALL PADS AS REQUIRED FOR THE INSTALLATION OF THE HVAC EQUIPMENT. PADS SHALL BE PROVIDED IN ACCORDANCE WITH THE STRUCTURAL ENGINEER'S DESIGN FOR SITE CONDITIONS, WEIGHT, SEISMIC AND WIND CONSIDERATIONS. HEIGHT OF THE PAD SHALL (FOR GRAVITY DRAIN EQUIPMENT) SHALL BE FIELD ADJUSTED BY G.C. BASED ON APPROVED EQUIPMENT SUBMITTALS.

G. E.C. SHALL MOUNT AND WIRE/CONNECT ALL 460 VOLT AND 120 VOLT COMPONENTS (RELAYS, FAN WIRING, HIGH LIMITS, SOLENOIDS, CONTROLLERS, ETC…) AND OTHER ELECTRICAL COMPONENTS FURNISHED BY THIS CONTRACTOR. THIS CONTRACTOR IS RESPONSIBLE FOR ALL 24 VOLT THERMOSTAT WIRING.

H. EQUIPMENT IS NOT INTENDED FOR TEMPORARY CONDITIONING UNLESS COORDINATED WITH NDBS AHEAD OF TIME. SHOULD NDBS APPROVE OF TEMPORARY USE, RETURN AIR OPENINGS SHALL BE PROTECTED WITH FILTER MEDIA (MINIMUM MERV 8) WHILE EQUIPMENT IS OPERATED DURING CONSTRUCTION.

1.2 CONSTRUCTION

A. ALL EQUIPMENT, PIPING SUPPORTS, AND DUCTWORK SUPPORTS SUSPENDED FROM ROOF JOISTS SHALL BE SUSPENDED FROM THE TOP CHORD OF THE JOIST UNLESS PRIOR APPROVAL FROM G.C. OR STRUCTURAL ENGINEER.

B. PROVIDE DUCT, PIPING AND HANGER PENETRATIONS THROUGH NON-RATED ENCLOSURES WITH DRAFT STOPPING OR SMOKE BARRIER SEALANT SYSTEMS. INSTALL PENETRATION SEALANT SYSTEMS IN STRICT ACCORDANCE TO MANUFACTURER'S APPLICATION DETAILS AND INSTRUCTIONS. PROVIDE DRAFT STOPPING OR SMOKE BARRIER SEALANTS TO MEET APPROVAL OF AHJ.

C. LOCATE AND PROVIDE SCHEDULE 40 STEEL SLEEVES AT ALL CONCRETE PENETARTIONS THROUGH WALLS AND FLOORS PRIOR TO CONCRETE BEING POURED. THIS SUBCONTRACTOR WILL BE RESPONSIBLE TO CORE DRILL ANY HOLE THAT IS NOT LOCATED PRIOR TO CONCRETE POURING, IN WHICH CASE A SLEEVE IS NOT REQUIRED. CORE DRILL HOLE OR SLEEVE SHALL PROVIDE MINIMUM 1" CLEARANCE AROUND ENTIRE CIRCUMFERENCE OF PIPE. CAULK ANNULAR SPACE WATERTIGHT. PROVIDE A LINK SEAL THROUGH ALL PENETRATIONS LOCATED BELOW GRADE.

D. PROTECT ALL EQUIPMENT, PIPING AND DUCTWORK OPENINGS DURING CONSTRUCTION WITH PLASTIC OR OTHER NON-POROUS MATERIAL TO LIMIT CONTAMINATION FROM DUST AND OTHER CONSTRUCTION DEBRIS. MATERIAL AND EQUIPMENT SHALL BE ELEVATED OFF FLOOR AND PROTECTED WHEN STORED ON SITE.

1.3 ACTION SUBMITTALS

A. PRODUCT DATA:

1. FOR ALL EQUIPMENT FURNISHED BY THIS CONTRACTOR
   (1) SHOP DRAWINGS INCLUDING AT A MINIMUM: CAPACITIES, DIMENSIONS, WEIGHTS, ELECTRICAL REQUIREMENTS, FAN AND PUMP CURVES
2. METAL DUCTS
   (1) LINERS AND ADHESIVES
   (2) SEALANTS AND GASKETS
3. PIPING
   (1) PIPING SPECIALTIES
   (2) VALVES
   (3) PRESSURE REGULATORS
   (4) PIPING SPECIALTIES ITEMS\

1.4 INFORMATIONAL SUBMITTALS

A. BRAZING AND WELDING CERTIFICATES

B. FIELD QUALITY-CONTROL REPORTS

SECTION 2 - FIELD QUALITY CONTROL

2.0 GENERAL

A. REFER TO PIPE SCHEDULE FOR PIPE TESTING REQUIREMENTS.

B. EQUIPMENT THAT IS NOT INTENDED TO BE SUBJECT TO THE TEST PRESSURE SHALL BE ISOLATED FROM THE PIPING. IF A VALVE IS USED TO ISOLATE THE EQUIPMENT, ITS CLOSURE SHALL BE CAPABLE OF SEALING AGAINST THE TEST PRESSURE WITHOUT DAMAGE TO THE VALVE. FLANGED JOINTS AT WHICH BLINDS ARE INSERTED TO ISOLATE EQUIPMENT NEED NOT BE TESTED.

C. PIPE PRESSURE TEST REPORTS ARE REQUIRED AS PART OF THE PROJECT CLOSE OUT DOCUMENTS AND ARE TO INCLUDE WITNESS SIGNATURES. A WRITTEN FIELD PRESSURE TEST DECLARATION SHALL BE PREPARED DOCUMENTING THE FIELD TEST PROCEDURE AS REQUIRED BY APPLICABLE CODE AND PROVIDE TO NDBS AND THE BUILDING INSPECTOR PRIOR TO FINAL APPROVAL.

D. DURING PRESSURE TESTING, VERIFY THAT STRESS DUE TO PRESSURE AT BOTTOM OF VERTICAL RISERS DOES NOT EXCEED 90% OF SPECIFIED MINIMUM YIELD STRENGTH OR 1.7 TIMES "SE" VALUE AS LISTED IN ASME B31.9.

SECTION 3 – EQUIPMENT TESTING AND START-UP

3.0 GENERAL

A. PRIOR TO START-UP PROCEDURES, SUBMITTAL DOCUMENTATION SHALL BE VERIFIED FOR COMPLETENESS AND CORRECTNESS AS IT APPLIES TO ALL INSTALLED EQUIPMENT BASED ON THE CURRENT CONTRACT DOCUMENTS.

B. SUBMITTALS SHALL BE COMPARED TO ALL INSTALLED EQUIPMENT AND VERIFICATION MADE THAT EACH DOCUMENT MATCHES THE FINAL INSTALLATION. THE FOLLOWING ITEMS SHALL BE SPECIFICALLY VERIFIED:

1. TAGGING OF EQUIPMENT AND MODEL NUMBER IS CONSISTENT WITH DOCUMENTS, SUBMITTALS AND NAMEPLATE DATA.
2. PHYSICAL DIMENSIONS COINCIDE WITH INSTALLATION INCLUDING SERVICE CLEARANCES.
3. SHIPPED LOOSE ACCESSORIES ARE PROPERLY INSTALLED.

C. THIS CONTRACTOR SHALL FILL OUT ALL MANUFACTURER START-UP SHEETS AS A CLOSE OUT DOCUMENT

NOT FOR CONSTRUCTION

NDBS NATIONAL DESIGN / BUILD SERVICES
11840 Borman Dr.
St. Louis, MO 63146
P: 636.229.8400
F: 636.229.8416

THE PERSONAL SEAL AFFIXED TO THIS SHEET INDICATES THAT THE PROFESSIONAL ENGINEER WHOSE NAME APPEARS THEREON HAS PREPARED OR HAS DIRECTED THE PREPARATION OF THE MATERIAL ON THIS SHEET. OTHER DRAWINGS, SPECIFICATIONS, REPORTS, DOCUMENTS OR INSTRUCTIONS, NOT EXHIBITING THIS SEAL, RELATING TO OR INTENDED TO BE USED FOR ANY PARTS OR PART OF THE PROJECT IN WHICH THIS SHEET REFERS, SHALL NOT BE CONSIDERED PREPARED BY OR THE RESPONSIBILITY OF THE UNDERSIGNED AND IS HEREBY DISCLAIMED IN ACCORDANCE WITH SECTION 327.411 2 R.S. MO.

DESIGNER / BUILDER
ARCO DESIGN/BUILD
44 SOUTH BROADWAY, SUITE 1003
WHITE PLAINS, NY 10601
P: 914.821.5535 F: 914.306.6010

ADB | DESIGN SERVICES

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25 OLD MILL RD. SUFFERN, NY 10901

OWNER
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EAST RUTHERFORD,NJ 07073

ARCHITECT
ADB / DESIGN SERVICES LLC
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CIVIL ENGINEER
DYNAMIC ENGINEERING CONSULTANTS
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STRUCTURAL ENGINEER
ADB STRUCTURAL ENGINEERING
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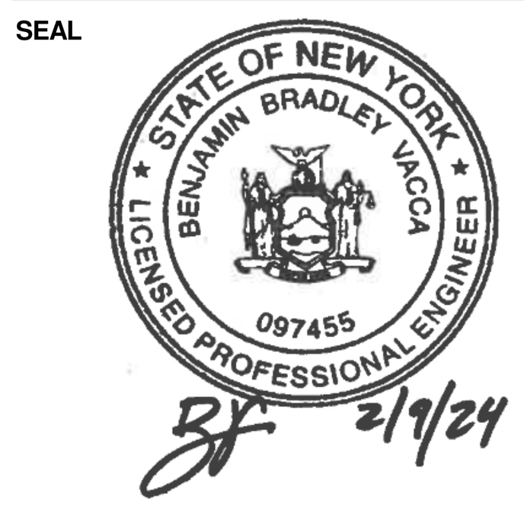
MECHANICAL ENGINEER
NATIONAL DESIGN BUILD SERVICES
11840 BORMAN DRIVE
MARYLAND HEIGHTS, MO 63146

ELECTRICAL ENGINEER
FXB ENGINEERING
5 CHRISTY DRIVE, SUITE 307
CHADDS FORD, PA 19317

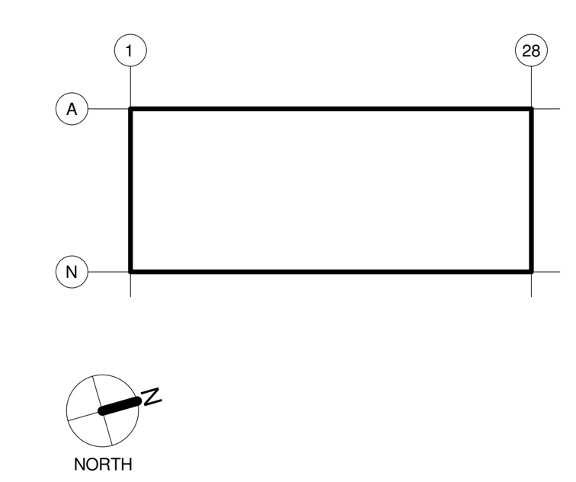
PLUMBING ENGINEER
MCCARTHY ENGINEERING
2500 E HIGH STREET, SUITE 630
POTTSTOWN, PA 19464

FIRE PROTECTION ENGINEER
S.A. COMUNALE
2900 NEWPARK DRIVE
BARBERTON, OH 44203

SEAL



KEY PLAN



SUBMITTALS

REV	Date	Description
A	01/12/2024	70% PROGRESS SET
B	02/02/2024	85% PROGRESS SET
C	02/09/2024	PERMIT SET

PROJECT NO.	DRAWN BY
J23289	AML

SHEET TITLE
COVER SHEET

SHEET NO.
M000