

LINE DESIGNATION SYMBOLS

CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CA	COMPRESSED AIR
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
D	DRAIN
HPR	HEAT PUMP RETURN
HPS	HEAT PUMP SUPPLY
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
G	NATURAL GAS
RH	REFRIGERANT HIGH PRESSURE VAPOR
R	REFRIGERANT LIQUID AND VAPOR LINE
RS	REFRIGERANT SUCTION / VAPOR
SMR	SNOWMELT RETURN
SMS	SNOWMELT SUPPLY
V	VENT PIPING

RESPONSIBLE DIVISION:

UNLESS OTHERWISE INDICATED ALL HEATING, VENTILATING, AIR CONDITIONING, PLUMBING, AND OTHER MECHANICAL EQUIPMENT, MOTORS, AND CONTROLS SHALL BE FURNISHED, SET IN PLACE AND WIRED AS FOLLOWS:

EQUIPMENT	FURNISHED	SET	POWER WIRED	CONTROL WIRED
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFDs AND CONTACTORS	23(1)	26	26(2)	23
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	26	26	26	--
MANUAL OPERATING AND MULTI-SPEED SWITCHES	23	26	26	26
CONTROLS, RELAYS, TRANSFORMERS	23	23	26	23
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	23	23	26	23
THERMOSTATS (LINE VOLTAGE)	23	23	26	26
TEMPERATURE CONTROL PANELS	23	23	26	23
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	23	23(2)	--	23(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	23	23(2)	--	23(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	23	23	26	23
EXHAUST FAN SWITCHES	23	26	26	23(2)

SUBSCRIPT FOOTNOTES:

- MOTOR STARTER TO INCLUDE CONTROL TRANSFORMER, HOA SWITCH, (1) NO AND (1) NC AUXILIARY CONTACT, AND "ON" AND "OFF" PILOT LIGHTS.
- IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 26, WHERE FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE VOLTAGE FURNISH AND SET UNDER DIVISION 23, CONNECT UNDER DIVISION 26.

ABBREVIATIONS:

44" MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER OF DEVICE	DIFF DIFFERENTIAL	HR HOUR	PT PRESSURE TRANSMITTER
A AMPS	DISCH DISCHARGE	HTR HEIGHT	PTAC PACKAGED TERMINAL AIR CONDITIONER
A.D. ACCESS DOOR	DIV DIVISION	HTR HEATER	PV PLUS VALVE
AAV AIR ADMITTANCE VALVE	DN DOWN	HWR HEATING WATER RETURN	PVC POLYVINYL CHLORIDE
ABV ABOVE	DS DUCT SILENCER	HWS HEATING WATER SUPPLY	QTY QUANTITY
AC AIR CONDITIONING UNIT	DWG DRAWING	HX HEAT EXCHANGER	RA RETURN AIR GRILLE / REGISTER
AC ABOVE COUNTER	DX DIRECT EXPANSION	IG INSIDE DIAMETER	RCP REFLECTED CEILING PLAN
AD AREA DRAIN (SEE SYMBOLS)	(E) EXISTING	IG ISOLATED GROUND	RD ROOF DRAIN
A.F.C. ABOVE FINISHED CEILING	EA EXHAUST AIR GRILLE/REGISTER	IN INCHES	REL RELIEF
A.F.G. ABOVE FINISHED GRADE	EA ENTERING AIR TEMPERATURE	INV INVERT	REOD REQUIRED
AIC AMPERE INTERRUPTING CAPACITY	EC ELECTRICAL CONTRACTOR	JJB JOINT BOX	RF RETURN FAN
A.F.F. ABOVE FINISHED FLOOR	EF EXHAUST FAN	K KELVIN	RH RELATIVE HUMIDITY
AHU AIR HANDLING UNIT	EFF EFFICIENCY	KW KILOWATT	RHC REHEAT COIL
ALUM ALUMINUM	EL ELEVATION	KVA KILO VOLT - AMPS	RLA RATED LOAD AMPS
AP ACCESS PANEL OR DOOR	ELEC ELECTRIC	L LENGTH	RM ROOM
ATS AUTOMATIC TRANSFER SWITCH	ELEV ELEVATOR	LAT LEAVING AIR TEMPERATURE	RPV REVOLUTIONS PER MINUTE
AV AUDIO / VIDEO	EM EMERGENCY FUNCTION	LV LEAVING AIR TEMPERATURE	SA SUPPLY AIR GRILLE / REGISTER
AVG AVERAGE	ENT ENTERING	LB POUND	SC SHORT CIRCUIT
AWG AMERICAN WIRE GAGE	EMT ELECTRIC METALLIC TUBE	LD LINEAR DIFFUSER	SCA SHORT CIRCUIT AVAILABLE
BAS BUILDING AUTOMATION SYSTEM	EQ EQUAL	LF LINEAR FEET	SCCR SHORT CIRCUIT CURRENT RATING
BB BASEBOARD	EQUIP EQUIPMENT	LIN LINEAR	SCH SCHEDULE
BD BACK DRAFT DAMPER	EQUIV EQUIVALENT	LQ LIQUID	SD SMOKE DAMPER
BFP BACK FLOW PREVENTOR	ES END SWITCH	LUM LUMEN	SEF SMOKE EXHAUST FAN
BL BOILER	ESP EXTERNAL STATIC PRESSURE	LRA LOCKED ROTOR AMPS	SF SUPPLY FAN
BLDG BUILDING	ET EXPANSION TANK	LV LOUVER	SH SENSIBLE HEAT
BLW BELOW	EWC ELECTRIC WATER COOLER	LWG LEAVING	SH SHOWER
BOS BOTTOM OF BEAM	EWT ENTERING WATER TEMPERATURE	LWT LEAVING WATER TEMPERATURE	SP STATIC PRESSURE
BOD BOTTOM OF DUCT	MBH THOUSANDS OF BTU PER HOUR	TEMPERATURE	SPD SURGE PROTECTION DEVICE
BOP BOTTOM OF PIPE	EX EXHAUST	MC MECHANICAL CONTRACTOR	SPEC SPECIFICATION
BSMT BASEMENT	EXPAN EXPANSION	MCA MINIMUM CIRCUIT AMPACITY	SQ SQUARE
BTU BRITISH THERMAL UNIT	EXT EXTERNAL	MCB MAIN CIRCUIT BREAKER	SS STAINLESS STEEL
C CHILLER	F DEGREES FAHRENHEIT	MD MOTORIZED DAMPER	SS SAFETY SHOWER
CAP CAPACITY	FA FREE AREA	MDP MAIN DISTRIBUTION PANEL	STD STANDARD
CB CIRCUIT BREAKER	FC FAN COIL UNIT	MED MEDIUM	STL STEEL
CBV CIRCUIT BALANCING VALVE	FC FOOTCANDLE	MFR MANUFACTURER	SYS SYSTEM
CCT CORRELATED COLOR TEMPERATURE	FCV FLOW CONTROL VALVE	MIN MINIMUM	TEMP TEMPERATURE
CKT CIRCUIT	FD FLOOR DRAIN	MISC MISCELLANEOUS	TR TRANSFER GRILLE / REGISTER
CFM CUBIC FEET PER HOUR	FIN FINISHED	MSOP MAXIMUM OVERCURRENT PROTECTION	TR TAMPER RESISTANT
CFM CUBIC FEET PER MINUTE	FLA FULL LOAD AMPS	MTD MOUNTED	TT TEMPERATURE TRANSMITTER
CHWR CHILLED WATER RETURN	FLEX FLEXIBLE	MUA MAKE-UP AIR UNIT	TTB TELECOMMUNICATIONS TERMINAL BACKBOARD
CHWS CHILLED WATER SUPPLY	FLR FLOOR	N NEUTRAL	TTY TYPICAL
CI CAST IRON	FOB FLAT ON BOTTOM	NC NORMALLY CLOSED	TX TRANSFORMER
CL CENTER LINE	FOT FLAT ON TOP	NEG NEGATIVE	UC UNDERCUT DOOR
CLG CEILING	FP FIRE PROTECTION	NIC NOT IN CONTRACT	UH UNIT HEATER
CMU CONCRETE MASONRY UNIT	FP FIRE PUMP	NL NIGHT / SECURITY LIGHT - DO NOT SWITCH	UNO UNLESS NOTED OTHERWISE
CO CLEAN OUT	FPM FEET PER MINUTE	NO NORMALLY OPEN	UNOCO UNOCCUPIED
COL COLUMN	FPS FEET PER SECOND	NOM NOMINAL	UR URINAL
COMP COMPRESSOR	FS FLOW SWITCH	NTS NOT TO SCALE	V VOLTS
CONC CONCRETE	FSD FIRESMOKE DAMPER	OA OUTSIDE AIR	VA VOLT AMPERE
COND CONDENSATE	FT FEET	OBD OPPOSED BLADE DAMPER	VA VALVE
CONN CONNECTION	FXC FLEXIBLE CONNECTION	OC ON CENTER	VAV VARIABLE AIR VOLUME UNIT
CONT CONTINUATION	GND GROUND	OC OCCURRED	VFD VARIABLE FREQUENCY DRIVE
CONTR CONTRACTOR	GA GAUGE	OC OVER CURRENT PROTECTION	VRF VARIABLE REFRIGERANT FLOW
CRI COLOR RENDERING INDEX	GAL GALLON	OD OUTSIDE DIAMETER	VOLT VOLTAGE
CT COOLING TOWER	GALV GALVANIZED	OL OVERLOAD	VTR VENT THROUGH ROOF
CT CURRENT TRANSFORMER	GEC GROUND ELECTRODE CONDUCTOR	ORD OVERFLOW ROOF DRAIN	W WIDTH
CU CONDENSING UNIT	GFCI / GFI GROUND FAULT CIRCUIT INTERRUPTER	OZ OUNCE	W WATTS
CU COPPER	GC GENERAL CONTRACTOR	PBD PARALLEL BLADE DAMPER	W/ WITH
CUH CABINET UNIT HEATER	GPH GALLONS PER HOUR	PD PRESSURE DROP	W/ WITHOUT
CVB CONSTANT VOLUME BOX	GPM GALLONS PER MINUTE	PH PHASE	WB WET BULB
CWR CONDENSER WATER RETURN	GRSLB GRAINS PER POUND	POS POSITIVE PRESSURE	WC WATER CLOUSE
CWS CONDENSER WATER SUPPLY	H 2O WATER	POS POINT OF SALES	WG WATER GAUGE
DB DRY BULB	HB HOSE BIBB	PRV PRESSURE REDUCING VALVE	WP WEATHERPROOF
DEPT DEPARTMENT	HD HEAD (SEE SCHEDULES)	PS PRESSURE SWITCH	WPUF WEATHERPROOF IN-USE
DF DRINKING FOUNTAIN	HP HEAT PUMP	PSI POUNDS PER SQUARE INCH	WSR WITHSTAND RATING
DA DIAMETER			XMR TRANSFORMER
DIAG DIAGRAM			

SUBSTITUTIONS:

A. SUBSTITUTIONS: SUBSTITUTION OF SPECIFIED EQUIPMENT WILL BE ALLOWED THROUGH A PRIOR APPROVAL PROCESS INITIATED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT INTENDED SUBSTITUTION AT LEAST FIVE DAYS PRIOR TO BID FOR APPROVAL FROM ENGINEER. SUBMITTAL SHALL INCLUDE CAPACITIES, DIMENSIONS AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT. SUBSTITUTION SHALL OCCUR AT NO COST TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF APPROVED SUBSTITUTION AND SHALL INCUR ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING STRUCTURAL MODIFICATIONS, SPACE LAYOUT AND REDESIGN COSTS. SEE ALSO DIVISION 1 GENERAL REQUIREMENTS.

EXAMINATION OF SITE, DRAWINGS, SPECIFICATIONS:

- EXAMINE CAREFULLY THE SITE AND CONDITIONS OF THE SITE. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR TO INSTALL A COMPLETE WORKING SYSTEM WITHIN THE SITE CONDITIONS.
- EXAMINE THE DRAWINGS AND SPECIFICATIONS AND 5 DAYS PRIOR TO BIDDING REPORT ANY ERRORS, OMISSIONS, INCONSISTENCIES, AND CONFLICTS TO THE ENGINEER TO BE REMEDIED IN AN ADDENDUM TO THE PROJECT PRIOR TO BID TIME.
- DRAWINGS ARE DIAGRAMMATIC AND CATALOG NUMBERS GIVEN ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CAPACITY OF THE EQUIPMENT MEETS THE DRAWING REQUIREMENTS AND SHALL NOT DIMENSION FROM THE MECHANICAL, PLUMBING, OR PIPING DRAWINGS.
- THE LATEST ADOPTED VERSIONS OF THE INTERNATIONAL BUILDING CODES SHALL BE USED AS REQUIRED. THIS WILL ALSO INCLUDE THE LATEST ADOPTED VERSIONS OF THE MECHANICAL, PLUMBING AND ENERGY CONSERVATION CODES. ALL METHODS AND MATERIALS REQUIRED BY THESE CODES SHALL BE REQUIRED BY THESE SPECIFICATIONS UNLESS INDICATED OTHERWISE. OTHER APPLICABLE LOCAL CODES AND ORDINANCES SHALL BE AS REQUIRED AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE KNOWLEDGEABLE OF THESE REQUIREMENTS.
- WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED FOR CODE COMPLIANCE
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M0-1

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN CONNECTION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



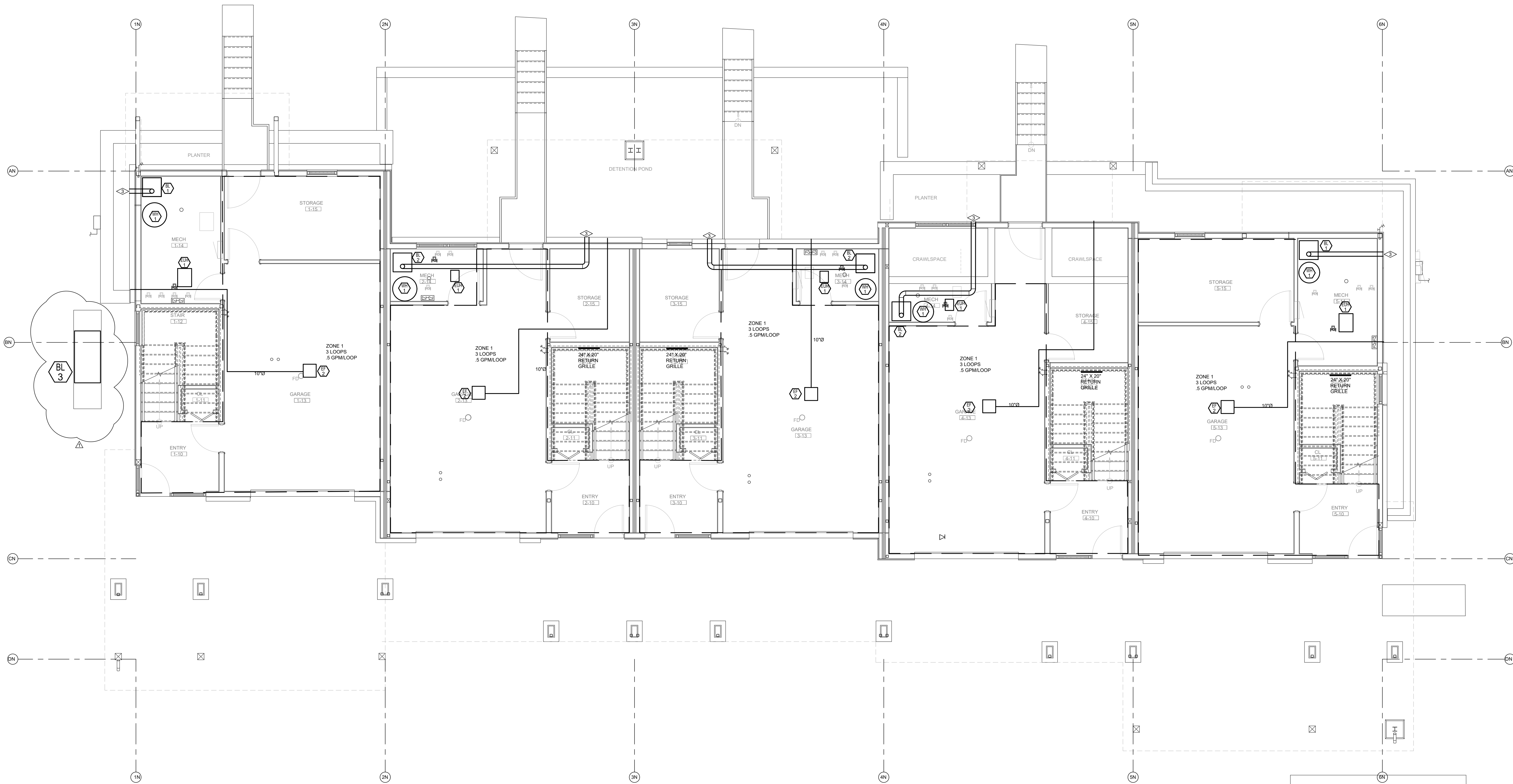
DATE	06/17/2022
JOB NO.	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M1-1

MECHANICAL GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- DUCT DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL DUCTING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS. (SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH NOT LESS THAN R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND WHERE LOCATED OUTSIDE THE BUILDING WITH NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. WHERE LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. MESA COUNTY IS **CLIMATE ZONE 5B**).
- COORDINATE FINAL LOCATION OF THERMOSTAT WITH OWNER PRIOR TO INSTALLATION. IF THERMOSTAT IS LOCATED ON EXTERIOR WALL PROVIDE THERMOSTAT WITH INSULATED BACKING.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS. PVC SHALL NOT BE USED FOR FLUE/COMBUSTION AIR VENTING MATERIAL. ENGINEERS PREFERRED MATERIAL IS PRESSURE RATED, DOUBLE WALL, GASKETED, 316 STAINLESS STEEL CONDENSING FLUE VENTING MATERIAL, RECOMMENDED MANUFACTURER'S SELKIRK OR JERMAK.
- ALL REFRIGERANT LINES SHALL BE INSULATED IN A WORKMAN LIKE MANNER PER MANUFACTURER'S INSTRUCTIONS. REFRIGERANT LINES/SET LONGEST LENGTHS SHALL BE 75'.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL MOTORIZED DAMPERS ON OUTDOOR AIR INTAKES AND EXHAUST SHALL BE PROVIDED WITH CLASS I-A MOTORIZED DAMPERS WITH A MAXIMUM LEAKAGE RATE OF 4 CFM/FT² AT 1.0 INCH WATER GAUGE WHEN TESTED IN ACCORDANCE WITH AMCA 5000. (PER 2012 IECC)
- MECHANICAL CONTRACTOR SHALL FIELD LOCATE EXISTING DUCTWORK PRIOR TO CONSTRUCTION. MECHANICAL CONTRACTOR SHALL COORDINATE TIE IN CONNECTION POINTS OF NEW SUPPLY DIFFUSERS WITH EXISTING DUCTWORK AS NECESSARY.
- MECHANICAL EQUIPMENT MANUFACTURERS AS SCHEDULED ON MECHANICAL DRAWINGS ARE SUGGESTED MANUFACTURER'S. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES. MECHANICAL CONTRACTOR CAN SUBMIT EQUIVALENT EQUIPMENT FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED MECHANICAL EQUIPMENT. ALTERNATE MANUFACTURERS OF MECHANICAL EQUIPMENT WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.
- SINGLE PHASE VRF HEAT PUMP CONDENSER MODULES SHALL BE PROVIDED WITH LOCAL POWER SOURCE PROTECTION. POWER SOURCE PROTECTION DEVICE SHALL BE BETWEEN MAIN POWER SUPPLIED TO THE UNIT AND INTERNAL COMPONENTS. POWER PROTECTION DEVICE SHALL PROVIDE PROTECTION FROM VOLTAGE SAG AND SPORADIC FREQUENCY. POWER PROTECTION DEVICE SHALL AUTOMATICALLY SHUT OFF CONDENSER MODULE UPON DETECTION OF POWER EVENT. PHASE PROTECTION DEVICE SHALL AUTOMATICALLY ENERGIZE AND START UP CONDENSER MODULE UPON POWER EVENT ENDING. POWER MONITOR PROTECTION DEVICE SHALL BE SIMILAR EQUIVALENT TO ICM #492 WITH 2-POLE CONFIGURATIONS.

FLAG NOTES:

- EXHAUST FAN TERMINATION: FIELD COORDINATE EXACT LOCATION OF TERMINATION AND MAINTAIN ALL CODE REQUIRED CLEARANCES AS PRESCRIBED BY THE I.M.C.
- DRYER DUCTED ROUTED TO EXTERIOR. COORDINATE ROUTING AND VERIFY MAXIMUM LENGTH WITH MANUFACTURER.
- COORDINATE FINAL COAXIAL BOILER FLUE TERMINATION LOCATION PER I.M.C. REQUIREMENTS.
- FINAL LOCATION, INSTALLATION, AND COORDINATION TO BE DETERMINED BY CONTRACTOR PER THE MANUFACTURER REQUIREMENTS.
- APRIL AIRE MODEL 300 HUMIDIFIER.
- 100 IN² OPENING IN LAUNDRY ROOM.



MECHANICAL - NORTH BUILDING - LEVEL 1 FLOOR PLAN
SCALE: 1/4"=1'-0"
NORTH

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR FOR ANY OTHER PROJECT WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M1-2

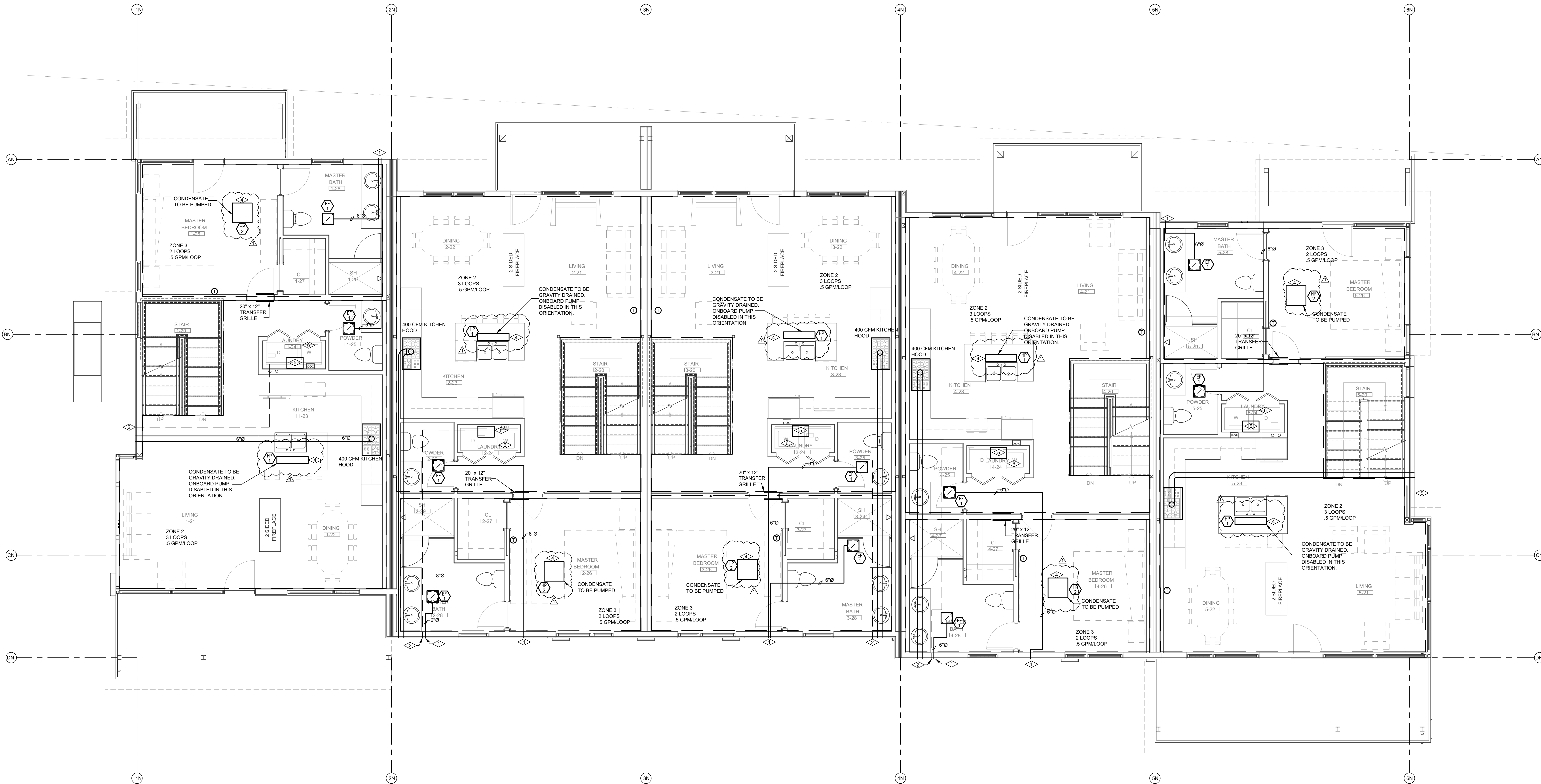
September 08, 2022 - 10:04:31am

MECHANICAL GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- DUCT DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL DUCTING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS. (SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH NOT LESS THAN R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND WHERE LOCATED OUTSIDE THE BUILDING WITH NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. WHERE LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. MESA COUNTY IS CLIMATE ZONE 8B).
- COORDINATE FINAL LOCATION OF THERMOSTAT WITH OWNER PRIOR TO INSTALLATION. IF THERMOSTAT IS LOCATED ON EXTERIOR WALL PROVIDE THERMOSTAT WITH INSULATED BACKING.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS. PVC SHALL NOT BE USED FOR FLUE/COMBUSTION AIR VENTING MATERIAL. ENGINEERS PREFERRED MATERIAL IS PRESSURE RATED, DOUBLE WALL, GASKETED, 316 STAINLESS STEEL CONDENSING FLUE VENTING MATERIAL. RECOMMENDED MANUFACTURERS: SELKIRK OR JERMAX.
- ALL REFRIGERANT LINES SHALL BE INSULATED IN A WORKMAN LIKE MANNER PER MANUFACTURER'S INSTRUCTIONS. REFRIGERANT LINES/SET LONGEST LENGTHS SHALL BE 75'.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL MOTORIZED DAMPERS ON OUTDOOR AIR INTAKES AND EXHAUST SHALL BE PROVIDED WITH CLASS IA MOTORIZED DAMPERS WITH A MAXIMUM LEAKAGE RATE OF 4 CFM/FT² AT 1.0 INCH WATER GAUGE WHEN TESTED IN ACCORDANCE WITH AMCA 5000. (PER 2012 IECC)
- MECHANICAL CONTRACTOR SHALL FIELD LOCATE EXISTING DUCTWORK PRIOR TO CONSTRUCTION. MECHANICAL CONTRACTOR SHALL COORDINATE TIE IN CONNECTION POINTS OF NEW SUPPLY DIFFUSERS WITH EXISTING DUCTWORK AS NECESSARY.
- MECHANICAL EQUIPMENT MANUFACTURERS AS SCHEDULED ON MECHANICAL DRAWINGS ARE SUGGESTED MANUFACTURERS. UNLESS NOTED OTHERWISE DUE TO OWNER/CIENT REQUIREMENTS AND PREFERENCES. MECHANICAL CONTRACTOR CAN SUBMIT EQUIVALENT EQUIPMENT FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED MECHANICAL EQUIPMENT. ALTERNATE MANUFACTURERS OF MECHANICAL EQUIPMENT WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.
- SINGLE PHASE VRF HEAT PUMP CONDENSER MODULES SHALL BE PROVIDED WITH LOCAL POWER SOURCE PROTECTION. POWER SOURCE PROTECTION DEVICE SHALL BE BETWEEN MAIN POWER SUPPLIED TO THE UNIT AND INTERNAL COMPONENTS. POWER PROTECTION DEVICE SHALL PROVIDE PROTECTION FROM VOLTAGE SAG AND SPORADIC FREQUENCY. POWER PROTECTION DEVICE SHALL AUTOMATICALLY SHUT OFF CONDENSER MODULE UPON DETECTION OF POWER EVENT. PHASE PROTECTION DEVICE SHALL AUTOMATICALLY ENERGIZE AND START UP CONDENSER MODULE UPON POWER EVENT ENDING. POWER MONITOR PROTECTION DEVICE SHALL BE SIMILAR/EQUIVALENT TO ICM #492 WITH 2-POLE CONFIGURATIONS.

FLAG NOTES:

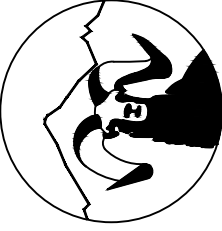
- EXHAUST FAN TERMINATION. FIELD COORDINATE EXACT LOCATION OF TERMINATION AND MAINTAIN ALL CODE REQUIRED CLEARANCES AS PRESCRIBED BY THE I.M.C.
- DRYER DUCTED ROUTED TO EXTERIOR. COORDINATE ROUTING AND VERIFY MAXIMUM LENGTH WITH MANUFACTURER.
- COORDINATE FINAL COAXIAL BOILER FLUE TERMINATION LOCATION PER I.M.C. REQUIREMENTS.
- FINAL LOCATION, INSTALLATION, AND COORDINATION TO BE DETERMINED BY CONTRACTOR PER THE MANUFACTURER REQUIREMENTS.
- APRIL AIRE MODEL 300 HUMIDIFIER.
- 100 IN² OPENING IN LAUNDRY ROOM
- CONDENSATE TO BE DRAINED



MECHANICAL - NORTH BUILDING - LEVEL 2 FLOOR PLAN
SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. UNLESS OTHERWISE NOTED, THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

 **Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M1-3

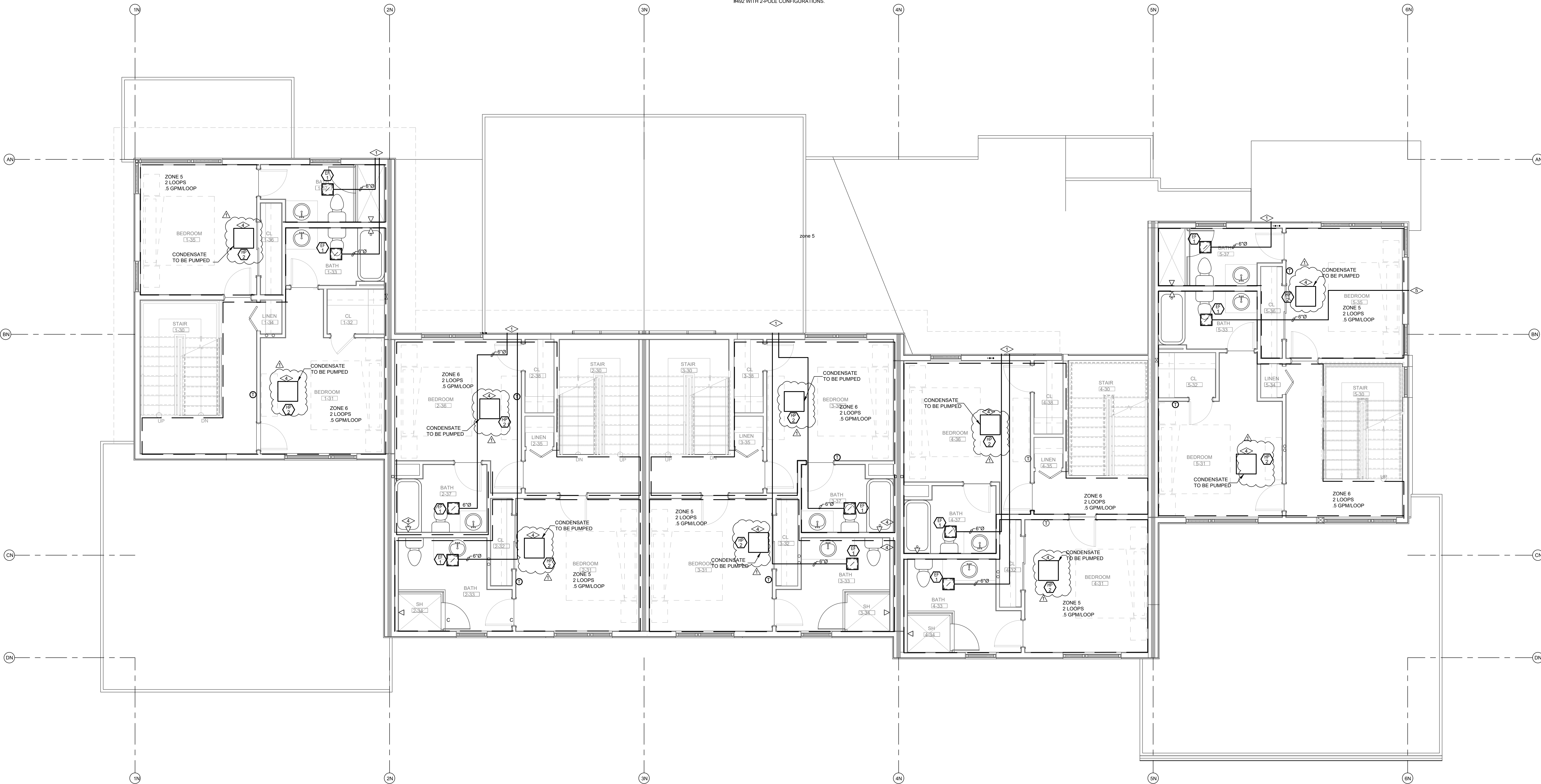
September 08, 2022 - 10:04:31am

MECHANICAL GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- DUCT DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL DUCTING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS. (SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH NOT LESS THAN R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND WHERE LOCATED OUTSIDE THE BUILDING WITH NOT LESS THAN R-4 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. WHERE LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. MESA COUNTY IS **CLIMATE ZONE 5B**).
- COORDINATE FINAL LOCATION OF THERMOSTAT WITH OWNER PRIOR TO INSTALLATION. IF THERMOSTAT IS LOCATED ON EXTERIOR WALL PROVIDE THERMOSTAT WITH INSULATED BACKING.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS. PVC SHALL NOT BE USED FOR FLUE/COMBUSTION AIR VENTING MATERIAL. ENGINEERS PREFERRED MATERIAL IS PRESSURE RATED, DOUBLE WALL, GASKETED, 316 STAINLESS STEEL CONDENSING FLUE VENTING MATERIAL. RECOMMENDED MANUFACTURER'S SELKIRK OR JERMIAS.
- ALL REFRIGERANT LINES SHALL BE INSULATED IN A WORKMAN LIKE MANNER PER MANUFACTURER'S INSTRUCTIONS. REFRIGERANT LINES/SET LONGEST LENGTHS SHALL BE 75'.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL MOTORIZED DAMPERS ON OUTDOOR AIR INTAKES AND EXHAUST SHALL BE PROVIDED WITH CLASS IA MOTORIZED DAMPERS WITH A MAXIMUM LEAKAGE RATE OF 4 CFM/FT² AT 1.0 INCH WATER GAUGE WHEN TESTED IN ACCORDANCE WITH AMCA 500D. (PER 2012 IECC)
- MECHANICAL CONTRACTOR SHALL FIELD LOCATE EXISTING DUCTWORK PRIOR TO CONSTRUCTION. MECHANICAL CONTRACTOR SHALL COORDINATE TIE IN CONNECTION POINTS OF NEW SUPPLY DIFFUSERS WITH EXISTING DUCTWORK AS NECESSARY.
- MECHANICAL EQUIPMENT MANUFACTURERS AS SCHEDULED ON MECHANICAL DRAWINGS ARE SUGGESTED MANUFACTURERS, UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES. MECHANICAL CONTRACTOR CAN SUBMIT EQUIVALENT EQUIPMENT FROM MANUFACTURERS THAT OFFER FROM SCHEDULED MECHANICAL EQUIPMENT. ALTERNATE MANUFACTURERS OF MECHANICAL EQUIPMENT WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.
- SINGLE PHASE VRF HEAT PUMP CONDENSER MODULES SHALL BE PROVIDED WITH LOCAL POWER SOURCE PROTECTION. POWER SOURCE PROTECTION DEVICE SHALL BE BETWEEN MAIN POWER SUPPLIED TO THE UNIT AND INTERNAL COMPONENTS. POWER PROTECTION DEVICE SHALL PROVIDE PROTECTION FROM VOLTAGE SAG AND SPORADIC FREQUENCY. POWER PROTECTION DEVICE SHALL AUTOMATICALLY SHUT OFF CONDENSER MODULE UPON DETECTION OF POWER EVENT. PHASE PROTECTION DEVICE SHALL AUTOMATICALLY ENERGIZE AND START UP CONDENSER MODULE UPON POWER EVENT ENDING. POWER MONITOR PROTECTION DEVICE SHALL BE SIMILAR/EQUIVALENT TO ICM #492 WITH 2-POLE CONFIGURATIONS.

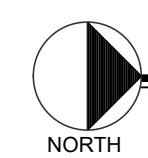
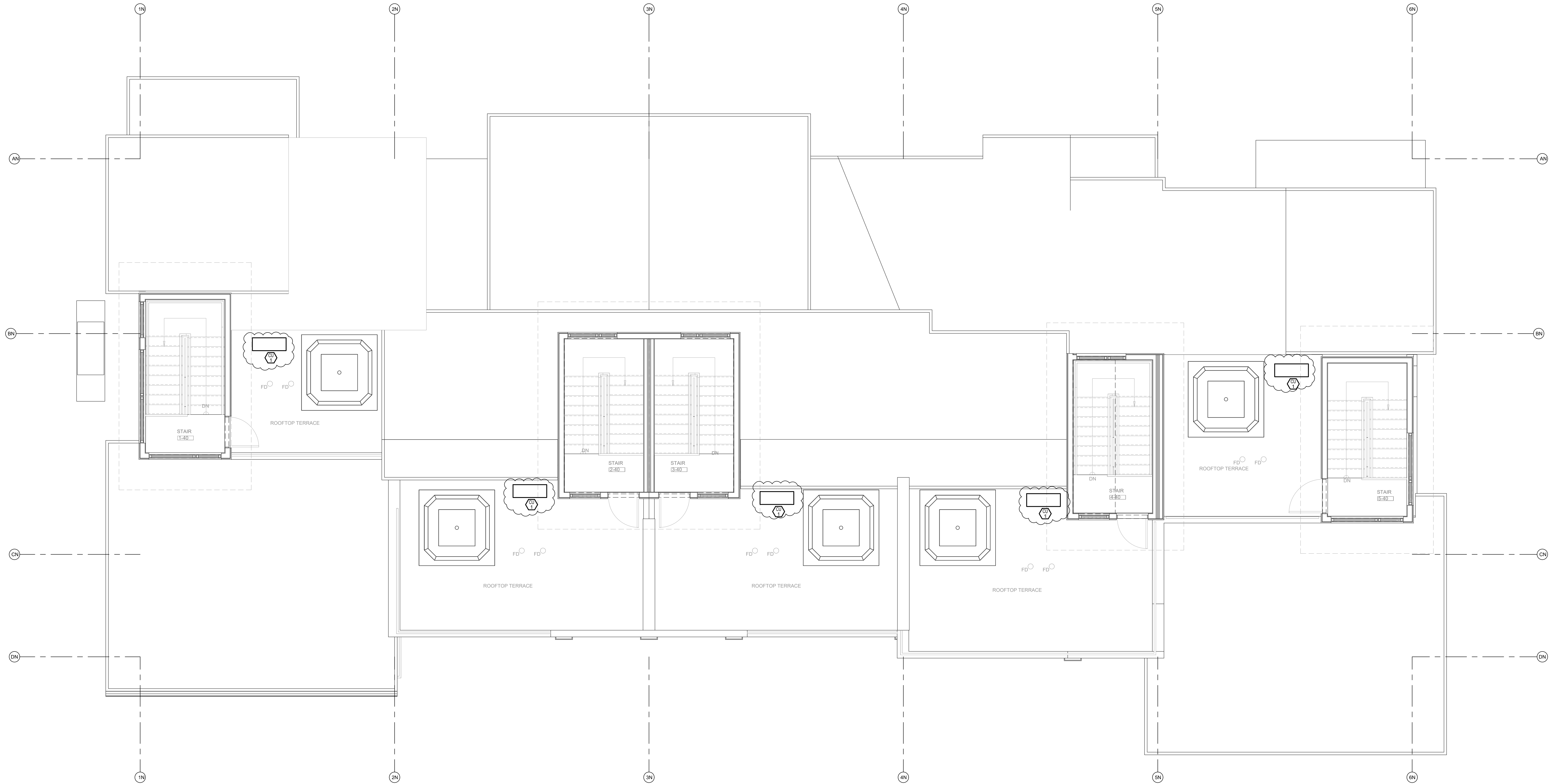
FLAG NOTES:

- EXHAUST FAN TERMINATION: FIELD COORDINATE EXACT LOCATION OF TERMINATION AND MAINTAIN ALL CODE REQUIRED CLEARANCES AS PRESCRIBED BY THE I.M.C.
- DRYER DUCTED ROUTED TO EXTERIOR. COORDINATE ROUTING AND VERIFY MAXIMUM LENGTH WITH MANUFACTURER.
- COORDINATE FINAL COAXIAL BOILER FLUE TERMINATION LOCATION PER I.M.C. REQUIREMENTS.
- FINAL LOCATION, INSTALLATION, AND COORDINATION TO BE DETERMINED BY CONTRACTOR PER THE MANUFACTURER REQUIREMENTS.
- APRIL AIRE MODEL 300 HUMIDIFIER.
- 100 IN² OPENING IN LAUNDRY ROOM.



MECHANICAL - NORTH BUILDING - LEVEL 3 FLOOR PLAN

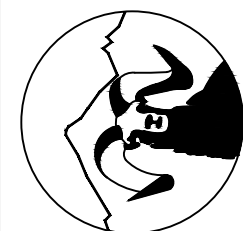
SCALE: 1/4"=1'-0"



MECHANICAL - NORTH BUILDING - LEVEL 3 FLOOR PLAN

SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.



Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

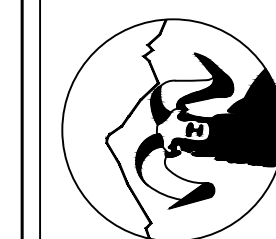
**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE	06/17/2022
JOB NO.	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M1-4

3386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709



Shorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

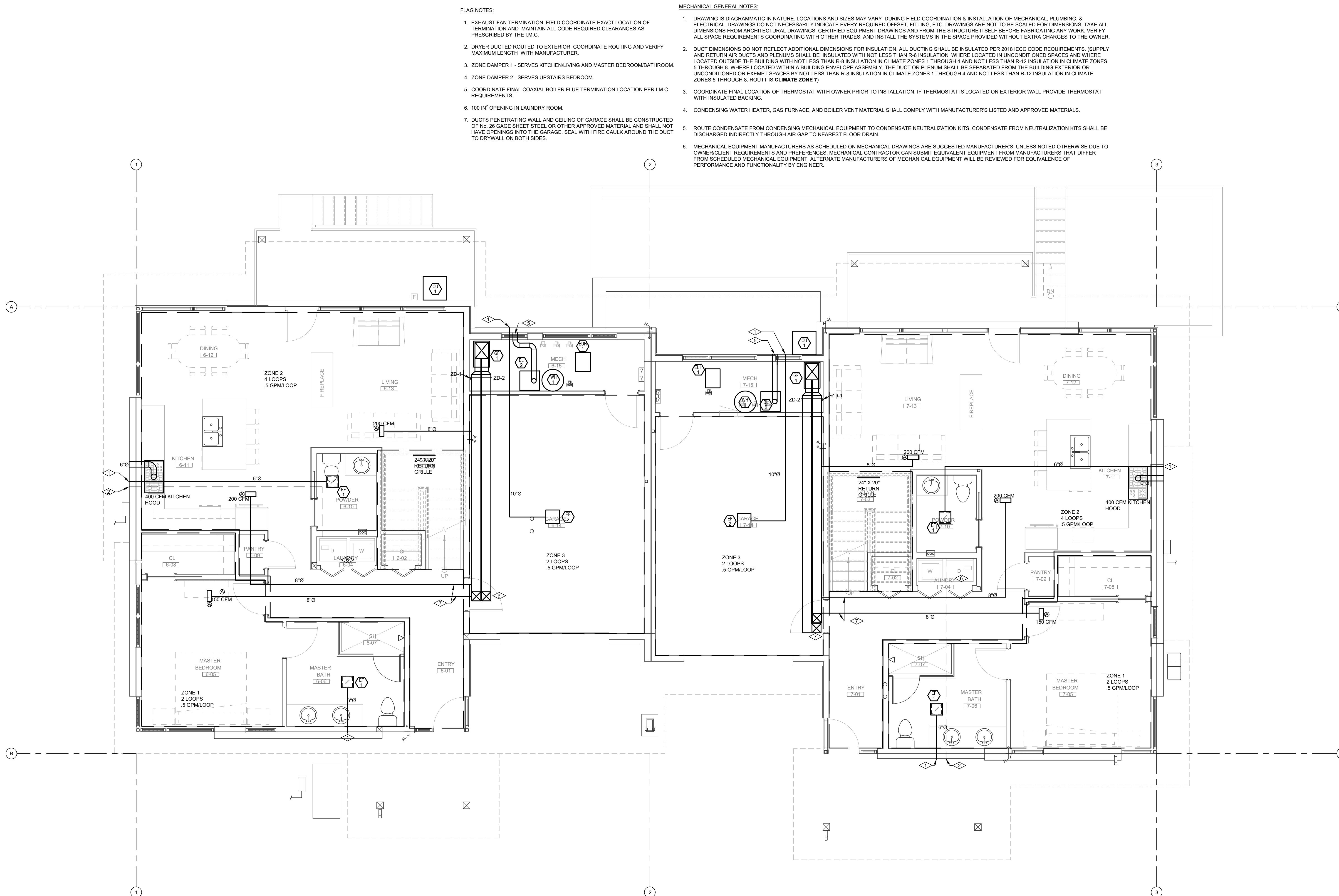
**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTION

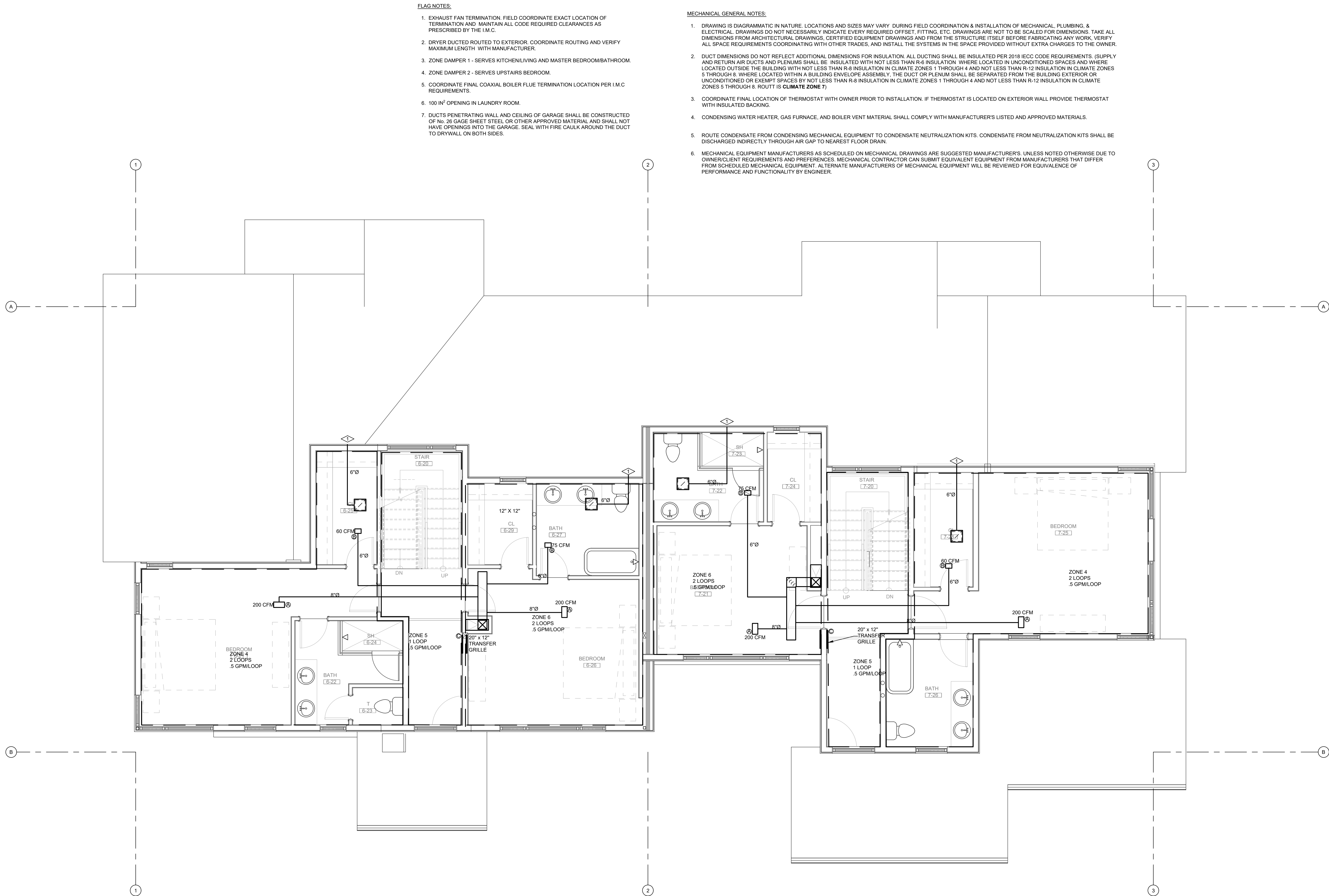


DATE:	06/17/20
JOB NO:	21-2
DRAWN BY:	BR
CHECKED BY:	BR
SCALE:	AS SHOWN
SHEET NUMBER:	

M1-5



MECHANICAL - SOUTH BUILDING - LEVEL 1 FLOOR PLAN



FLAG NOTES:

1. EXHAUST FAN TERMINATION: FIELD COORDINATE EXACT LOCATION OF TERMINATION AND MAINTAIN ALL CODE REQUIRED CLEARANCES AS PRESCRIBED BY THE I.M.C.
2. DRYER DUCTED ROUTED TO EXTERIOR. COORDINATE ROUTING AND VERIFY MAXIMUM LENGTH WITH MANUFACTURER.
3. ZONE DAMPER 1 - SERVES KITCHEN/LIVING AND MASTER BEDROOM/BATHROOM.
4. ZONE DAMPER 2 - SERVES UPSTAIRS BEDROOM.
5. COORDINATE FINAL COAXIAL BOILER FLUE TERMINATION LOCATION PER I.M.C. REQUIREMENTS.
6. 100 IN² OPENING IN LAUNDRY ROOM.
7. DUCTS PENETRATING WALL AND CEILING OF GARAGE SHALL BE CONSTRUCTED OF NO. 26 GAGE SHEET STEEL OR OTHER APPROVED MATERIAL AND SHALL NOT HAVE OPENINGS INTO THE GARAGE. SEAL WITH FIRE CAULK AROUND THE DUCT TO DRYWALL ON BOTH SIDES.

MECHANICAL GENERAL NOTES:

1. DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
2. DUCT DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL DUCTING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS. (SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH NOT LESS THAN R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND WHERE LOCATED OUTSIDE THE BUILDING WITH NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. WHERE LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY NOT LESS THAN R-8 INSULATION IN CLIMATE ZONES 1 THROUGH 4 AND NOT LESS THAN R-12 INSULATION IN CLIMATE ZONES 5 THROUGH 8. ROUTT IS **CLIMATE ZONE 7**.)
3. COORDINATE FINAL LOCATION OF THERMOSTAT WITH OWNER PRIOR TO INSTALLATION. IF THERMOSTAT IS LOCATED ON EXTERIOR WALL PROVIDE THERMOSTAT WITH INSULATED BACKING.
4. CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
5. ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
6. MECHANICAL EQUIPMENT MANUFACTURERS AS SCHEDULED ON MECHANICAL DRAWINGS ARE SUGGESTED MANUFACTURERS. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES, MECHANICAL CONTRACTOR CAN SUBMIT EQUIVALENT EQUIPMENT FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED MECHANICAL EQUIPMENT. ALTERNATE MANUFACTURERS OF MECHANICAL EQUIPMENT WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.




MECHANICAL - SOUTH BUILDING - LEVEL 2 FLOOR PLAN

SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE ENGINEER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE ENGINEER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

 **Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

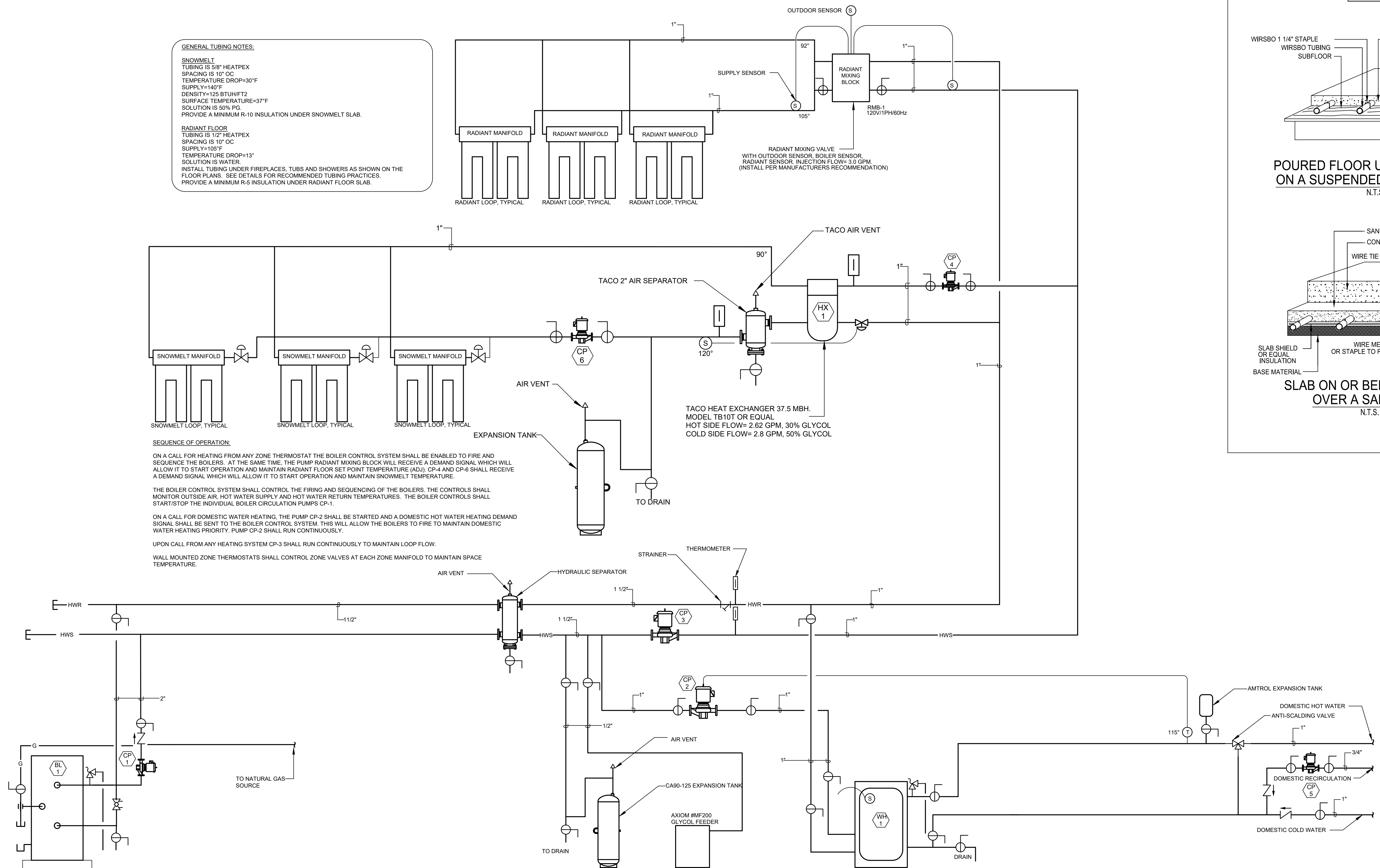
STEAMBOAT SPRINGS, COLORADO

**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

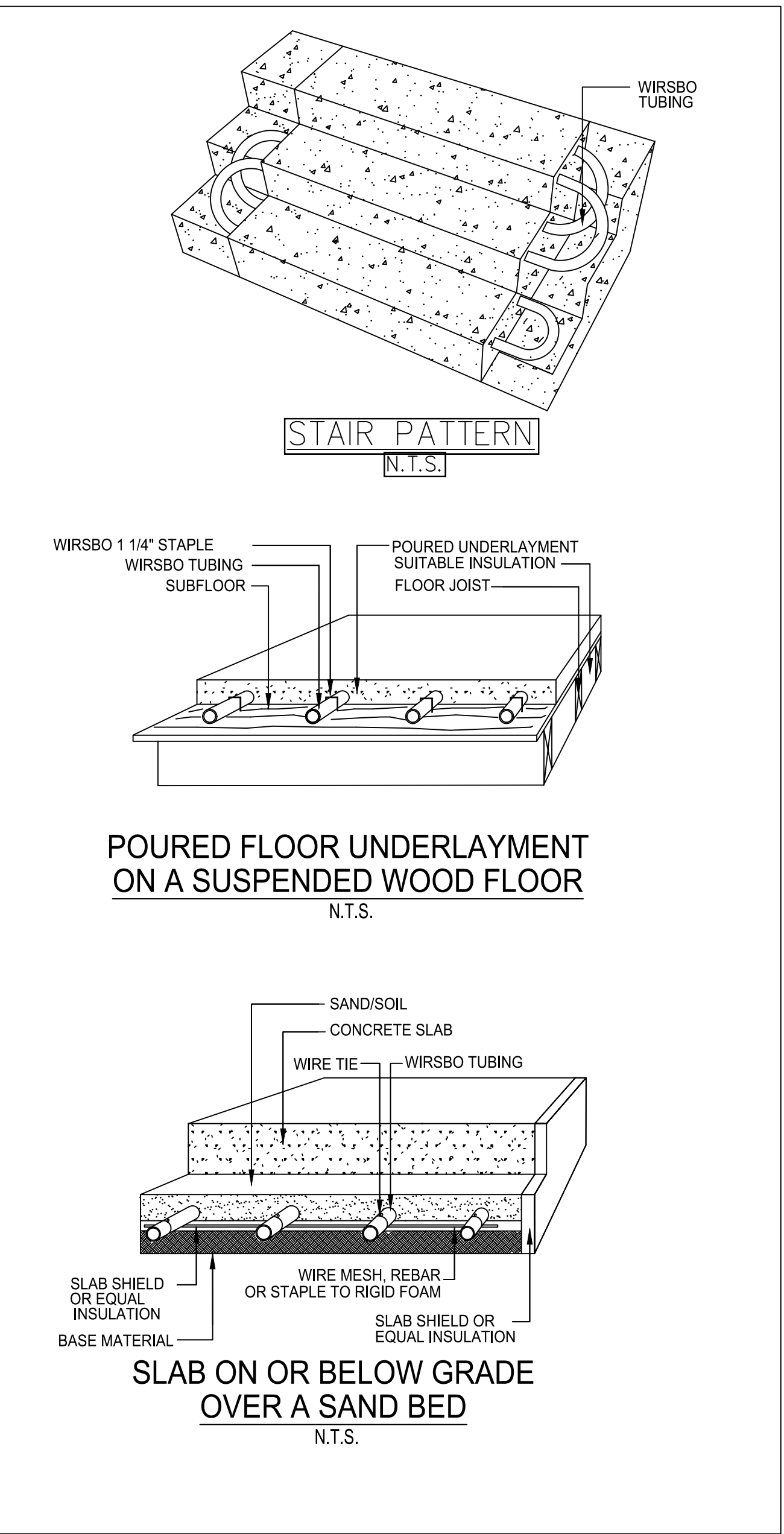
DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE	06/17/2022
JOB NO.	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M1-6



NORTH AND SOUTH BUILDING HEATING BOILER PIPING DETAIL
SCALE: NTS



DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. UNLESS THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

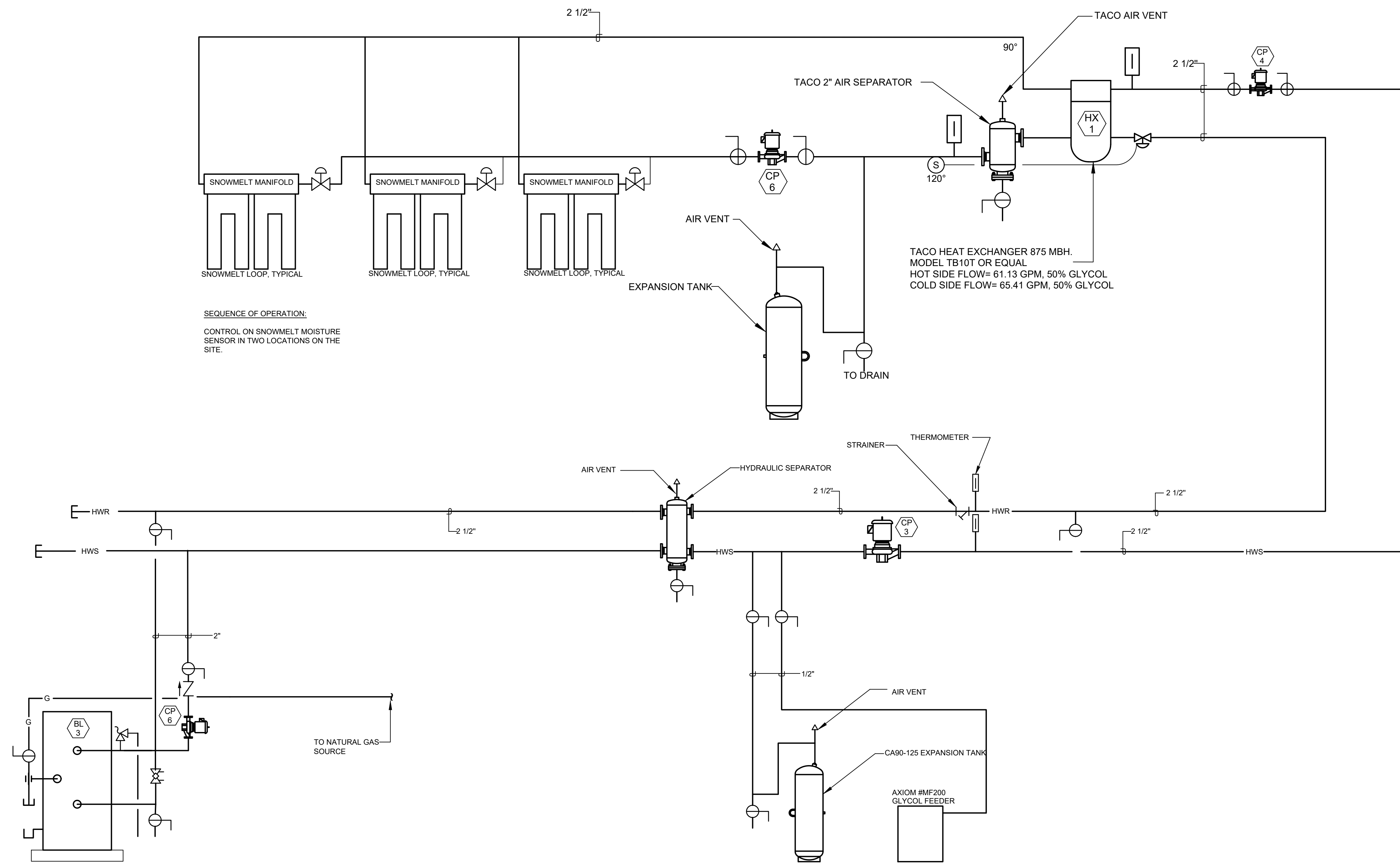
1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE	06/17/2022
JOB NO.	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER	M2-1



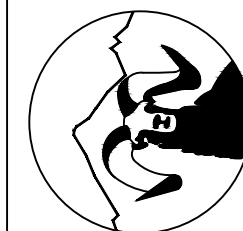
SEQUENCE OF OPERATION:
CONTROL ON SNOWMELT MOISTURE
SENSOR IN TWO LOCATIONS ON THE
SITE.

SNOWMELT BOILER PIPING DETAIL

SCALE: NTS

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709



Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M2-2

1. SCOPE OF WORK
- A. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS, AND LABOR TO SATISFY A COMPLETE WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.
- B. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH ALL LOCAL CODES AND ALL OTHER REGULATION GOVERNING WORK OF THIS NATURE.
- C. THE CONTRACTOR SHALL, BEFORE SUBMITTING ANY PROPOSAL, EXAMINE THE PROPOSED SITE AND SHALL DETERMINE FOR HIMSELF THE CONDITIONS THAT MAY EFFECT THE WORK. NO ALLOWANCE SHALL BE MADE IF THE CONTRACTOR FAILS TO MAKE SUCH EXAMINATIONS.
- D. ALL EQUIPMENT AND MATERIALS SHALL BE AS SPECIFIED OR "APPROVED EQUAL" BY THE ENGINEER OR ARCHITECT.
2. PERMITS
- A. THE CONTRACTOR SHALL SECURE ALL PERMITS OR APPLICATIONS AND PAY ANY AND ALL FEES.
3. SHOP DRAWINGS
- A. SUBMIT MATERIAL LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE ARCHITECT/ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL SUBMIT FIVE SETS OF SHOP DRAWINGS AND THEY SHALL BE CLEARLY LABELED.
4. FLEXIBLE DUCT WORK
- A. FLEXIBLE TYPE DUCT SHALL BE OF TWO ELEMENT SPIRAL CONSTRUCTION COMPOSED OF A CORROSION RESISTANT METAL SUPPORTING SPIRAL AND COATED FABRIC WITH A MINERAL BASE. FLEXIBLE DUCT CONNECTORS SHALL BE LISTED BY U.L. CLASS 1 DUCTS, AND SHALL HAVE A FLAME SPREAD RATING NOT EXCEEDING 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50.
- B. USE OF FLEXIBLE DUCTWORK SHALL BE LIMITED TO NO MORE THAN 6 LINEAR FEET PER RUN.
- C. CONTRACTOR SHALL BE CAREFUL SO AS NOT TO KINK OR COLLAPSE FLEXIBLE DUCT.
5. REFRIGERANT
- A. PIPING CONTRACTOR SHALL PROVIDE AND INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND IN SUCH A WAY AS TO BE INCONSPICUOUS AND FREE FROM ANY POSSIBLE CONDENSATION.
- B. INSULATE REFRIGERANT LINES WITH AMMOUR-FLEX TYPE INSULATION. SHALL BE TYPE "K" COPPER TUBING, WITH WROUGHT COPPER SOLDER TYPE FITTINGS SUITABLE FOR CONNECTION WITH SILVER SOLDER.
6. DUCTWORK
- A. THE DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "SMACNA" APPLICABLE MANUALS.
- B. ALL DUCTWORK SHALL BE THE LOW VELOCITY TYPE, UNLESS SPECIFIED OTHERWISE.
- C. CONTRACTOR SHALL PROVIDE AND INSTALL APPROVED FIRE DAMPERS AND ACCESS PANELS IN ANY AND ALL DUCTWORK WHICH PENETRATES A HORIZONTAL OR VERTICAL FIRE PARTITION, OR AS OTHERWISE SHOWN ON DRAWINGS.
- D. ALL BRANCH DUCTS TO HAVE VOLUME DAMPERS. SMOOTH TURN RADIUS DUCTWORK OR TURNING VANES SHALL BE USED THROUGHOUT WHERE FLOW EXCEEDS 150 CFM.
- E. ALL DUCT JOINTS TO BE SEALED IN ACCORDANCE WITH "SMACNA" STANDARDS AND ACCEPTED GOOD PRACTICE.
- F. ALL DUCT DIMENSIONS SHOWN ARE NET INSIDE VALUES. DIMENSIONS MAY BE CHANGED SO LONG AS THE NET FREE FACE AREA IS MAINTAINED.
- G. ALL CONCEALED DUCTWORK SHALL BE INSULATED WITH 1-1/2" FIBERGLASS INSULATING BLANKET WITH ALUMINUM FOIL FACING.
- H. ALL SUPPLY AND RETURN DUCTWORK IS FEET DOWNSTREAM OF THE HVAC UNIT SHALL BE INTERNALLY LINED WITH A 1/2" ACOUSTICAL DUCT LINER UNLESS OTHERWISE NOTED ON THE DRAWINGS.
7. DRAINAGE PIPING
- A. (CONDENSATE) SHALL BE SCHEDULE 40 PVC PIPE WITH SOLVENT JOINTS. PITCH HORIZONTAL LINES 1" IN 10'-0". CONDENSATE DRAINS SHALL BE ROUTED TO FLOOR DRAIN, ROOF DRAIN OR INDIRECT WASTE DRAIN.
8. HVAC CONTROLS
- A. CONTRACTOR TO SUPPLY AND INSTALL ALL CONTROL WIRING AND THERMOSTATS AS REQUIRED.
9. ELECTRICAL
- A. CONTRACTOR TO COORDINATE WITH ELECTRICAL CONTRACTOR FOR LOCATION OF WIRING FOR EACH HVAC UNIT.
10. PIPE SUPPORTS
- A. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE OR METAL STRAP TO SUPPORT PIPES WILL NOT BE PERMITTED. SPACING OF PIPE SUPPORTS SHALL NOT EXCEED 6 FEET FOR ALL PIPING, PLASTIC PIPING TO BE SUPPORTED EVERY 4 FEET.
11. GAS PIPING
- A. PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE IRON FITTINGS.
- B. WHERE GAS PIPE CONNECTS TO EQUIPMENT, IT SHALL BE PROVIDED WITH A DRIP LEG THE FULL SIZE OF THE RUNOUT. A 100% SHUT-OFF VALVE AND A UNION. GAS PIPING CONTAINING PRESSURE GREATER THAN 1" W.G. SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH WELDED JOINTS.
12. MISCELLANEOUS
- A. ALL EXTERIOR OPENINGS TO BE PROPERLY CAULKED AND SEALED WITH A SEALANT OF HIGH QUALITY AND LONG LIFE. TO PREVENT INFILTRATION OF OUTSIDE AIR INTO CONDITIONED SPACE.
- B. COORDINATE INSTALLATION OF ALL ROOF FLASHING AT ROOF PENETRATION.
- C. DO NOT SCALE THIS DRAWING FOR EXACT DIMENSIONS.
- D. VERIFY ALL FIGURES, CONDITIONS, AND DIMENSIONS AT THE JOB SITE.
- E. THE MECHANICAL PLANS ARE INTENDED TO BE DIAGRAMMATIC AND ARE BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL THE DETAILS OF THE EQUIPMENT.
- F. THE CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO ENSURE THAT THE EQUIPMENT WILL FIT IN THE AVAILABLE SPACE.
- G. PEX TUBING, IF PEX TUBING IS USED AS AN APPROVED ALTERNATE FOR APPLICATIONS WHERE METALLIC PIPING IS THE BASIS OF DESIGN, THE PEX MANUFACTURER SHALL SUBMIT SHOP DRAWINGS CLEARLY INDICATING THAT THE DESIGN HAS BEEN ANALYZED AND MODIFIED, AS REQUIRED, TO MAINTAIN SCHEDULED HYDRONIC SYSTEM PARAMETERS. ANY DESIGN RESULTING IN INCREASED SYSTEM PRESSURE DROP AS A RESULT OF IMPROPER PEX SIZING OR DESIGN SHALL NOT BE PERMITTED.
13. TESTING AND BALANCING
- A. THE HVAC SYSTEM SHALL BE TESTED AND AND BALANCED BY AN INDEPENDENT AGENCY, UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. A SEALED TYPE WRITTEN REPORT SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL.
14. GUARANTEE
- A. MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THIS CONTRACTOR'S EXPENSE.
- B. FOR THE SAME PERIOD, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PREMISES CAUSED BY DEFECTS IN WORKMANSHIP OR IN THE WORK OR EQUIPMENT FURNISHED AND/OR INSTALLED BY HIM.

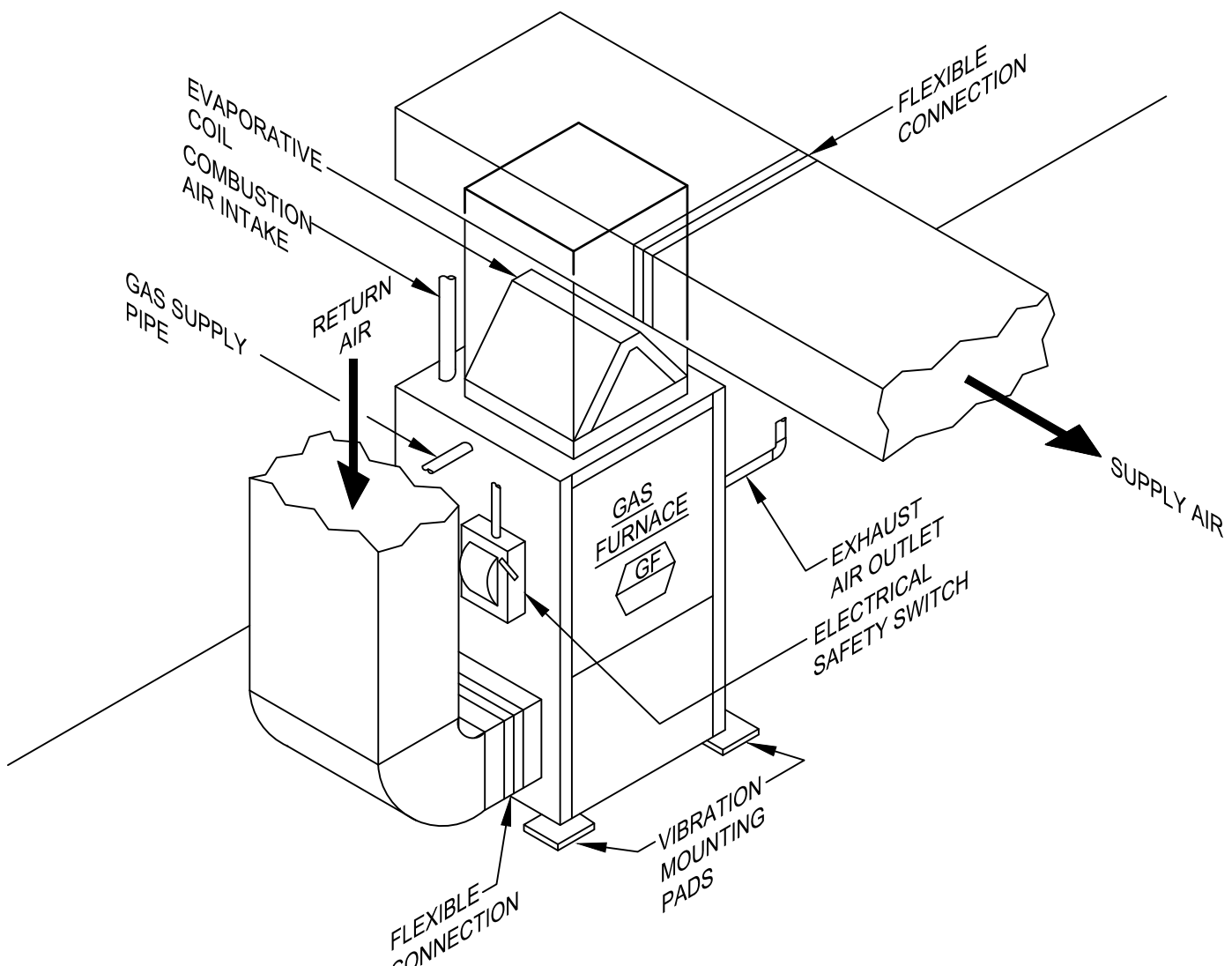
GAS FURNACE SCHEDULE															
EQUIPMENT NO.	SERVICE	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	E.S.P. (IN WG.)	COOLING NOMINAL MBH	HEATING			EFFICIENCY A.F.U.E	FAN HP	ELECTRICAL			MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
						GAS CFH	MBH INPUT	MBH OUTPUT			V/PH/Hz	MCA	MOCp		
GF-1	HOUSE	1,200	75		24	37.5	30	28.8	96%	1/2	115/1/60	8.6	15	DAIKIN - DM96TN 0303ANA	NOTE-1

NOTES:
1. PROGRAMMABLE THERMOSTAT, AND HIGH ALTITUDE KIT SIZED PER LOCATION ELEVATION.

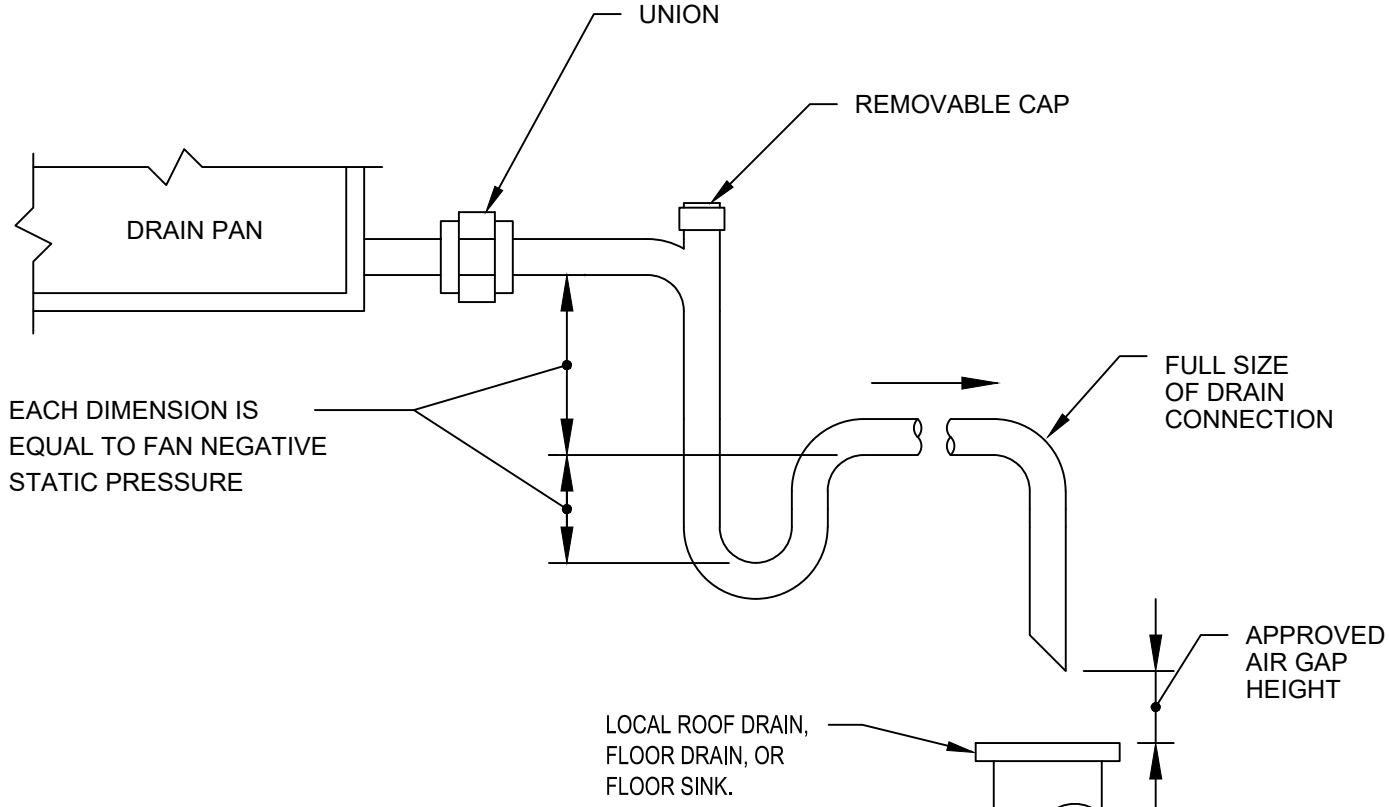
NOTES:
1. PROGRAMMABLE THERMOSTAT, AND HIGH ALTITUDE KIT SIZED PER LOCATION ELEVATION.

CONDENSING UNIT SCHEDULE									
EQUIPMENT NO.	SERVICE	NOMINAL COOLING CAPACITY (TON)	REFRIG. PIPING		ELECTRIC			MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
			LIQUID	VAPOR	V/PH/Hz	MOP (A)	MCA (A)		
CU-1	HOUSE	24,000	3/8"	3/4"	208/230/1/60	30	17.6	DAIKIN - DX14SA 0241B	NOTE -1

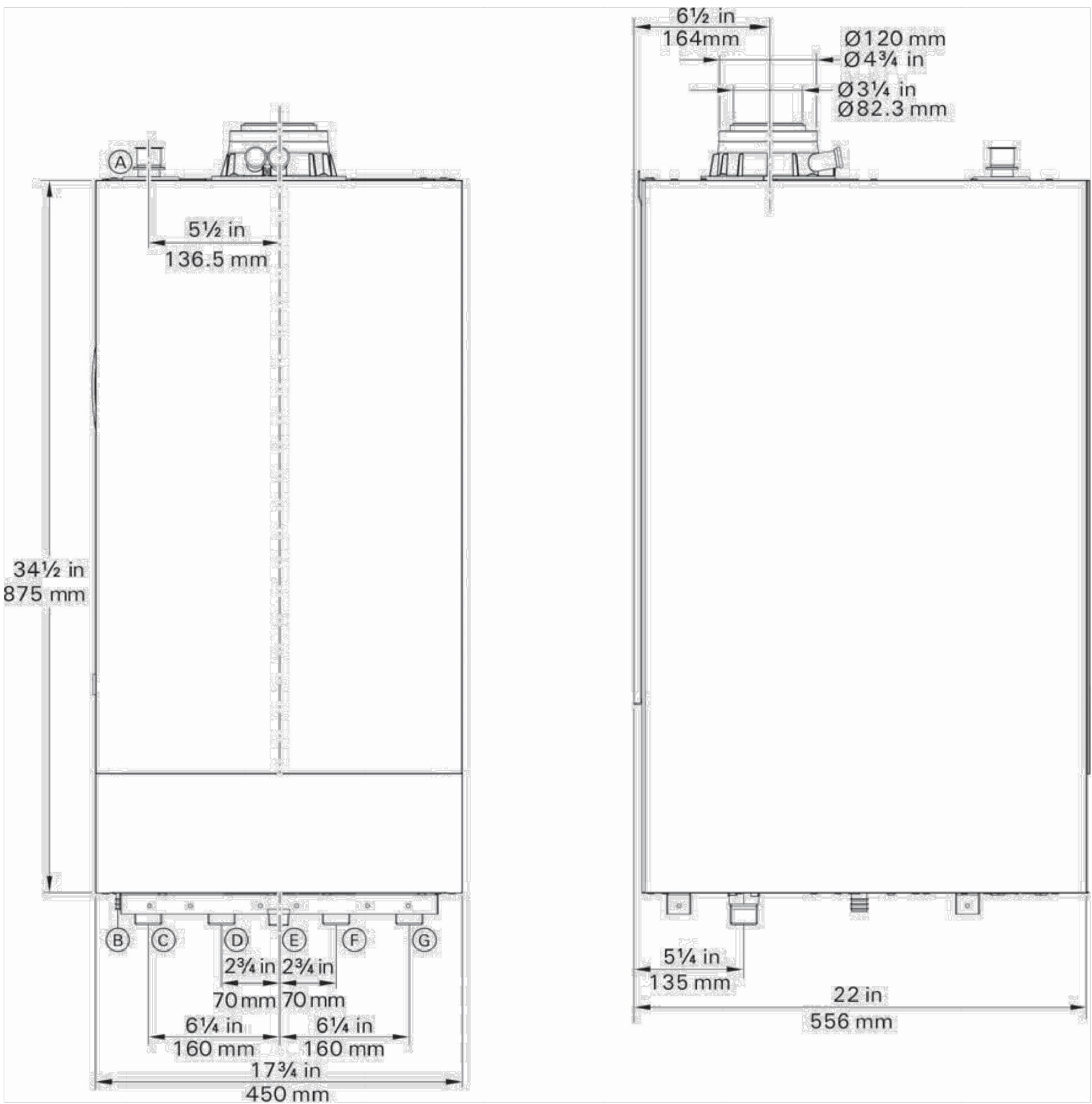
NOTES:
1. PROVIDE LINESET RECOMMENDED BY MANUFACTURER, POWER DISCONNECT, HEATED DRAIN PAN, 18" STAND, WIND BAFFLES.



UPFLOW GAS FURNACE DETAIL
NOT TO SCALE



CONDENSATE DRAIN DETAIL
N.T.S.

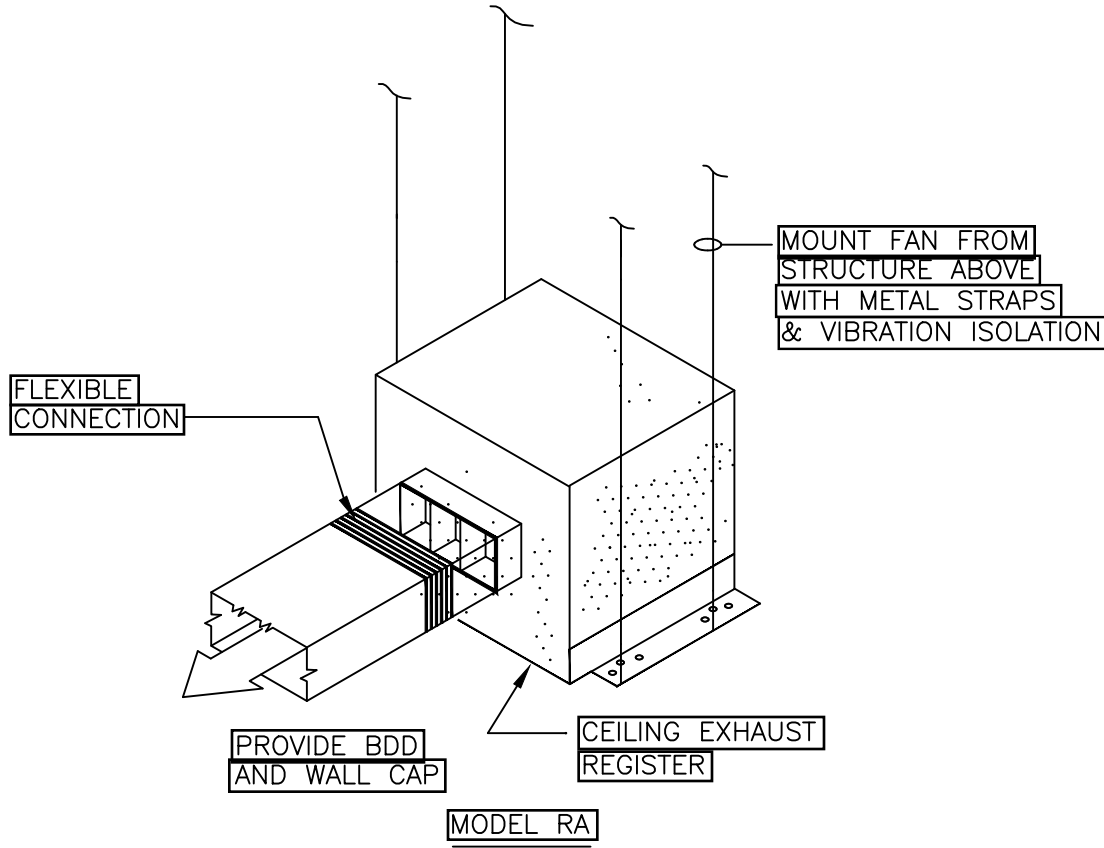


Legend

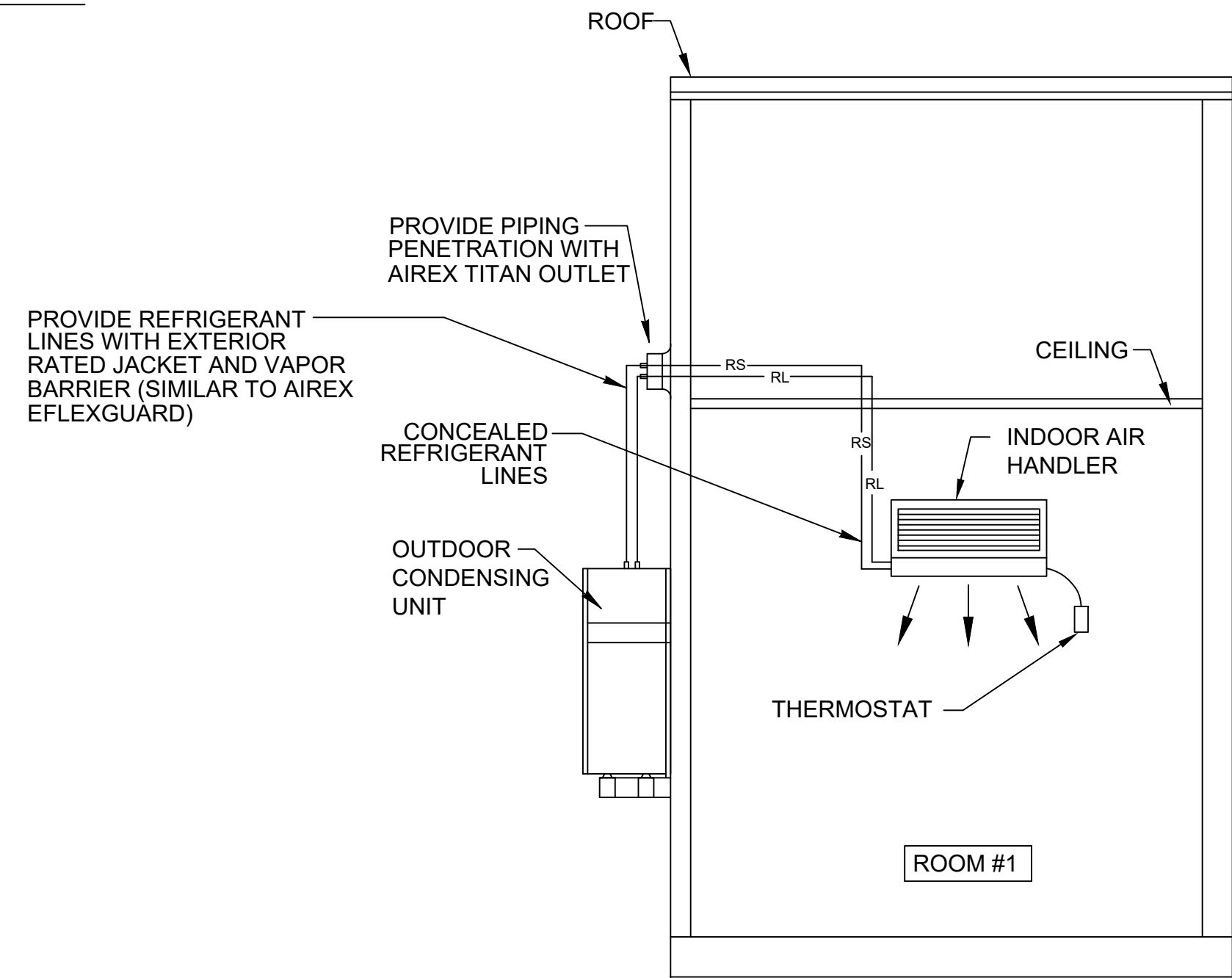
- (A) Safety valve, pressure gauge connection
(B) Condensate drain
(C) Heating system supply
(D) DHW tank heating supply
(E) Fuel gas connection
(F) DHW tank heating return
(G) Heating system return

GAS FIRED WALL-MOUNTED CONDENSING BOILER

N.T.S.



CEILING EXHAUST FAN DETAIL
NOT TO SCALE



DUCTLESS SPLIT-SYSTEM WITH SINGLE
AIR HANDLING UNITS DETAIL

N.T.S.

VRF AIR COOLED CONDENSING UNIT SCHEDULE										
EQUIPMENT NO.	SERVICE	NOMINAL HEATING CAPACITY (BTU/h)	NOMINAL COOLING CAPACITY (BTU/h)	REFRIG. PIPING		ELECTRIC			MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
				LIQUID	VAPOR	V/PH/Hz	MOP (A)	MCA (A)		
CU-1	TOWNHOUSE	54,000	48,000	3/8	5/8	208-230/1/60	30	29.8	FUJITSU-AOU48RLAVM4	NOTE - 1

NOTES:
1. PROVIDE LINE SET AS RECOMMENDED BY MANUFACTURER, POWER DISCONNECT, THERMOSTAT, AND HEATED DRAIN PAN.

NOTES:
1. PROVIDE LINE SET AS RECOMMENDED BY MANUFACTURER, POWER DISCONNECT, THERMOSTAT, AND HEATED DRAIN PAN.

INDOOR VRF UNIT EQUIPMENT SCHEDULE										
EQUIPMENT NO.	SERVICE	NOMINAL COOLING CAPACITY (BTU/HR.)	NOMINAL HEATING CAPACITY (BTU/HR.)	CFM	REFRIGERANT PIPING DIAMETER		ELECTRICAL		MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
					LIQUID	SUCTION	MCA (AMPS)	V./PH./HZ.		
HP-1	KITCHEN/LIVING	18,000	20,000	554	1/4"	1/2"	0.76	208-230/1/60	FUJITSU-ARUL18LAV2	NOTE-1
HP-2	BEDROOMS	9,500	10,900	324	1/4"	3/8"	0.51	208-230/1/60	FUJITSU-AUUA9TLAV2	NOTE-1

NOTES:
1. PROVIDE WITH POWER DISCONNECT, LINESET RECOMMENDED BY MANUFACTURER. PROVIDE CONDENSATE OVERFLOW SWITCH.

PUMP SCHEDULE											
EQUIPMENT NO.	SERVICE	LOCATION	GPM	HEAD (FT.)	MOTOR					MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
					WATTS	RPM	V./PH./HZ.	HP	FLA		
CP-1	BOILER	MECHANICAL ROOM	18.7	27							
CP-2	WATER HEATER	MECHANICAL ROOM	4	27	270	VARIABLE	110-240/1/60	0.4	6	TACO - VR15L	NOTE-1
CP-3	BOILER LOOP	MECHNICAL ROOM	3	27	270	VARIABLE	110-240/1/60	0.4	6	TACO - VR15L	NOTE-1
CP-4	SNOWMELT	MECHANICAL ROOM	2.5	27	270	VARIABLE	110-240/1/60	0.4	6	TACO - VR15L	NOTE-1
CP-5	WATER HEATER	MECHANICAL ROOM	32	22	-	3250	115/1/60	1/8	1.45	TACO - 0014	NOTE- 1
CP-6	BOILER 3	OUTSIDE	96	11	370	VARIABLE	110-240/1/60	0.5	6	TACO - VR20L	NOTE- 1
CP-7	BOILER 3 LOOP	OUTSIDE	65.4	18	270	VARIABLE	110-240/1/60	0.4	6	TACO - VR15L	NOTE-1

NOTES:
1. PROVIDE WITH CAST IRON CASING, POWER DISCONNECT, MOTOR STARTER, COMPOSITE (PES) IMPELLER, FLANGED CONNECTIONS, AND 3-SPEED MOTOR. MOTOR HORSE POWER SHALL BE GREATER THAN NON-OVERLOADING BRAKE HORSEPOWER. STAINLESS STEEL IMPELLER, FLANGED CONNECTIONS AND VFD. MOTOR HORSEPOWER SHALL BE GREATER THAN NON-OVERLOADING BRAKE HORSEPOWER.

INDIRECT WATER HEATER SCHEDULE							
EQUIPMENT NO.	CAPACITY	RECOVERY @100 DEG F. RISE	BTU PER HR.	BOILER CONNECTION	WATER CONNECTION	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
WH-1	79		169,000	1"	1"	VISSMANN - 300-V EVIB-79	NOTE-1

NOTES:
1. DRAIN PAN PIPED TO NEAREST FLOOR DRAIN. BRAID FLEXIBLE STAINLESS STEEL HOSES TO DOMESTIC COLD AND HOT WATER CONNECTIONS. ISOLATION VALVES ON ALL CONNECTIONS TO WATER HEATER. PROVIDE HIGH ALTITUDE KIT SIZED PER LOCATION ELEVATION.

EXHAUST FAN SCHEDULE									
EQUIPMENT NO.	SERVICE	LOCATION	CFM	EXTERNAL STATIC PRESS (IN. W.G.)	MOTOR			MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
					WATTS	HP	RPM		
EF-1	BATHROOM	CEILING	50/110	0.25	7.20	-	120/1/60	PANASONIC - FV0511VQ1	NOTE-1
EF-2	GARAGE	CEILING	290	0.1	64.00	-	120/1/60	PANASONIC - FV30VQ3	NOTE-2

NOTES:
1. PROVIDE WITH CEILING FRAME, DUCT CONNECTIONS, AND BACK DRAFT DAMPER. EXHAUST FAN TO OPERATE CONTINUOUSLY ON LOW AND SWITCH TO HIGH WHEN OCCUPIED.
2. PROVIDE WITH CEILING FRAME, DUCT CONNECTIONS, AND BACK DRAFT DAMPER. EXHAUST FAN TO OPERATE WHILE SPACE IS OCCUPIED. FAN TO CONTINUE OPERATE FOR TIME AFTER SPACE IS UNOCCUPIED.

BOILER SCHEDULE									
EQUIPMENT NO.	SERVICE	INPUT CAPACITY (BTU/HR.)	OUTPUT CAPACITY (BTU/HR.)	BOILER VOLUME (GALLONS)	FLUE/COMB. AIR SIZE (INCHES)	ELECTRICAL		MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
						AMPS	V./PH./HZ.		
BL-1	HOUSE	199,000	187,000	2.5	5"	12	120/1/60	VISSMANN - B2HE199	NOTE-1
BL-2	HOUSE	199,000	187,000	2.5	5"	12	120/1/60	VISSMANN - B2HE199	NOTE-1
BL-3	SNOWMELT	999,999	961,000	77	6"	12	120/1/60	RAYPAK - H7-1006	NOTE-1

NOTES:
1. PROVIDE WITH ASME RELIEF VALVE, CONTROLS, CONCENTRIC VENT KIT, LOW-WATER CUT OFF WITH MANUAL RESET AND TEST, FLOW SWITCH, ADJUSTABLE HIGH LIMIT WITH MANUAL RESET, MODULATING TEMPERATURE CONTROL, CONDENSATE NEUTRALIZING KIT, HIGH ALTITUDE KIT SIZED PER LOCATION ELEVATION, AND BLOWER MOTOR. REQUIRES 120AC POWER OUTLET 15A FUSE PROTECTED CIRCUIT.

ELECTRIC UNIT HEATER SCHEDULE										
EQUIPMENT NO.	SERVICE	CFM	HP	RPM	BTU/HR	KW	FULL LOAD AMPS (FLA)	V/PH/Hz	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
EUH-1	MECH ROOM	175	-	700	5,120	1.5	12.5	120/1/60	RAYWALL - E338D-RP	NOTE-1

NOTES:
1. PROVIDE SURFACE MOUNTING KIT, TAMPER PROOF INTEGRAL THERMOSTAT, COORDINATE COLOR WITH ARCHITECT.

NOTES:
1. PROVIDE SURFACE MOUNTING KIT, TAMPER PROOF INTEGRAL THERMOSTAT, COORDINATE COLOR WITH ARCHITECT.

GRILLE-REGISTER-DIFFUSER SCHEDULE					
EQUIPMENT NO.	SIZE	MODEL	MANUFACTURER	FINISH	OPTIONS/ACCESSORIES
A	12" X 6"	540/640	PRICE	WHITE	NOTE -1
B	7" X 5"	540/640	PRICE	WHITE	NOTE -1
C	20" X 12"	600	KRUEGER	WHITE	NOTE -1

NOTES: COORDINATE ALL MOUNTING TYPES WITH CEILING.

NOTES: COORDINATE ALL MOUNTING TYPES WITH CEILING.

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE REPRODUCED SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND NOT A CONTRACT. THE REPRODUCED SPECIFICATIONS ARE NOT TO BE USED BY ANYONE IN ANY OTHER PROJECT OR IN CONNECTION WITH THIS PROJECT WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE DESIGNER.

3885 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO


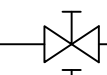
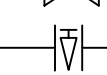
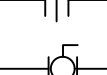
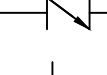
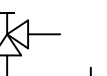


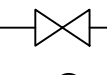
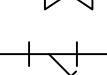

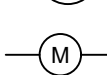
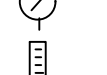






REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

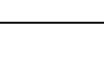
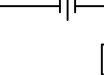
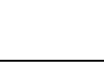
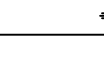
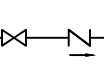
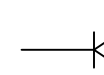
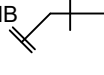
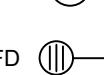
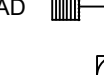

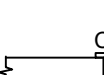
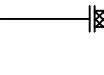
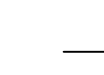








DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-278
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M2-3

PLUMBING PIPE DESIGNATIONS	
LINE TYPE	DESCRIPTION
140	HIGH TEMPERATURE (140°) WATER PIPE
—	COLD WATER PIPE (CWP)
CA	COMPRESSED AIR
DC	DECONTAMINATION PIPING
DER	DEIONIZED WATER RETURN
DES	DEIONIZED WATER SUPPLY
DIS	DISTILLED WATER SUPPLY
DIR	DISTILLED WATER RETURN
CD	EQUIPMENT CONDENSATE DRAIN
FP	FIRE MAIN
GW	GREASE WASTE PIPE
HE	HELIUM
HPS	HIGH PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE
—	HOT WATER RECIRCULATION (HWR)
—	HOT WATER PIPE (HW)
H2	HYDROGEN
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
MA	MEDICAL AIR
G	NATURAL GAS PIPE
N2	NITROGEN
N2O	NITROUS OXIDE
ORD	OVERFLOW STORM WATER PIPE
O2	OXYGEN
PG	PROPANE GAS
RD	ROOF DRAIN PIPE
—	SOIL OR WASTE PIPE
S/O	SOIL / OIL WASTE PIPE
TWR	TOWER WATER RETURN
TWS	TOWER WATER SUPPLY
VAC	VACUUM
—	VENT PIPE (V)

PLUMBING ELEMENTS / VALVING	
LINE TYPE	DESCRIPTION
	PRESSURE REDUCING VALVE (PRV)
	GATE VALVE
	GLOBE VALVE
	PLUG VALVE
	BUTTERFLY VALVE
	BALL VALVE
	SWING CHECK VALVE
	LIFT CHECK VALVE
	GATE VALVE, ANGLE
	GLOBE VALVE, ANGLE
	TEMPERATURE AND PRESSURE RELIEF VALVE
	GAS COOK
	GAS PRESSURE REGULATOR
	STRAINER
	STRAINER WITH BLOW OFF VALVE
	WATER HEATER
	WATER METER
	PRESSURE GAGE
	TEMPERATURE GAGE

LINE TYPE	DESCRIPTION
	PIPE RISING UP
	PIPE DROPPING DOWN
	UNION - SCREWED OR FLANGED
	PRESSURE TRANSMITTER OR PRESSURE SWITCH
	THERMOMETER/TEMPERATURE INDICATOR
	GAUGE WITH GAUGE COCK/ PRESSURE INDICATOR
	BACKFLOW PREVENTOR (REDUCED ZONE)
	BACKFLOW PREVENTOR (DOUBLE CHECK VALVE ASSEMBLY)
	WATER HAMMER ARRESTER
	CIRCUIT SETTING
	HOSE BIBB
	ROOF DRAIN
	FLOOR DRAIN
	AREA DRAIN
	FLOOR CLEAN OUT
	FLOOR SINK
	CLEAN OUT TO GRADE
	WALL CLEAN OUT
	FLEXIBLE-CONNECTION
	CHECK VALVE
	VACUUM BREAKER

RESPONSIBLE DIVISION:				
ITEM	FURNISHED	SET	POWER WIRED	CONTROL WIRED
EQUIPMENT	23	23	26	--
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFDs AND CONTACTORS	23(1)	26	26(2)	23
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	26	26	26	--
MANUAL OPERATING AND MULTI-SPEED SWITCHES	23	26	26	26
CONTROLS, RELAYS, TRANSFORMERS	23	23	26	23
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	23	23	26	23
THERMOSTATS (LINE VOLTAGE)	23	23	26	26
TEMPERATURE CONTROL PANELS	23	23	26	23
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	23	23(2)	--	23(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	23	23(2)	--	23(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	23	23	26	23
EXHAUST FAN SWITCHES	23	26	26	23(2)

SUBSCRIPT FOOTNOTES:

1. MOTOR STARTER TO INCLUDE CONTROL, TRANSFORMER, HOA SWITCH, (1) NO AND (1) NC AUXILIARY CONTACT, AND "ON" AND "OFF" PILOT LIGHTS.

2. IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 26. WHERE FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE VOLTAGE FURNISH AND SET UNDER DIVISION 23. CONNECT UNDER DIVISION 26.

ABBREVIATIONS:			
44" MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER OF DEVICE	DIFF DIFFERENTIAL	HR HOUR	PT PRESSURE TRANSMITTER
A AMPS	DISCH DISCHARGE	HT HEIGHT	PTAC PACKAGED TERMINAL AIR CONDITIONER
A.D. ACCESS DOOR	DIV DIVISION	HTR HEATER	PV PLUS VALVE
AAV AIR ADMITTANCE VALVE	DN DOWN	HWR HEATING WATER RETURN	PVC POLYVINYL CHLORIDE
ABV ABOVE	DS DUCT SILENCER	HWS HEATING WATER SUPPLY	QTY QUANTITY
AC AIR CONDITIONING UNIT	DWG DRAWING	HX HEAT EXCHANGER	RA RETURN AIR GRILLE / REGISTER
AC ABOVE COUNTER	DX DIRECT EXPANSION	HZ HERTZ	RCP REFLECTED CEILING PLAN
AD AREA DRAIN (SEE SYMBOLS)	(E) EXISTING	ID INSIDE DIAMETER	RD ROOF DRAIN
A.F.C. ABOVE FINISHED CEILING	EA EXHAUST AIR GRILLE/REGISTER	IG ISOLATED GROUND	REL RELIEF
A.F.G. ABOVE FINISHED GRADE	EAT ENTERING AIR TEMPERATURE	IN INCHES	REOD REQUIRED
AIC AMPERE INTERRUPTING CAPACITY	EC ELECTRICAL CONTRACTOR	INV INVERT	RF RETURN FAN
A.F.F. ABOVE FINISHED FLOOR	ECC ECCENTRIC	JBX JUNCTION BOX	RH RELATIVE HUMIDITY
AHU AIR HANDLING UNIT	EF EXHAUST FAN	K KELVIN	RHC REHEAT COIL
ALUM ALUMINUM	EFF EFFICIENCY	KW KILOWATT	RLA RATED LOAD AMPS
AP ACCESS PANEL OR DOOR	EL ELEVATION	KVA KILO VOLT - AMPS	RM ROOM
ATS AUTOMATIC TRANSFER SWITCH	ELEC ELECTRIC	L LENGTH	RPW REVOLUTIONS PER MINUTE
AV AUDIO / VIDEO	ELEV ELEVATOR	LAT LEAVING AIR TEMPERATURE	SA SUPPLY AIR GRILLE / REGISTER
AVG AVERAGE	EM EMERGENCY FUNCTION	LV LEAVING DRY	SC SHORT CIRCUIT
AWG AMERICAN WIRE GAGE	ENT ENTERING	LB POUND	SCA SHORT CIRCUIT AVAILABLE
BAS BUILDING AUTOMATION SYSTEM	EMT ELECTRIC METALLIC TUBE	LD LINEAR DIFFUSER	SCCR SHORT CIRCUIT CURRENT RATING
BB BASEBOARD	EQ EQUAL	LF LINEAR FEET	SD SCHEDULE
BD BACK DRAFT DAMPER	EQUIP EQUIPMENT	LIN LINEAR	SD SMOKE DAMPER
BFP BACK FLOW PREVENTOR	EQUIV EQUIVALENT	LQ LIQUID	SEF SMOKE EXHAUST FAN
BL BOILER	ES END SWITCH	LM LUMEN	SF SUPPLY FAN
BLDG BUILDING	ESP EXTERNAL STATIC PRESSURE	LRA LOCKED ROTOR AMPS	SH SENSIBLE HEAT
BLW BELOW	ET EXPANSION TANK	LV LOUVER	SH SHOWER
BOS BOTTOM OF BEAM	EX EXHAUST	LVG LEAVING	SP STATIC PRESSURE
BOD BOTTOM OF DUCT	EXPAN EXPANSION	LWT LEAVING WATER TEMPERATURE	SQ SQUARE
BOP BOTTOM OF PIPE	EXT EXTERNAL	MBH THOUSANDS OF BTU PER HOUR	SPD SURGE PROTECTION DEVICE
BSMT BASEMENT	F DEGREES FAHRENHEIT	MC MECHANICAL CONTRACTOR	SPEC SPECIFICATION
BTU BRITISH THERMAL UNIT	FA FREE AREA	MCA MINIMUM CIRCUIT AMPACITY	SS SQUARE
C CHILLER	FC FAN COIL UNIT	MCB MAIN CIRCUIT BREAKER	SS STAINLESS STEEL
CAP CAPACITY	FD FLOOR DRAIN	MD MOTORIZED DAMPER	SS SAFETY SHOWER
CB CIRCUIT BREAKER	FC FOOTCANDLE	MDP MAIN DISTRIBUTION PANEL	STD STANDARD
CBV CIRCUIT BALANCING VALVE	FCV FLOW CONTROL VALVE	MED MEDIUM	STL STEEL
CCT CORRELATED COLOR TEMPERATURE	FD FIRE DAMPER	MFR MANUFACTURER	SYS SYSTEM
CKT CIRCUIT	FIN FINISHED	MIN MINIMUM	TEMP TEMPERATURE
CFH CUBIC FEET PER HOUR	FLA FULL LOAD AMPS	MISC MISCELLANEOUS	TR TRANSFER GRILLE / REGISTER
CFM CUBIC FEET PER MINUTE	FLEX FLEXIBLE	MOC MAXIMUM OVERCURRENT PROTECTION	TR TAMPER RESISTANT
CHWR CHILLED WATER RETURN	FLR FLOOR	MTD MOUNTED	TT TEMPERATURE TRANSMITTER
CHWS CHILLED WATER SUPPLY	FMB FLAT ON BOTTOM	MUA MAKE-UP AIR UNIT	TTB TELECOMMUNICATIONS TERMINAL BACKGROUND
CI CAST IRON	FOT FLAT ON TOP	N NEUTRAL	TYP TYPICAL
CL CENTER LINE	FP FIRE PROTECTION	NC NORMALLY CLOSED	TX TRANSFORMER
CLG CEILING	FP FIRE PUMP	NEG NEGATIVE	UC UNDERCUT DOOR
CMU CONCRETE MASONRY UNIT	FM FEET PER MINUTE	NIC NOT IN CONTRACT	UH UNIT HEATER
CO CLEAN OUT	FPM FEET PER MINUTE	NL NIGHT / SECURITY LIGHT - DO NOT SWITCH	UNO UNLESS NOTED OTHERWISE
COL COLUMN	FPS FEET PER SECOND	NO NORMALLY OPEN	UNOCO UNOCCUPIED
COMP COMPRESSOR	FS FLOW SWITCH	NOM NOMINAL	UR URINAL
CONC CONCRETE	FSD FIRESMOKE DAMPER	NTS NOT TO SCALE	V VOLTS
COND CONDENSATE	FT FEET	OA OUTSIDE AIR	VA VOLT AMPERE
CONN CONNECTION	FXC FLEXIBLE CONNECTION	OBD OPPOSED BLADE DAMPER	VA VALVE
CONT CONTINUATION	GND GROUND	OC ON CENTER	VAV VARIABLE AIR VOLUME UNIT
CONTR CONTRACTOR	GA GAUGE	OC OCCURRED	VFD VARIABLE FREQUENCY DRIVE
CRI COLOR RENDERING INDEX	GAL GALLON	OC OVER CURRENT PROTECTION	VRF VARIABLE REFRIGERANT FLOW
CT COOLING TOWER	GALV GALVANIZED	OD OUTSIDE DIAMETER	VOLT VOLTAGE
CT CURRENT TRANSFORMER	GEC GROUND ELECTRODE CONDUCTOR	OL OVERLOAD	VTR VENT THROUGH ROOF
CU CONDENSING UNIT	GFCI / GFI GROUND FAULT CIRCUIT INTERRUPTER	ORD OVERFLOW ROOF DRAIN	W WIDTH
CU COPPER	GC GENERAL CONTRACTOR	OZ OUNCE	W WATTS
CUH CABINET UNIT HEATER	GPH GALLONS PER HOUR	PBD PARALLEL BLADE DAMPER	W/ WITH
CVB CONSTANT VOLUME BOX	GPM GALLONS PER MINUTE	PD PRESSURE DROP	W/ WITHOUT
CWR CONDENSER WATER RETURN	GPM GALLONS PER MINUTE	PH PHASE	WB WET BULB
CWS CONDENSER WATER SUPPLY	GRSLB GRAINS PER POUND	POS POSITIVE PRESSURE	WC WATER COLUMN
DB DRY BULB	H 2O WATER	POS POINT OF SALES	WC WATER CLOSET
DEPT DEPARTMENT	HB HOSE BIBB	PRV PRESSURE REDUCING VALVE	WG WATER GAUGE
DF DRINKING FOUNTAIN	HD HEAD (SEE SCHEDULES)	PS PRESSURE SWITCH	WP WEATHERPROOF
DA DIAMETER	HP HEAT PUMP	PSI POUNDS PER SQUARE INCH	WPU WEATHERPROOF IN-USE
DIAG DIAGRAM	HP HORSEPOWER		WSR WITHSTAND RATING
			XMR TRANSFORMER

SUBSTITUTIONS:

A. SUBSTITUTIONS; SUBSTITUTION OF SPECIFIED EQUIPMENT WILL BE ALLOWED THROUGH A PRIOR APPROVAL PROCESS INITIATED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT INTENDED SUBSTITUTION AT LEAST FIVE DAYS PRIOR TO BID FOR APPROVAL FROM ENGINEER. SUBMITTAL SHALL INCLUDE CAPACITIES, DIMENSIONS AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT. SUBSTITUTION SHALL OCCUR AT NO COST TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF APPROVED SUBSTITUTION AND SHALL INCUR ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING STRUCTURAL MODIFICATIONS, SPACE LAYOUT AND REDESIGN COSTS. SEE ALSO DIVISION I GENERAL REQUIREMENTS.

EXAMINATION OF SITE, DRAWINGS, SPECIFICATIONS:

A. EXAMINE CAREFULLY THE SITE AND CONDITIONS OF THE SITE. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR TO INSTALL A COMPLETE WORKING SYSTEM WITHIN THE SITE CONDITIONS.

B. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND 5 DAYS PRIOR TO BIDDING REPORT ANY ERRORS, OMISSIONS, INCONSISTENCIES, AND CONFLICTS TO THE ENGINEER TO BE REMEDIED IN AN ADDENDUM TO THE PROJECT PRIOR TO BID TIME.


C. DRAWINGS ARE DIAGRAMMATIC AND CATALOG NUMBERS GIVEN ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CAPACITY OF THE EQUIPMENT MEETS THE DRAWING REQUIREMENTS AND SHALL NOT DIMENSION FROM THE MECHANICAL, PLUMBING, OR PIPING DRAWINGS.

D. THE LATEST ADOPTED VERSIONS OF THE INTERNATIONAL BUILDING CODES SHALL BE USED AS REQUIRED. THIS WILL ALSO INCLUDE THE LATEST ADOPTED VERSIONS OF THE MECHANICAL, PLUMBING AND ENERGY CONSERVATION CODES. ALL METHODS AND MATERIALS REQUIRED BY THESE CODES SHALL BE REQUIRED BY THESE SPECIFICATIONS UNLESS INDICATED OTHERWISE. OTHER APPLICABLE LOCAL CODES AND ORDINANCES SHALL BE AS REQUIRED AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE KNOWLEDGEABLE OF THESE REQUIREMENTS.

E. WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS COMPLETED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709


 **Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED FOR CODE COMPLIANCE
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS

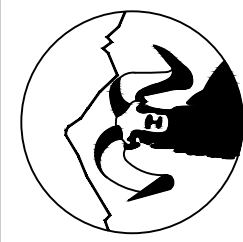


DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	P0-1

September 08, 2022 - 10:04:38am

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709



Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE: 06/17/2022
ISSUED FOR: PERMIT
09/07/2022 PERMIT CORRECTIONS



DATE: 06/17/2022
JOB NO: 21-276
DRAWN BY: BCE
CHECKED BY: BCE
SCALE: AS SHOWN
SHEET NUMBER:
P1-1

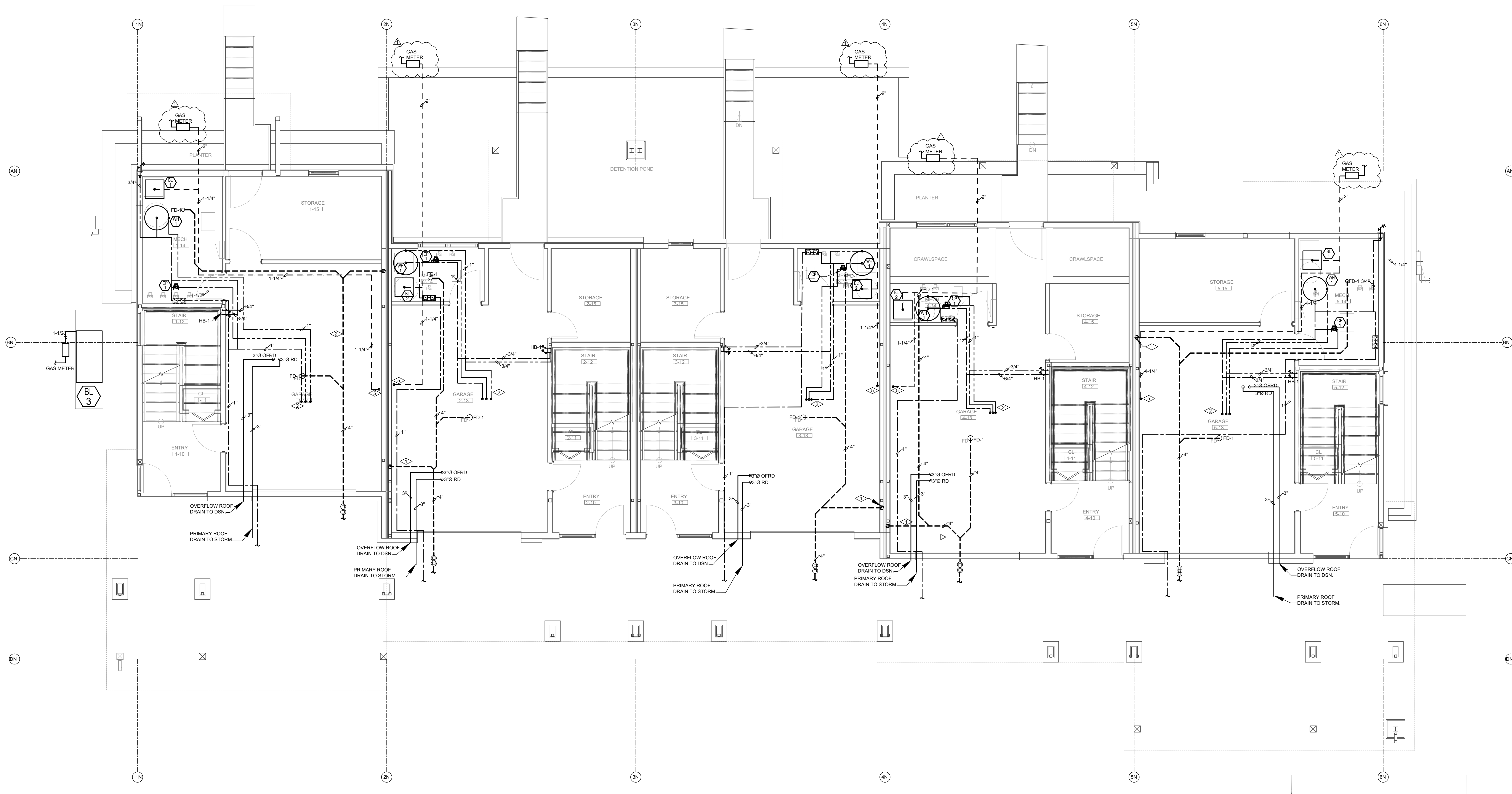
September 08, 2022 - 10:04:38am

PLUMBING GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
- PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
- ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
- NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 14" W.C.) GAS METER LOAD IS 420 MBH (~512.5 CFH). LONGEST EQUIVALENT LINE LENGTH OF PIPING IS 104 FEET. GENERAL CONTRACTOR SHALL VERIFY THAT INSTALLED GAS METER CAN ACCOMMODATE GAS LOAD OF 420 CFH.
- PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURER'S AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES, PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.

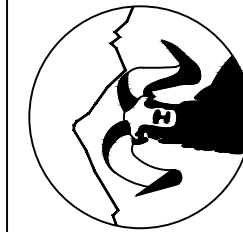
FLAG NOTES:

- WASTE FROM FLOORS ABOVE
- COLD, HOT, AND RECIRC PIPES TO FLOORS ABOVE.
- WASTE DOWN TO BELOW.
- COLD, HOT AND RECIRC PIPES FROM FLOOR BELOW
- GAS LINE UP TO FLOOR ABOVE.



DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ANY MANNER WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

 **Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



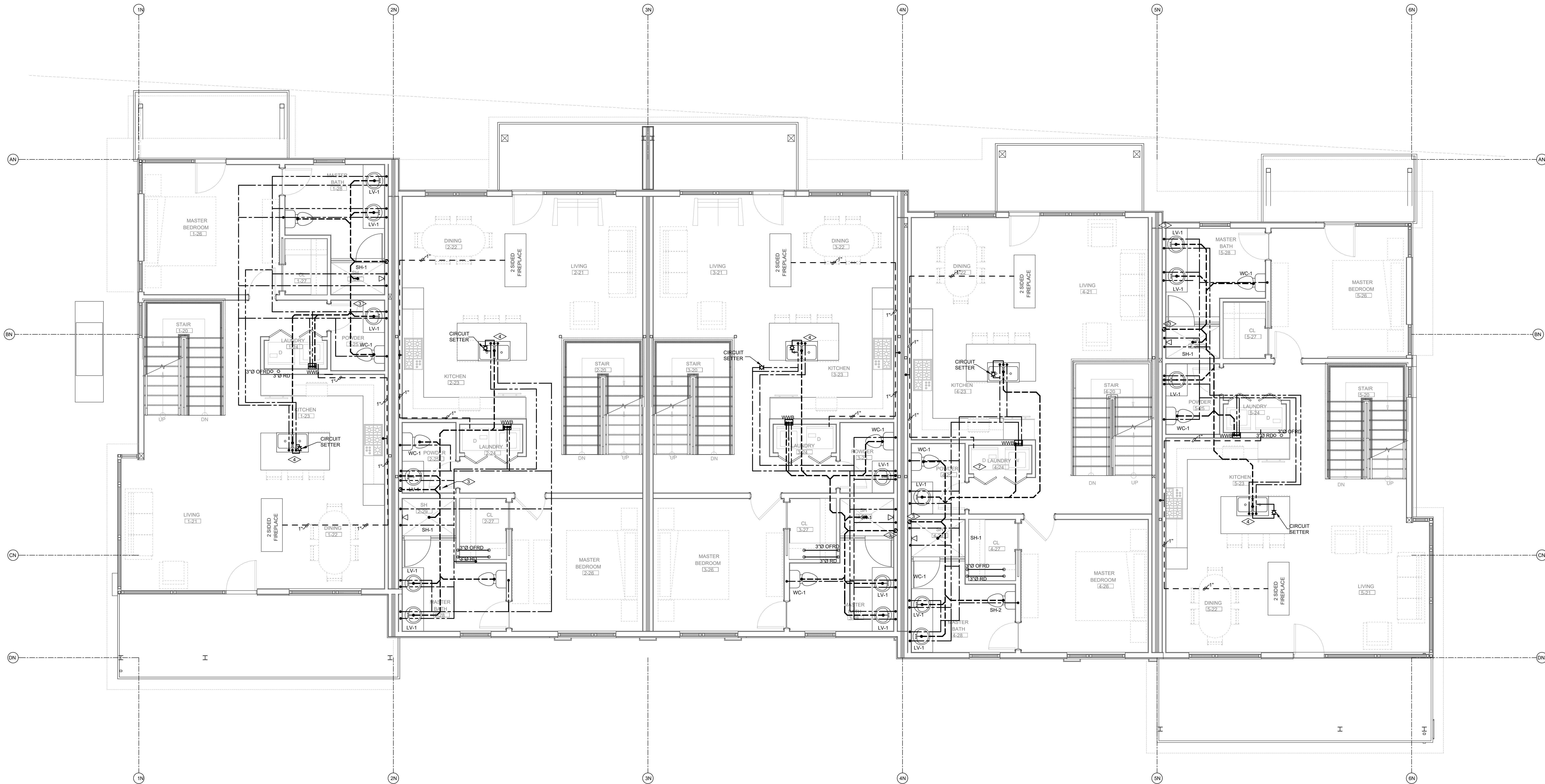
DATE	06/17/2022
JOB NO.	21-276
DRAWN BY	BCE
CHECKED BY	BCE
SCALE	AS SHOWN
SHEET NUMBER	P1-2

PLUMBING GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
- PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
- ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
- NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 14" W.C.) GAS METER LOAD IS 429 MBH (~512.5 CFH). LONGEST EQUIVALENT LINE LENGTH OF PIPING IS 104 FEET. GENERAL CONTRACTOR SHALL VERIFY THAT INSTALLED GAS METER CAN ACCOMMODATE GAS LOAD OF 429 CFH.
- PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURER'S AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES, PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.

FLAG NOTES:

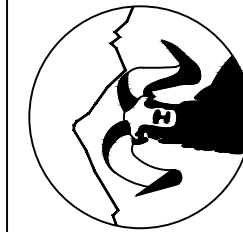
- WASTE FROM FLOORS ABOVE.
- COLD, HOT, AND RECIRC PIPES TO FLOORS ABOVE.
- WASTE DOWN TO BELOW.
- COLD, HOT AND RECIRC PIPES FROM FLOOR BELOW.
- GAS LINE UP TO FLOOR ABOVE.



PLUMBING - NORTH BUILDING - LEVEL 2 FLOOR PLAN
SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

**Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



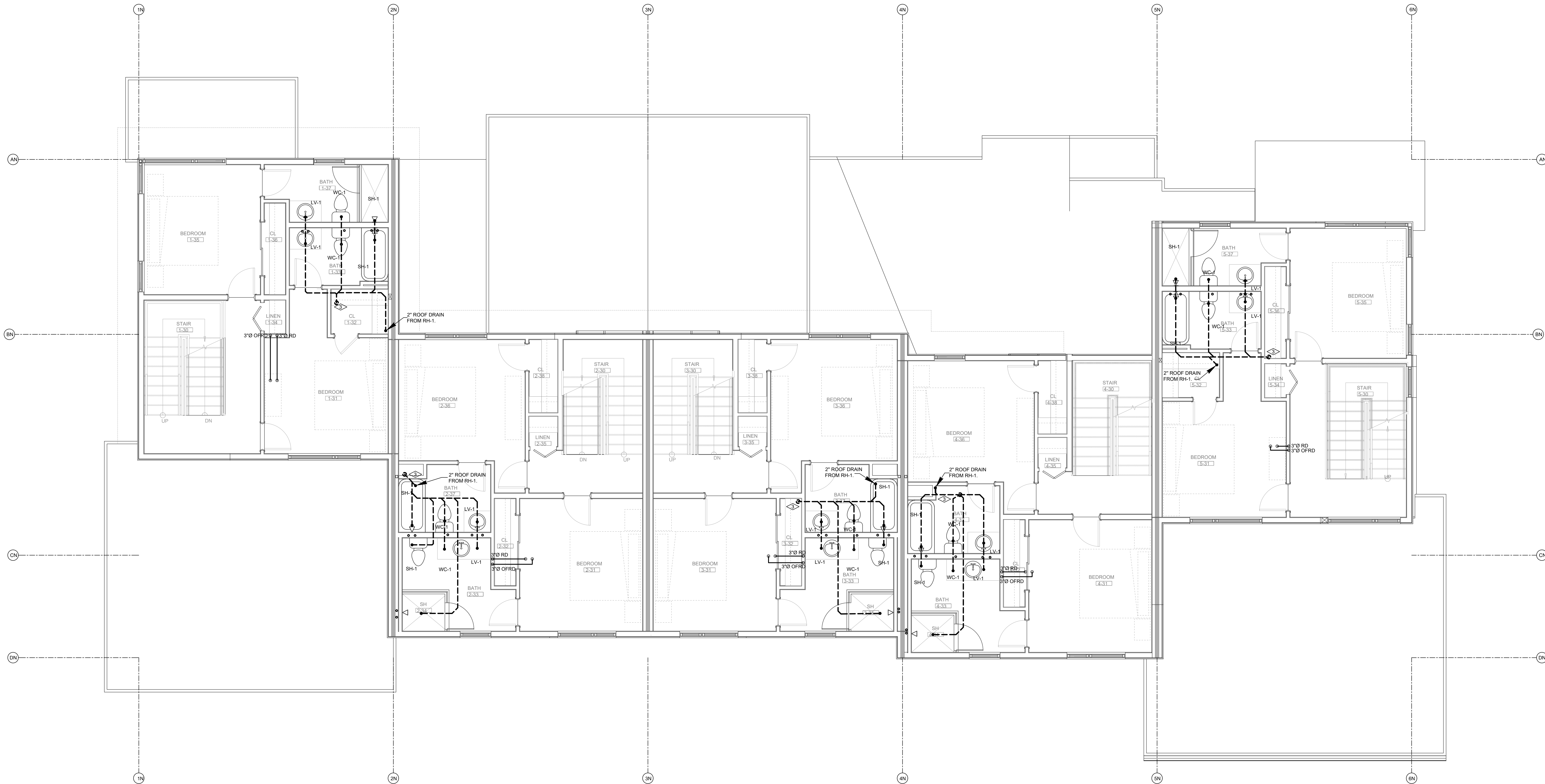
DATE	06/17/2022
JOB NO.	21-276
DRAWN BY	BCE
CHECKED BY	BCE
SCALE	AS SHOWN
SHEET NUMBER	P1-3

PLUMBING GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS. CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2019 IECC CODE REQUIREMENTS.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
- PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
- ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
- NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 14" W.C.) GAS METER LOAD IS 429 MBH (~512.5 CFH). LONGEST EQUIVALENT LINE LENGTH OF PIPING IS 104 FEET. GENERAL CONTRACTOR SHALL VERIFY THAT INSTALLED GAS METER CAN ACCOMMODATE GAS LOAD OF 429 CFH.
- PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURER'S AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES. PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.

FLAG NOTES:

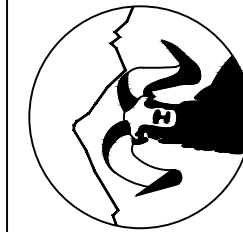
- WASTE FROM FLOORS ABOVE
- COLD, HOT, AND RECIRC PIPES TO FLOORS ABOVE.
- WASTE DOWN TO BELOW.
- COLD, HOT AND RECIRC PIPES FROM FLOOR BELOW
- GAS LINE UP TO FLOOR ABOVE.



PLUMBING - NORTH BUILDING - LEVEL 3 FLOOR PLAN
SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

**Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

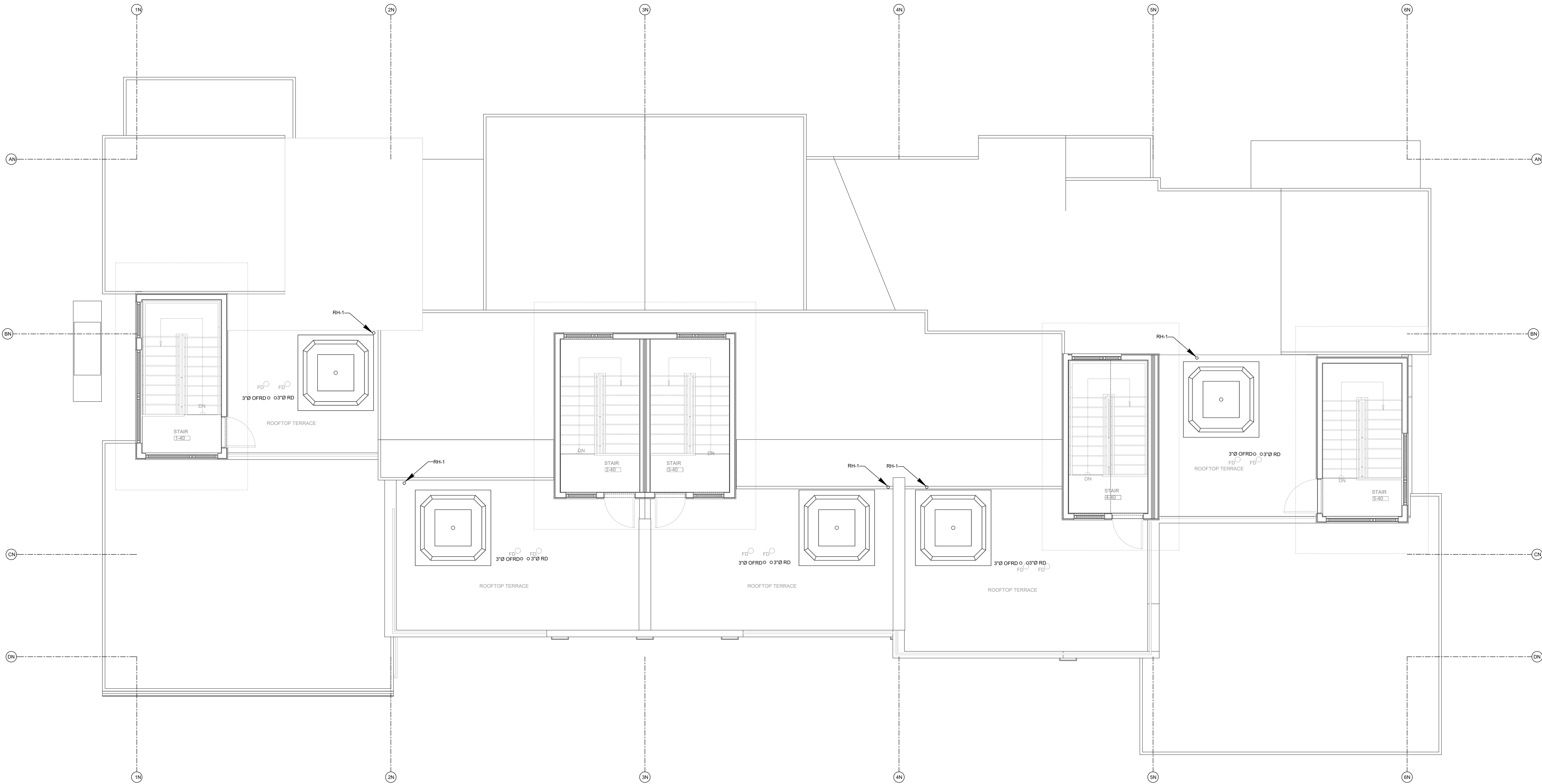
DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	P1-4

PLUMBING GENERAL NOTES:

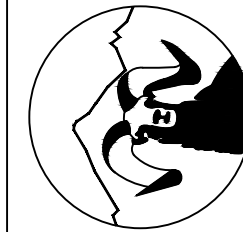
- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
- PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
- ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
- NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 14" W.C.) GAS METER LOAD IS 429 MBH (~512.5 CFH). LONGEST EQUIVALENT LINE LENGTH OF PIPING IS 104 FEET. GENERAL CONTRACTOR SHALL VERIFY THAT INSTALLED GAS METER CAN ACCOMMODATE GAS LOAD OF 429 CFH.
- PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURER'S AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CIENT REQUIREMENTS AND PREFERENCES. PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.



 **PLUMBING - NORTH BUILDING - LEVEL 4 FLOOR PLAN**
SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709



Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE	06/17/2022
JOB NO.	21-276
DRAWN BY	BCE
CHECKED BY	BCE
SCALE	AS SHOWN
SHEET NUMBER	P1-5

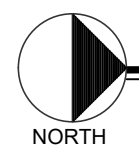
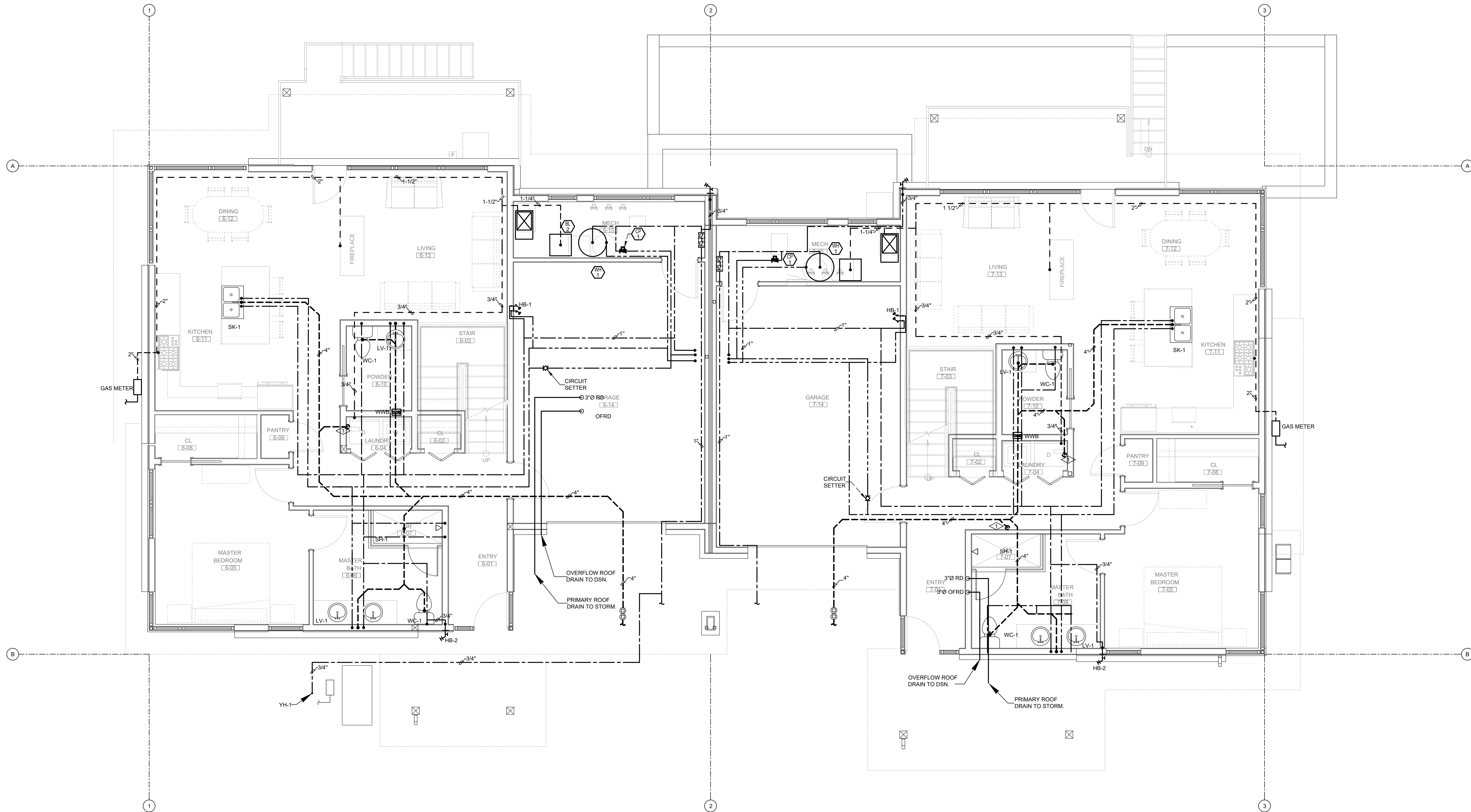
September 08, 2022 - 10:04:43am

FLAG NOTES:

1. WASTE FROM FLOORS ABOVE
2. COLD, HOT, AND RECIRC PIPES TO FLOORS ABOVE.
3. WASTE DOWN TO BELOW.
4. COLD, HOT AND RECIRC PIPES FROM FLOOR BELOW

PLUMBING GENERAL NOTES:

1. DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
2. PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS.
3. CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
4. ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
5. ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
6. PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
7. ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
8. NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 1/4" W.C.) GAS METER LOAD IS 459 MBH (~548.4 CFH). LONGEST EQUIVALENT LINE LENGTH OF PIPING IS 104 FEET. GENERAL CONTRACTOR SHALL VERIFY THAT INSTALLED GAS METER CAN ACCOMMODATE GAS LOAD OF 548.4 CFH.
9. PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURER'S AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES. PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.




PLUMBING - SOUTH BUILDING - LEVEL 1 FLOOR PLAN

SCALE: 1/4"=1'-0"

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. THE PROJECT FOR WHICH THEY ARE MADE IS EXERCISED ON BEHALF OF THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

 **Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

**REVIEWED
FOR
CODE
COMPLIANCE**
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



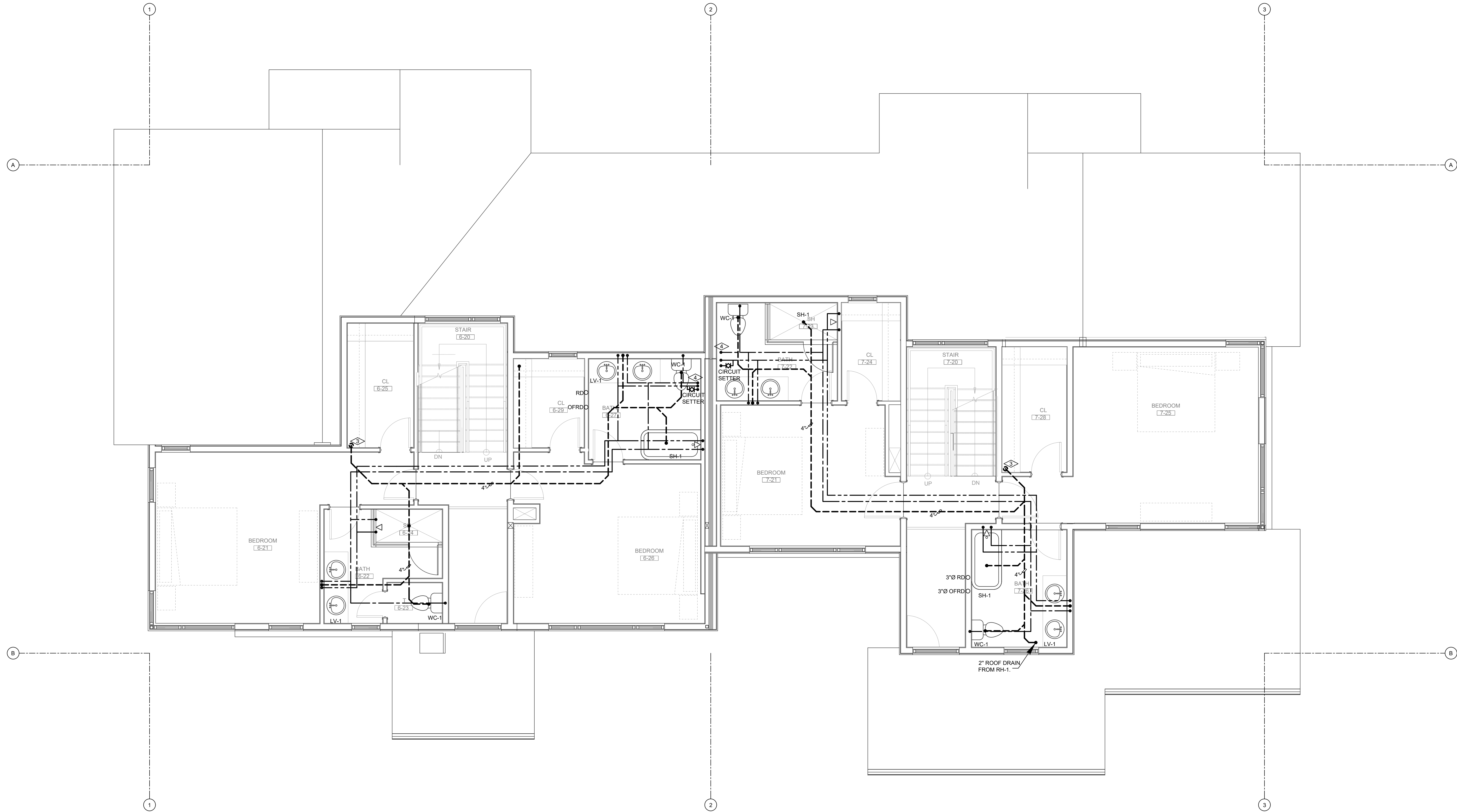
DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	P1-6

PLUMBING GENERAL NOTES:

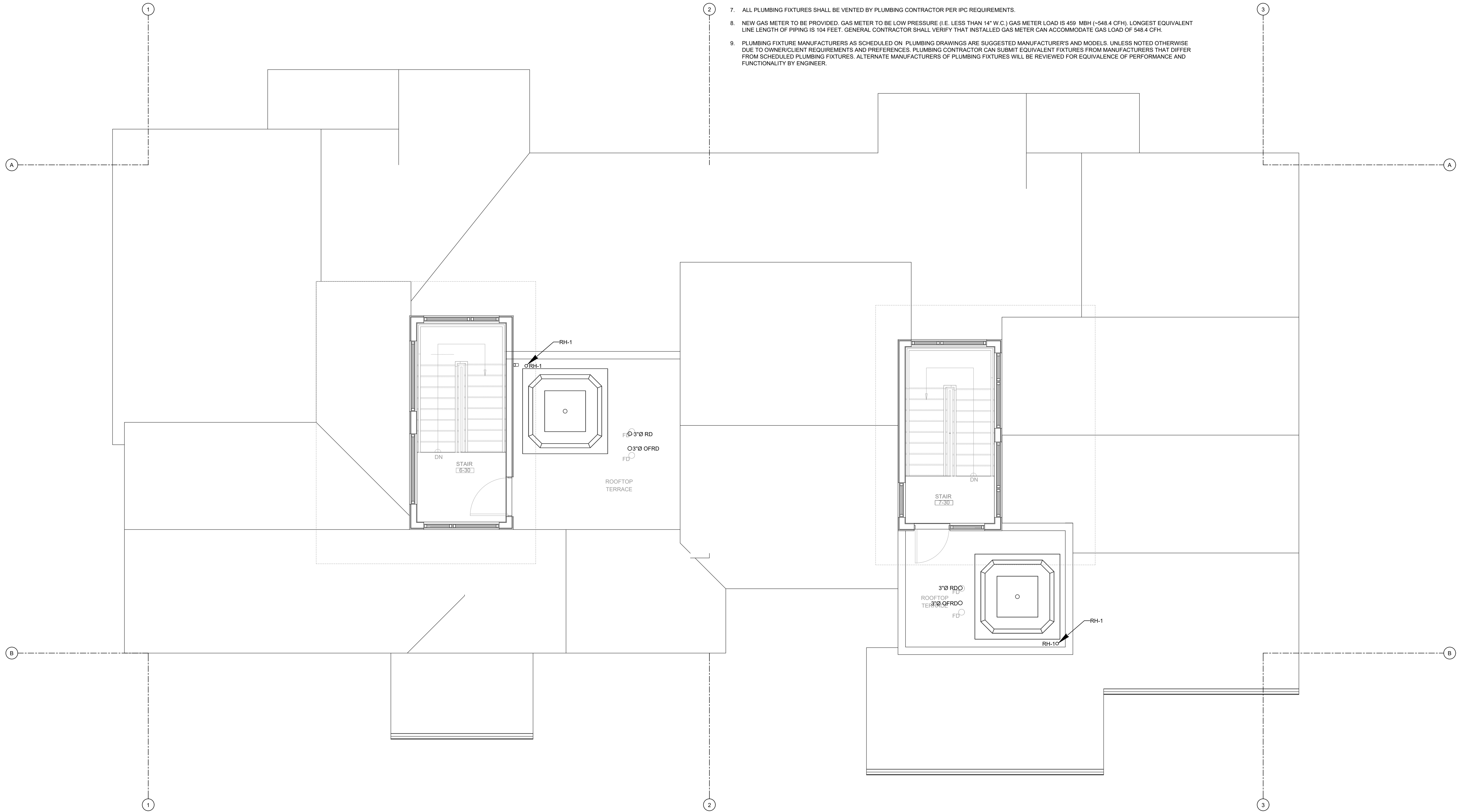
- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
- PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
- ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
- NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 14" W.C.). GAS METER LOAD IS 459 MBH (~548.4 CFH). LONGEST EQUIVALENT LINE LENGTH OF PIPING IS 104 FEET. GENERAL CONTRACTOR SHALL VERIFY THAT INSTALLED GAS METER CAN ACCOMMODATE GAS LOAD OF 548.4 CFH.
- PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURER'S AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CLIENT REQUIREMENTS AND PREFERENCES. PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.

FLAG NOTES:

- WASTE FROM FLOORS ABOVE
- COLD, HOT, AND RECIRC PIPES TO FLOORS ABOVE.
- WASTE DOWN TO BELOW.
- COLD, HOT AND RECIRC PIPES FROM FLOOR BELOW



PLUMBING - SOUTH BUILDING - LEVEL 2 FLOOR PLAN
SCALE: 1/4"=1'-0"
NORTH



PLUMBING GENERAL NOTES:

- DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
- PIPE DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL PIPING SHALL BE INSULATED PER 2018 IECC CODE REQUIREMENTS.
- CONDENSING WATER HEATER, GAS FURNACE, AND BOILER VENT MATERIAL SHALL COMPLY WITH MANUFACTURER'S LISTED AND APPROVED MATERIALS.
- ROUTE CONDENSATE FROM CONDENSING MECHANICAL EQUIPMENT TO CONDENSATE NEUTRALIZATION KITS. CONDENSATE FROM NEUTRALIZATION KITS SHALL BE DISCHARGED INDIRECTLY THROUGH AIR GAP TO NEAREST FLOOR DRAIN.
- ALL PLUMBING FIXTURES WITH QUICK CLOSING VALVES ON DOMESTIC COLD/HOT WATER SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR.
- PROVIDE ISOLATION VALVES AT GROUP RESTROOMS TO ALLOW FOR TOTAL ISOLATION OF THE ENTIRE RESTROOM GROUP FROM THE REST OF THE DOMESTIC COLD, HOT AND HOT RE-CIRCULATION SYSTEMS.
- ALL PLUMBING FIXTURES SHALL BE VENTED BY PLUMBING CONTRACTOR PER IPC REQUIREMENTS.
- NEW GAS METER TO BE PROVIDED. GAS METER TO BE LOW PRESSURE (I.E. LESS THAN 14\"/>
- PLUMBING FIXTURE MANUFACTURERS AS SCHEDULED ON PLUMBING DRAWINGS ARE SUGGESTED MANUFACTURERS AND MODELS. UNLESS NOTED OTHERWISE DUE TO OWNER/CIENT REQUIREMENTS AND PREFERENCES. PLUMBING CONTRACTOR CAN SUBMIT EQUIVALENT FIXTURES FROM MANUFACTURERS THAT DIFFER FROM SCHEDULED PLUMBING FIXTURES. ALTERNATE MANUFACTURERS OF PLUMBING FIXTURES WILL BE REVIEWED FOR EQUIVALENCE OF PERFORMANCE AND FUNCTIONALITY BY ENGINEER.

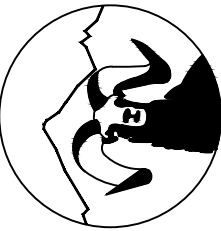


PLUMBING - SOUTH BUILDING - LEVEL 3 FLOOR PLAN

SCALE: 1/4\"/>

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ADDITION TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

**Bighorn Consulting Engineers, Inc.**
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	P1-7

PLUMBING SPECIFICATION

1. SCOPE OF WORK

A. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS, AND LABOR TO SATISFY A COMPLETE WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.

B. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH THE INTERNATIONAL PLUMBING CODE (LATEST EDITION), ALL LOCAL CODES AND ALL OTHER REGULATION GOVERNING WORK OF THIS NATURE.

C. THE CONTRACTOR SHALL, BEFORE SUBMITTING ANY PROPOSAL, EXAMINE THE PROPOSED SITE AND SHALL DETERMINE FOR HIMSELF THE CONDITIONS THAT MAY AFFECT THE WORK. NO ALLOWANCE SHALL BE MADE IF THE CONTRACTOR FAILS TO MAKE SUCH EXAMINATIONS.

D. ALL EQUIPMENT AND MATERIALS SHALL BE AS SPECIFIED OR "APPROVED AS EQUAL" BY THE ENGINEER OR ARCHITECT.

2. PERMITS

A. THE CONTRACTOR SHALL SECURE ALL PERMITS OR APPLICATIONS AND PAY ANY AND ALL FEES.

3. SHOP DRAWINGS

A. SUBMIT MATERIAL LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE ARCHITECT/ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL SUBMIT FIVE SETS OF SHOP DRAWINGS AND THEY SHALL BE CLEARLY LABELED.

4. DOMESTIC WATER SUPPLY PIPING

A. UNDERGROUND: PROVIDE TYPE "K" SOFT DRAWN COPPER TUBING WITH BRAZED CONNECTIONS.

B. ABOVE GROUND: PROVIDE TYPE "L" HARD DRAWN COPPER TUBING WITH 125 PS SOLDER JOINTS, COPPER OR BRASS FITTINGS. ALL SOLDER TO BE "NO LEAD" TYPE.

C. ALL HOT WATER PIPING TO BE INSULATED WITH 1" FIBERGLASS INSULATION.

D. ALL COLD WATER PIPING TO BE INSULATED WITH ½" FOAM INSULATION.

5. SANITARY/STORM DRAINAGE AND VENT PIPING

A. ABOVE GRADE:

-2" BELOW: SCHEDULE 40 GALV. STEEL PIPE WITH SCREWED ENDS OR SOLID CORE SCHEDULE 40 PVC WITH SOLVENT JOINTS OR DWV COPPER WITH SOLDER JOINTS. ALL SOLDER TO BE "NO LEAD" TYPE.

-3" AND ABOVE: SERVICE WT. CAST IRON WITH NO-HUB OR BELL AND SPIGOT JOINTS, OR SOLID CORE SCHEDULE 40 PVC WITH SOLVENT JOINTS.

B. BELOW GRADE: SERVICE WT. CAST IRON WITH NO-HUB OR BELL AND SPIGOT JOINTS, OR SOLID CORE SCHEDULE 40 PVC WITH SOLVENT JOINTS.

C. PVC PIPING SHALL NOT BE USED IN AIR PLENUM CEILINGS AND SHALL NOT CROSS FIRE RATED WALLS, CEILINGS, OR FLOORS.

D. DRAINAGE PIPING SHALL BE RUN AS STRAIGHT AS POSSIBLE AND SHALL HAVE LONG TURN FITTINGS.

E. DRAINAGE PIPING 3" SIZE AND SMALLER SHALL RUN AT A UNIFORM GRADE OF AT LEAST 1/8" PER FOOT, AND PIPING LARGER THAN 3" SHALL BE RUN AT A GRADE OF NO LESS THAN 1/8" PER FOOT.

F. ALL VENT PIPING SHALL BE SLOPED TO DRAIN BACK TO FIXTURES.

G. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FLASHING OF THE VENT PIPING RUN THROUGH THE ROOF.

H. PVC USED TO BE SOLID CORE TYPE SCHEDULE 40 PVC.

7. PIPE SUPPORTS

A. ABOVE GRADE: ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE AND PERFORATED METAL TO SUPPORT PIPES WILL NOT BE PERMITTED. SPACING OF PIPE SUPPORTS SHALL BE AS SPECIFIED IN INTERNATIONAL PLUMBING CODE (LATEST EDITION).

B. BELOW GRADE: EARTH SHALL BE EXCAVATED TO A MINIMUM DEPTH WITH AN EVEN SURFACE TO INSURE SOLID BEARING OF PIPE FOR ITS ENTIRE LENGTH.

-INTERIOR: THE PIPE SHALL BE INSTALLED (UNLESS OTHERWISE SPECIFIED) A MINIMUM OF 4 INCHES BELOW THE BOTTOM OF THE SLAB AND SHALL NOT BE IN ANY DIRECT CONTACT WITH THE CONCRETE AT ANY POINT.

-EXTERIOR: THE WATER PIPE SHALL HAVE A MINIMUM OF 60" OF COVER AND THE SANITARY WASTE PIPE SHALL HAVE A MINIMUM OF 24" OF COVER.

8. MISCELLANEOUS

A. COORDINATE INSTALLATION OF ALL ROOFS FLASHING AT ROOF PENETRATIONS.

B. DO NOT SCALE THIS DRAWING FOR EXACT DIMENSIONS. VERIFY ALL FIGURES, CONDITIONS AND DIMENSIONS AT THE JOB SITE.

C. THE PLUMBING PLANS ARE INTENDED TO BE DIAGRAMMATIC AND ARE BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION. THE EXACT DIMENSIONS OR ALL THE DETAILS OF THE EQUIPMENT. THE CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO ENSURE THAT THE EQUIPMENT WILL FIT THE AVAILABLE SPACE.

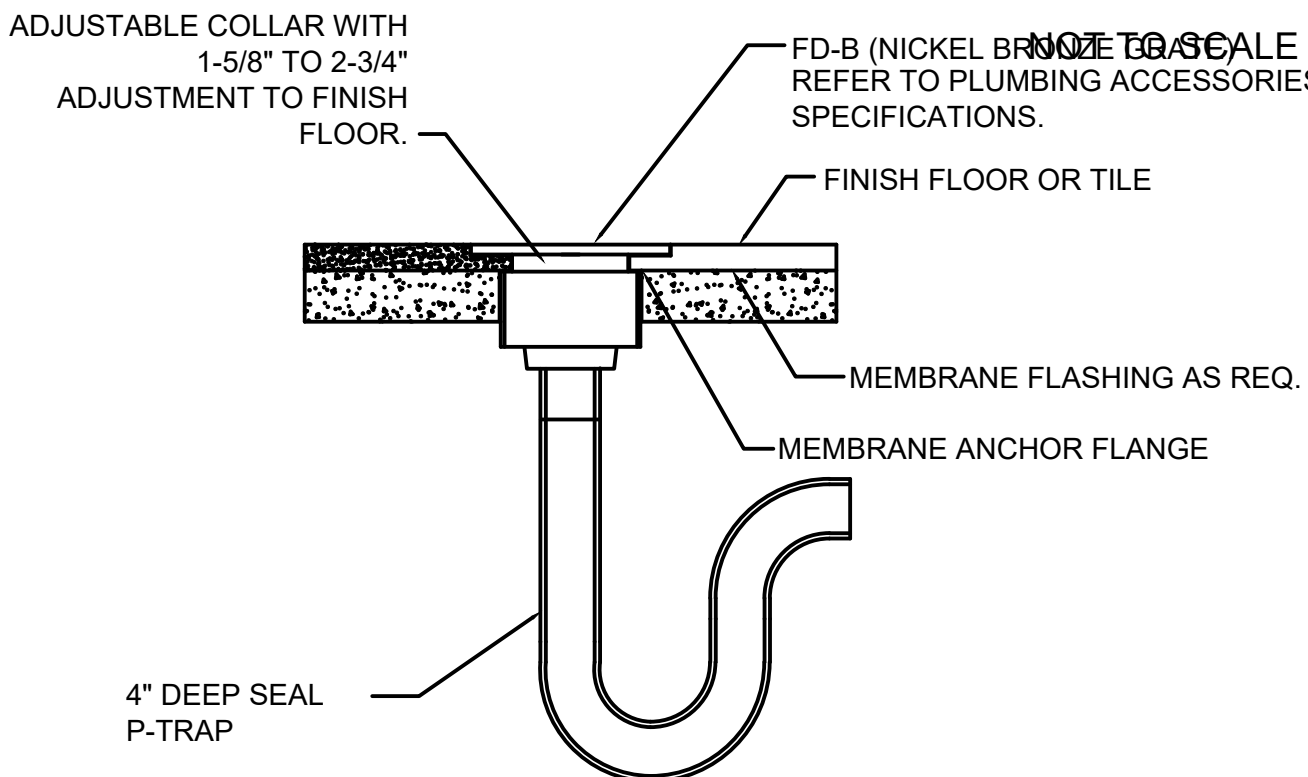
9. TESTING

A. PLUMBING SYSTEM SHALL BE FLOW AND PRESSURE TESTED IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE (LATEST EDITION).

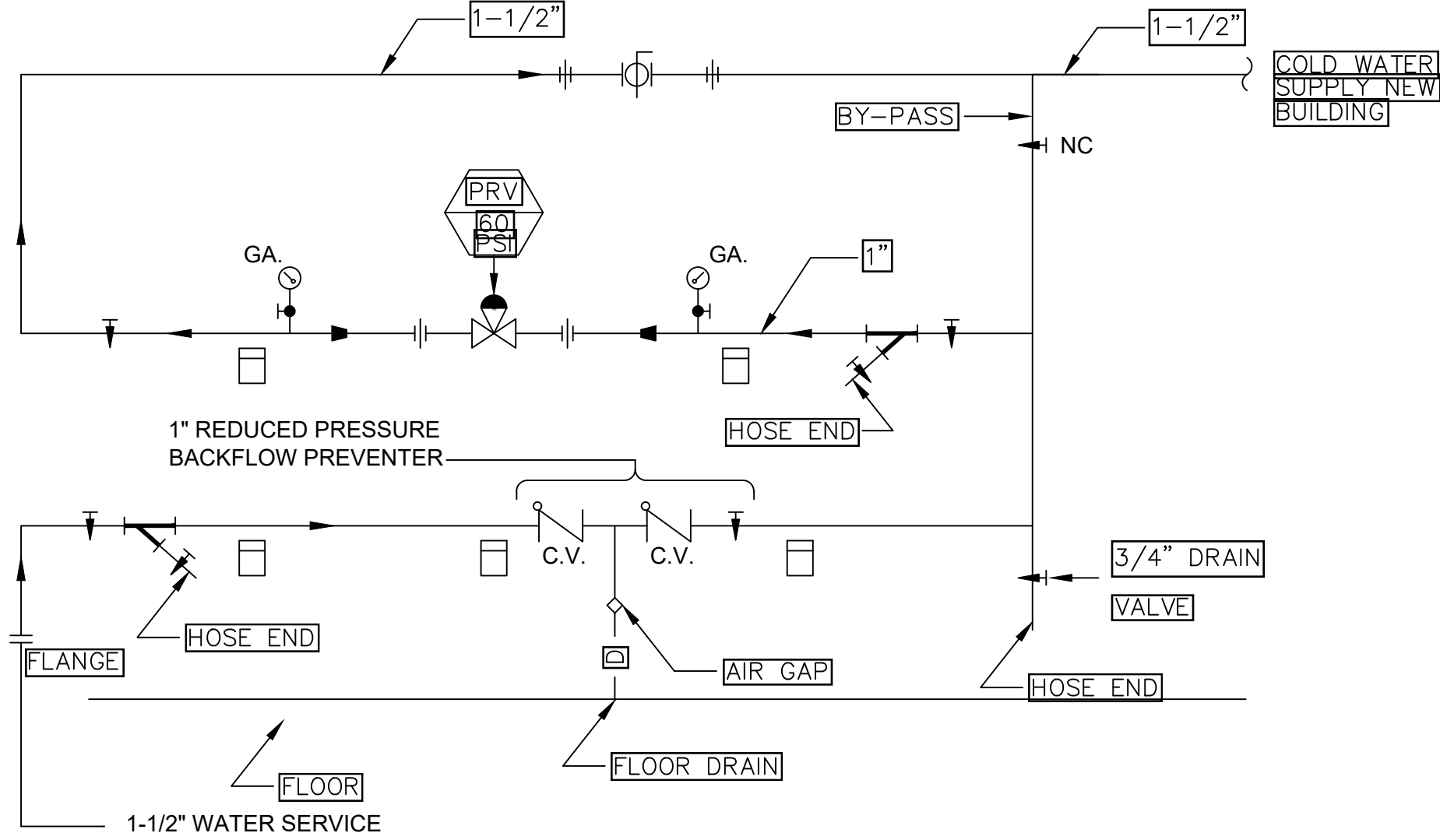
10. GUARANTEE

A. MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THIS CONTRACTORS EXPENSE.

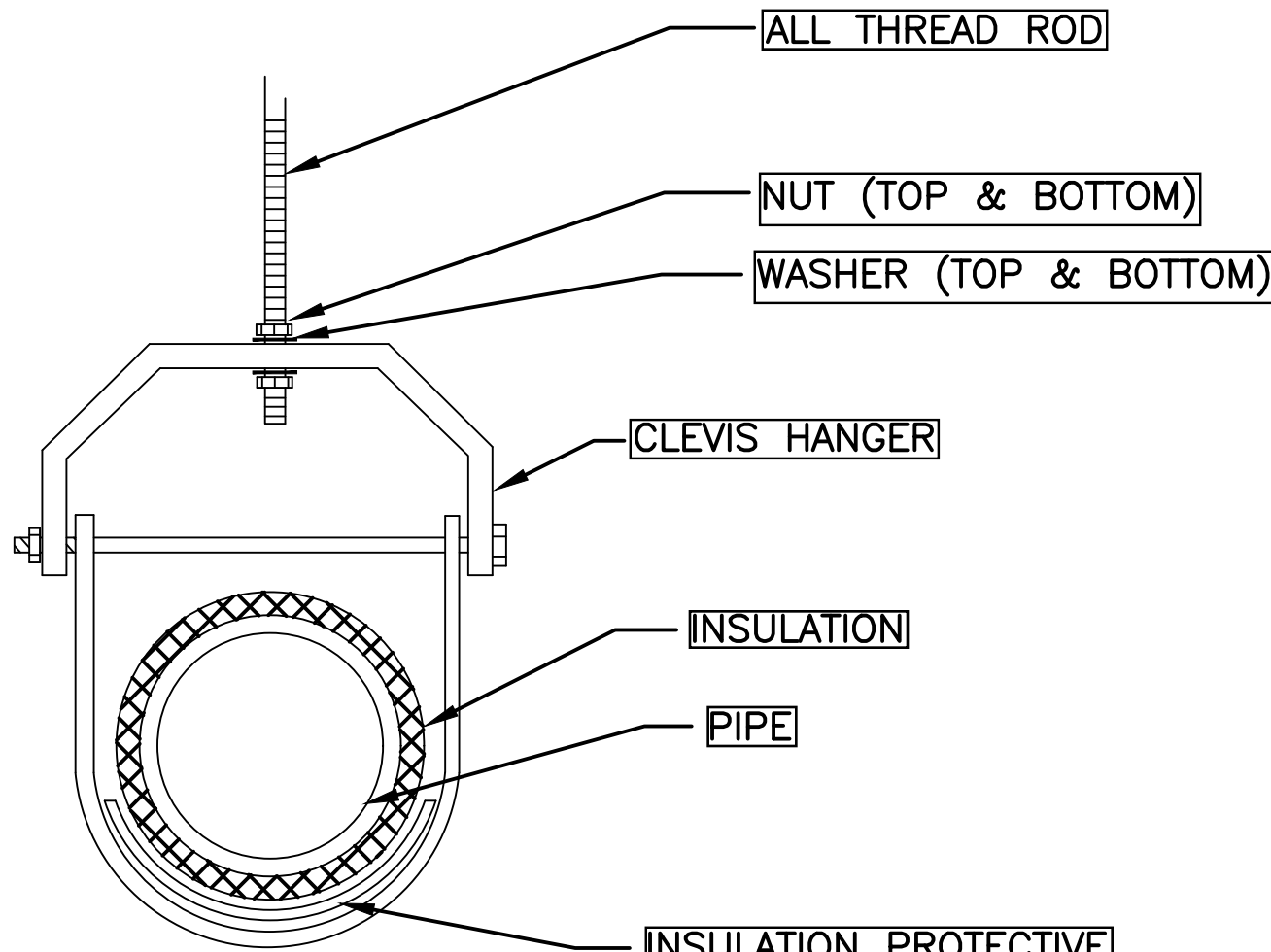
B. FOR THE SAME PERIOD THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PREMISES CAUSED BY DEFECTS IN WORKMANSHIP OR IN THE WORK OR EQUIPMENT FURNISHED AND/OR INSTALLED BY HIM.



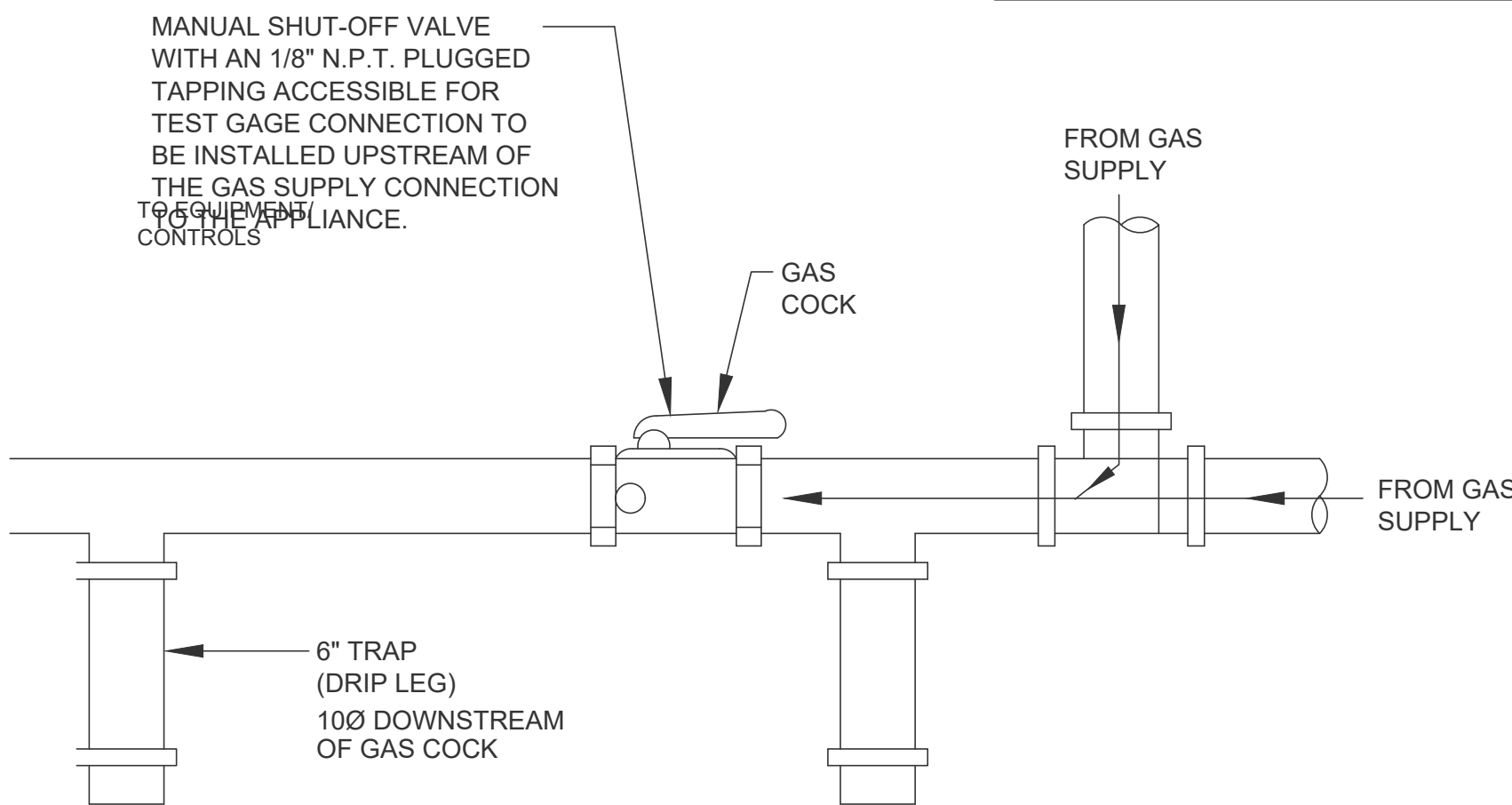
MECHANICAL AREA FLOOR DRAIN
NOT TO SCALE



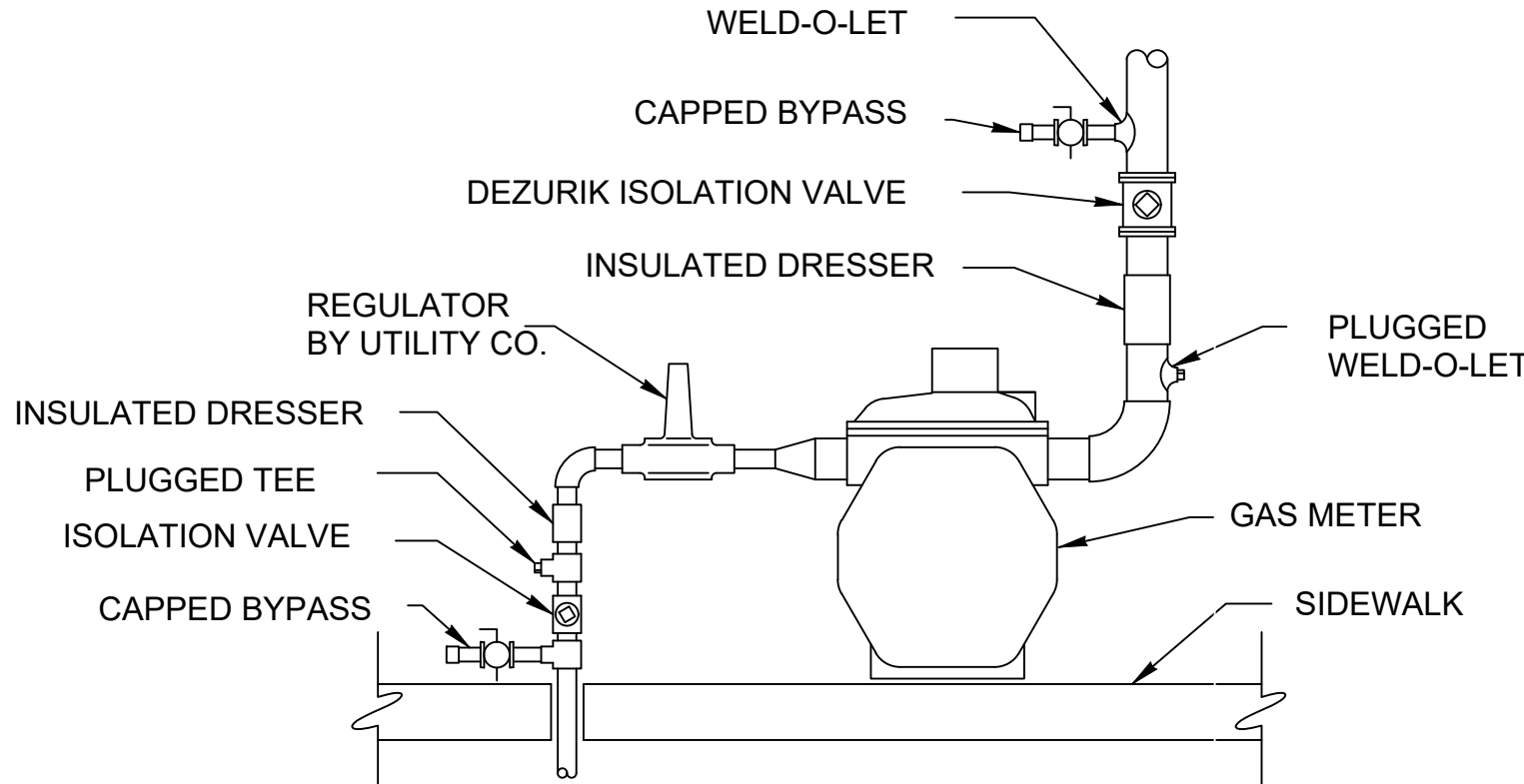
DOMESTIC WATER PRESSURE REDUCING
STATION DETAIL



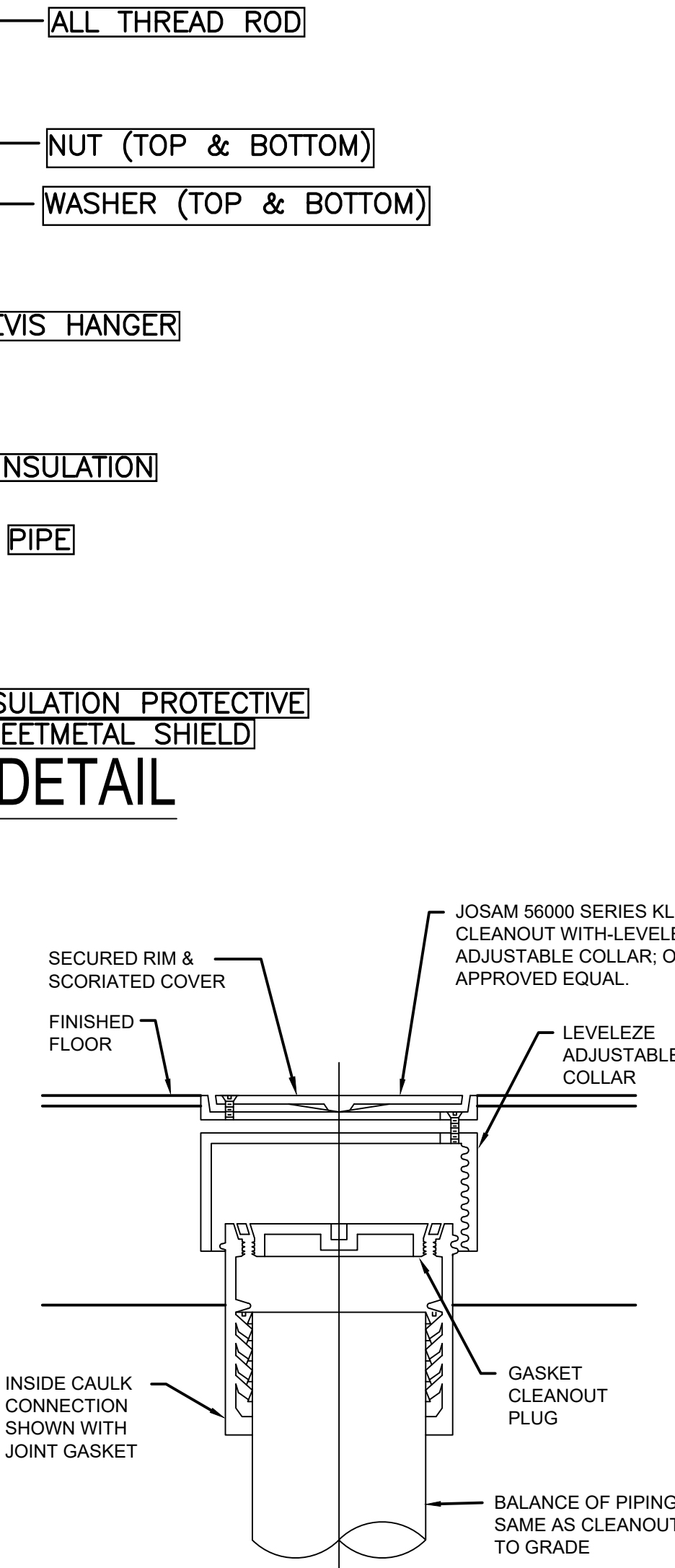
TYPICAL CLEVIS HANGER DETAIL



GAS CONNECTION TO EQUIPMENT DETAIL
NOT TO SCALE



GAS METER DETAIL
NOT TO SCALE

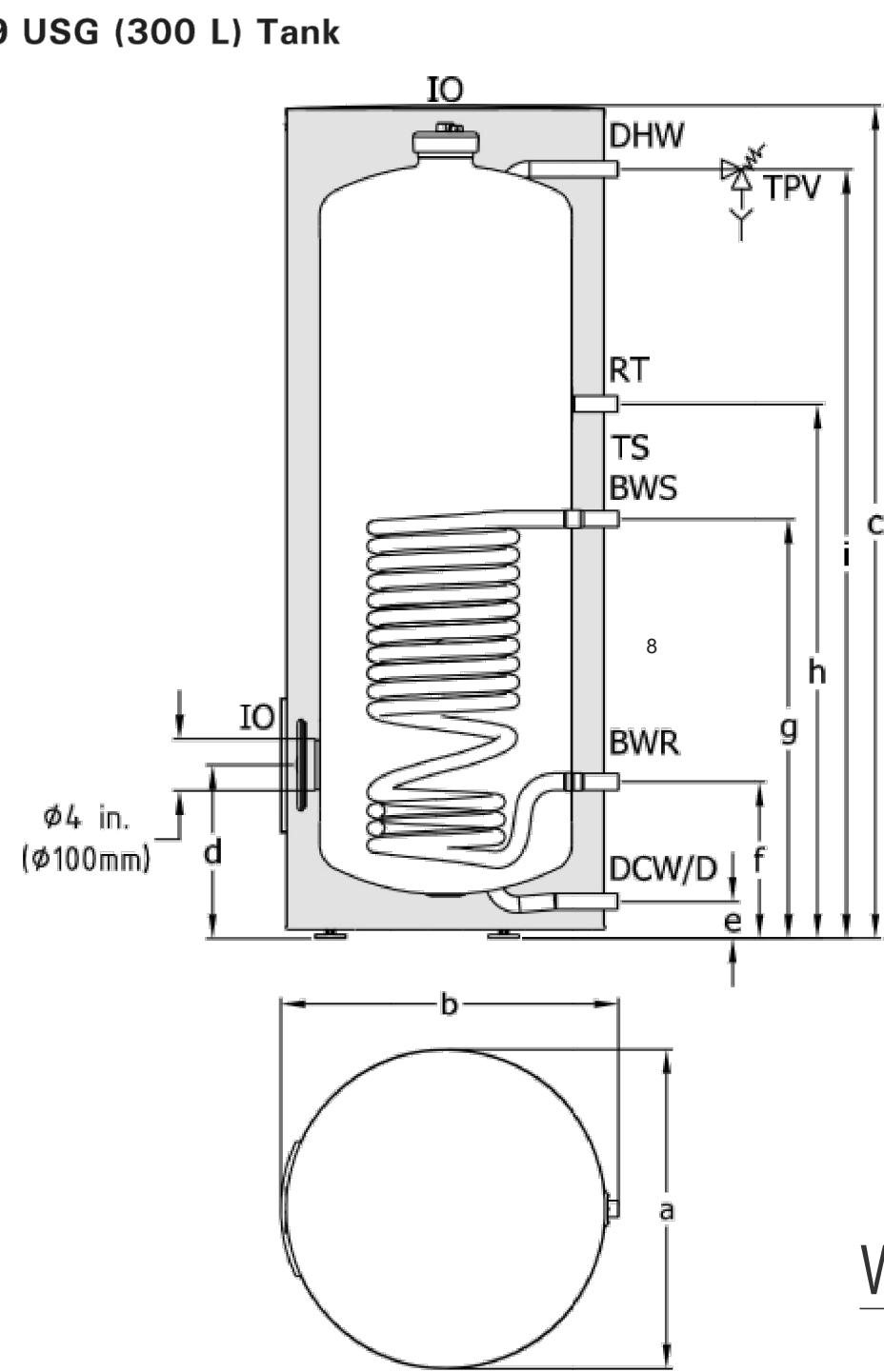


FLOOR CLEANOUT DETAIL
NOT TO SCALE

PLUMBING FIXTURE SCHEDULE									
FIXTURE NO.	DESCRIPTION	MANUFACTURER	MODEL	TRIM	PIPING CONNECTIONS				OPTIONS-ACCESSORIES
					S/W	VENT	C.W.	HW	
FD-1	FLOOR DRAIN	J.R. SMITH	2005		3"	2"	-	-	PROVIDE NICKEL BRONZE STRAINER
ORD-1	OVERFLOW ROOF DRAIN	ZURN	Z164		SEE PLAN	-	-	-	PROVIDE BRONZE DOME, INTERNAL OVERFLOW DAM
RD-1	PRIMARY ROOF DRAIN	J.R. SMITH			SEE PLAN	-	-	-	PROVIDE BRONZE DOME
SK-1	KITCHEN SINK	OWNER SELECTED		OWNER SELECTED	1 1/2"	1 1/2"	1/2"	1/2"	
LV-1	BATHROOM SINK	OWNER SELECTED		OWNER SELECTED					
SH-1	SHOWER	OWNER SELECTED		OWNER SELECTED	1-1/2"	1-1/2"	1/2"	1/2"	
WC-1	WATER CLOSET	OWNER SELECTED		OWNER SELECTED	4"	2"	1-1/2"	-	
WWB	WASHER SUPPLY BOX	OATEY	38979		2"	-	1/4"	1/4"	WATER HAMMER ARRESTOR, PRESSURE SHOCK ARRESTORS, QUICK CLOSING VALVES
HB-1	FREEZE PROOF HOSE BIB	WOODFORD	MODEL 22		-	-	3/4"	3/4"	
HB-2	FREEZE PROOF HOSE BIB	WOODFORD	B67		-	-	3/4"	-	PROVIDE LOCKING BOX WITH ANTI-SIPHON
RH-1	ROOF HYDRANT	WOODFORD	RHY1-MS		-	-	3/4"	-	
YH-1	YARD HYDRANT	WOODFORD	Y34		-	-	3/4"	-	

INDIRECT WATER HEATER SCHEDULE							
EQUIPMENT NO.	CAPACITY	RECOVERY @100 DEG F. RISE	BTU PER HR.	BOILER CONNECTION	WATER CONNECTION	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
WH-1	79		169,000	1"	1"	VISSMANN - 300-V EVIB-79	NOTE-1

NOTES:
1. DRAIN PAN PIPED TO NEAREST FLOOR DRAIN. BRAID FLEXIBLE STAINLESS STEEL HOSES TO DOMESTIC COLD AND HOT WATER CONNECTIONS. ISOLATION VALVES ON ALL CONNECTIONS TO WATER HEATER. PROVIDE HIGH ALTITUDE KIT SIZED PER LOCATION ELEVATION.



Dimensions			
Model	USG (L)		EVIB
Storage capacity	79 (300)		
a	in. (mm)	26 1/4 (668)	
b	in. (mm)	28 (706)	
c	in. (mm)	68 1/2 (1740)	
d	in. (mm)	14 1/4 (362)	
e	in. (mm)	3 (77)	
f	in. (mm)	13 (327)	
g	in. (mm)	34 1/2 (876)	
h	in. (mm)	44 (1116)	
i	in. (mm)	63 1/4 (1607)	

Legend
DHW Domestic Hot Water
BWR Boiler Water Return
IO Inspection/cleanout Opening
BWS Boiler Water Supply
TPV Temperature and Pressure relief Valve
D Drain
RT DHW Recirculation Tapping
DCW Domestic Cold Water
TS Clamp for tank temperature sensor or temperature controller and thermometer sensor.

WATER HEATER DETAIL
NOT TO SCALE

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECT OR IN ACCORDANCE TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709



Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED
FOR
CODE
COMPLIANCE
12/07/2022

DATE:	ISSUED FOR:
06/17/2022	PERMIT
09/07/2022	PERMIT CORRECTIONS



DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	P2-1