LEGEND NOTES

NOTES:
SYMBOLS SHOWN ARE STANDARD. VARIATION AND/OR COMBINATIONS MAY BE USED ON THE PLANS. THIS LIST SHOWS STANDARD SYMBOLS AND ALL MAY NOT APPEAR ON THE PROJECT DRAWINGS; HOWEVER, WHEREVER THE SYMBOL ON THE PROJECT DRAWINGS OCCUR, THE ITEM SHALL BE PROVIDED AND INSTALLED.

VARIATION AND/OR COMBINATION MAY BE USED ON THE PLANS SUCH AS A LOWER CASE LETTER NEXT TO A SWITCH INDICATES THE SWITCH DESIGNATION. A NUMBER NEXT TO A DEVICE INDICATES A CIRCUIT NUMBER.

A LOWER CASE LETTER NEXT TO A SWITCH AND LIGHT FIXTURE INDICATES A SWITCH DESIGNATION.

AN UPPER CASE LETTER NEXT TO A SWITCH INDICATES THE FUNCTION OF THE SWITCH. REFER TO THE LIST BELOW. A COMBINATION OF DESIGNATIONS MAY BE USED.

AN UPPER CASE LETTER NEXT TO A LIGHT FIXTURE INDICATES THE TYPE OF FIXTURE. REFER TO THE LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS.

- DRAWING FLAG NOTES
- ROOM DESIGNATION (ROOM 100)

SWITCH LEGEND

- $ SINGLE POLE SWITCH
- $2 TWO POLE SWITCH
- $3 THREE-WAY SWITCH
- $4 FOUR-WAY SWITCH
- $D DIMMER SWITCH
- $3D 3 WAY DIMMER SWITCH - (4D INDICATES A 4WAY DIMMER)
- $MA MANUAL ON / AUTO OFF VACANCY SENSOR SWITCH
- $MA MANUAL ON / AUTO OFF DIMMING VACANCY SENSOR SWITCH
- $OS AUTO ON / AUTO OFF OCCUPANCY SENSOR SWITCH
- (OS) (OS) CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH
- $SC SCENE CONTROL STATION
- $MS UNIT LIGHTING MANAGEMENT CONTROL STATION
- $K KEY OPERATED LIGHT SWITCH
- $T MANUAL ON - TIMED AUTO OFF LIGHT SWITCH
- $P PILOT LIGHT SWITCH
- $MO MANUAL MOTOR STARTER
- $DR DOOR ACTIVATED SWITCH
- $F CEILING FAN SWITCH

LIGHT FIXTURE LEGEND

- A — 1'x4' LED TROFFER OR DIRECT/INDIRECT TYPE FIXTURE GRID, FLANGE OR SURFACE MOUNTED
- A — 2'x4' LED TROFFER OR DIRECT/INDIRECT TYPE FIXTURE GRID, FLANGE OR SURFACE MOUNTED
- A — 2'x2' LED TROFFER OR DIRECT/INDIRECT TYPE FIXTURE GRID, FLANGE OR SURFACE MOUNTED
- A — OPEN STRIP LED FIXTURE
- A — LED WALL BRACKET FIXTURE
- A — WALL BRACKET LIGHT FIXTURE
- A — RECESSED DOWNLIGHT CAN FIXTURE
- A — SURFACE CEILING OR PENDANT MOUNTED FIXTURE
- EX2 — DOUBLE FACE EXIT SIGN, WALL AND CEILING MOUNTED
- EX1 — SINGLE FACE EXIT SIGN, WALL AND CEILING MOUNTED
- EM — WALL MOUNTED EMERGENCY LIGHT
- EMR — EMERGENCY EXTERIOR EGRESS FIXTURE

ELECTRICAL EQUIPMENT LEGEND

- BRANCH CIRCUIT PANELBOARD
- TELEPHONE TERMINAL BOARD
- ELECTRIC MOTOR
- F — FUSED SAFETY SWITCH / DISCONNECT COMBINATION
- MOTOR STARTER
- CONTACTOR
- LA-7 — CIRCUITRY HOMERUN: PANEL LA - CIR. #7
- CONDUIT OR WIRE CONCEALED IN WALL/CLG. (SOLID LINE TYPE)
- CONDUIT OR WIRE UNDERFLOOR/UNDERGND. (DASHED LINE TYPE)

ELECTRICAL DEVICE LEGEND

- J — CEILING JUNCTION BOX - SURFACE/FLUSH
- J — WALL JUNCTION BOX - SURFACE/FLUSH
- DUPLEX RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- SPLIT WIRED DUPLEX RECEPTACLE
- CEILING MOUNTED DUPLEX RECEPTACLE
- FOURPLEX RECEPTACLE
- FLOOR MOUNTED FOURPLEX RECEPTACLE
- APPLIANCE RECEPTACLE - 3 WIRE
- GFCI — RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
- USB — RECEPTACLE WITH USB CHARGING CAPABILITIES
- AC — RECEPTACLE MOUNTED ABOVE COUNTER
- CW — RECEPTACLE MOUNTED IN CASEWORK
- GFCI WP — RECEPTACLE - WITH GFCI AND WEATHER PROOF COVER
- GFCI 44" — RECEPTACLE - WITH GFCI AND MOUNTED AT 44" A.F.F.
- D — ELECTRIC HAND DRYER
- T — THERMOSTAT
- OPEN / CLOSE / STOP PUSH BUTTON

MAIN DISTRIBUTION GEAR LEGEND

- PAD MOUNTED UTILITY TRANSFORMER
- M — ELECTRICAL METER SHOWN IN ONE LINE
- 100 A 2P CLASS T — FUSED DISCONNECT 100A = AMP RATING 2P = NUMBER OF POLES CLASS T = FUSE CLASS
- CIRCUIT BREAKER
- PP1 225A MLO 120/208V 3PH, 4W / PP1 225A MCB 120/208V 3PH, 4W — ELECTRICAL POWER PANEL WITH MAIN LUG OR MAIN BREAKER PP1= PANEL NAME 225A MLO = MAIN LUG OR BREAKER SIZE 120/208V = PANEL VOLTAGE 3PH, 4 WIRE = PANEL PHASE, DISTRIBUTION TYPE

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK TO COMPLY WITH LATEST EDITION OF NEC, IECC AND ALL APPLICABLE GOVERNING CODES.
2. FIELD COORDINATION DURING CONSTRUCTION IS IMPERATIVE. CONTRACTORS BIDDING THIS WORK MUST MAKE REASONABLE ALLOWANCES FOR UNFORESEEN CONTINGENCIES.
3. ELECTRIC UTILITY TO ADVISE OWNER AND/OR THE ELECTRICAL ENGINEER PRIOR TO SERVICE MODIFICATION REQUIRING COST TO THE OWNER.

WIRING:

1. ALL WIRING IS SHOWN DIAGRAMMATICALLY ON DRAWING, FIELD VERIFY ALL CONDITIONS PRIOR TO ROUGH-IN.
2. ALL CONDUITS AND CONVEYANCES SHALL BE CONCEALED. IN THE EVENT THAT A NEW DEVICE IS BEING INSTALLED IN AN EXISTING DRYWALL PARTITION, PROVIDE A CUT IN TYPE BOX AND FISH FLEXIBLE CONDUIT DOWN INSIDE THE WALL FROM ABOVE THE CEILING AND REPAIR THE DRYWALL AROUND THE CONDUIT. TRANSITION TO EMT ONCE ABOVE THE CEILING.
3. SIZES OF WIRE AND CABLES ARE BASED UPON COPPER CONDUCTORS, UNLESS OTHERWISE INDICATED. ALL CIRCUITS SHALL CONTAIN (2) #12 AWG WITH (1) #12 GND IN 1/2" CONDUIT UNLESS NOTED OTHERWISE.
4. ALL BRANCH CIRCUITS WITH HOME RUNS OVER 50 FEET, WILL BE SIZED ONE SIZE LARGER.
5. ALL PENETRATIONS IN OR THROUGH FIRE RATED PARTITIONS SHALL BE FIRE STOPPED IN SUCH A WAY THAT THE PENETRATION MATCHES THE FIRE RATING OF THE WALL.
6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION BETWEEN THE APPROPRIATE DISCIPLINES AND CONTRACTORS.
7. COORDINATE ALL DEVICE, FIXTURE AND HARDWARE COLOR SELECTIONS WITH THE ARCHITECT PRIOR TO MAKING SHOP DRAWING SUBMITTALS.
8. COORDINATE THE MOUNTING HEIGHTS OF ALL RECEPTACLES MOUNTED ABOVE COUNTERS, CASEWORK AND APPLIANCE RECEPTACLES WITH ARCHITECTURAL ELEVATIONS.
9. BRANCH CIRCUIT AND SPECIAL SYSTEMS WIRING FOR DEVICES ON WALLS IN FINISHED AREAS WHICH CANNOT BE CONCEALED SHALL BE INSTALLED IN SURFACE MOUNTED RACEWAY.
10. ALL EXPOSED CONDUITS, BOXES, ETC. IN ROOMS TO BE PAINTED SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE. EXPOSED CONDUITS, BOXES, ETC. IN ROOMS WHICH ARE NOT PAINTED MAY BE LEFT UN-PAINTED. EXPOSED CONDUIT, BOXES, ETC. ON THE EXTERIOR OF BUILDINGS SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE AS CLOSELY AS POSSIBLE.
11. THE CONTRACTOR IS RESPONSIBLE FOR PATCHING, PAINTING, REPAIRING OR REPLACEMENT OF ALL WALLS, CEILING OR OTHER BUILDING ELEMENTS WHICH ARE DISTURBED AS PART OF THE DEMOLITION AND/OR INSTALLATION OF ELECTRICAL WORK.
12. PROVIDE ELECTRICAL CONNECTION TO ALL FIRE, SMOKE, AND FIRE / SMOKE DAMPERS INCLUDING POWER AND FIRE ALARM. VERIFY EXACT SIZE AND FINAL LOCATION OF ALL DAMPERS WITH THE MECHANICAL CONTRACTOR. ALL ROOFTOP UNITS RATED AT MORE THAN 2000 CFM WILL BE OUTFITTED WITH A DUCT DETECTOR IN THE RETURN DUCT. ALL ROOFTOP UNITS RATED AT MORE THAN 15000 CFM WILL BE OUTFITTED WITH A DUCT DETECTOR IN BOTH THE SUPPLY AND RETURN DUCT AT ROOFTOP LEVEL AND IN THE RETURN DUCT AT EVERY LEVEL THAT IS SERVED. ELECTRICAL CONTRACTOR WILL PROVIDE A REMOTE TEST STATION AND ALL WIRING NECESSARY TO COMPLETE INSTALLATION..
13. REFER TO THE MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS ASSOCIATED WITH PLUMBING AND HVAC EQUIPMENT AND OWNER/GENERAL CONTRACTOR FURNISHED EQUIPMENT.

COMMUNICATION LEGEND

- PLAIN DATA OUTLET
- 60" — PLAIN DATA OUTLET WITH MOUNTING HEIGHT
- COMBINATION DATA/TELEPHONE
- FLOOR MOUNTED COMBINATION DATA/TELEPHONE
- CEILING MOUNTED COMBINATION DATA/TELEPHONE
- TELEVISION OUTLET
- CLOCK ONLY
- CLOCK / PA SPEAKER WALL MOUNTED
- S — ROUND CEILING MOUNTED SPEAKER
- S — SQUARE SPEAKER
- C — INTERCOM PUSH TO CALL SWITCH
- WAP — WIRELESS ACCESS POINT ABOVE THE CEILING
- PROJECTOR — PROJECTOR CONNECTION ABOVE THE CEILING
- HDMI — WALL MOUNTED HDMI

FIRE ALARM EQUIPMENT LEGEND

- FACP — FIRE ALARM CONTROL PANEL
- FAAP — FIRE ALARM ANNUNCIATION PANEL
- F — FIRE ALARM PULL STATION
- FIRE ALARM HORN
- FIRE ALARM STROBE
- FIRE ALARM HORN STROBE
- D — DUCT DETECTOR
- SP — SMOKE DETECTOR - PHOTOELECTRIC
- SI — SMOKE DETECTOR - IONIZATION
- SCO — COMBINATION SMOKE / CARBON MONOXIDE DETECTOR
- H 135° — HEAT DETECTOR - 135° ALARM
- REMOTE LAMP
- FS — FLOW SWITCH
- TS — TAMPER SWITCH
- DH — DOOR HOLD - MAGNETIC HOLD

SECURITY SYSTEM LEGEND

- SECURITY CAMERA
- HC — ADA DOOR OPERATOR PUSH BUTTON
- DS — ELECTRIC DOOR STRIKE
- CR — CARD READER FOR DOOR OPERATOR

LUMINAIRES:

1. COORDINATE THE LOCATION OF ALL LIGHTING EQUIPMENT INCLUDING BUT NOT LIMITED TO THE LUMINAIRES, SWITCHES WITH THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND ALL OTHER TRADES AS REQUIRED. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONAL LOCATION OF LIGHT FIXTURES.
2. LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE AND SHALL NOT BE SUPPORTED FROM THE T-BAR CEILING GRID.
3. THE ELECTRICAL CONTRACTOR IS TO CONFIRM THE LIGHT FIXTURES ORDERED WILL BE COMPATIBLE WITH THE CEILING TYPES AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING THE FIXTURES.
4. VERIFY LUMINAIRE MOUNTING REQUIREMENTS AND OVERALL HEIGHT OF ALL PENDANT MOUNTED FIXTURES PRIOR TO ORDERING.
5. ALL LIGHT FIXTURES NEED TO BE COMPATIBLE WITH THE SWITCHES AND CONTROLS BEING PROVIDED.
6. THE LIGHTING PACKAGE SHALL BE APPROVED BY BOTH THE ARCHITECT AND ENGINEER AS APPROVED EQUAL BEFORE BID. NO LIGHT FIXTURE SHALL BE ORDERED UNTIL THE LIGHT FIXTURE SUBMITTAL PACKAGE HAS BEEN APPROVED IN WRITING BY THE ARCHITECT, GENERAL CONTRACTOR AND ELECTRICAL ENGINEER.
7. COORDINATE LUMINAIRE MOUNTING REQUIREMENTS PRIOR TO PLACING ORDER.

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:

ITEM	FURNISHED	SET	POWER WIRED	CONTROL WIRED
EQUIPMENT	23	23	26	--
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFD'S 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
A	AMPS
A.D.	ACCESS DOOR
AAV	AIR ADMITTANCE VALVE
ABV	ABOVE
AC	AIR CONDITIONING UNIT
AC	ABOVE COUNTER
AD	AREA DRAIN (SEE SYMBOLS)
A.F.C.	ABOVE FINISHED CEILING
A.F.G.	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
A.F.F.	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL OR DOOR
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO / VIDEO
AVG	AVERAGE
AWG	AMERICAN WIRE GAGE
BAS	BUILDING AUTOMATION SYSTEM
BB	BASEBOARD
BD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTOR
BL	BOILER
BLDG	BUILDING
BLW	BELOW
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
C	CHILLER
CAP	CAPACITY
CB	CIRCUIT BREAKER
CBV	CIRCUIT BALANCING VALVE
CCT	CORRELATED COLOR TEMPERATURE
CKT	CIRCUIT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMP	COMPRESSOR
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONT	CONTINUATION
CONTR	CONTRACTOR
CRI	COLOR RENDERING INDEX
CT	COOLING TOWER
CT	CURRENT TRANSFORMER
CU	CONDENSING UNIT
CU	COPPER
CUH	CABINET UNIT HEATER
CVB	CONSTANT VOLUME BOX
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGRAM
DIFF	DIFFERENTIAL
DISCH	DISCHARGE
DIV	DIVISION
DN	DOWN
DS	DUCT SILENCER
DWG	DRAWING
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR GRILLE/REGISTER
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECC	ECCENTRIC
EF	EXHAUST FAN
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
EM	EMERGENCY FUNCTION
ENT	ENTERING
EMT	ELECTRIC METALLIC TUBE
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ES	END SWITCH
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXHAUST
EXPAN	EXPANSION
EXT	EXTERNAL
F	DEGREES FAHRENHEIT
FA	FREE AREA
FC	FAN COIL UNIT
FC	FOOTCANDLE
FCV	FLOW CONTROL VALVE
FD	FIRE DAMPER
FD	FLOOR DRAIN
FIN	FINISHED
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FP	FIRE PROTECTION
FP	FIRE PUMP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSD	FIRE/SMOKE DAMPER
FT	FEET
FXC	FLEXIBLE CONNECTION
GND	GROUND
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEC	GROUND ELECTRODE CONDUCTOR
GFCI / GFI	GROUND FAULT CIRCUIT INTERRUPTER
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRS/LB	GRAINS PER POUND
H 2O	WATER
HB	HOSE BIBB
HD	HEAD (SEE SCHEDULES)
HP	HEAT PUMP
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTR	HEATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
IN	INCHES
INV	INVERT
JBOX	JUNCTION BOX
K	KELVIN
KW	KILOWATT
KVA	KILO VOLT - AMPS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LV	LAVATORY
LB	POUND
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LIN	LINEAR
LIQ	LIQUID
LM	LUMEN
LRA	LOCKED ROTOR AMPS
LV	LOUVER
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
N	NEUTRAL
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NL	NIGHT / SECURITY LIGHT - DO NOT SWITCH
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OCC	OCCUPIED
OCP	OVER CURRENT PROTECTION
OD	OUTSIDE DIAMETER
OL	OVERLOAD
ORD	OVERFLOW ROOF DRAIN
OZ	OUNCE
PBD	PARALLEL BLADE DAMPER
PD	PRESSURE DROP
PH	PHASE
POS	POSITIVE PRESSURE
POS	POINT OF SALES
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TRANSMITTER
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR GRILLE / REGISTER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REL	RELIEF
REQD	REQUIRED
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR GRILLE / REGISTER
SC	SHORT CIRCUIT
SCA	SHORT CIRCUIT AVAILABLE
SCCR	SHORT CIRCUIT CURRENT RATING
SCH	SCHEDULE
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
SH	SENSIBLE HEAT
SH	SHOWER
SP	STATIC PRESSURE
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SS	SAFETY SHOWER
STD	STANDARD
STL	STEEL
SYS	SYSTEM
TEMP	TEMPERATURE
TR	TRANSFER GRILLE / REGISTER
TR	TAMPER RESISTANT
TT	TEMPERATURE TRANSMITTER
TTB	TELECOMMUNICATIONS TERMINAL BACKBOARD
TYP	TYPICAL
TX	TRANSFORMER
UC	UNDERCUT DOOR
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UNOCC	UNOCCUPIED
UR	URINAL
V	VOLTS
VA	VOLT AMPERE
VA	VALVE
VAV	VARIABLE AIR VOLUME UNIT
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
VOLT	VOLTAGE
VTR	VENT THROUGH ROOF
W	WIDTH
W	WATTS
W	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WC	WATER CLOSET
WG	WATER GAUGE
WP	WEATHERPROOF
WPIU	WEATHERPROOF IN-USE
WSR	WITHSTAND RATING
XFMR	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 EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANYONE ON ANY OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

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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

COLORADO LICENSED
ANDREW A. SNIDOW
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E0-1

September 08, 2022 - 9:40:26am

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 PROJECTS FOR ADDITIONS TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

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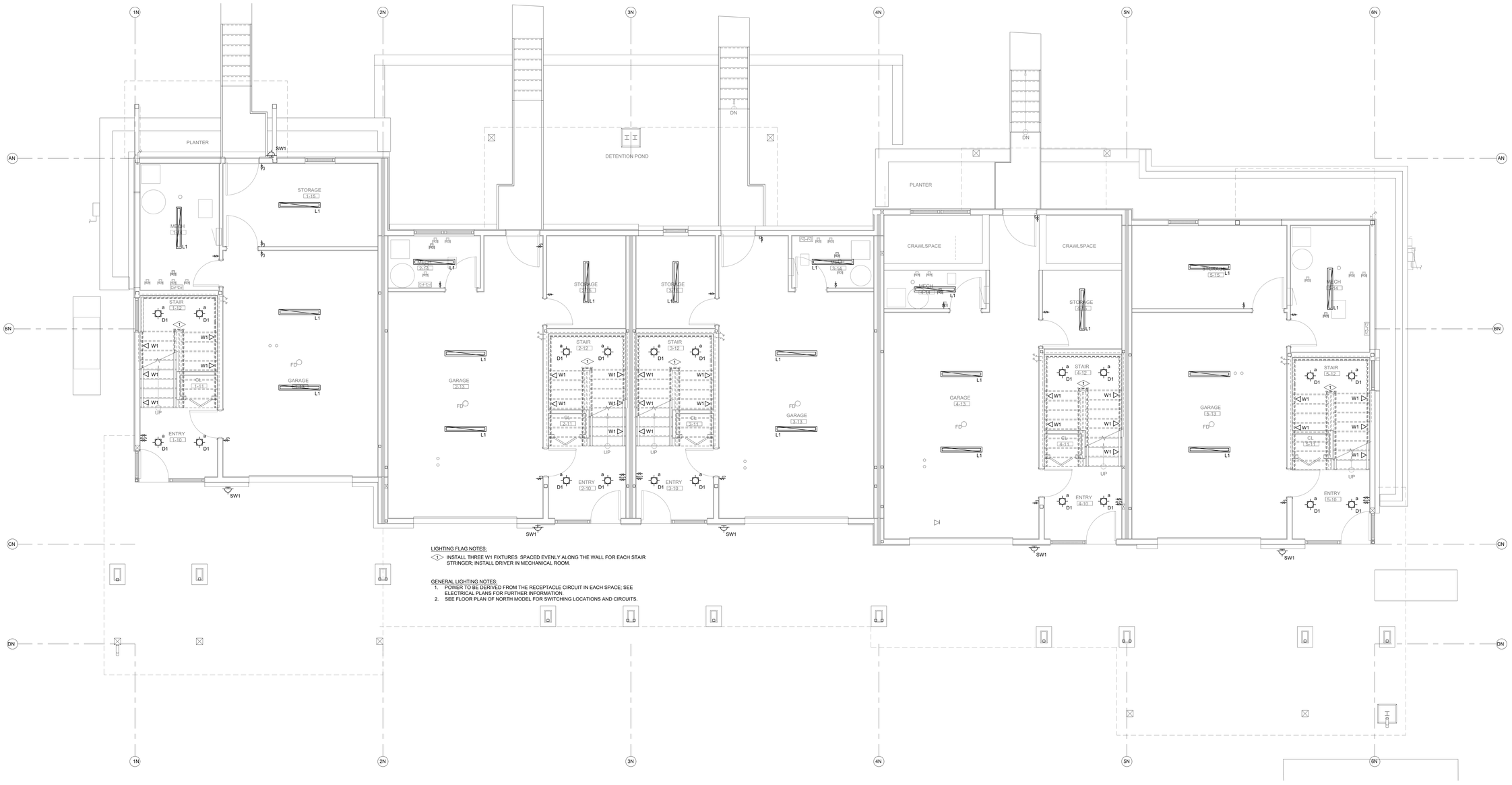
Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER CATALOG NO.	MANUFACTURER CATALOG NO.	VOLTAGE MOUNTING	BALLAST/DRIVER LAMP SPECIFICATION	DESCRIPTION
CF1	STUDIO M SM669909FTSNBK	APPROVED EQUIVALENT	120V SURFACE CEILING	E26 LED BULB 800LM, 3000K 80CRI, 9W/9W	COMBINATION CEILING FAN/LIGHT FROSTED LENS, MATCH WALL SWITCH WITH BULB DIMMING CONTROL TYPE. FIVE YEAR WARRANTY
D1	HALO H995ICATCP LT460WH6930	APPROVED EQUIVALENT	120V RECESSED CEILING	LED DIMMING DRIVER 600LM, 3000K 80CRI, 9W	4"DIA RECESSED DOWNLIGHT FROSTED LENS, CLOSET LISTED, DAMP LISTED COLD WEATHER RATED, FIVE YEAR WARRANTY
L1	METALUX 4SLSTP4040DD-UNV	APPROVED EQUIVALENT	120V SURFACE CEILING	LED DRIVER 4000LM, 3500K 80CRI, 40W	48" LINEAR STRIP LIGHT FROSTED LENS, COLD WEATHER RATED FIVE YEAR WARRANTY
P1	TECH LIGHTING 700-MP-K-S-12	APPROVED EQUIVALENT	120V PENDANT	E26 LED BULB 600LM, 3000K 80CRI, 12W	MINI PENDANT CONFIRM SELECTION WITH ARCHITECT
P2	TECH LIGHTING 700-TD-QNTP-K	APPROVED EQUIVALENT	120V PENDANT	E26 LED BULB 1200LM, 3000K 80CRI, 19W	PENDANT FIXTURE CONFIRM SELECTION WITH ARCHITECT
V1	SHAPER 605-25-L3/830-UNV-XX	APPROVED EQUIVALENT	120V WALL SURFACE	LED DRIVER 2000LM, 3000K 80CRI, 20W	24" LINEAR LENSED VANITY FIXTURE DAMP LISTED, FROSTED LENS, FIVE YEAR WARRANTY
W1	ASTRO LIGHTING 7418	APPROVED EQUIVALENT	120V STEP LIGHTING	LED DRIVER 35LM, 2700K 80CRI, 6W	WALL RECESSED STEP LIGHT DOWNWARD DIRECTED, PROVIDE WITH LED DRIVER
SW1	TECH LIGHTING 700OWTAG-830-6-D-Z-UNV-S	APPROVED EQUIVALENT	120V WALL SURFACE	LED DRIVER 600LM, 3000K 80CRI, 10W	EXTERIOR FULL CUTOFF WALL SCONCE COLD WEATHER RATED, WET LISTED FIVE YEAR WARRANTY

NOTES:
1. FIXTURES ARE REPRESENTATIVE OF A BASIS OF DESIGN FOR PRICING PURPOSES. VERIFY FINAL SELECTION WITH ARCHITECT AND OWNER.
2. CONTROLS FOR EACH RESIDENCE TO BE A WHOLE HOME SYSTEM, LUTRON HOMEWORKS OR EQUIVALENT TO ALLOW SCENE PROGRAMMING AND INTEGRATE SHADE CONTROL.



LIGHTING FLAG NOTES:
1. INSTALL THREE W1 FIXTURES SPACED EVENLY ALONG THE WALL FOR EACH STAIR STRINGER; INSTALL DRIVER IN MECHANICAL ROOM.

GENERAL LIGHTING NOTES:
1. POWER TO BE DERIVED FROM THE RECEPTACLE CIRCUIT IN EACH SPACE; SEE ELECTRICAL PLANS FOR FURTHER INFORMATION.
2. SEE FLOOR PLAN OF NORTH MODEL FOR SWITCHING LOCATIONS AND CIRCUITS.

LIGHTING - NORTH BUILDING - LEVEL 1 FLOOR PLAN

NORTH

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

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

COLORADO LICENSED
MARINA A. BIGHORN
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-1

September 08, 2022 - 9:40:27am

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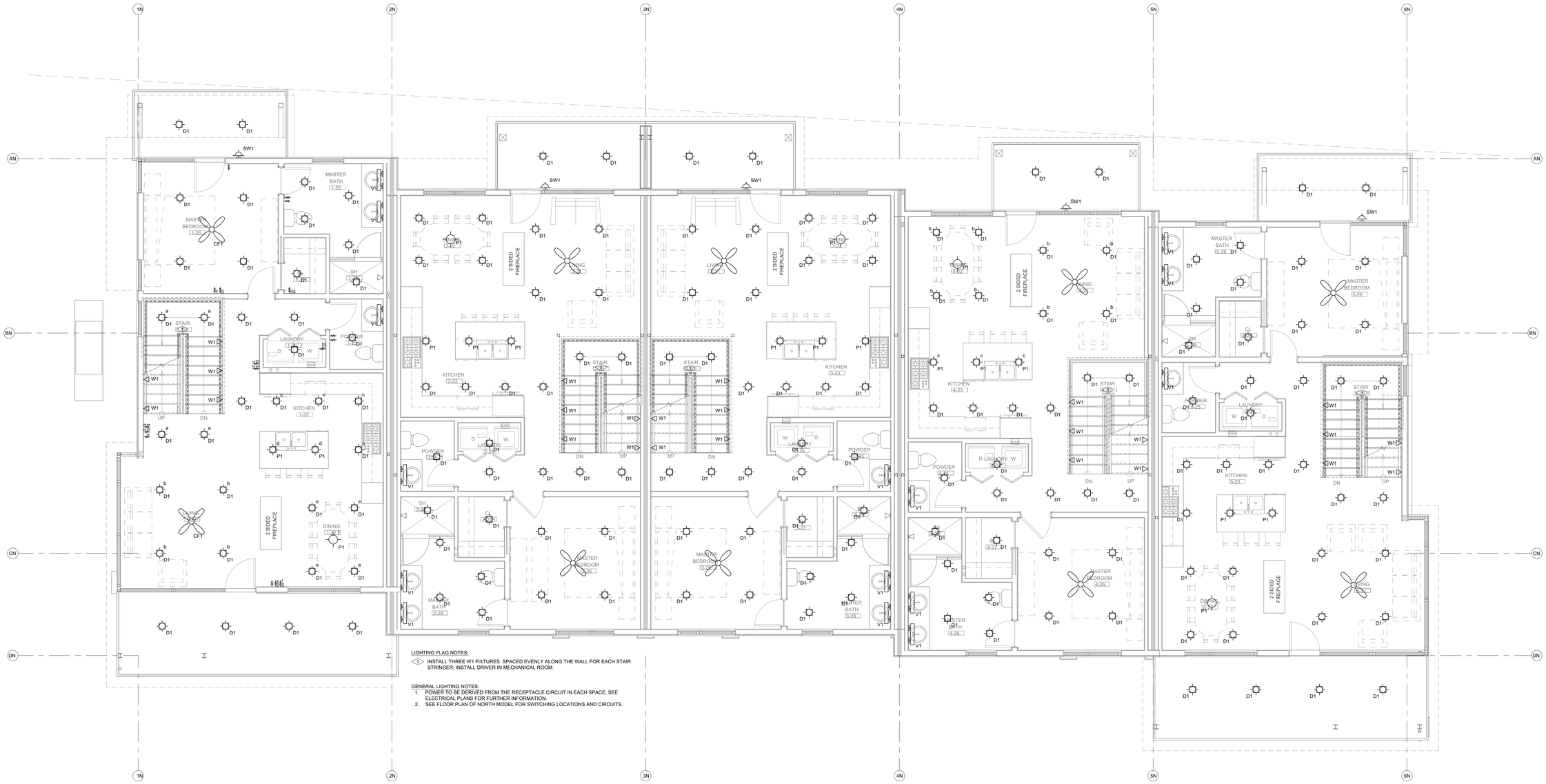
386 Indian Road
Grand Junction, CO 81501
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO



LIGHTING FLAG NOTES:

1. INSTALL THREE W1 FIXTURES SPACED EVENLY ALONG THE WALL FOR EACH STAIR STRINGER; INSTALL DRIVER IN MECHANICAL ROOM.

GENERAL LIGHTING NOTES:

1. POWER TO BE DERIVED FROM THE RECEPTACLE CIRCUIT IN EACH SPACE; SEE ELECTRICAL PLANS FOR FURTHER INFORMATION.
2. SEE FLOOR PLAN OF NORTH MODEL FOR SWITCHING LOCATIONS AND CIRCUITS.

LIGHTING - NORTH BUILDING - LEVEL 2 FLOOR PLAN

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

NORTH

REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED
LAUREN A. BARNES
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-2

September 08, 2022 - 9:40:28am

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

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

LIGHTING FLAG NOTES:

1. INSTALL THREE W1 FIXTURES SPACED EVENLY ALONG THE WALL FOR EACH STAIR STRINGER; INSTALL DRIVER IN MECHANICAL ROOM.

GENERAL LIGHTING NOTES:

1. POWER TO BE DERIVED FROM THE RECEPTACLE CIRCUIT IN EACH SPACE; SEE ELECTRICAL PLANS FOR FURTHER INFORMATION.
2. SEE FLOOR PLAN OF NORTH MODEL FOR SWITCHING LOCATIONS AND CIRCUITS.

NORTH

LIGHTING - NORTH BUILDING - LEVEL 3 FLOOR PLAN

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

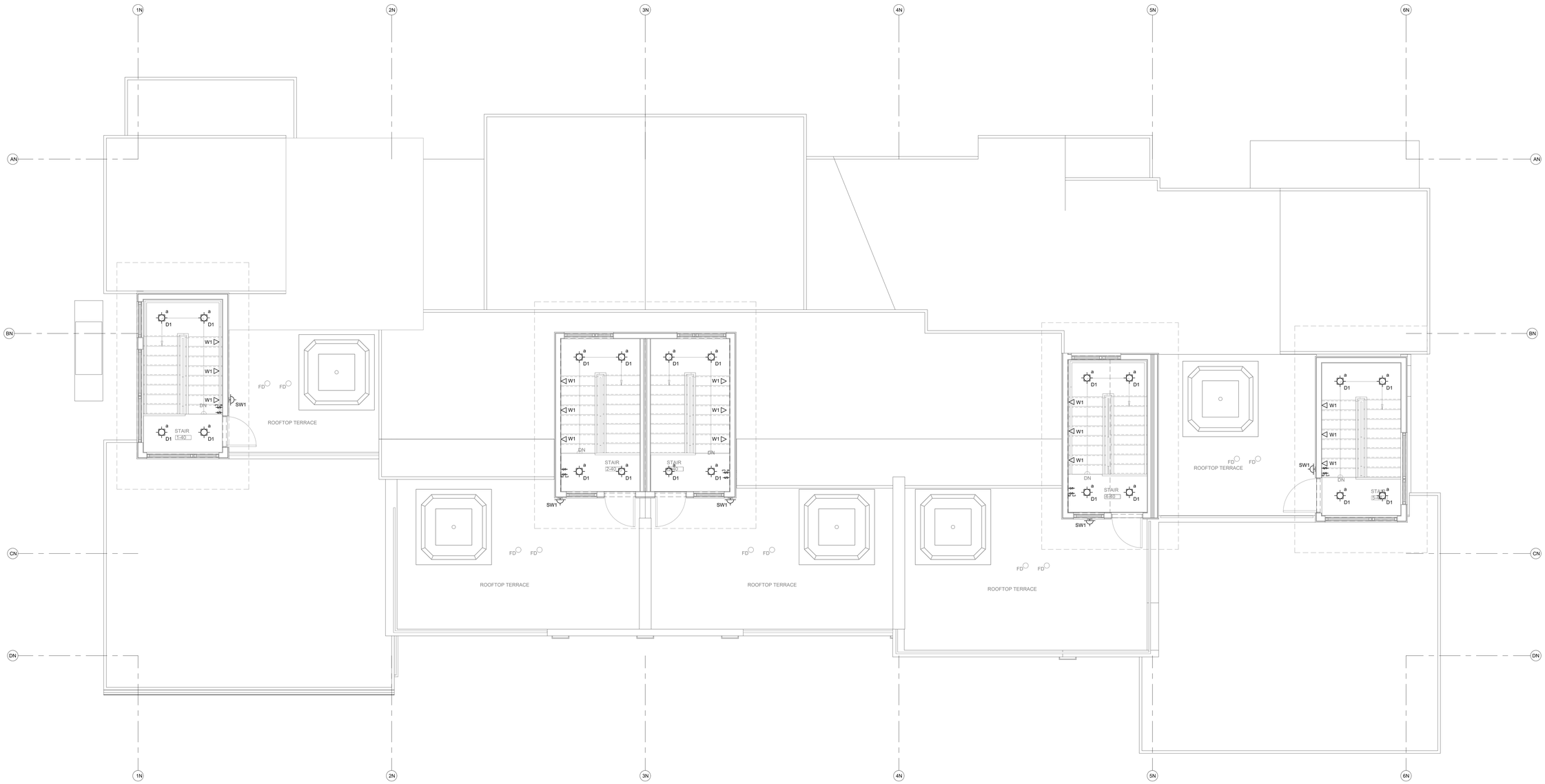
REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED
LORENA A. BIGHAM
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-3

September 08, 2022 - 9:40:29am



LIGHTING - NORTH BUILDING - LEVEL 4 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 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 PROJECTS FOR ADDITIONS TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

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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

COLORADO LICENSED
ANDREW A. BUSHEY
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-4

September 08, 2022 - 9:40:29am

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER CATALOG NO.	MANUFACTURER CATALOG NO.	VOLTAGE MOUNTING	BALLAST/DRIVER LAMP SPECIFICATION	DESCRIPTION
CF1	STUDIO M SM869909FTSNBK	APPROVED EQUIVALENT	120V SURFACE CEILING	E26 LED BULB 800LM, 3000K 80CRI, 9W/9W	COMBINATION CEILING FAN/LIGHT FROSTED LENS, MATCH WALL SWITCH WITH BULB DIMMING CONTROL TYPE. FIVE YEAR WARRANTY
D1	HALO H995ICATCP LT460WH6930	APPROVED EQUIVALENT	120V RECESSED CEILING	LED DIMMING DRIVER 600LM, 3000K 80CRI, 9W	4"DIA RECESSED DOWNLIGHT FROSTED LENS, CLOSET LISTED, DAMP LISTED COLD WEATHER RATED, FIVE YEAR WARRANTY
L1	METALUX 4SLSTP4040DD-UNV	APPROVED EQUIVALENT	120V SURFACE CEILING	LED DRIVER 4000LM, 3500K 80CRI, 40W	48" LINEAR STRIP LIGHT FROSTED LENS, COLD WEATHER RATED FIVE YEAR WARRANTY
P1	TECH LIGHTING 700-MP-K-S-12	APPROVED EQUIVALENT	120V PENDANT	E26 LED BULB 600LM, 3000K 80CRI, 12W	MINI PENDANT CONFIRM SELECTION WITH ARCHITECT
P2	TECH LIGHTING 700-TD-QNTP-K	APPROVED EQUIVALENT	120V PENDANT	E26 LED BULB 1200LM, 3000K 80CRI, 19W	PENDANT FIXTURE CONFIRM SELECTION WITH ARCHITECT
V1	SHAPER 605-25-L3/830-UNV-XX	APPROVED EQUIVALENT	120V WALL SURFACE	LED DRIVER 2000LM, 3000K 80CRI, 20W	24" LINEAR LENSED VANITY FIXTURE DAMP LISTED, FROSTED LENS, FIVE YEAR WARRANTY
W1	ASTRO LIGHTING 7418	APPROVED EQUIVALENT	120V STEP LIGHTING	LED DRIVER 35LM, 2700K 80CRI, 6W	WALL RECESSED STEP LIGHT DOWNWARD DIRECTED, PROVIDE WITH LED DRIVER
SW1	TECH LIGHTING 700OWTAG-830-6-D-Z-UNV-S	APPROVED EQUIVALENT	120V WALL SURFACE	LED DRIVER 600LM, 3000K 80CRI, 10W	EXTERIOR FULL CUTOFF WALL SCONCE COLD WEATHER RATED, WET LISTED FIVE YEAR WARRANTY

NOTES:
1. FIXTURES ARE REPRESENTATIVE OF A BASIS OF DESIGN FOR PRICING PURPOSES. VERIFY FINAL SELECTION WITH ARCHITECT AND OWNER.
2. CONTROLS FOR EACH RESIDENCE TO BE A WHOLE HOME SYSTEM, LUTRON HOMEWORKS OR EQUIVALENT TO ALLOW SCENE PROGRAMMING AND INTEGRATE SHADE CONTROL.

GENERAL LIGHTING NOTES:
1. POWER TO BE DERIVED FROM THE RECEPTACLE CIRCUIT IN EACH SPACE; SEE ELECTRICAL PLANS FOR FURTHER INFORMATION.

LIGHTING FLAG NOTES:
⟨1⟩ INSTALL THREE W1 FIXTURES SPACED EVENLY ALONG THE WALL FOR EACH STAIR STRINGER; INSTALL DRIVER IN MECHANICAL ROOM.

LIGHTING - SOUTH 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 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 PROJECTS FOR ADDITIONS 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

COLORADO LICENSED PROFESSIONAL ENGINEER
WARREN A. SNIPES
60539
2022-09-08

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-5

September 08, 2022 - 9:40:30am

GENERAL LIGHTING NOTES:
1. POWER TO BE DERIVED FROM THE RECEPTACLE CIRCUIT IN EACH SPACE; SEE ELECTRICAL PLANS FOR FURTHER INFORMATION.

LIGHTING FLAG NOTES:
⟨1⟩ INSTALL THREE W1 FIXTURES SPACED EVENLY ALONG THE WALL FOR EACH STAIR STRINGER; INSTALL DRIVER IN MECHANICAL ROOM.

NORTH

LIGHTING - SOUTH BUILDING - LEVEL 2 FLOOR PLAN

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

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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

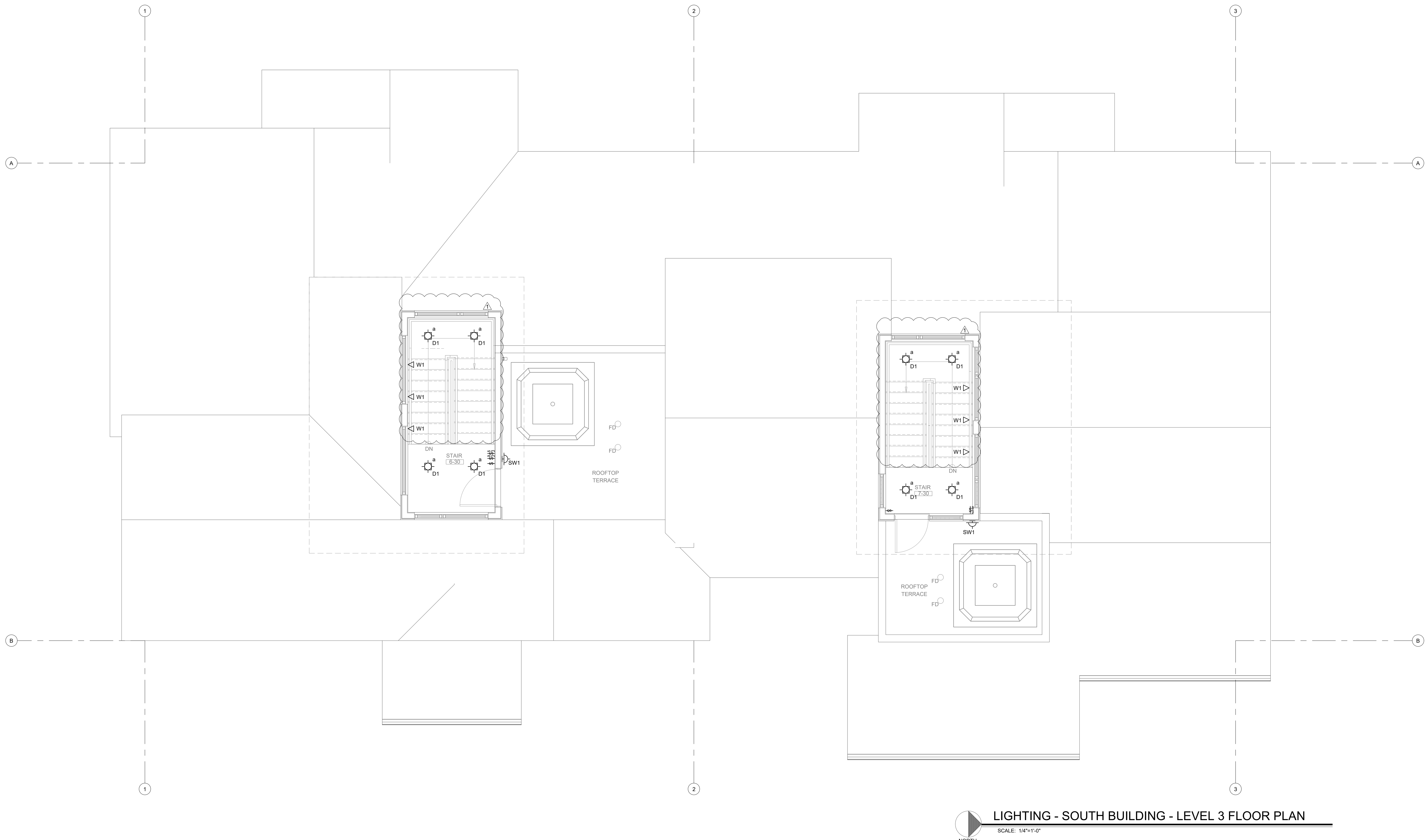
REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED PROFESSIONAL ENGINEER
WARREN A. SNIPES
60539
2022-09-08

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-6

September 08, 2022 - 9:40:31am



LIGHTING - SOUTH BUILDING - LEVEL 3 FLOOR PLAN

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

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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

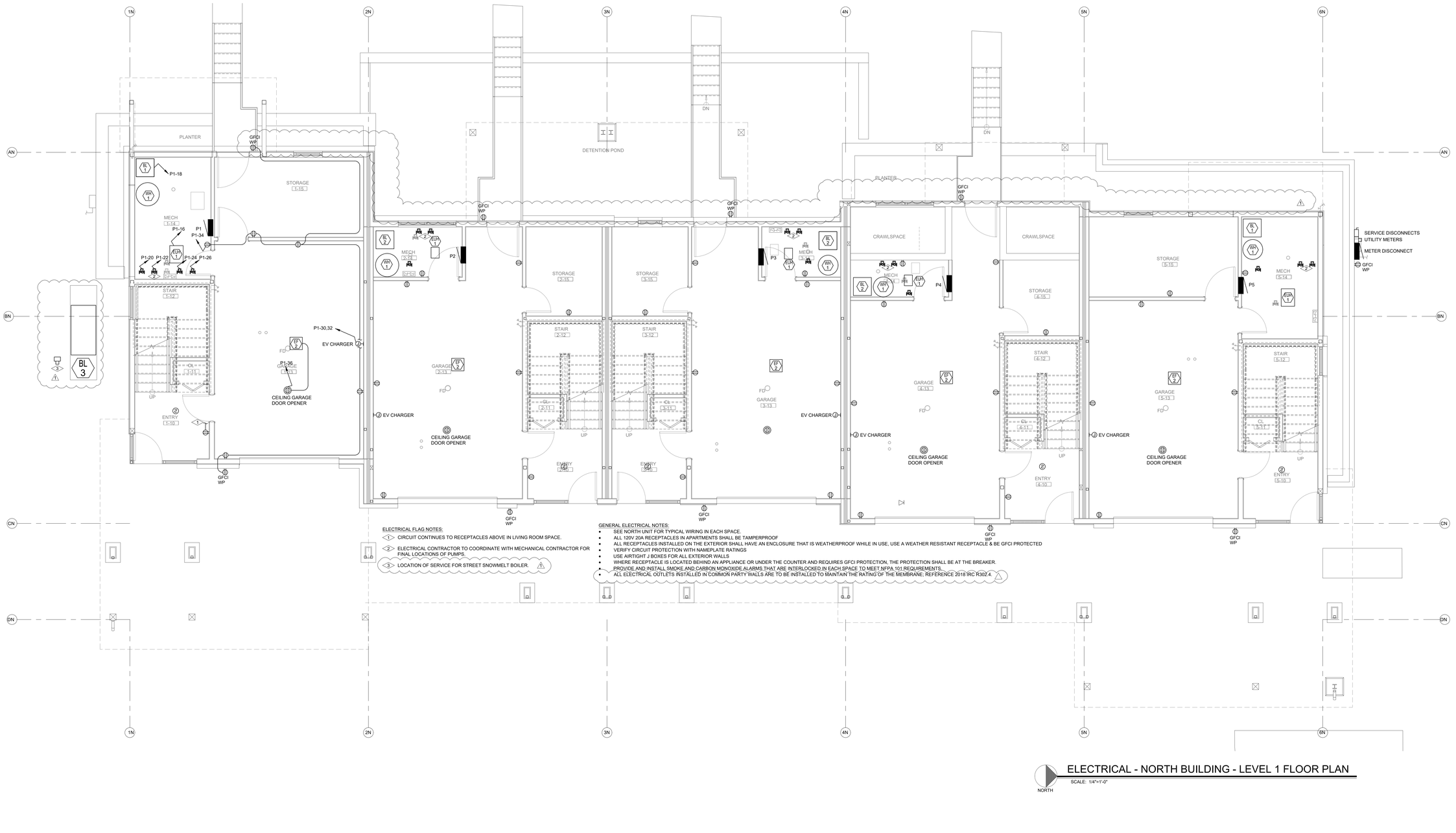
REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED PROFESSIONAL ENGINEER 60539

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-7

September 08, 2022 - 9:40:32am



ELECTRICAL FLAG NOTES:

1. CIRCUIT CONTINUES TO RECEPTACLES ABOVE IN LIVING ROOM SPACE.
2. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR FINAL LOCATIONS OF PUMPS.
3. LOCATION OF SERVICE FOR STREET SNOWMELT BOILER.

GENERAL ELECTRICAL NOTES:

- SEE NORTH UNIT FOR TYPICAL WIRING IN EACH SPACE.
- ALL 120V 20A RECEPTACLES IN APARTMENTS SHALL BE TAMPERPROOF
- ALL RECEPTACLES INSTALLED ON THE EXTERIOR SHALL HAVE AN ENCLOSURE THAT IS WEATHERPROOF WHILE IN USE, USE A WEATHER RESISTANT RECEPTACLE & BE GFCI PROTECTED
- VERIFY CIRCUIT PROTECTION WITH NAMEPLATE RATINGS
- USE AIRTIGHT J BOXES FOR ALL EXTERIOR WALLS
- WHERE RECEPTACLE IS LOCATED BEHIND AN APPLIANCE OR UNDER THE COUNTER AND REQUIRES GFCI PROTECTION, THE PROTECTION SHALL BE AT THE BREAKER.
- PROVIDE AND INSTALL SMOKE AND CARBON MONOXIDE ALARMS THAT ARE INTERLOCKED IN EACH SPACE TO MEET NFPA 101 REQUIREMENTS.
- ALL ELECTRICAL OUTLETS INSTALLED IN COMMON PARTY WALLS ARE TO BE INSTALLED TO MAINTAIN THE RATING OF THE MEMBRANE; REFERENCE 2018 IRC R302.4.

NORTH

ELECTRICAL - NORTH BUILDING - LEVEL 1 FLOOR PLAN

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

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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
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COLORADO LICENSED
MARINA A. BIGHAM
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E2-1

September 08, 2022 - 9:40:36am

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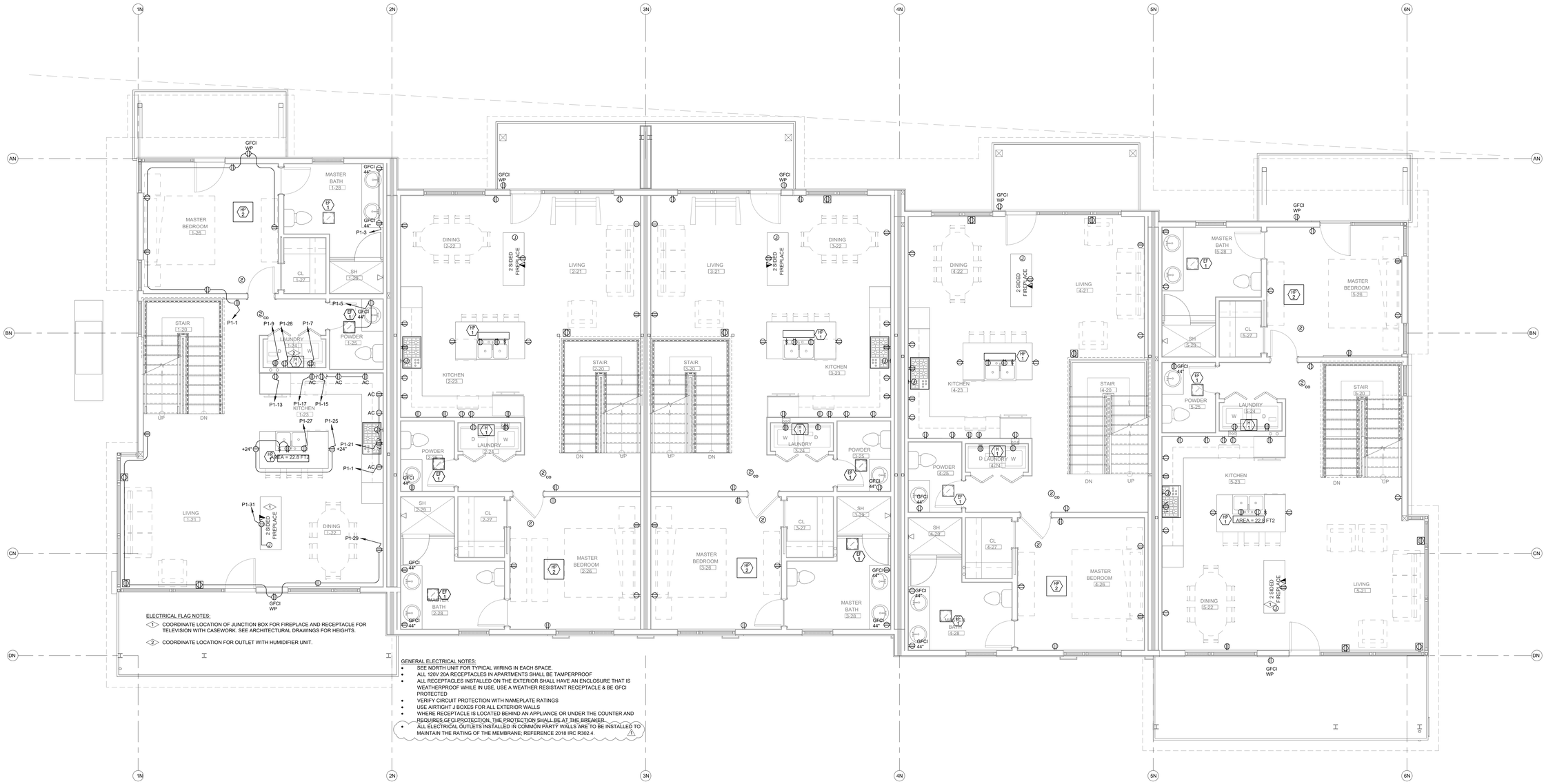
Grand Junction, CO 81501
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO



ELECTRICAL FLAG NOTES:

<1> COORDINATE LOCATION OF JUNCTION BOX FOR FIREPLACE AND RECEPTACLE FOR TELEVISION WITH CASEWORK. SEE ARCHITECTURAL DRAWINGS FOR HEIGHTS.

<2> COORDINATE LOCATION FOR OUTLET WITH HUMIDIFIER UNIT.

GENERAL ELECTRICAL NOTES:

- SEE NORTH UNIT FOR TYPICAL WIRING IN EACH SPACE.
- ALL 120V 20A RECEPTACLES IN APARTMENTS SHALL BE TAMPERPROOF
- ALL RECEPTACLES INSTALLED ON THE EXTERIOR SHALL HAVE AN ENCLOSURE THAT IS WEATHERPROOF WHILE IN USE, USE A WEATHER RESISTANT RECEPTACLE & BE GFCI PROTECTED
- VERIFY CIRCUIT PROTECTION WITH NAMEPLATE RATINGS
- USE AIRTIGHT J BOXES FOR ALL EXTERIOR WALLS
- WHERE RECEPTACLE IS LOCATED BEHIND AN APPLIANCE OR UNDER THE COUNTER AND REQUIRES GFCI PROTECTION, THE PROTECTION SHALL BE AT THE BREAKER.
- ALL ELECTRICAL OUTLETS INSTALLED IN COMMON PARTY WALLS ARE TO BE INSTALLED TO MAINTAIN THE RATING OF THE MEMBRANE; REFERENCE 2018 IRC R302.4. <1>

ELECTRICAL - NORTH BUILDING - LEVEL 2 FLOOR PLAN

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

NORTH

REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED
BRANDON C. BIGHORN
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO.:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E2-2

September 08, 2022 - 9:40:38am

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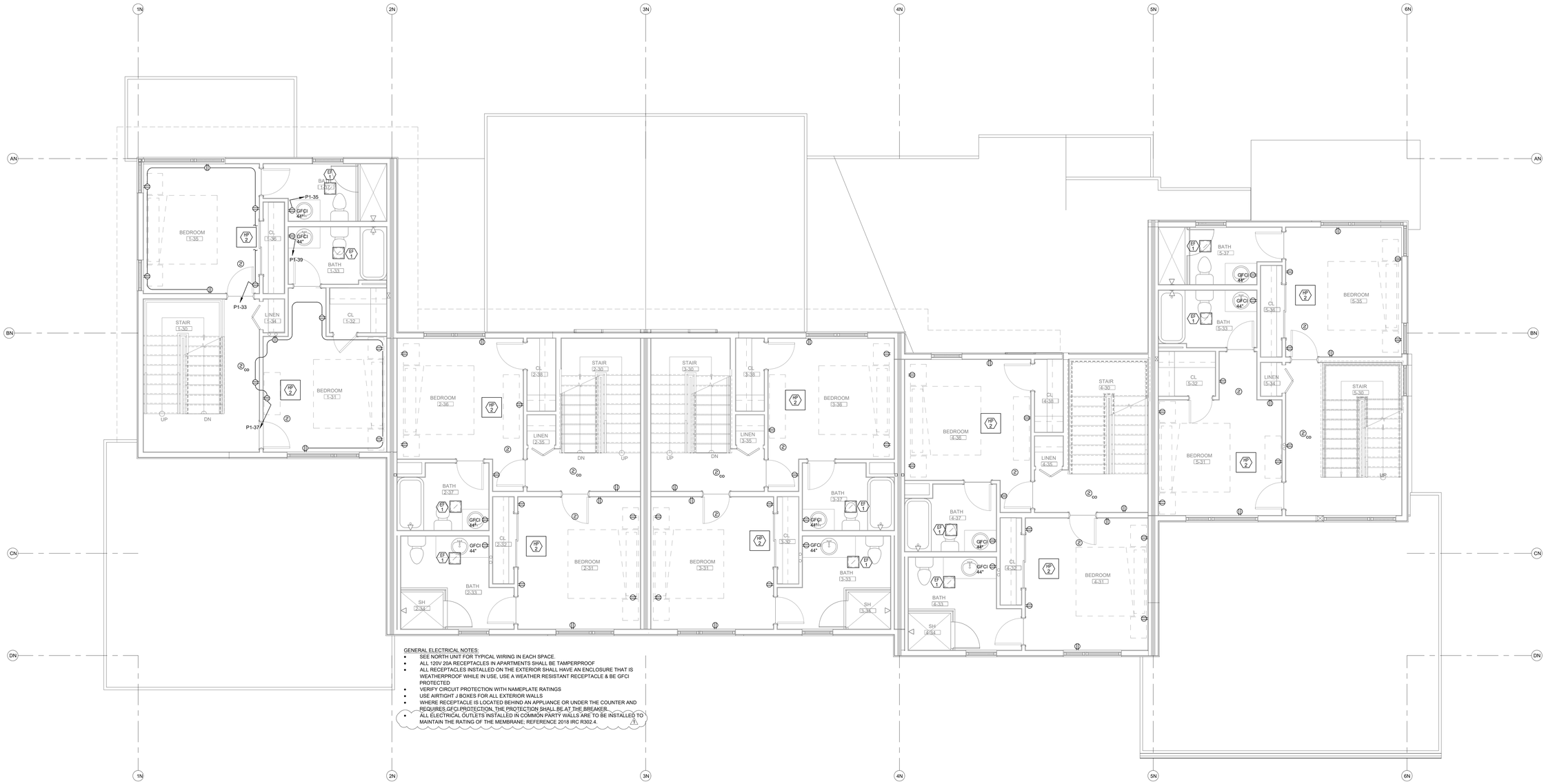
Phone: (970) 241-8709

Bighorn Consulting Engineers, Inc.
Mechanical & Electrical Engineers



GENERAL ELECTRICAL NOTES:

- SEE NORTH UNIT FOR TYPICAL WIRING IN EACH SPACE.
- ALL 120V 20A RECEPTACLES IN APARTMENTS SHALL BE TAMPERPROOF
- ALL RECEPTACLES INSTALLED ON THE EXTERIOR SHALL HAVE AN ENCLOSURE THAT IS WEATHERPROOF WHILE IN USE, USE A WEATHER RESISTANT RECEPTACLE & BE GFCI PROTECTED
- VERIFY CIRCUIT PROTECTION WITH NAMEPLATE RATINGS
- USE AIRTIGHT J BOXES FOR ALL EXTERIOR WALLS
- WHERE RECEPTACLE IS LOCATED BEHIND AN APPLIANCE OR UNDER THE COUNTER AND REQUIRES GFCI PROTECTION, THE PROTECTION SHALL BE AT THE BREAKER.
- ALL ELECTRICAL OUTLETS INSTALLED IN COMMON PARTY WALLS ARE TO BE INSTALLED TO MAINTAIN THE RATING OF THE MEMBRANE; REFERENCE 2018 IRC R302.4

1

ELECTRICAL - NORTH BUILDING - LEVEL 3 FLOOR PLAN

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

NORTH

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

REVIEWED FOR CODE COMPLIANCE
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DATE:	ISSUED FOR:
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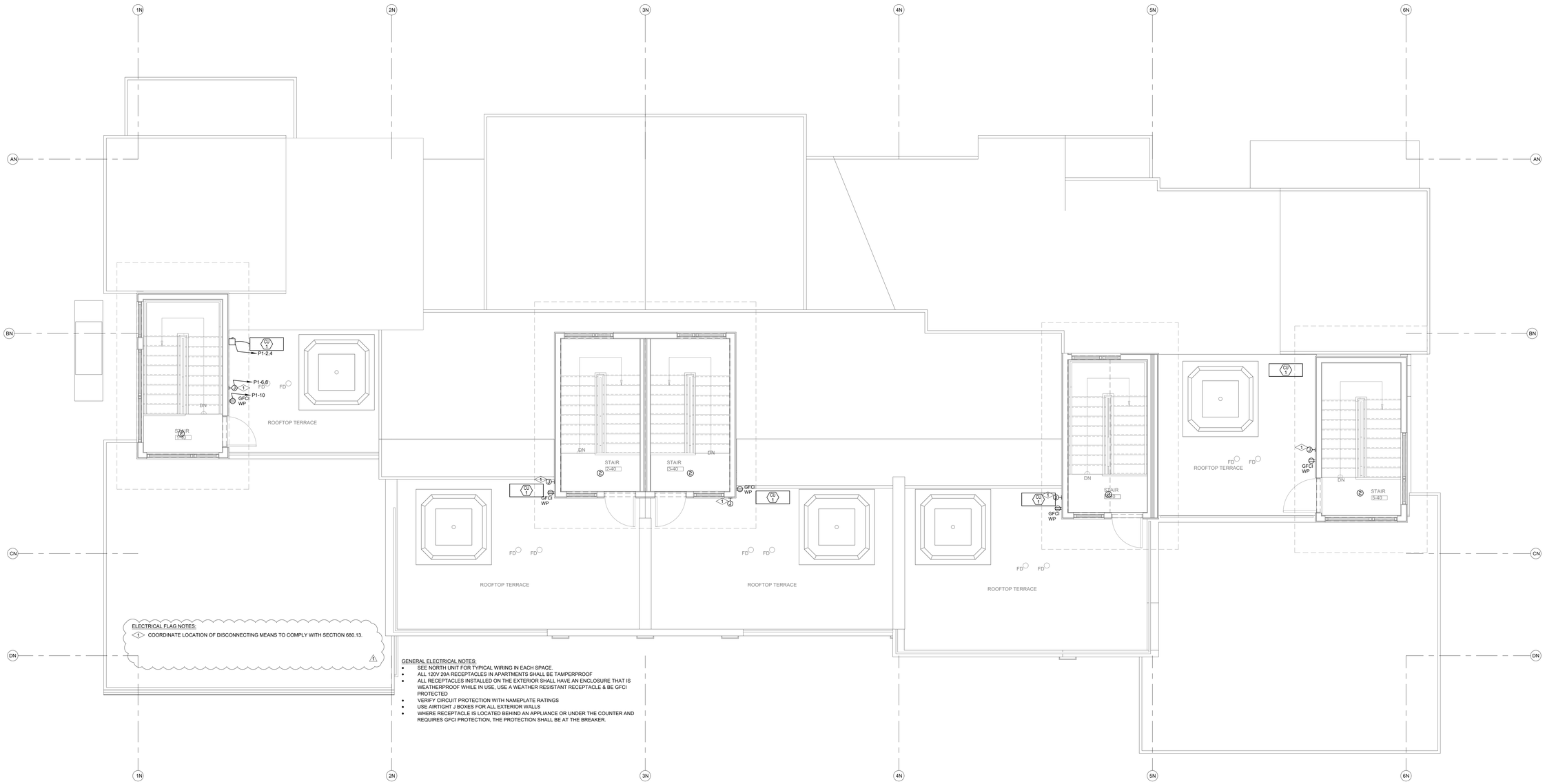
09/07/2022	PERMIT CORRECTIONS

COLORADO LICENSED
BRIAN E. CHAMBERS
60539
PROFESSIONAL ENGINEER

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

SHEET NUMBER:
E2-3

September 08, 2022 - 9:40:38am



ELECTRICAL - NORTH BUILDING - LEVEL 4 FLOOR PLAN

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

NORTH

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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

COLORADO LICENSED
ANDREW A. BUSHEK
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E2-4

September 08, 2022 - 9:40:39am

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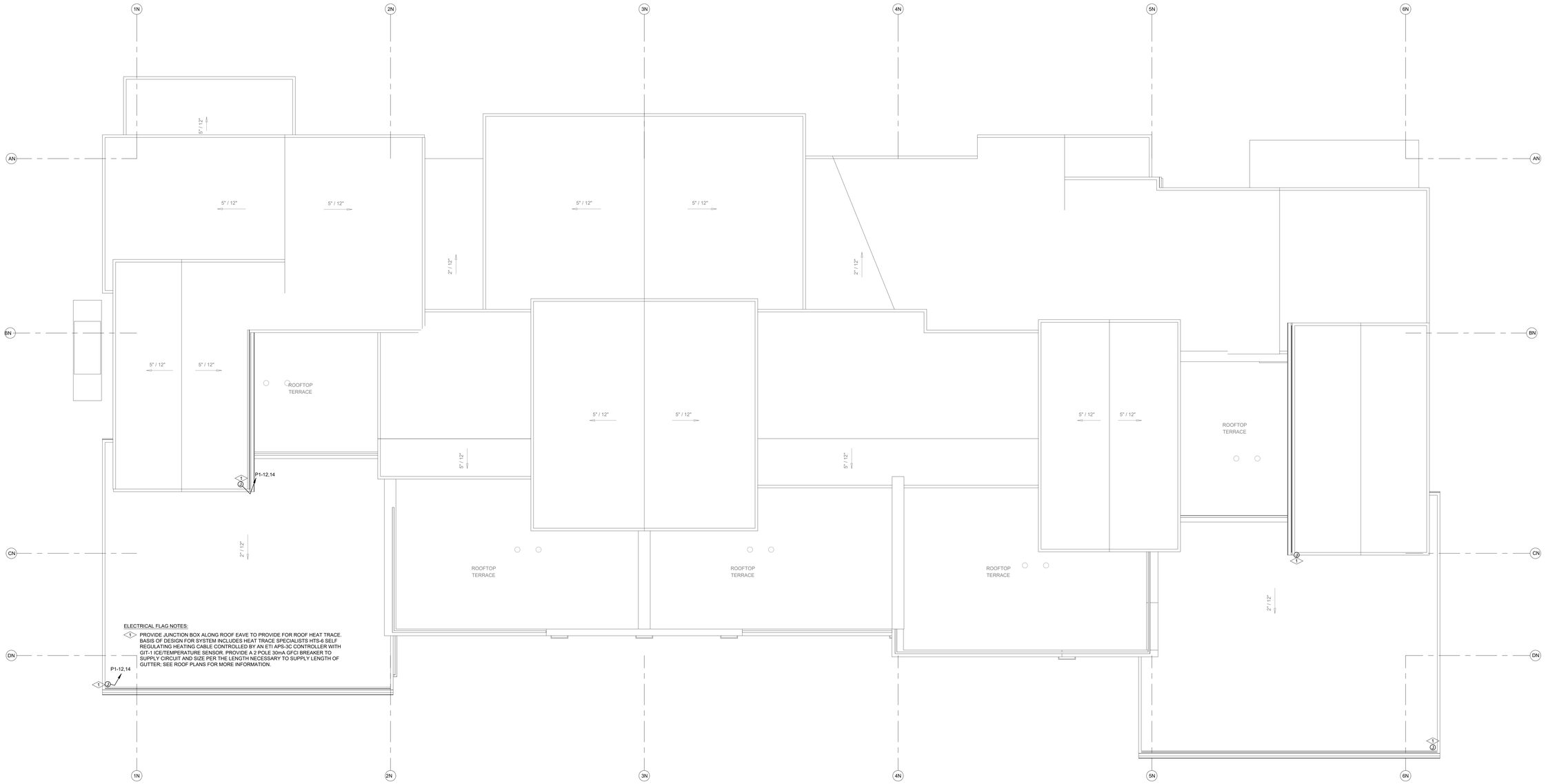
1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO



ELECTRICAL - NORTH BUILDING - ROOF PLAN

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

NORTH

REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED
LAUREN A. BIGHAM
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E2-5

September 08, 2022 - 9:40:40am

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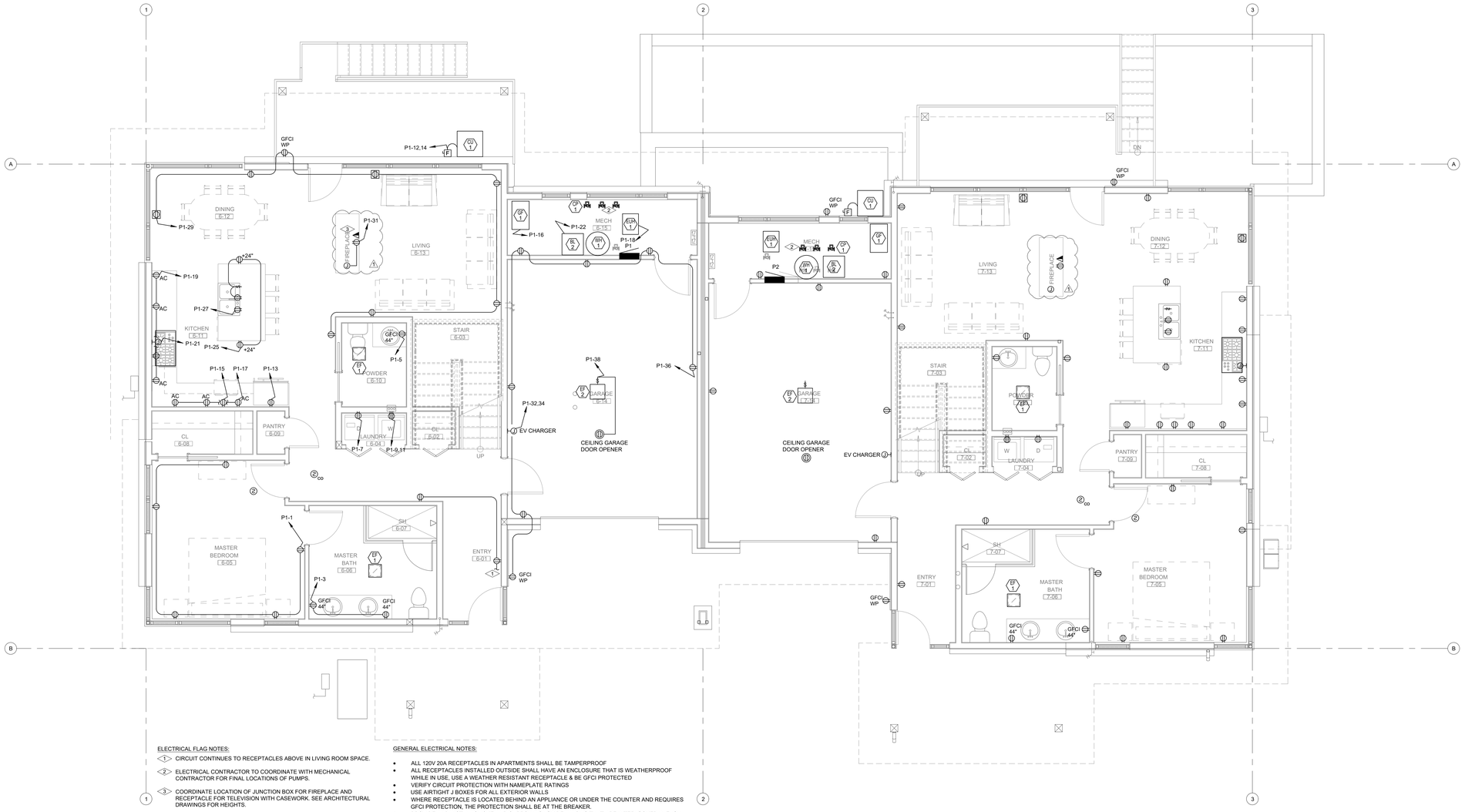
Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO



ELECTRICAL FLAG NOTES:

1. CIRCUIT CONTINUES TO RECEPTACLES ABOVE IN LIVING ROOM SPACE.
2. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR FINAL LOCATIONS OF PUMPS.
3. COORDINATE LOCATION OF JUNCTION BOX FOR FIREPLACE AND RECEPTACLE FOR TELEVISION WITH CASEWORK. SEE ARCHITECTURAL DRAWINGS FOR HEIGHTS.

GENERAL ELECTRICAL NOTES:

- ALL 120V 20A RECEPTACLES IN APARTMENTS SHALL BE TAMPERPROOF
- ALL RECEPTACLES INSTALLED OUTSIDE SHALL HAVE AN ENCLOSURE THAT IS WEATHERPROOF WHILE IN USE, USE A WEATHER RESISTANT RECEPTACLE & BE GFCI PROTECTED
- VERIFY CIRCUIT PROTECTION WITH NAMEPLATE RATINGS
- USE AIRTIGHT J BOXES FOR ALL EXTERIOR WALLS
- WHERE RECEPTACLE IS LOCATED BEHIND AN APPLIANCE OR UNDER THE COUNTER AND REQUIRES GFCI PROTECTION, THE PROTECTION SHALL BE AT THE BREAKER.
- PROVIDE AND INSTALL SMOKE AND CARBON MONOXIDE ALARMS THAT ARE INTERLOCKED IN EACH SPACE TO MEET NFPA 101 REQUIREMENTS.
- ALL ELECTRICAL OUTLETS INSTALLED IN COMMON PARTY WALLS ARE TO BE INSTALLED TO MAINTAIN THE RATING OF THE MEMBRANE: REFERENCE 2018 IRC R302.4

ELECTRICAL - SOUTH BUILDING - LEVEL 1 FLOOR PLAN

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

NORTH

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DATE:	ISSUED FOR:
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COLORADO LICENSED
MARINA A. BIGHAM
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E2-6

September 08, 2022 - 9:40:40am

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Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO

NORTH

ELECTRICAL - SOUTH BUILDING - LEVEL 2 FLOOR PLAN

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

REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED
MARREN A. BIGHAM
60539
PROFESSIONAL ENGINEER

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

SHEET NUMBER:
E2-7

September 08, 2022 - 9:40:41am

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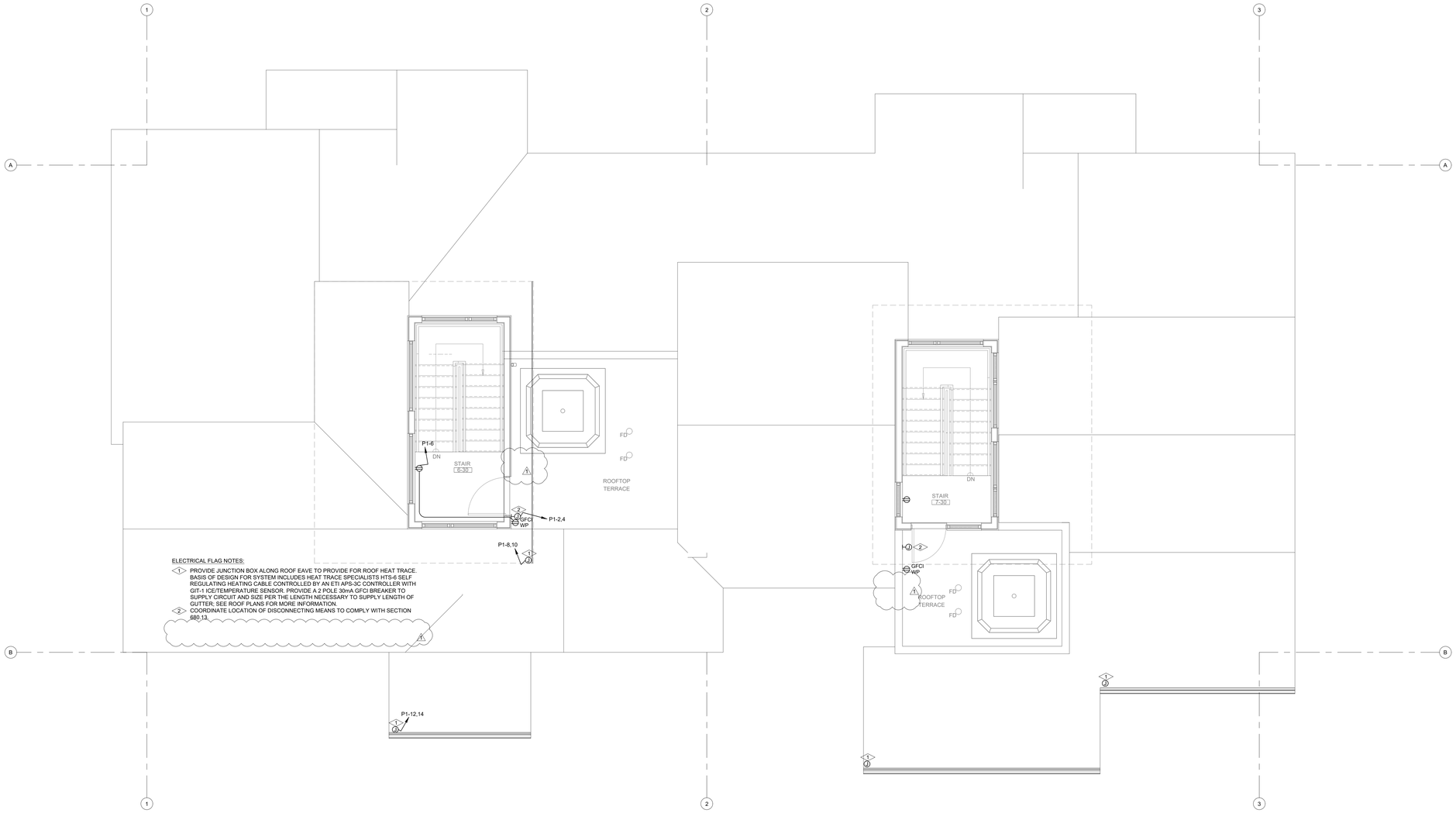
1805 WALTON CREEK ROAD

STEAMBOAT SPRINGS, COLORADO



ELECTRICAL FLAG NOTES:

1. PROVIDE JUNCTION BOX ALONG ROOF EAVE TO PROVIDE FOR ROOF HEAT TRACE. BASIS OF DESIGN FOR SYSTEM INCLUDES HEAT TRACE SPECIALISTS HTS-6 SELF REGULATING HEATING CABLE CONTROLED BY AN ETI APS-3C CONTROLLER WITH GIT-1 ICE/TEMPERATURE SENSOR. PROVIDE A 2 POLE 30mA GFCI BREAKER TO SUPPLY CIRCUIT AND SIZE PER THE LENGTH NECESSARY TO SUPPLY LENGTH OF GUTTER. SEE ROOF PLANS FOR MORE INFORMATION.
2. COORDINATE LOCATION OF DISCONNECTING MEANS TO COMPLY WITH SECTION 680.13.

NORTH

ELECTRICAL - SOUTH BUILDING - LEVEL 3 FLOOR PLAN

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

REVIEWED FOR CODE COMPLIANCE
12/07/2022

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

COLORADO LICENSED
MARREN A. BIGHAM
60539
PROFESSIONAL ENGINEER

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

SHEET NUMBER:
E2-8

September 08, 2022 - 9:40:42am

Residential Calculation - Village Drive North
2020 NFPA 70 ART. 220 PART III

2020 NEC 220.14(J), 220.42 & 220.52

371 SQFT Garage Level	
1014 SQFT Main Level	
686 SQFT Upper Level	
136 SQFT Upper Stairwell	
2207 SQFT General Lighting Load	6621 VA
2 CCT Small Appliance	3000 VA
1 CCT Laundry Circuit	1500 VA
Total General Load:	11121 VA
	3000 VA @ 100% 3000 VA
	8121 VA @ 35% 2842.35 VA

General Lighting Load: 5842 VA

2020 NEC 220.51 and 220.60

Cooling Loads		Heating Loads		
Equipment	Power	Equipment	Power	
CU Heat P	5760 VA	CU Heat Pump	5760 VA	
		Gutter Heat trace	1200 VA	See unit plans
		EUH - Garage Unit Heat	1500 VA	10860 VA Heating Loads
		Radiant Pumps	2400 VA	5760 VA Cooling Loads
		Connected: 10860 VA	Greater of Noncoincidental Loads: 10860 VA	

2020 NEC 220.53

Appliance Loads	Load Each	
1 Refrigerator	600 VA	
1 Dishwasher	1200 VA	
1 Disposal	900 VA	
1 Microwave	1200 VA	
1 Gas Range/ Hood	1000 VA	
	4900 VA @ 75%	Appliance Load: 3675 VA

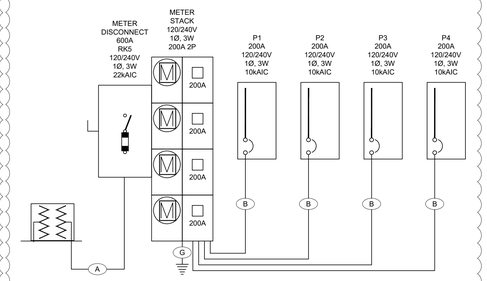
2020 NEC 220.14(A)

QTY	Description	Load Each	
1	Humidifier	1200 VA	
1	Boiler	1440 VA	
2	Circ Pumps	720 VA	
1	Gas Dryer	1200 VA	
1	Hot Tub	9600 VA	
1	EVC Level II	7200 VA	125% LARGEST MOTOR: 480 VA
		22080 VA	Total Other Load: 22560 VA

240 V	Connected: 49441 VA	Demand:	42937 VA
1 Ø	206.0 A		178.9 A

PANEL SCHEDULE - P1 — TYPE: LOADCENTER; VOLTAGE: 120/240; ENCLOSURE: NEMA1; BUS SIZE: 225; MAIN BRKR: NONE; MOUNTING: FLUSH; PHASES: 1; WIRES: 3; SC RATING: 10000; NEUTRAL BUS: YES; GROUND BUS: YES

LOAD TYPE	LOAD DESCRIPTION	AMPS POLES	CKT# LOAD	Ø	CKT# LOAD	AMPS POLES	LOAD TYPE	LOAD DESCRIPTION
RECEPTACLE	RCPT - MAST. BED CAFCI	20A 1P	1 1440	A	2 2880	30A 2P	MECH YEAR ROUND	CU-1 - HEAT PUMP HACR
RECEPTACLE	RCPT - MAST. BATH ---	20A 1P	3 500	B	4 2880	--- ---	MECH YEAR ROUND	--- ---
RECEPTACLE	RCPT - POWDER ROOM ---	20A 1P	5 300	A	6 4800	50A 2P	MISCELLANEOUS	SPA - ROOF ---
MISCELLANEOUS	WASHER CAFCI/GFCI 5mA	20A 1P	7 1500	B	8 4800	--- ---	MISCELLANEOUS	--- ---
MISCELLANEOUS	DRYER CAFCI/GFCI 5mA	20A 1P	9 1200	A	10 180	20A 1P	RECEPTACLE	RCPT - ROOF ---
SPACE	--- ---	--- ---	11 0	B	12 1000	20A 2P	MECH HEATING	GUTTER HEAT TRACE GFCI 30mA
APPLIANCE	FRIDGE CAFCI	15A 1P	13 600	A	14 1000	--- ---	MECH HEATING	--- ---
APPLIANCE	MICROWAVE DRAWER CAFCI	20A 1P	15 1500	B	16 20	1A 1P	MECH HEATING	EUH-1 - UNIT HEATER ---
RECEPTACLE	RCPT - KITCHEN COUNTER CAFCI/GFCI 5mA	20A 1P	17 1500	A	18 20	1A 1P	MECH YEAR ROUND	BL-1 BOILER ---
RECEPTACLE	RCPT - KITCHEN COUNTER CAFCI/GFCI 5mA	20A 1P	19 1500	B	20 1500	20A 1P	MOTOR	CP1/3-BOILER/LOOP PUMP ---
APPLIANCE	GAS RANGE/HOOD CAFCI	20A 1P	21 1500	A	22 1500	20A 1P	MOTOR	CP2/7- WATER HEATER/DOMESTIC ---
SPACE	--- ---	--- ---	23 0	B	24 1500	20A 1P	MOTOR	CP4/6 - SNOWMELT / LOOP ---
RECEPTACLE	RCPT - ISLAND COUNTER CAFCI/GFCI 5mA	20A 1P	25 1500	A	26 1500	20A 1P	MOTOR	CP6/7-RADIANT/LOOP ---
APPLIANCE	DISHWASHER CAFCI/GFCI 5mA	20A 1P	27 1200	B	28 1200	20A 1P	MISCELLANEOUS	HUMIDIFIER CAFCI/GFCI 5mA
RECEPTACLE	RCPT - LIVING/DINING CAFCI	20A 1P	29 1260	A	30 3500	40A 2P	MISCELLANEOUS	EVC - GARAGE ---
RECEPTACLE	RCPT - FIREPLACE/TV CAFCI	20A 1P	31 1200	B	32 3500	--- ---	MISCELLANEOUS	--- ---
RECEPTACLE	RCPT - BEDROOM E CAFCI	20A 1P	33 1080	A	34 1500	20A 1P	RECEPTACLE	RCPT - GARAGE GFCI 5mA
RECEPTACLE	RCPT - 3RD BATH E ---	20A 1P	35 500	B	36 1500	20A 1P	RECEPTACLE	RCPT - GARAGE GFCI 5mA
RECEPTACLE	RCPT - BEDROOM W CAFCI	20A 1P	37 1080	A	38 0	--- ---	SPACE	--- ---
RECEPTACLE	RCPT - 3RD BATH W ---	20A 1P	39 500	B	40 0	--- ---	SPACE	--- ---



ONE-LINE CONDUCTOR LEGEND

- (A) (2x) - 3"C (3#250kCMIL(AL))
- (B) 2"C (3#250kCMIL(AL) + 1#4AWG(AL))
- (G) #4AWG(CU) TO 20' CONCRETE ENCASED ELECTRODE
#6AWG(CU) TO GROUND ROD

⚠1

MECHANICAL EQUIPMENT SCHEDULE - NORTH BUILDING

COMB: COMBINATION MOTOR STARTER; MAG: MAGNETIC MOTOR STARTER; NR: NONE REQUIRED; P/I: PLUG-IN UNIT; CONT: CONTRACTOR; MAN: MANUAL MOTOR STARTER; W/U: SUPPLIED WITH UNIT:

UNIT NO	FUNCTION (NOTES)	LOAD	VOLTS	Ø	MIN CIRC AMP	BRANCH CIRCUIT CONDUIT SIZE	BRANCH CIRCUIT NO. CONDUCTOR	BRANCH CIRCUIT WIRE SIZE	GRND WIRE SIZE	BRKR SIZE	START	DISC FUSE
CU 1	HEAT PUMP CONDENSING UNIT	4TON	240V	1	29.0A	1/2"	2	10	10	30A	W/U	30A 30A ⚠1
HP 1	HEAT PUMP INTERIOR CASSETTE TYPICAL OF HP-2,3&4		240V	1	0.4A	1/2"	2	14	14	**	W/U	**
EF 1	EXHAUST FAN - BATH	10W	120V	1	0.1A	1/2"	2	12	12	15A	W/U	‡
EF 2	EXHAUST FAN - GARAGE	64W	120V	1	0.5A	1/2"	2	12	12	15A	W/U	‡
EUH 1	ELECTRIC UNIT HEATER	1.5kW	120V	1	12A	1/2"	2	12	12	20A	W/U	‡
BL 1	GAS FIRED BOILER	1440W	120V	1	12A	1/2"	2	12	12	20A	W/U	‡
CP 1	CIRCULATION PUMP	270W	120V	1	5A	1/2"	2	12	12	15A	W/U	‡
CP 2	CIRCULATION PUMP TYPICAL OF CP-3,4&7	270W	120V	1	5A	1/2"	2	12	12	15A	W/U	‡
CP 5	CIRCULATION PUMP	1/8HP	120V	1	2A	1/2"	2	12	12	15A	W/U	‡
CP 6	CIRCULATION PUMP	370W	120V	1	3A	1/2"	2	12	12	15A	W/U	‡

MECHANICAL EQUIPMENT SCHEDULE NOTES:
1. FIELD VERIFY FINAL LOCATIONS OF CIRCULATION PUMPS WITH MECHANICAL CONTRACTOR.
2. HEAT PUMP CASSETTES ARE SUPPLIED FROM EXTERIOR UNIT; SEE MANUFACTURER'S INSTALLATION REQUIREMENTS FOR MORE INFORMATION.

ELECTRICAL - ONE LINE - NORTH BUILDING

SCALE: NO SCALE

ELECTRICAL ONE-LINE NOTES:
1. PROVIDE GROUNDING AND BONDING MEETING 2020 NEC ARTICLE 250.64(D) REQUIREMENTS.
2. PROVIDE SURGE SUPPRESSIVE DEVICES IN ALL RESIDENTIAL PANELS PER 230.67.
3. UTILIZE SERIES RATED BREAKER COMBINATIONS IN RESIDENTIAL PANELS TO REDUCE BRANCH BREAKER INTERRUPT RATINGS.
4. CIRCUITS IDENTIFIED WITHIN 2020 NEC 210.8(A) AND 210.12(A) ARE TO RECEIVE GROUND FAULT AND ARC FAULT PROTECTION, RESPECTIVELY. WHERE OUTLETS ARE BEHIND LARGE EQUIPMENT OR UNDER COUNTERS PROTECTION IS TO BE AT THE BREAKER.
5. SHORT CIRCUIT VALUES BASED UPON AN ANTICIPATED 167kVA UTILITY TRANSFORMER LOCATED AT A DISTANCE OF 100 FEET TO THE SERVICE. ELECTRICAL CONTRACTOR TO FIELD VERIFY INSTALLED TRANSFORMER AND DISTANCES TO RECALCULATE AS NECESSARY.
6. FEEDERS EXTENDING FROM SERVICE GEAR TO INDIVIDUAL TENANT PANELS ARE TO BE INSTALLED UNDER SLAB SO THAT THE FEEDERS DO NOT EXTEND THROUGH NEIGHBORING UNITS. ⚠1

Residential Calculation - Village Drive South
2020 NFPA 70 ART. 220 PART III

2020 NEC 220.14(J), 220.42 & 220.52

1286 SQFT Garage Level	
1018 SQFT Upper Level	
136 SQFT Upper Stairwell	
2440 SQFT General Lighting Load	7320 VA
2 CCT Small Appliance	3000 VA
1 CCT Laundry Circuit	1500 VA
Total General Load:	11820 VA
	3000 VA @ 100% 3000 VA
	8820 VA @ 35% 3087 VA

General Lighting Load: 6087 VA

2020 NEC 220.51 and 220.60

Cooling Loads		Heating Loads		
Equipment	Power	Equipment	Power	
GF-1 Air	1032 VA	GF-1 Gas Furnace	1032 VA	
CU AC	4800 VA	EUH - Garage Unit Heat	1500 VA	See unit plans
		Gutter Heat Trace	1500 VA	6432 VA Heating Loads
		Radiant Pumps	2400 VA	5832 VA Cooling Loads
		Connected: 11232 VA	Greater of Noncoincidental Loads: 6432 VA	

2020 NEC 220.53

Appliance Loads	Load Each	
1 Refrigerator	600 VA	
1 Dishwasher	1200 VA	
1 Disposal	900 VA	
1 Microwave	1200 VA	
1 Gas Range/ Hood	1000 VA	
	4900 VA @ 75%	Appliance Load: 3675 VA

2020 NEC 220.14(A)

QTY	Description	Load Each	
1	Humidifier	1200 VA	
1	Boiler	1440 VA	
2	Circ Pumps	720 VA	
1	Gas Dryer	1200 VA	
1	Hot Tub	9600 VA	
1	EVC Level II	7200 VA	125% LARGEST MOTOR: 400 VA
		22080 VA	Total Other Load: 22480 VA

240 V	Connected: 50432 VA	Demand:	38674 VA
1 Ø	210.1 A		161.1 A

PANEL SCHEDULE - P1 — TYPE: LOADCENTER; VOLTAGE: 120/240; ENCLOSURE: NEMA1; BUS SIZE: 400; MAIN BRKR: NONE; MOUNTING: FLUSH; PHASES: 1; WIRES: 3; SC RATING: 10000; NEUTRAL BUS: YES; GROUND BUS: YES

LOAD TYPE	LOAD DESCRIPTION	AMPS POLES	CKT# LOAD	Ø	CKT# LOAD	AMPS POLES	LOAD TYPE	LOAD DESCRIPTION
RECEPTACLE	RCPT - MAST. BED CAFCI	20A 1P	1 1440	A	2 4800	50A 2P	MISCELLANEOUS	SPA - ROOF ---
RECEPTACLE	RCPT - MAST. BATH ---	20A 1P	3 500	B	4 4800	--- ---	MISCELLANEOUS	--- ---
RECEPTACLE	RCPT - POWDER ROOM ---	20A 1P	5 300	A	6 180	20A 1P	RECEPTACLE	RCPT - ROOF ---
MISCELLANEOUS	WASHER CAFCI/GFCI 5mA	20A 1P	7 1500	B	8 1000	20A 2P	MECH HEATING	GUTTER HEAT TRACE GFCI 30mA
MISCELLANEOUS	DRYER CAFCI/GFCI 5mA	20A 1P	9 1200	A	10 1000	--- ---	MECH HEATING	--- ---
SPACE	--- ---	--- ---	11 0	B	12 2496	30A 2P	MECH COOLING	CU-1 - CONDENSING UNIT ---
APPLIANCE	FRIDGE CAFCI	15A 1P	13 600	A	14 2496	--- ---	MECH COOLING	--- ---
APPLIANCE	MICROWAVE DRAWER CAFCI	20A 1P	15 1500	B	16 1500	20A 1P	MECH YEAR ROUND	GF1 - GAS FIRED FURNACE ---
RECEPTACLE	RCPT - KITCHEN COUNTER CAFCI/GFCI 5mA	20A 1P	17 1500	A	18 0	--- ---	SPACE	--- ---
RECEPTACLE	RCPT - KITCHEN COUNTER CAFCI/GFCI 5mA	20A 1P	19 1500	B	20 20	1A 1P	MECH HEATING	EUH-1 - UNIT HEATER ---
APPLIANCE	RANGE/HOOD CAFCI	20A 1P	21 1500	A	22 20	1A 1P	MECH YEAR ROUND	BL-1 BOILER ---
SPACE	--- ---	--- ---	23 0	B	24 1500	20A 1P	MOTOR	CP1/3-BOILER/LOOP PUMP ---
RECEPTACLE	RCPT - ISLAND COUNTER CAFCI/GFCI 5mA	20A 1P	25 1500	A	26 1500	20A 1P	MOTOR	CP2/7- WATER HEATER/DOMESTIC ---
APPLIANCE	DISHWASHER CAFCI/GFCI 5mA	20A 1P	27 1200	B	28 1500	20A 1P	MOTOR	CP4/6 - SNOWMELT / LOOP ---
RECEPTACLE	RCPT - LIVING/DINING CAFCI	20A 1P	29 1260	A	30 1500	20A 1P	MOTOR	CP6/7-RADIANT/LOOP ---
RECEPTACLE	FIREPLACE OUTLETS CAFCI	20A 1P	31 700	B	32 3500	40A 2P	MISCELLANEOUS	EVC - GARAGE ---
RECEPTACLE	RCPT - 2ND COMMON CAFCI	20A 1P	33 720	A	34 3500	--- ---	MISCELLANEOUS	--- ---
RECEPTACLE	RCPT - BEDROOM N CAFCI	20A 1P	35 1080	B	36 1500	20A 1P	RECEPTACLE	RCPT - GARAGE GFCI 5mA
RECEPTACLE	RCPT - 2ND BATH N ---	20A 1P	37 500	A	38 1500	20A 1P	RECEPTACLE	RCPT - GARAGE GFCI 5mA
RECEPTACLE	RCPT - BEDROOM S CAFCI	20A 1P	39 1080	B	40 0	--- ---	SPACE	--- ---
RECEPTACLE	RCPT - 2ND BATH S ---	20A 1P	41 500	A	42 0	--- ---	SPACE	--- ---

ONE-LINE CONDUCTOR LEGEND

- (A) (2x) - 3"C (3#250kCMIL(AL))
- (B) 2"C (3#250kCMIL(AL) + 1#4AWG(AL))
- (G) #4AWG(CU) TO 20' CONCRETE ENCASED ELECTRODE
#6AWG(CU) TO GROUND ROD

ELECTRICAL - ONE LINE - SOUTH BUILDING

SCALE: NO SCALE

ELECTRICAL ONE-LINE NOTES:
1. PROVIDE GROUNDING AND BONDING MEETING 2020 NEC ARTICLE 250 REQUIREMENTS.
2. PROVIDE SURGE SUPPRESSIVE DEVICES IN ALL RESIDENTIAL PANELS PER 230.67.
3. UTILIZE SERIES RATED BREAKER COMBINATIONS IN RESIDENTIAL PANELS TO REDUCE BRANCH BREAKER INTERRUPT RATINGS.
4. PROVIDE LABELING AT MAIN DISCONNECTS TO MEET 230.85.
5. CIRCUITS IDENTIFIED WITHIN 2020 NEC 210.8(A) AND 210.12(A) ARE TO RECEIVE GROUND FAULT AND ARC FAULT PROTECTION, RESPECTIVELY. WHERE OUTLETS ARE BEHIND LARGE EQUIPMENT OR UNDER COUNTERS PROTECTION IS TO BE AT THE BREAKER.
6. SHORT CIRCUIT VALUES BASED UPON AN ANTICIPATED 100kVA UTILITY TRANSFORMER LOCATED AT A DISTANCE OF 50 FEET TO THE SERVICE. ELECTRICAL CONTRACTOR TO FIELD VERIFY INSTALLED TRANSFORMER AND DISTANCES TO RECALCULATE AS NECESSARY.
6. FEEDERS EXTENDING FROM SERVICE GEAR TO INDIVIDUAL TENANT PANELS ARE TO BE INSTALLED UNDER SLAB SO THAT THE FEEDERS DO NOT EXTEND THROUGH NEIGHBORING UNITS. ⚠1

MECHANICAL EQUIPMENT SCHEDULE - SOUTH BUILDING

COMB: COMBINATION MOTOR STARTER; MAG: MAGNETIC MOTOR STARTER; NR: NONE REQUIRED; P/I: PLUG-IN UNIT; CONT: CONTRACTOR; MAN: MANUAL MOTOR STARTER; W/U: SUPPLIED WITH UNIT:

UNIT NO	FUNCTION (NOTES)	LOAD	VOLTS	Ø	MIN CIRC AMP	BRANCH CIRCUIT CONDUIT SIZE	BRANCH CIRCUIT NO. CONDUCTOR	BRANCH CIRCUIT WIRE SIZE	GRND WIRE SIZE	BRKR SIZE	START	DISC FUSE
CU 1	AC CONDENSING UNIT	2TON	240V	1	17.6A	1/2"	2	10	10	30A	W/U	30A 30A
GF 1	GAS FURNACE		120V	1	8.6A	1/2"	2	12	12	20A	W/U	‡
EF 1	EXHAUST FAN - BATH	10W	120V	1	0.1A	1/2"	2	12	12	15A	W/U	‡
EF 2	EXHAUST FAN - GARAGE	64W	120V	1	0.5A	1/2"	2	12	12	15A	W/U	‡
EUH 1	ELECTRIC UNIT HEATER	1.5kW	120V	1	12A	1/2"	2	12	12	20A	W/U	‡
BL 1	GAS FIRED BOILER	1440W	120V	1	12A	1/2"	2	12	12	20A	W/U	‡
CP 1	CIRCULATION PUMP	270W	120V	1	5A	1/2"	2	12	12	15A	W/U	‡
CP 2	CIRCULATION PUMP TYPICAL OF CP-3,4&7	270W	120V	1	5A	1/2"	2	12	12	15A	W/U	‡
CP 5	CIRCULATION PUMP	1/8HP	120V	1	2A	1/2"	2	12	12	15A	W/U	‡
CP 6	CIRCULATION PUMP	370W	120V	1	3A	1/2"	2	12	12	15A	W/U	‡

PANEL SCHEDULE - PH — TYPE: LOADCENTER; VOLTAGE: 120/240; ENCLOSURE: NEMA3R; BUS SIZE: 60; MAIN BRKR: 60; MOUNTING: SURFACE; PHASES: 1; WIRES: 3; SC RATING: 10000; NEUTRAL BUS: YES; GROUND BUS: YES

LOAD TYPE	LOAD DESCRIPTION	AMPS POLES	CKT# LOAD	Ø	CKT# LOAD	AMPS POLES	LOAD TYPE	LOAD DESCRIPTION
MECH YEAR ROUND	BOILER ---	20A 1P	1 1440	A	2 200	20A 1P	SPARE	SPARE ---
MOTOR	CP-1 - BOILER PUMP ---	20A 1P	3 720	B	4 200	20A 1P	SPARE	SPARE ---
MOTOR	CP-2 - CIRC PUMP ---	20A 1P	5 720	A	6 200	20A 1P	SPARE	SPARE ---
MOTOR	CP-3 - CIRC PUMP ---	20A 1P	7 720	B	8 200	20A 1P	SPARE	SPARE ---
MOTOR	CP-4 - LOOP PUMP ---	20A 1P	9 720	A	10 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	11 0	B	12 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	13 0	A	14 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	15 0	B	16 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	17 0	A	18 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	19 0	B	20 0	--- ---	SPACE	--- ---

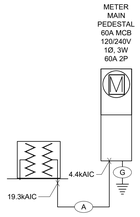
LOADS BY TYPE:

LOAD TYPE	CONNECTED LOAD (VA)	DEMAND FACTOR	DEMAND LOAD (VA)
LIGHTING	0.00	1.25	0.00
KITCHEN	0.00	0.00	0.00
PROCESS	0.00	1.00	0.00
RECEPTACLES	0.00	1.00	0.00
MECH HEATING	0.00	1.00	0.00
MECH COOLING	0.00	1.00	0.00
MECH YEAR ROUND	1440.00	1.00	1440.00
APPLIANCE	0.00	1.00	0.00
MISCELLANEOUS	0.00	1.00	0.00
MOTOR	2880.00	1.00	4320.00
SPARE	800.00	1.00	800.00
LARGEST MOTOR [1]	ABOVE	0.25	360.00
TOTAL	5120.00		5480.00

LOADS BY PHASE:

PHASE	CONNECTED LOAD (VA)	CONNECTED LOAD (AMPS)	BALANCE (PERCENT)
A	3280.00	27.33	A-B: 56.1
B	1840.00	15.33	B-A: 56.1
C	---	---	---
TOTAL/AVERAGE	5120.00	21.33	56.1

NOTES:
1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS.



ONE-LINE CONDUCTOR LEGEND

- (A) 2"C (3#4AWG(AL))
- (G) #6AWG(CU) TO GROUND ROD

ELECTRICAL - ONE LINE - SITE SNOWMELT

SCALE: NO SCALE

ELECTRICAL ONE-LINE NOTES:
1. PROVIDE GROUNDING AND BONDING MEETING 2020 NEC ARTICLE 250 REQUIREMENTS.
2. REFERENCE SITE PLAN FOR LOCATION ON PROPERTY.
3. SHORT CIRCUIT VALUES BASED UPON AN ANTICIPATED 100kVA UTILITY TRANSFORMER LOCATED AT A DISTANCE OF 50 FEET TO THE SERVICE. ELECTRICAL CONTRACTOR TO FIELD VERIFY INSTALLED TRANSFORMER AND DISTANCES TO RECALCULATE AS NECESSARY.

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 PROJECTS FOR ADDITIONS TO THIS PROJECT BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

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Mechanical & Electrical Engineers

1805 WALTON CREEK ROAD
STEAMBOAT SPRINGS, COLORADO

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

COLORADO LICENSED
BRENT C. ERICKSON
60539
PROFESSIONAL ENGINEER

DATE:	06/17/2022
JOB NO:	21-276
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E3-1

September 08, 2022 - 9:40:43am