

ELECTRICAL GENERAL NOTES

ELECTRICAL, DATA, & AUDIO NOTES:
HOME OWNER SHALL DO A WALK-THRU WITH RELEVANT INSTALLERS TO VERIFY THE EXACT LOCATION FOR OUTLETS, LIGHTS, SWITCHES, CABLE, DATA, PHONE, AUDIO, ETC.

ELECTRICAL NOTES:
1 ELECTRICAL RECEPTACLES IN BATHROOMS, KITCHENS AND GARAGES SHALL BE G.F.I. OR G.F.I.C. PER 2020 NATIONAL ELECTRICAL CODE REQUIREMENTS.
2 PROVIDE ONE SMOKE DETECTOR IN EACH ROOM AND ONE IN EACH CORRIDOR ACCESSING BEDROOMS. CONNECT SMOKE DETECTORS TO HOUSE POWER AND INTER-CONNECT SMOKE DETECTORS SO THAT, WHEN ANY ONE IS TRIPPED, THEY ALL WILL SOUND. PROVIDE BATTERY BACKUP FOR ALL UNITS.
3 CIRCUITS SHALL BE VERIFIED WITH HOME OWNER PRIOR TO WIRE INSTALLATION.
4 FINAL SWITCHES FOR TIMERS AND DIMMERS SHALL BE VERIFIED WITH HOME OWNER.
5 FIXTURES TO BE SELECTED BY HOME OWNER.

VIDEO:
1 LOCATE JACKS AS INDICATED IN THE PLAN; INSTALL DATA / CABLE PANEL IN LOCATIONS SPECIFIED BY CUSTOMER. SYSTEM TO BE APPROVED BY HOME OWNER.

DATA / CABLE:
- LOCATE DATA JACKS EQUIPMENT IN SPECIFIED LOCATION BY AND APPROVED BY HOME OWNER.

- REF NEC: 410.10(D) BATHTUB AND SHOWER AREAS. A LUMINAIRE INSTALLED IN A BATHTUB OR SHOWER AREA SHALL MEET ALL OF THE FOLLOWING REQUIREMENTS:
1. NO PARTS OF CORD-CONNECTED LUMINAIRES, CHAIN, CABLE, OR CORD-SUSPENDED LUMINAIRES, LIGHTING TRACK, PENDANTS, OR CEILING-SUSPENDED (PADDLE) FANS SHALL BE LOCATED WITHIN A ZONE MEASURED 900 MM (3 FT) HORIZONTALLY AND 2.5 M (8 FT) VERTICALLY FROM THE TOP OF THE BATHTUB RIM OR SHOWER STALL THRESHOLD. THIS ZONE IS ALL-ENCOMPASSING AND INCLUDES THE SPACE DIRECTLY OVER THE TUB OR SHOWER STALL.
2. LUMINAIRES LOCATED WITHIN THE ACTUAL OUTSIDE DIMENSION OF THE BATHTUB OR SHOWER TO A HEIGHT OF 2.5 M (8 FT) VERTICALLY FROM THE TOP OF THE BATHTUB RIM OR SHOWER THRESHOLD SHALL BE MARKED SUITABLE FOR DAMP LOCATIONS OR MARKED SUITABLE FOR WET LOCATIONS. LUMINAIRES LOCATED WHERE SUBJECT TO SHOWER SPRAY SHALL BE MARKED SUITABLE FOR WET LOCATIONS.
- REF NEC 422.5(A): GFCI PROTECTION OUTLET REQ. AT DISHWASHERS LOCATION
- REF NEC 210.52(C)(2): AT LEAST ONE RECEPTACLE WITHIN THE FIRST NINE SQUARE FEET OR FRACTION THEREOF, OF AN ISLAND COUNTERTOP AND AN ADDITIONAL RECEPTACLE FOR EVERY 18 SQUARE FEET MORE OR FRACTION THEREOF, AN ADDITIONAL REQUIREMENT STATES THAT AT LEAST ONE RECEPTACLE SHALL BE LOCATED WITHIN TWO FEET OF THE OUTER END OF A PENINSULA COUNTERTOP.
SD/CO - PER NFPA CODE
SD TO BE INSTALLED INSIDE OF EACH SEPARATE SLEEPING AREA AND OUTSIDE EACH DOOR IN THE IMMEDIATE VICINITY OF THE BEDROOMS. (R315.3) CO MUST BE INSTALLED OUTSIDE EACH BEDROOM WITHIN 15' OF EACH ROOM.
- HARDWIRED APPLIANCES ARE REQ. TO HAVE A DISCONNECT WITHIN SIGHT OR A LOCKABLE MEANS AT CIRCUIT BREAKER.
- MIN. ONE 20 AMP CIRCUIT RECEPTACLE OUTLET LOCATED WITHIN 36" OF OUTSIDE EDGE OF LAV. BASIN - GFCI PROTECTED - TYPICAL FOR EACH BATHROOM (R3901.6 & 3902.1)
- ALL EXTERIOR LIGHTS- FULL CUT OFF
- ANY AND ALL CRAWLSPACE LIGHTS SHALL BE AFCI PROTECTED
- CLOSET LIGHTS TO CONFORM TO E6003.12
- ARC FAULT PROTECTION REQ. AT ELECTRICAL OPENINGS

**BUILDING CONTRACTOR/HOME OWNER
TO REVIEW AND VERIFY ALL DIMENSIONS,
SPECS, AND CONNECTIONS BEFORE
CONSTRUCTION BEGINS.**

PROJECT DIRECTORY

OWNER:
FIRST/LAST NAME: MATT EIDT
ADDRESS: 345 LINCOLN AVE., #205,
STEAMBOAT SPRINGS, CO 80487 - CHIEFTAIN SUITES
TELEPHONE: 970-819-0827
EMAIL: MATT@MYBROKERS.COM

GENERAL CONTRACTOR: FLAVIO QUEZADA; PINECONE INTERIORS
TELEPHONE: 970-620-2205

ELECTRICAL DESIGN:
NAME COMPANY: ENGINEERING STUDIO DENVER
FIRST/LAST NAME: JAKE FRIEDERICHS
ADDRESS #1: 1801 WEWATTA ST., 11TH FLOOR
DENVER, CO 80202
TELEPHONE: 720.612.7553
EMAIL: JAKE@ESDENVER.COM

ABBREVIATIONS

ACT - ACOUSTIC CEILING TILE	ILO - IN LIEU OF
AD - AREA DRAIN	INSUL - INSULATED OR INSULATION
AFF - ABOVE FINISHED FLOOR	INT - INTERIOR
ALUM - ALUMINUM	LO - LOW
ANOD - ANODIZED	MAX - MAXIMUM
BSMT - BASEMENT	MO - MASONRY OPENING
BYND - BEYOND	MECH - MECHANICAL
BOT - BOTTOM	MEMBR - MEMBRANE
CIP - CAST IN PLACE	MIN - MINIMUM
CHNL - CHANNEL	MRGWB - MOISTURE-RESISTANT
CJ - CONTROL JOINT	MTL - METAL
CLG - CEILING	OC - ON CENTER
CLR - CLEAR	OH - OVERHANG OR OPPOSITE
CMU - CONCRETE MASONRY UNIT	ORP - OPPOSITE OR OPPOSITE
COL - COLUMN	HAND
COMP - COMPRESSIBLE	OC - ON CENTER
CONC - CONCRETE	OH - OVERHANG OR OPPOSITE
CONT - CONTINUOUS	HAND
CPT - CARPET	ORP - OPPOSITE OR OPPOSITE
CT - CERAMIC TILE	HAND
CTYD - COURTYARD	OC - ONCE
DBL - DOUBLE	POC - PRE CAST CONCRETE
DEMO - DEMOLISH OR DEMOLITION	PLUMB - PLUMBING
DIA - DIAMETER	PLYD - PLYWOOD
DIM - DIMENSION	PT - PRESSURE TREATED
DIMS - DIMENSIONS	PNT - PAINT OR PAINTED
DN - DOWN	PVC - POLYVINYL CHLORIDE
DR - DOOR	RBR - RUBBER
DWG - DRAWING	RCP - REFLECTED CEILING
EA - EACH	PLAN
EJ - EXPANSION JOINT	RD - ROOF DRAIN
EL - ELEVATION	REQD - REQUIRED
ELEC - ELECTRICAL	RM - ROOM
ELEV - ELEVATOR OR ELEVATION	SIM - SIMILAR
EP - ELECTRIC PANEL	SPEC - SPECIFIED OR
EPDM - ETHYLENE PROPYLENE	SPECIFICATION
EQ - EQUAL	SPK - SPRINKLER OR
EXIST - EXISTING	SPEAKER
EXP JT - EXPANSION JOINT	SSTL - STAINLESS STEEL
EXT - EXTERIOR	STC - SOUND TRANSMISSION
FD - FLOOR DRAIN OR FIRE DEPT.	COEFFICIENT
FEC - FIRE EXTINGUISHER CABINET	STL - STEEL
FIKT - FIXTURE	STRUCT - STRUCTURE OR
FLR - FLOOR	STRUCTURAL
FM - FILLED METAL	T&G - TONGUE AND GROOVE
FO - FACE OF	TELE - TELEPHONE
FND - FOUNDATION	TME - TO MATCH EXISTING
GA - GAUGE	TO - TOP OF
GALV - GALVANIZED	TOC - TOP OF CONCRETE
GWB - GYPSUM WALL BOARD	TOS - TOP OF STEEL
HC - HOLLOW CORE	TD - TELEPHONE/DATA
HI - HIGH	TYP - TYPICAL
HM - HOLLOW METAL	UNO - UNLESS NOTED
HP - HIGH POINT	OTHERWISE
HR - HOUR	U/S - UNDERSIDE
HVAC - HEATING, VENTILATING, AND AIR CONDITIONING	VP - VERIFY IN FIELD
	VP - VISION PANEL
	W/ - WITH
	WD - WOOD

**ENGINEERING
STUDIO
DENVER**

ESDENVER DBA
VERADYN ENGINEERING, LLC
441 WADSWORTH BLVD, SUITE 206
LAKEWOOD, CO 80226
720.612.7553
DUSTIN@ESDENVER.COM

Reviewed for
Code Compliance

02/02/2022

MATT EIDT

345 Lincoln Ave., #205
Steamboat Springs, CO
80487

CLIMATE AND GEOGRAPHICAL DESIGN CRITERIA

ELEVATION FT.: 6732

RISK CATEGORY	SNOW DESIGN		WIND DESIGN			SUBJECT TO DAMAGE FROM				ICE BARRIER UNDER LAYMENT REQUIRED	WINTER DESIGN TEMP	FLOOD HAZARDS	AIR FREEZING INDEX	MEAN ANNUAL TEMP, F	SEISMIC DESIGN CATEGORY	CLIMATE ZONE
	GROUND SNOW LOAD PSF.	ROOF SNOW LOAD PSF.	SPEED ULTIMATE	EXPOSURE	TOPOGRAPHIC EFFECT	WEATHERING	FROST LINE	TERMITE								
II	106.62 PSF	xx PSF	115 mph	B	NO	SEVERE	48 IN.	N/S	YES	-15°F	2/4/05	2239	40-45°F	C	7	

SHEET SCHEDULE

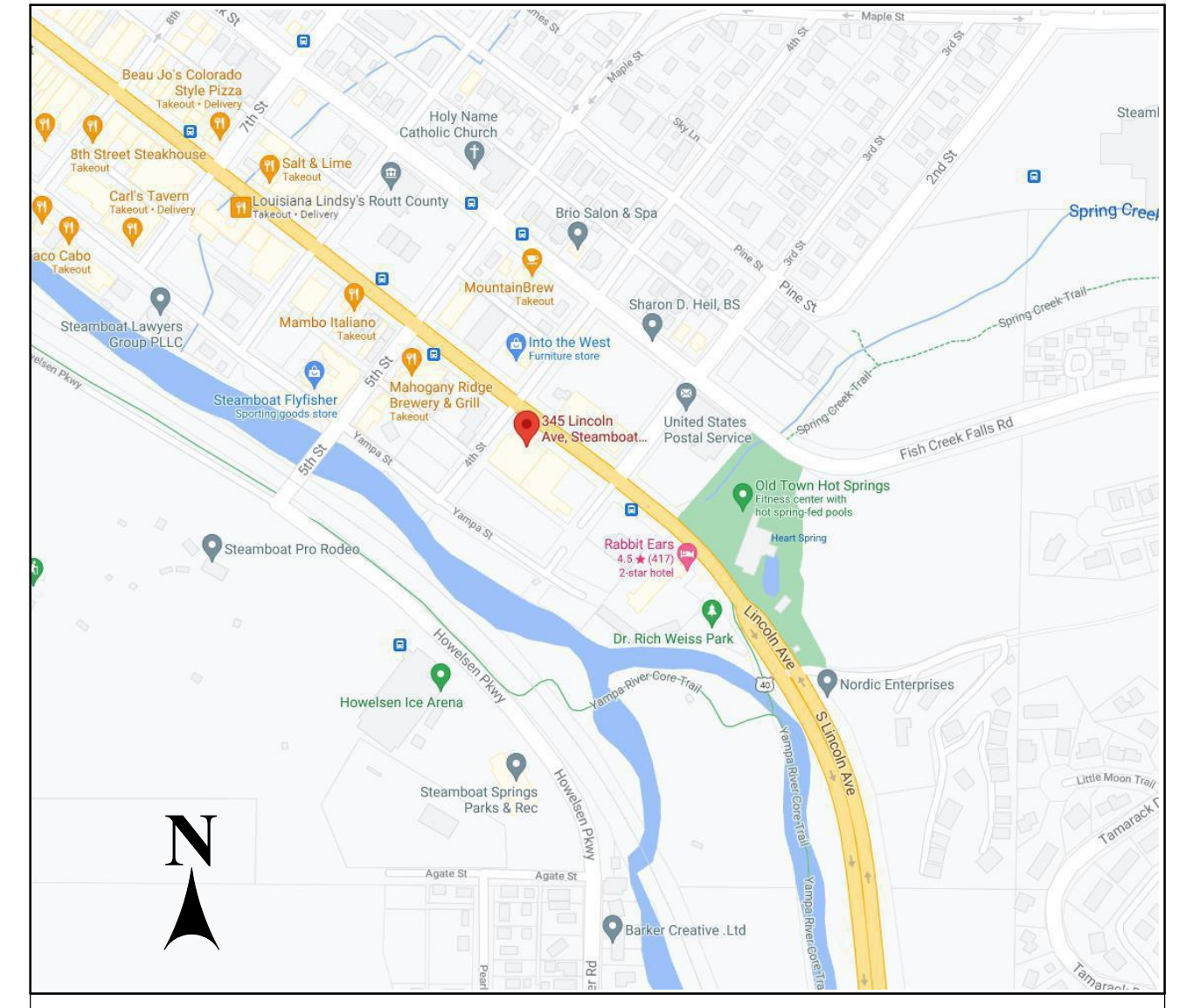
SHEET NUMBER	SHEET NAME
E0.0	COVER SHEET & BUILDING NOTES
E0.1	LOT
E1.0	ELECTRICAL
E1.1	ELECTRICAL - REFLECTED CEILING PLAN
E2.0	ELECTRICAL - PANEL LAYOUT
E2.1	ELECTRICAL - PANEL NOTES
E3.0	CROSS SECTIONS

DESIGN CRITERIA & CONDITIONS

PROJECT CITY: STEAMBOAT SPRINGS, COLORADO
PROJECT ELEVATION: 6732 FT. ABOVE SEA LEVEL
COUNTY: ROUTT COUNTY
ZONING: R-1.0 PUD
BUILDING CONSTRUCTION CLASS: V-NR, SPRINKLED
UNIT OCCUPANCY GROUP: R-3

APPLICABLE CODES:

- 2018 International Building Code
- 2018 International Residential Code
- 2018 International Plumbing Code
- 2018 International Fuel Gas Code
- 2018 International Mechanical Code
- 2018 International Fire Code
- 2018 International Energy Conservation Code **
- 2020 National Electric Code



LOCATION MAP

DRAWN BY: J.F.

CHECKED BY: D.R.

REVISIONS:

No.	DESCRIPTION	DATE

ISSUE RECORD:

No.	DESCRIPTION	DATE

SCALE:

SHEET CONTENTS:

PROJECT NO.: 9923

DATE: 11/30/2021

DRAWING NO.:

E0.0



Reviewed for
Code Compliance
02/02/2022

MATT EIDT
345 Lincoln Ave., #205
Steamboat Springs, CO
80487

DRAWN BY: J.F.

CHECKED BY: D.R.

REVISIONS:

No.	DESCRIPTION	DATE
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ISSUE RECORD:

No.	DESCRIPTION	DATE

SCALE:

SHEET CONTENTS:

PROJECT NO.: 9923

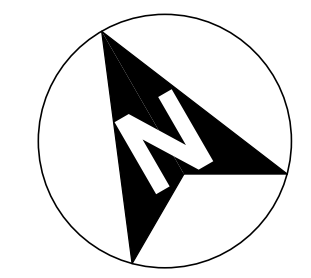
DATE: 11/30/2021

DRAWING NO.:

E0.1



FOR REFERENCE ONLY. NOT TO SCALE. REFERENCE SURVEY



LINCOLN AVE,

SIDEWALK

SIDEWALK

4TH STREET

PARKING

SIDEWALK

345 LINCOLN AVE,
STEAMBOAT SPRINGS, CO 80477

UNIT #205
IN SCOPE

UNIT #205

335 LINCOLN AVE,
STEAMBOAT SPRINGS, CO 80477

ALLEY

P LOT
SCALE: NO SCALE

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02/02/2022

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80487

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CHECKED BY: D.R.

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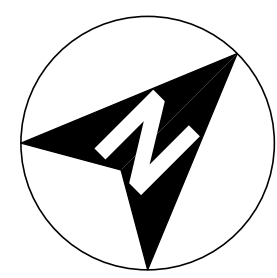
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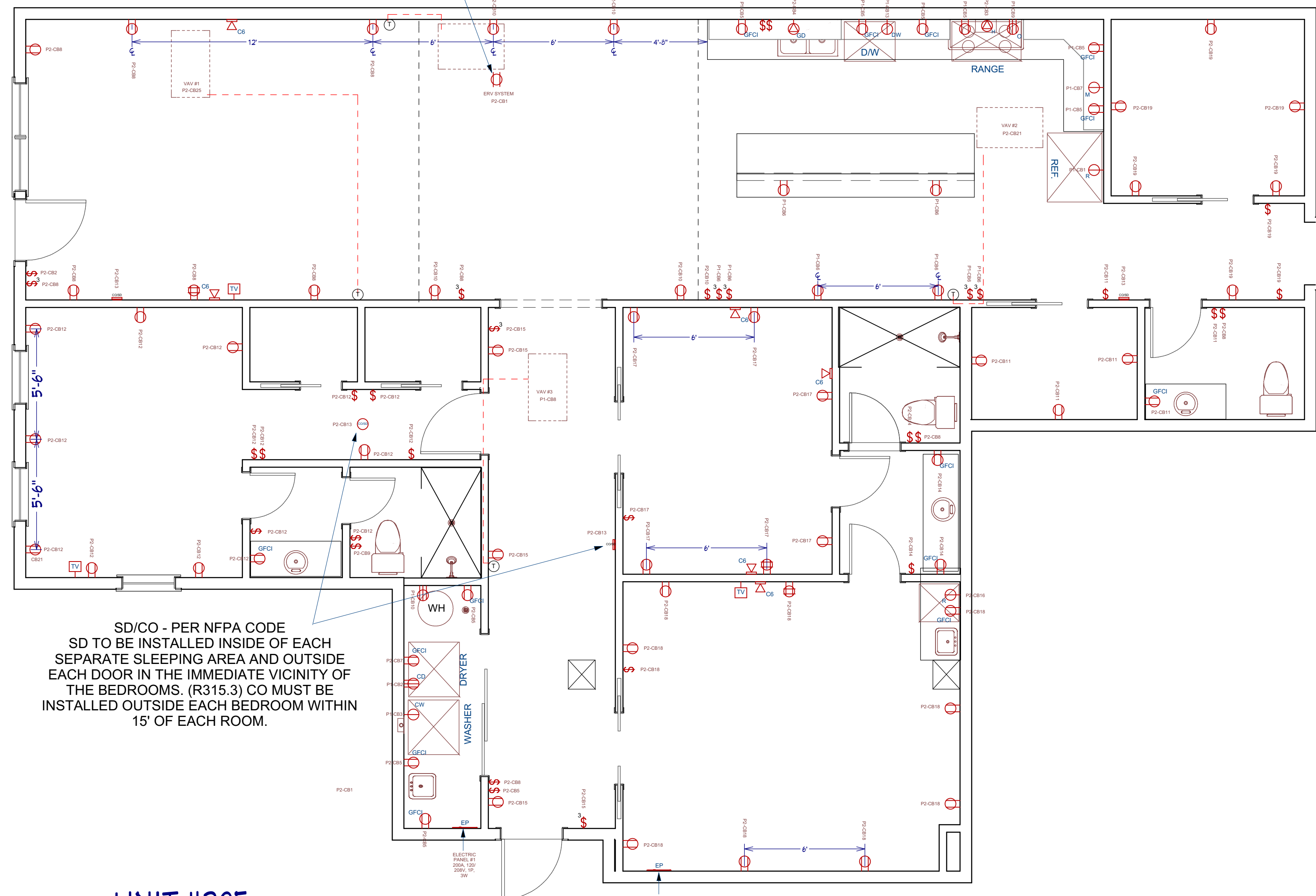
DRAWING NO.:
E1.0



ALL DRAWINGS ARE SCHEMATIC ONLY. FIELD VERIFY ALL INSTALL LOCATIONS OF FIXTURES, SWITCHES, APPLIANCES, LIGHTS AND OUTLETS. COORDINATE WITH OTHER TRADES AS REQ.

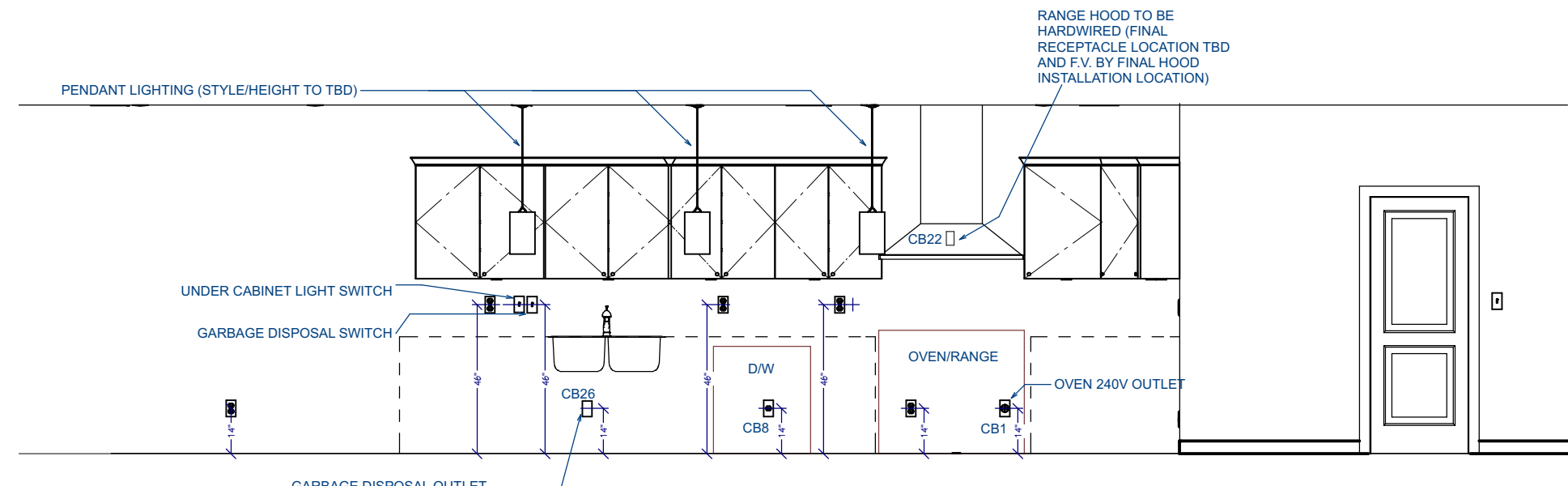


ERV DEDICATED 120V OUTLET NEAR FINAL UNIT INSTALLATION LOCATION. FV



SD/CO - PER NFPA CODE SD TO BE INSTALLED INSIDE OF EACH SEPARATE SLEEPING AREA AND OUTSIDE EACH DOOR IN THE IMMEDIATE VICINITY OF THE BEDROOMS. (R315.3) CO MUST BE INSTALLED OUTSIDE EACH BEDROOM WITHIN 15' OF EACH ROOM.

UNIT #205



KITCHEN E1

ENGINEERS NOTE:

1. ELECTRICAL DESIGN DONE WITH ALL EXISTING AVAILABLE INFORMATION FOR THE PROPERTY. CERTIFIED ELECTRICIAN TO VERIFY PANEL CONNECTIONS, SIZING AND LAYOUT.
2. CERTIFIED ELECTRICIAN TO INSTALL PER NEC 2020 CODE.
3. CERTIFIED ELECTRICIAN TO NOTIFY ENGINEER W/ ANY CHANGES.

1 ELECTRICAL
SCALE: 1/4" = 1 FT.

SYMBOL	DESCRIPTION	COMMENTS	QTY
	CEILING FAN	BRAND T.B.D.	1
	CLOTHES DRYER	BRAND T.B.D.	1
	CLOTHES WASHER	BRAND T.B.D.	1
	240V OVEN	BRAND T.B.D.	1
	DISHWASHER	BRAND T.B.D.	1
	REFRIGERATOR	BRAND T.B.D.	2
	GARBAGE DISPOSAL	BRAND T.B.D.	1
	HOOD FAN VENT		1
	MICROWAVE		1
	DUPLEX		46
	QUADPLEX		3
	DUPLEX CEILING MOUNTED		1
	240V HW HEATER HARD WIRED		1
	GFCI		14
	EXT. LIGHT		1
	PENDANT LIGHT		3
	RECESSED DOWN LIGHT 4 LED		51
	RECESSED DOWN LIGHT 6 LED		2
	RECESSED VAPOR LIGHT LED		4
	VANITY LIGHT		3
	SINGLE POLE SWITCH		21
	THREE WAY		3
	EXHAUST FAN w/LIGHT		3
	EXHAUST FAN		1
	CAT6		6
	TELEVISION JACK		3
	SINGLE POLE		3
	UNDER CABINET LIGHTING LED		7
	THERMOSTAT		3
	CO/SD GAS/SMOKE DETECTOR		4
	ERV CONTROL		1
	ELECTRICAL PANEL EXISTING PANEL		2

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MATT EIDT
 345 Lincoln Ave., #205
 Steamboat Springs, CO
 80487

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REVISIONS:

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ISSUE RECORD:

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SCALE:

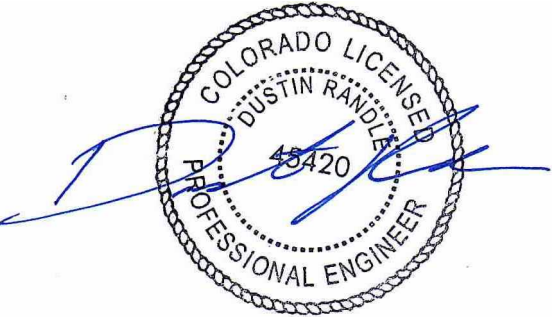
SHEET CONTENTS:

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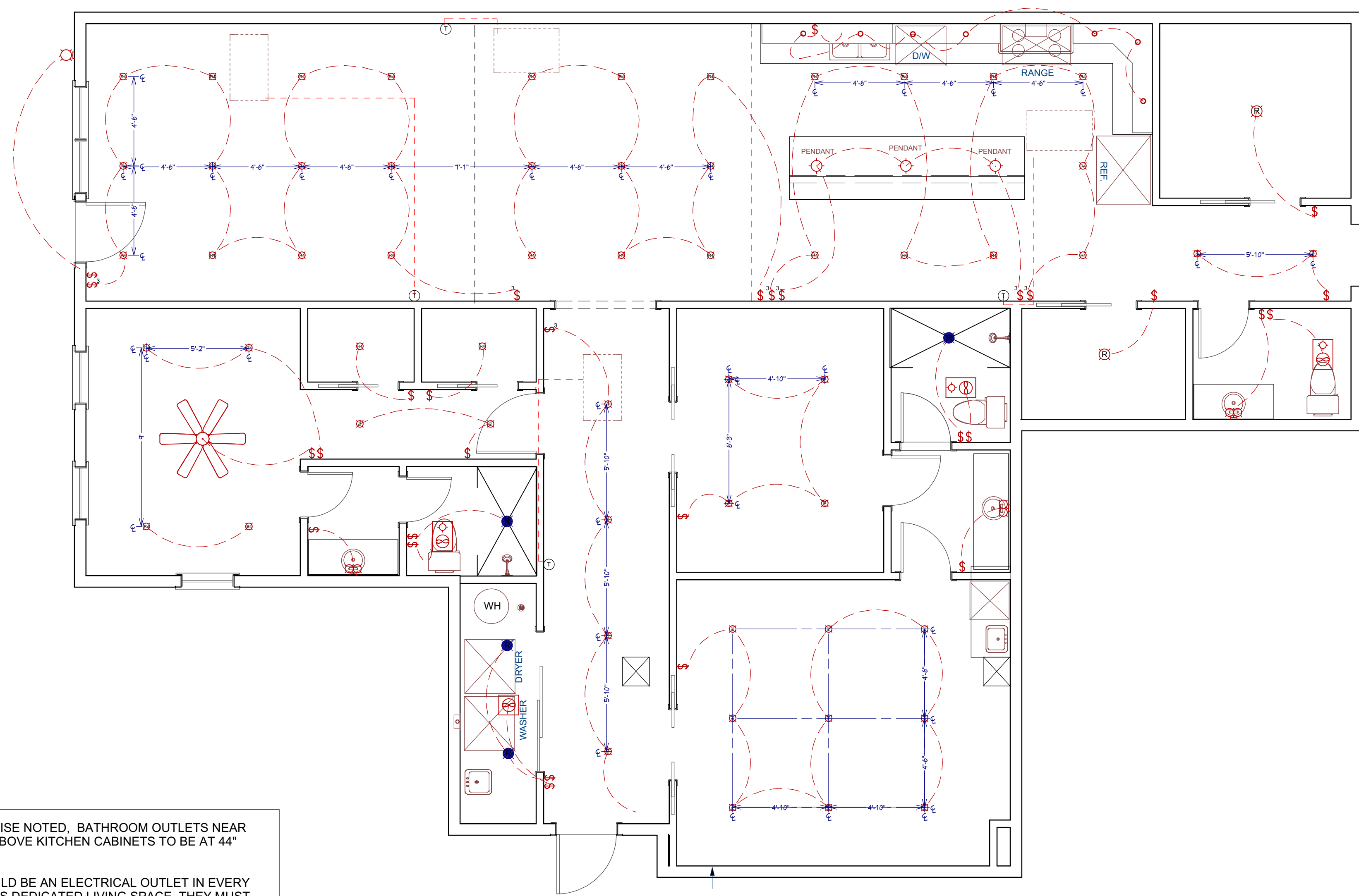
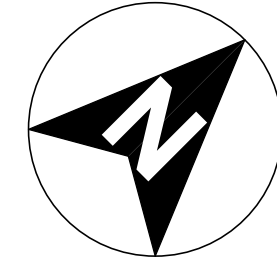
DATE: 11/30/2021

DRAWING NO.:

E1.1



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2D SYMBOL	DESCRIPTION	COMMENTS	QTY
	CEILING FAN	BRAND T.B.D.	1
	CLOTHES DRYER	BRAND T.B.D.	1
	CLOTHES WASHER	BRAND T.B.D.	1
	240V OVEN	BRAND T.B.D.	1
	DISHWASHER	BRAND T.B.D.	1
	REFRIGERATOR	BRAND T.B.D.	2
	GARBAGE DISPOSAL	BRAND T.B.D.	1
	HOOD W/VENT		1
	MICROWAVE		1
	DUPLEX		46
	QUADRUPLEX		3
	DUPLEX, CEILING MOUNTED		1
	240V W/V HEATER HARD WIRED		1
	GFCI		14
	EXT. LIGHT		1
	PENDANT LIGHT		3
	RECESSED DOWN LIGHT 4 LED		51
	RECESSED DOWN LIGHT 6 LED		2
	RECESSED VAPOR LIGHT LED		4
	VANITY LIGHT		3
	SINGLE POLE SWITCH		21
	THREE WAY		5
	EXHAUST FAN W/LIGHT		3
	EXHAUST FAN		1
	CAT6		6
	TELEVISION JACK		3
	SINGLE POLE		3
	UNDER CABINET LIGHTING LED		7
	THERMOSTAT		3
	CO/SD GAS/SMOKE DETECTOR		4
	TERRY CONTROL		1
	ELECTRICAL PANEL EXISTING PANEL		2

- ALL FLOOR OUTLETS TO BE AT 12" TO BTM. (14" OC), FROM F.F. UNLESS OTHERWISE NOTED. BATHROOM OUTLETS NEAR THE SINK(S) WHICH ARE TO BE 48" TO BTM. (50" O.C.) FROM F.F. & RECEPTACLES ABOVE KITCHEN CABINETS TO BE AT 44" TO BTM. (46 O.C.) FROM F.F.

- THE US NATIONAL ELECTRICAL CODE, SECTION 210.52, STATES THAT THERE SHOULD BE AN ELECTRICAL OUTLET IN EVERY KITCHEN, BEDROOM, LIVING ROOM, FAMILY ROOM, AND ANY OTHER ROOM THAT HAS DEDICATED LIVING SPACE. THEY MUST BE POSITIONED AT LEAST EVERY SIX FEET MEASURED ALONG THE FLOOR LINE & INSTALLED IN EACH WALL SPACE 2 FT. OR MORE IN LENGTH.

- ALL LIGHT SWITCHES TO BE AT 48" TO BTM. (50" O.C.) UNLESS OTHERWISE NOTED. *KITCHEN SWITCHES ABOVE CABINETS TO BE @ 46" O.C.

CLOSETS:
 - DISTANCES BETWEEN FIXTURES AND STORAGE ITEMS: FOR SURFACE-MOUNTED INCANDESCENT OR LED LIGHT FIXTURES, THERE MUST BE A MINIMUM DISTANCE OF 12 INCHES BETWEEN THE FIXTURE AND ANY ITEMS STORED IN THE CLOSET. FOR RECESSED INCANDESCENT OR LED LIGHT FIXTURES, THIS DISTANCE MUST BE AT LEAST 6 INCHES. FOR FLUORESCENT LIGHT FIXTURES, THE MINIMUM DISTANCE IS 6 INCHES.
 - NO BARE BULBS ALLOWED. EXPOSED OR PARTIALLY EXPOSED INCANDESCENT OR LED LAMPS (BULBS) ARE NOT ALLOWED IN CLOSETS. WHILE UTILITY LIGHT FIXTURES WITH BARE BULBS IN A SOCKET WERE ONCE COMMON IN CLOSETS AND OTHER STORAGE AREAS, THESE ARE NO LONGER ALLOWED. ALL LIGHT BULBS MUST BE FULLY ENCLOSED IN A GLOBE OR OTHER HOUSING.

REF 2020 NEC CODE FOR ELECTRICAL (STATE OF CO)

- GFCI PROTECTION

REF. NEC, 210.8(A): DWELLING UNITS. ALL 125-VOLT THROUGH 250-VOLT RECEPTACLES INSTALLED IN THE LOCATIONS SPECIFIED IN 210.8(A)(1) THROUGH (A)(11) AND SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND SHALL HAVE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL.

(1) BATHROOMS - MIN. 1 GFCI OUTLET AND WITHIN 3 FT. OF SINK.

(2) KITCHENS — WHERE THE RECEPTACLES ARE INSTALLED TO SERVE THE COUNTERTOP SURFACES

(3) SINKS — WHERE RECEPTACLES ARE INSTALLED WITHIN 1.8 M (6 FT) FROM THE TOP INSIDE EDGE OF THE BOWL OF THE SINK

(4) BATHTUBS OR SHOWER STALLS — WHERE RECEPTACLES ARE INSTALLED WITHIN 1.8 M (6 FT) OF THE OUTSIDE EDGE OF THE BATHTUB OR SHOWER STALL

(5) LAUNDRY AREAS

EXCEPTION TO (1) THROUGH (3), (5) THROUGH (8), AND (10): LISTED LOCKING SUPPORT AND MOUNTING RECEPTACLES UTILIZED IN COMBINATION WITH COMPATIBLE ATTACHMENT FITTINGS INSTALLED FOR THE PURPOSE OF SERVING A CEILING LUMINAIRE OR CEILING FAN SHALL NOT BE REQUIRED TO BE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTED. IF A GENERAL-PURPOSE CONVENIENCE RECEPTACLE IS INTEGRAL TO THE CEILING LUMINAIRE OR CEILING FAN, GFCI PROTECTION SHALL BE PROVIDED.

(6) INDOOR DAMP AND WET LOCATIONS

SD/CO - PER NFPA CODE
 SD TO BE INSTALLED INSIDE OF EACH SEPARATE SLEEPING AREA AND OUTSIDE EACH DOOR IN THE IMMEDIATE VICINITY OF THE BEDROOMS. (R315.3) CO MUST BE INSTALLED OUTSIDE EACH BEDROOM WITHIN 15' OF EACH ROOM.

-LAUNDRY AREAS REQUIRE A 20 AMP BRANCH CIRCUIT TO SUPPLY THE LAUNDRY RECEPTACLE OUTLET. THIS CIRCUIT SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN LAUNDRY AREA.

** *ARC FAULT CIRCUIT INTERRUPTERS (AFCI), PER NEC, REQUIRED IN ALL LIVING AREAS**

ENGINEERS NOTE:

1. ELECTRICAL DESIGN DONE WITH ALL EXISTING AVAILABLE INFORMATION FOR THE PROPERTY. CERTIFIED ELECTRICIAN TO VERIFY PANEL CONNECTIONS, SIZING AND LAYOUT.
2. CERTIFIED ELECTRICIAN TO INSTALL PER NEC 2020 CODE.
3. CERTIFIED ELECTRICIAN TO NOTIFY ENGINEER W/ ANY CHANGES.

2 ELECTRICAL - REFLECTED CEILING PLAN
 SCALE: 1/4" = 1 FT.

Circuit Directory Panel - NEC		NEC	
DESCRIPTION			
Electric range/oven	422.16(B)(4)	1. The cord's length must be between 450 mm (18 in.) and 1.2 m (4 ft). 2. Receptacles are placed to prevent the flexible cable against physical damage. 3. The receptacle is fed by a separate branch circuit. 4. The receptacle shall be accessible. 5. The flexible cord must have a grounding conductor and also be terminated with a grounding-type attachment connector.	
Electric range/oven		Exception: A listed appliance distinctly marked to identify it as protected by a system of double insulation shall not be required to be terminated with a grounding-type attachment plug.	
Clothes dryer	210.8(A)	1. Requires GFCI protection if it's in laundry Area	
Clothes dryer			
Water heater	310.15(B)(7)	1. For a service rated 100 through 400 A, the service conductors supplying the entire load associated with a one-family dwelling, or the service conductors supplying the entire load associated with an individual dwelling unit in a two-family or multifamily dwelling, shall be permitted to have an ampacity not less than 83 percent of the service rating. 2. For a feeder rated 100 through 400 A, the feeder conductors supplying the entire load associated with a one-family dwelling, or the feeder conductors supplying the entire load associated with an individual dwelling, unit in a two-family or multifamily dwelling, shall be permitted to have an ampacity not less than 83 percent of the feeder rating.	
Water heater			
Clothes washer	210.8(A)(10)	1. Requires GFCI protection if it's in laundry Area	
Dishwasher	422.16(B)(2) 210.8(D)	IF BUILT IN: 1. The flexible cord shall be terminated with a grounding-type attachment plug. Exception: A listed dishwasher or trash compactor distinctly marked to identify it as protected by a system of double insulation shall not be required to be terminated with a grounding-type attachment plug. 2. For a trash compactor, the length of the cord shall be 0.9 m to 1.2 m (3 ft to 4 ft) measured from the face of the attachment plug to the plane of the rear of the appliance. 3. For a built-in dishwasher, the length of the cord shall be 0.9 m to 2.0 m (3 ft to 6.5 ft) measured from the face of the attachment plug to the plane of the rear of the appliance. 4. Receptacles shall be located to protect against physical damage to the flexible cord. 5. The receptacle for a trash compactor shall be located in the space occupied by the appliance or adjacent thereto. 6. The receptacle for a built-in dishwasher shall be located in the space adjacent to the space occupied by the dishwasher. 7. The receptacle shall be accessible. IF Not: GFCI protection shall be provided for outlets that supply dishwashers installed in dwelling unit locations. Microwave ovens often demand dedicated circuitry, but this isn't always a necessity.	
Microwave	---		
ERV System	---		
VAV unit - 1	---	Power Rating Calculated According to NEC	
VAV unit - 2	---	Power Rating Calculated According to NEC	
VAV unit - 3	---	Power Rating Calculated According to NEC	
Refrigerator	---		
Mini-refrigerator	---		
Laundry circuit	210.8(A)(10)	All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in 210.8(A)(1) through (10) shall have ground-fault circuit-interrupter protection for personnel.	
Appliance circuit - 1	---		
Exhaust fans baths x 4	---		
Appliance circuit - 2	---		
Master BR-MASTER BATH/Cists	210.11(C)(3) 210.52(D)	In addition to the number of branch circuits required by other parts of this section, one or more 120-volt, 20-ampere branch circuit shall be provided to supply bathroom(s) receptacle outlet(s). All receptacles must be AFCI and GFCI-protected, either by circuit breakers or individual receptacles that offer AFCI and GFCI protection, required by 210.52(D) and any countertop and similar work surface receptacle outlets. Such circuits shall have no other outlets.	
Hallway/Den	210.52(H)	While Article 210.52(H) requires at least one receptacle in hallways that are 10 feet (or more) in length, the NEC doesn't clearly define what a hallway is. A new subsection was added to require ground-fault circuit-interrupter protection (GFCI protection), for 125-volt, single-phase, 15- and 20-ampere receptacles installed within 6 ft. of a bathtub or shower stall. If a hazard exists and GFCI protection is required for 125-volt, single-phase, 15- and 20-ampere receptacles installed within 6 ft. of any dwelling unit sink, then the same hazard exists within 6 ft. of a bathtub or shower stall. Now GFCI protection is required for any 125-volt, single-phase, 15- or 20-ampere receptacle installed within 6 ft. of a dwelling bathtub or shower stall. All 125-volt, single-phase, 15- or 20-ampere receptacles installed in a bathroom must have GFCI protection even if a bathroom receptacle is 100 ft. from any sink, tub or shower. Section 210.8(A)(1) requires GFCI protection for these receptacles any time they are within the envelope of the bathroom, regardless of distance to the sink, tub or shower. Outside the bathroom, possibly in a hallway, or bedroom, if there are any 125-volt, single-phase, 15- or 20-ampere receptacles within 6 ft. of the shower or bathtub, they now require GFCI protection even if they are not within the envelope of the bathroom.	
Master BR-MASTER BATH/Cists	210.8(A)		
Range hood	422.16(B)(4)	1. The length of the cord is not less than 450 mm (18 in.) and not over 1.2 m (4 ft). 2. Receptacles are located to protect against physical damage to the flexible cord. 3. The receptacle is supplied by an individual branch circuit. 4. The receptacle shall be accessible. 5. The flexible cord shall have an equipment grounding conductor and be terminated with a grounding-type attachment plug. Exception: A listed appliance distinctly marked to identify it as protected by a system of double insulation shall not be required to be terminated with a grounding-type attachment plug.	
Entry/Mudrooms	210.52(A)	210.52(A) General Provisions. In every kitchen, family room, dining room, living room, parlor, library, den, sunroom, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets shall be installed in accordance with the general provisions specified in 210.52(A)(1) through (A)(3).	
Patio	210.52(E)(3)	210.52(E)(1) Balconies, Decks, and Porches. Balconies, decks, and porches that are attached to the dwelling unit and are accessible from inside the dwelling unit shall have at least one receptacle outlet accessible from the balcony, deck, or porch. The receptacle outlet shall not be located more than 2.0 m (6 1/2 ft) above the balcony, deck, or porch walking surface.	
Office/Vanity/Bath	210.70(B) 210.11(C)(3) 210.11(C)(3) 210.52(D)	If the electrician feeds only a single bathroom with the one 20-amp branch circuit required in 210.11(C)(3), then the electrician may feed loads other than countertop and work surface receptacles in that bathroom. The NEC offers no restrictions for the types of additional loads that can be served in this case. Assuming the electrician is complying with all manufacturer's specifications for the equipment installed in the bathroom, it is fair to say that all 120-Volt receptacles and loads, including lighting, can be served by this branch circuit when it is dedicated to a single bathroom. It is always permissible to pull more than one 20-amp branch circuit for feeding the bathrooms in a dwelling. One branch circuit is simply the minimum permitted for a dwelling regardless of the number of bathrooms. The electrician is still required to install one countertop receptacle within 3 feet of the outside edge of each bathroom sink basin.	
Garbage Disposal			
Kitchen-1		The NEC requires that any kitchen countertop that's at least 12 inches wide and 24 inches deep must be equipped with electrical outlets. This applies even if there isn't a nearby sink, such as on a bar or island. Additionally, no point on the wall should be further than 24 inches from an outlet in either direction (measuring 4 feet total between outlets), so you must have an outlet within 2 feet of the kitchen sink. To protect against electrical shock while working in the kitchen, the NEC also requires countertop outlets to be protected with ground-fault circuit interrupters, or GFCIs. No outlets are allowed in the countertop itself.	
Kitchen-2			
Pantry/Powder	210.52(B)(1)	In the kitchen, pantry, breakfast room, dining room, or similar area of a dwelling unit, the two or more 20-ampere small-appliance branch circuits required by 210.11(C)(1) shall serve all wall and floor receptacle outlets covered by 210.52(A), all countertop outlets covered by 210.52(C), and receptacle outlets for refrigeration equipment. Exception No. 1: In addition to the required receptacles specified by 210.52, switched receptacles supplied from a general-purpose 15- or 20-ampere branch circuit as required in 210.70(A)(1), Exception No. 1, shall be permitted. Exception No. 2: In addition to the required receptacles specified by 210.52, a receptacle outlet to serve a specific appliance shall be permitted to be supplied from an individual branch circuit rated 15 amperes or greater.	
Laundry Room	210.8(A)	1. Requires GFCI protection if it's in laundry Area	

SIZE (AWG)	AMP (60 DEG)	AMP (75 DEG)	AMP (90)
18	-	-	8
16	-	-	11
14	16	21	15
12	21	26	21
10	31	36	31
8	41	51	56
6	56	66	76
4	71	86	96
3	86	101	116
2	96	116	131
1	111	131	146

SERVICE AMPERAGE	SIZE	GROUND (250.66)
100	4 AWG	8 AWG
110	3 AWG	8 AWG
125	2 AWG	8 AWG
150	1 AWG	6 AWG
175	1/0 AWG	6 AWG
200	2/0 AWG	4 AWG
225	3/0 AWG	4 AWG
250	4/0 AWG	2 AWG
300	250 KCMIL	2 AWG
350	350 KCMIL	2 AWG
400	400 KCMIL	1/0 AWG

- KEYED NOTES**
1. PROVIDE 120 VOLT CONNECTION TO IN-SINK GARAGE DISPOSAL. COORDINATE FINAL CONNECTION WITH KITCHEN EQUIPMENT INSTALLER.
 2. PROVIDE 120 VOLT RECEPTACLE TO UNDER COUNTER DISHWASHER. COORDINATE FINAL CONNECTION WITH KITCHEN EQUIPMENT INSTALLER.
 3. PROVIDE 120 VOLT CONNECTION TO HOOD CONTROL SYSTEM. COORDINATE CONNECTION WITH SYSTEM INSTALLER
 4. PROVIDE 220 VOLT, SINGLE PHASE RECEPTACLE TO ELECTRIC DRYER LOCATION. COORDINATE CONNECTION WITH SYSTEM INSTALLER
 5. PROVIDE 120 VOLT RECEPTACLE FOR LAUNDRY CLOTHES WASHER. COORDINATE FINAL LOCATION OF RECEPTACLE WITH INSTALLER.
 6. PROVIDE 120 VOLT RECEPTACLE FOR KITCHEN REFRIGERATOR. COORDINATE FINAL LOCATION OF RECEPTACLE WITH INSTALLER.
 7. PROVIDE 120 VOLT RECEPTACLE FOR UNDER COUNTER BAR REFRIGERATOR. COORDINATE FINAL LOCATION OF RECEPTACLE WITH INSTALLER.
 8. PROVIDE 120 VOLT RECEPTACLE FOR KITCHEN MICROWAVE. COORDINATE FINAL LOCATION OF RECEPTACLE WITH INSTALLER.
 9. PROVIDE 240 VOLT RECEPTACLE FOR KITCHEN ELECTRIC RANGE. COORDINATE FINAL LOCATION OF RECEPTACLE WITH INSTALLER.
 10. PROVIDE 240 VOLT CONNECTION FOR ELECTRIC HOT WATER HEATER
- GENERAL NOTES:**
1. REFER TO ARCHITECTURAL DRAWINGS FOR CONTINUED CONSTRUCTION AND SCOPE DOCUMENTATION, DIMENSIONS AND LOCATIONS OF NEW DEVICES, APPLIANCE OPENING SIZES. IF ANY CONFLICTS BETWEEN DRAWINGS OCCUR, PLEASE CONTACT THE ENGINEER OR ARCHITECT FOR CLARIFICATION.
 2. CONTRACTOR TO COORDINATE FINAL KITCHEN APPLIANCES WITH KITCHEN EQUIPMENT PROVIDER, CUSTOMER AND DESIGN TEAM PRIOR TO FINAL INSTALL AND ROUGH IN. FINAL LAYOUTS OF APPLIANCES MAY CHANGE AND COORDINATION WILL BE REQUIRED WITH DESIGN TEAM AND CONTRACTORS FOR ANY MADE CHANGES.
 3. ARC FAULT CIRCUIT INTERRUPTERS (AFCI), PER NEC, REQUIRED IN ALL LIVING AREAS

- Dwelling Units:**
- All 120-volt, single-phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, or similar rooms or areas shall be protected by any of the means described in 210.12(A)(1) through (6):
- 1 A listed combination-type arc-fault circuit interrupter installed to provide protection of the entire branch circuit
 - 2 A listed branch-feeder-type AFCI installed at the origin of the branch-circuit in combination with a listed outlet branch-circuit-type arc-fault circuit interrupter installed at the first outlet box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.
 - 3 A listed supplemental arc protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit-type arc-fault circuit interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:
 - 1 The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.
 - 2 The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 15.2 m (50 ft) for a 14 AWG conductor or 21.3 m (70 ft) for a 12 AWG conductor.
 - 3 The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.
 - 4 A listed outlet branch-circuit-type arc-fault circuit interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:
 - 1 The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.
 - 2 The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 15.2 m (50 ft) for a 14 AWG conductor or 21.3 m (70 ft) for a 12 AWG conductor.
 - 3 The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.
 - 4 The combination of the branch-circuit overcurrent device and outlet branch-circuit AFCI shall be identified as meeting the requirements for a system combination-type AFCI and shall be listed as such.
 - 5 If metal raceway, metal wireways, metal auxiliary gutters, or Type MC, or Type AC cable meeting the applicable requirements of 250.118, with metal boxes, metal conduit bodies, and metal enclosures are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a listed outlet branch-circuit-type AFCI at the first outlet to provide protection for the remaining portion of the branch circuit.
 - 6 Where a listed metal or nonmetallic conduit or tubing or Type MC cable is encased in not less than 50 mm (2 in.) of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a listed outlet branch-circuit-type AFCI at the first outlet to provide protection for the remaining portion of the branch circuit.
- Exception: AFCI protection shall not be required for an individual branch circuit supplying a fire alarm system installed in accordance with 760.41(B) or 760.121(B). The branch circuit shall be installed in a metal raceway, metal auxiliary gutter, steel-armored cable, Type MC or Type AC, meeting the applicable requirements of 250.118, with metal boxes, conduit bodies, and enclosures.*
- Informational Note No. 1: For information on combination-type and branch-feeder-type arc-fault circuit interrupters, see UL 1699-2011, Standard for Arc-Fault Circuit Interrupters. For information on outlet branch-circuit type arc-fault circuit interrupters, see UL Subject 1699A, Outline of Investigation for Outlet Branch Circuit Arc-Fault Circuit-Interrupters. For information on system combination AFCIs, see UL Subject 1699C, Outline of Investigation for System Combination Arc-Fault Circuit Interrupters.*
- Informational Note No. 2: See 29.6.3(5) of NFPA 72-2013, National Fire Alarm and Signaling Code, for information related to secondary power-supply requirements for smoke alarms installed in dwelling units.*
- Informational Note No. 3: See 760.41(B) and 760.121(B) for power-supply requirements for fire alarm systems.*

ESD ENGINEERING STUDIO DENVER

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Reviewed for Code Compliance
02/02/2022

MATT EIDT
345 Lincoln Ave., #205
Steamboat Springs, CO
80487

DRAWN BY: J.F.
CHECKED BY: D.R.

REVISIONS:

No.	DESCRIPTION	DATE

ISSUE RECORD:

No.	DESCRIPTION	DATE

SCALE:

SHEET CONTENTS:

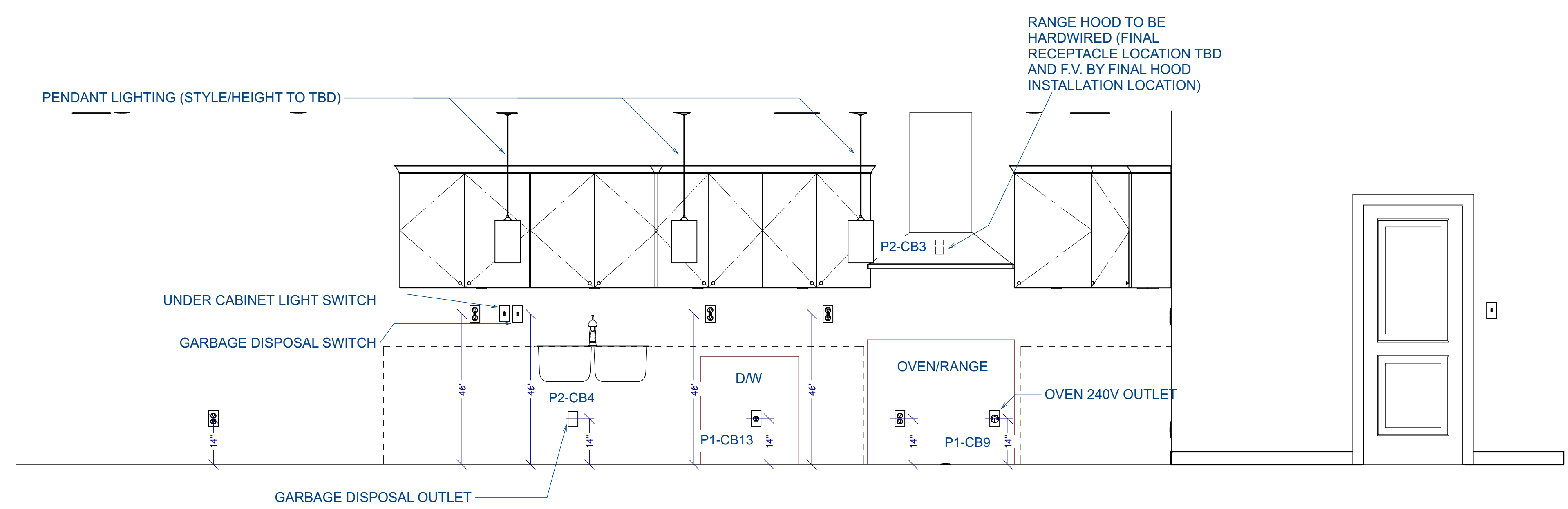
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DATE: 11/30/2021

DRAWING NO.: **E2.1**

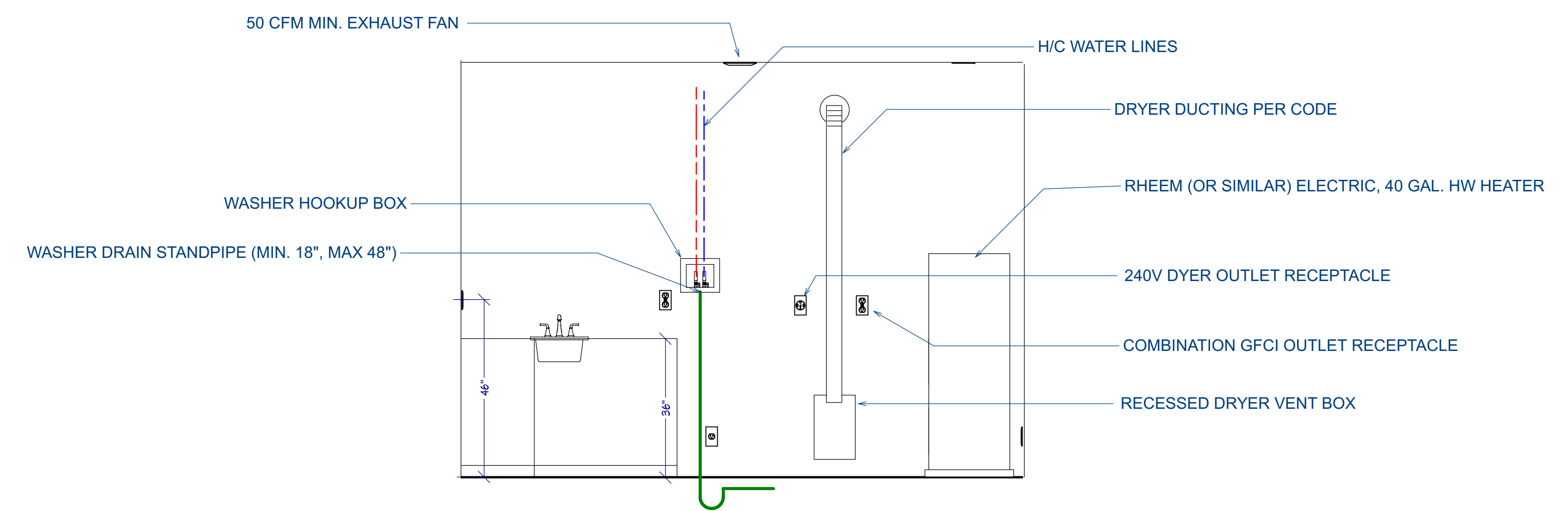


Reviewed for
Code Compliance
02/02/2022

MATT EIDT
345 Lincoln Ave., #205
Steamboat Springs, CO
80487



Elevation 1



Elevation 2

1 CROSS SECTIONS
SCALE: 1/2" = 1 FT.

DRAWN BY: J.F.

CHECKED BY: D.R.

REVISIONS:

No.	DESCRIPTION	DATE
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ISSUE RECORD:

No.	DESCRIPTION	DATE

SCALE:

SHEET CONTENTS:

PROJECT NO.: 9923
DATE: 11/30/2021

DRAWING NO.: **E3.0**

