Rio Blanco County Columbine Park Office

Columbine Horse Park, Rangley, Rio Blanco County, Colorado 81648

PROJECT TEAM DIRECTORY:

Owner/Contractor: Rio Blanco County 555 Main Street,

PO Box 1047 Meeker, Colorado 81641 Project Manger: Eric Jaquez 970-878-9583

Mechanical, & Electrical Engineering: **Bighorn Consulting Engineers**

Electrical: Art Donoho, PE Mechanical: Shawn Brill, PE, CEM 386 Indian Road Grand Junction, CO 81501 Primary Contact: Shawn Brill 970-241-8709 office, 970-312-8636 direct

THIS PROJECT CONSISTS OF THE REMODEL OF, AND ADDITION TO, AN EXISTING OFFICE & SUPPORT BUILDING TO CREATE A FLEXIBLE USE OFFICE AND MEETING BUILDING.

THE PROJECT CONSISTS OF AN 828 SF ADDITION TO AN EXISTING 883 SF BUILSING WITH A 770 SF BASEMENT. THE ADDITIONS WILL INCLUDE COVERED PORCHES ON FRONT AND BACK OF BUILDING.

TRUSSED ROOF WITH A NEW PREFAB TRUSS ROOF OVER THE ENTIRE STRUCTURE AND ASSOCIATED PORCHES

MINOR CHANGES TO THE ASSOCIATED ACCESS AND PARKING WILL BE MADE TO ACCOMODATE THE DISPLACED 1CIRCULATION AREA NEXT TO THE

APPLICABLE CODES: The Town of Rangley has indicated that code inforcement for this project will be based on the 2006 Series International Building Codes. We recommend that the constuction conform to the 2021 Series codes, where it is practical, and is more restrictive than the 2006 Series. The most recent version of the

Electrical Code applies regardless. International Building Code (IBC) International Mechanical Code (IMC) International Plumbing Code (IPC)

International Fuel Gas Code (IFGC) International Energy Conservation Code (IECC)

International Fire Code (IFC)

ROOF SNOW LOADS/FOUNDATION FROST DEPTH Minimum Ground Snow Load 65 psf (for 5,400 ft) Minimum Roof Snow Load* 40 psf (for locations below 6,000 ft) 36 inches (for locations below 6,000 ft) 48 inches used Minimum Frost Depth * Actual Roof Snow Load will be determined by RBC Building Official (per website)

Climate Zone-6

DWG.

EXISTING EACH

Wind Design 90 mph (3 sec) Exposure B or C Weathering Probability for concrete - Severe Ice Barrier Underlayement required Floodplain (Section 245 RBC Land Use Resolution)

ABBREVIATIONS NOTE: Clarify with Architect all abbreviations not listed.

λB	ANCHOR BOLT	E.J.	EXPANSION JOINT	H.B.	HOSE BIBB	O.C.	ON CENTER	
ACT	ACOUSTICAL CEILING TILE	E.I.F.S.	EXTERIOR INSULATION	H.C.	HOLLOW CORE	0.0. 0.D.	OUTSIDE DIAMETER	
\.F.F	ABOVE FINISHED FLOOR		AND FINISH SYSTEM	H/C	HANDICAPPED	O.D. OH.	OVERHEAD	
AGG	AGGREGATE	EL.	ELEVATION	HDWD.	HARDWOOD			
	ALUMINUM	ELEV.	ELEVATOR	HDWE.	HARDWARE	OPG.	OPENING	
\L		ELEC.	ELECTRICAL			OPP.	OPPOSITE	
ALT	ALTERNATE	EMER	EMERGENCY	H.M.	HOLLOW METAL			
\PX	APPROXIMATE		ENCLOSURE	HR.	HOUR	PCT.	PRE-CAST	
ARCH	ARCHITECT(URAL)	ENCL.		HT.	HEIGHT	PL	PLATE	
		EQ.	EQUAL	HVAC	HEATING, VENTILATION AND	P.L.	PROPERTY LINE	
3D.	BOARD	EQUIP.	EQUIPMENT		AIR CONDITIONING	P.LAM.	PLASTIC LAMINATE PLAS.	PLASTER
BLDG.	BUILDING	E.W.	EACH WAY			PLYWD.	PLYWOOD	
BLK(G)	BLOCK(ING)	E.W.C.	ELECTRIC WATER COOLER	I.D.	INSIDE DIAMETER	SPEC.	SPECIFICATION	
BM. Č	BEAM `	EXP.	EXPANSION	INSUL.	INSULATION	SQ.	SQUARE	
BOT.	BOTTOM	EXT.	EXTERIOR	INT.	INTERIOR	S.S.	STAINLESS STEEL	
BTWN.	BETWEEN			JAN.			STAGGERED	
3.U.R.	BUILT UP ROOFING	F.A.	FIRE ALARM	JNT.	JANITOR JOINT JOIST KITCHEN	STD.	STANDARD	
3.W.	BOTH WAYS	F.D.	FLOOR DRAIN	JST.	JOIST	STIFF	STIFFENER	
J. V V .	DOTTI WITTO	F.D.C.	FIRE DEPARTMENT CONNECTION	301.	30101	STIL.	STEEL	
C.J.	CONTROL JT.	FDN.	FOUNDATION	KIT.	KITCHEN			
D.J. DL	CENTERLINE	F.E.	FIRE EXTINGUISHER	KII.	KITCHEN		STRUCTURAL	
		F.E.C.	FIRE EXTINGUISHER CABINET	1.40	LABORATORY	SUSP.	SUSPENDED	
CLG.	CEILING	F.F.	FINSH FLOOR	LAB.	LABORATORY			
CLKG.	CAULKING	F.H.C.	FIRE HOSE CABINET	LAM.	LAMINATE	TR	TREAD	
CLR.	CLEAR			LAV.	LAVATORY	T & B	TOP AND BOTTOM	
C.M.U.	CONCRETE MASONRY UNIT	FIN.	FINISH	LT.	LIGHT	TER.	TERRAZZO	
COL.	COLUMN	F.L.	FLOOR			T & G	TONGUE & GROOVE	
CONC.	CONCRETE	FLR.	FLOOR	MAX.	MAXIMUM	THK.	THICK	
CONN.	CONNECTION	FLUOR.	FLOOR FLUORESCENT FOUNDATION FACE OF BRICK	MECH.	MECHANICAL	T.O.	TOP OF	
CONSTR	CONSTRUCTION	FND.	FOUNDATION	MEMB.	MEMBRANE	TYP.	TYPICAL	
CONT.	CONTINUOUS	F.O.B.	FACE OF BRICK	MFR.	MANUFACTURER	U.O.N.	UNLESS OTHERWISE NOTED	
C.T.	CERAMIC TILE	F.O.C.	FACE OF CONCRETE	M.H.	MANHOLE			
		F.S.	FULL SIZE	MIN.	MINIMUM	VCT	VINYL COMPOSTION TILE	
DEG.	DEGREE	FT.	FOOT OR FEET	MISC.	MISCELLANEOUS	VER	VERIFY	
	DETAIL	FTG.	FOOTING	M.O.	MASONRY OPENING	VERT.	VERTICAL	
).F.	DRINKING FOUNTAIN	FURR.	FURRING	MTL.	METAL	VLIXI.	VEITHOAL	
DIAG.	DIAGONAL			MUL.	MULLION	W	MECT	
DIA/Ø	DIAMETER	GA.	GAUGE	WIUL.	WIGELION		WEST WITH	
	DOWN	GALV.	GALVINIZED	N	NORTH	W/		
ON.		G.C.	GENERAL CONTRACTOR	N		W.C.	WATER CLOSET	
OS.	DOWNSPOUT	G.U.	GLASS	N.I.C.	NOT IN CONTRACT	WD.	WOOD	
DWG.	DRAWING	G.L. GR.	GRADE	NO.	NUMBER	W/O	WITHOUT	
_	FACT	GK. GVP	GYPSIIM	NOM.	NOMINAL NOT TO COME			

N.T.S. NOT TO SCALE

GRADE GYP. GYPSUM

GYP. BD. GYPSUM BOARD

Structural Engineering -Civic Forum Associates, Inc -

SGM Engineers - Glenwood Springs and Meeker offices 118W Sixth St, Suite 200 Glenwood Springs, CO 81601 Primary Contact: John Partch

Geotech & OWTS Design

Radon Mitigation:

Architect:

5101 Ellsworth Pl.,

970-948-7009

Boulder, Colorado, 80303

Primary Contact: Joede Schoeberlein

NWCC, Inc. 2580 Copper Ridge Drive, Steamboat Springs, CO 80487 Contact: Tim Travis, P.E. (970) 879-7888 ext. 103 (970) 879-7891 fax ttravis@nwccusa.com

NET (INSIDE OF EXT. WALLS)

TOTAL EXTG. + ADDITION (GROSS) 2,481 SF

These drawings show the installation of a passive radon mitigation

International Building Code and thus is not required for this project. We

recommend it's installation. However, it is not required and can be

system. A radon mitigation system is not required by the 2006

installed, or not, at the descretion of the Owner.

SHEET INDEX:

GENERAL:

A0.0 - COVER SHEET, GENERAL INFORMATION A0.1 - CODE SHEET

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ARCHITECTURAL PLANS

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A4.1 - REVISED ELEVATIONS - 1/4" = 1'-0" A5.1 - RAMP & STAIR DETAILS - 1/2" = 1'-0"

STRUCTURAL PLANS

S001 - GENERAL NOTES S003 - SYMBOLS AND ANNOTATIONS S101 - FOUNDATION PLAN S102 - FLOOR FRAMING PLAN S103 - ROOF FRAMING PLAN S104 - FOUNDATION DETAILS (1)

S105 - FRAMING DETAILS (2)

MECHANICAL PLANS M0-1 - GENERAL NOTES

M1-1 - MECHANICAL MAIN FLOOR PLAN

M1-2 - MECHANICAL LOWER FLOOR PLAN M 2-1 - MECHANICAL DETAILS (1)

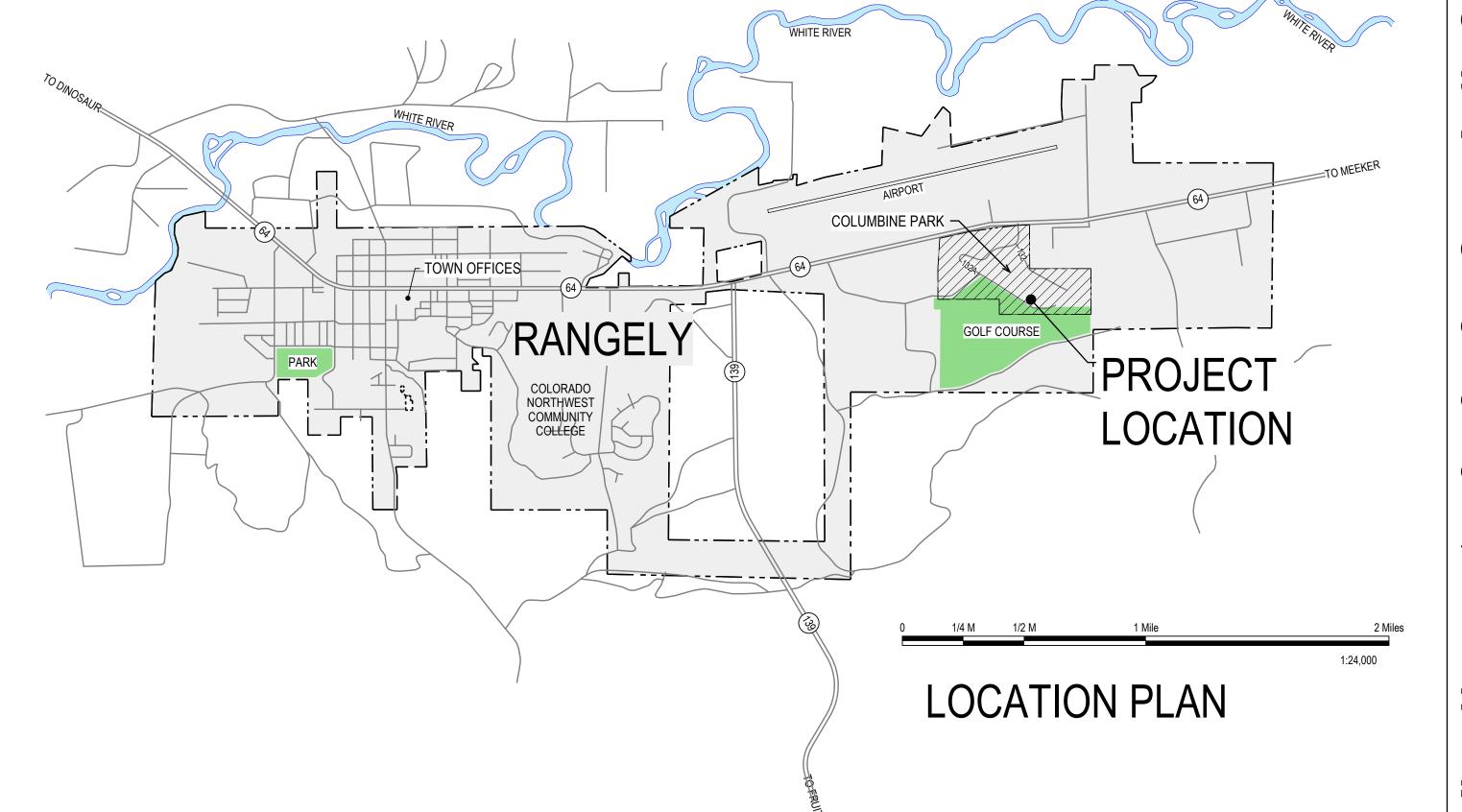
M2-2 - MECHANICAL DETAILS (2)

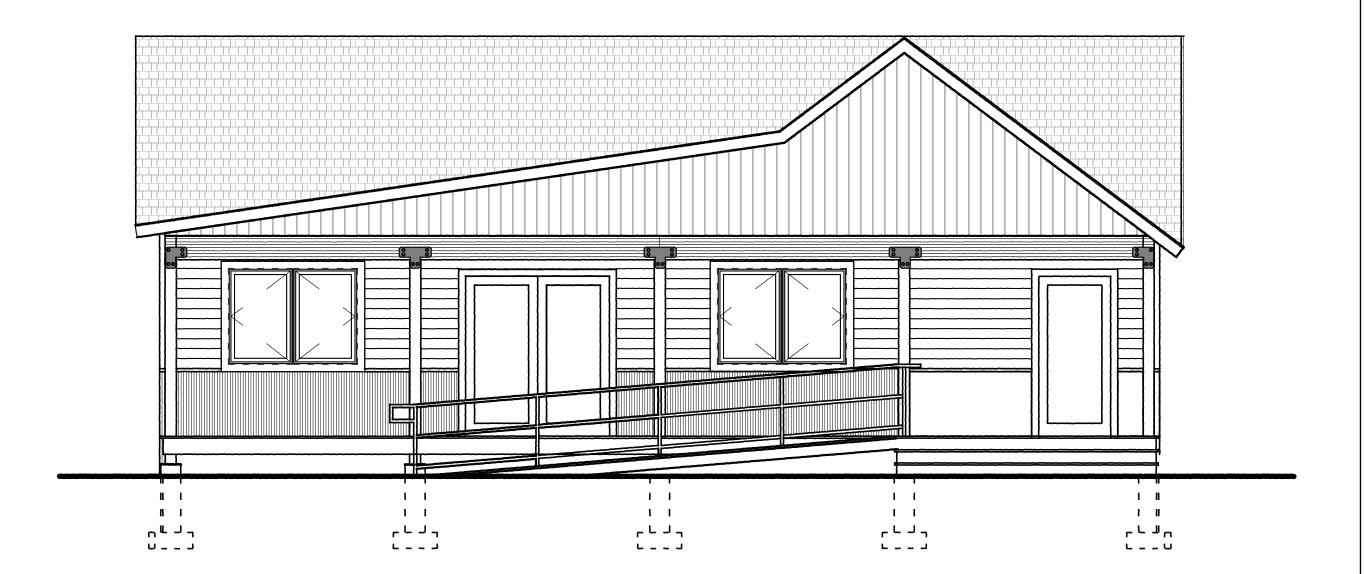
ELECTRICAL PLANS

E0-1 - GENERAL NOTES E1-1 - ELECTRICAL FLOOR PLANS E2-1 - LUMINAIRE SCHEDULE NOTES

EXTG. PLANS:

EX1.1 - EXTG. BUILDING PLANS - 1/4" = 1'-0" EX1.2 - EXTG. BUILDING SECTION, ELEVATIONS - 1/4" = 1'-0" EXS1.1 - EXTG. STRUCT LAYOUT - 1/4" = 1'-0"





08-19-24 REVISIONS

GENERAL

INFORMATION

OCCUPANCY (304)

BUSINESS GROUP GROUP B - Business Office, UTILITY AND MISCELLANEOUS GROUP U - Agricultural Utility Space

CONSTRUCTION TYPE TYPE V B - (TABLE 504.3) SPRINKLER SYSTEM PROVIDED - NOT REQUIRED BY IBC

NUMBER OF STORIES 2/3 STORY MAX. - 1 STORY (w/ BASEMENT) PROPOSED (TABLE 504.4)

ALLOWABLE HEIGHT 40 FT. MAX. - < 20 FT PROPOSED (TABLE 504.3)

ALLOWABLE SQUARE FOOTAGE (TABLE 506.2)

BASE ALLOWARI E BUILDING AREA - ADJUSTED FOR MIXED OCCUPANCY

BASE ALLOWABLE BUILDING AREA - ADJUSTEL	FOR WINEL	OCCUPI	ANCI		
PRORATA ALLOWABLE AREA CALCULATION BY RATIO OF DIFFERENT OCCUPANCIES	GROUP	AREA	BASE ALLOWABLE	% BLDG. AREA	ALLOWED PRORATA
BUSINESS (OFFICES, MEETING AREAS)	В	1,650	9,000	68.2%	6,138 SF
UTILITY (MAINTAINENCE WORKSHOP)	U	770	5,500	31.8%	1,749 SF
	Total	2,420			7,887 SF
	1	•			

MINIMUM FRONTAGE DISTANCE $W = (I_1 \times W_1 + I_2 \times W_2 + I_3 \times W_3 + ...)/F$ W= $43.87 \times >60 + \frac{57.67 \times >60}{57.67 \times >60} + \frac{43.87 \times >60}{57.67 \times >60} + \frac{203}{57.67 \times >60}$ />2,632.2 >3.460.2 $W = \left(\frac{\text{North}}{>2,632.2} + \frac{\text{East}}{>2,632.2} + \frac{\text{South}}{>2,632.2} + \frac{\text{West}}{>3,460.2}\right) / 203$ WHERE: W = (Width: weighted average) = Calculated width of Public way or open space (feet). W=(>12,148.8)/203 I_n = Length of a portion of the exterior wall. W_n = Width (\ge 20 feet) of a public way or open space associated with that W= > 60 portion of the exterior perimeter wall. F = Building perimeter that fronts on a public way or open space >/= 20' FRONTAGE INCREASE 506.3 = $\left[\frac{F}{P} - 0.25\right] \frac{W}{30}$ $I_{f} = \left[\frac{203}{203} - 0.25 \right] \frac{60}{30}$ WHERE: I_f = Area increase due to frontage F = Building perimeter that fronts on a public way or open space >/= 20' $I_f = \begin{bmatrix} .75 \end{bmatrix} * 2$ P = Perimeter of entire building (feet). $I_f = 1.5 - 150\%$ INCREASE W = Width of public space or open

w/30 = 2) **BUILDING AREA (TABLE 506.2)**

AREA INCREASE Equation 5-3 $a = A_t + (NSx I_f)$ WHERE:

 A_a = Allowable area per story (square feet) A_t = Tabular area per story in accordance with Table 506.2 (square feet)

NS = Area increase factor due to frontage as calculated in accordance with Section 506.2 $I_{\rm f}$ = Area increase factor due to frontage as calculated in accordance with Section 506.2

space (up to 60' for a maximum of

FIRE RESISTIVE RATINGS (TABLE 601)

1,650 < 19,718 THEREFORE O.K. FIRE RESISTIVE RATINGS

FOR EXTERIOR WALLS (TABLE 602) STRUCTURAL FRAME INTERIOR BEARING WALLS NORTH SIDE 0 HR - X >/= 30' EXTERIOR BEARING WALLS SOUTH SIDE 0 HR - X >/= 30' INTERIOR NONBEARING WALLS 0 HR EAST SIDE 0 HR - X >/= 30' EXTERIOR NONBEARING WALLS 0 HR WEST SIDE 0 HR - X >/= 30' FLOORS ROOF CEILING/ROOF 0 HR

MAXIMUM AREA OF EXTERIOR OPENINGS FOR EXTERIOR WALLS (TABLE 705.8)

FIRE SEPARATION DISTANCE - 30 FT OR GREATER ALL SIDES NORTH SIDE UNLIMITED UNPROTECTED OPENINGS UNLIMITED UNPROTECTED OPENINGS SOUTH SIDE EAST SIDE UNLIMITED UNPROTECTED OPENINGS WEST SIDE UNLIMITED UNPROTECTED OPENINGS

MAXIMUM TRAVEL

BUILDING AREA: EXTG. BLDG. AREA: GROUND FLOOR:

NET (INSIDE OF EXT. WALLS)

TOTAL EXTG. AREA (GROSS)

NET (INSIDE OF EXT. WALLS)

ADDITION AREA:

GROSS (OUTSIDE OF EXT. FRAMING) 883 SF NET AREA OF WALKOUT BASEMENT 770 SF

GROSS (OUTSIDE OF EXT. FRAMING) 828 SF

TOTAL EXTG. + ADDITION (NET) 2,420 SF TOTAL EXTG. + ADDITION (GROSS) 2,481 SF

1,653 SF

DISTANCE TO EXIT (TABLE 1017.2) SPRINKLER SYSTEM (SECTION 903,)

250' BETWEEN ANY POINT IN ANY ROOM AND AN EXIT OK Not Required in "B" Occupancy per section 903 - Not required by building area see above.

 $A_a = 7,887 + (7,887 \times 1.5)$

Allowable Area per Story = 19.718 SF

 $A_a = 7.887 + 11.831$

 $A_a = 19,718$

STANDPIPES (SECTION 905) REQUIRED IN NEW STRUCTURES - To be provided in the form of an external cistern ALARM & DETECTION (SECTION 907.2) REQUIRED IN NEW STRUCTURES

SYSTEM ACCESSIBILITY (SECTION 1102.1) BUILDING SHALL BE IN COMPLIANCE W/ CHAPTER 11 & ICC A117.1

ALLOWABLE AREA CALCULATION FOR BUILDINGS WITH MULTIPLE OCCUPANCIES	GROUP	AREA	BASE ALLOWABLE	MULT FRONTAGE	FRONTAGE INCREASE	ALLOWED	RATIO
BUSINESS (OFFICES, MEETING AREAS)	В	1,298	9,000	1.5	13,500	22,500	0.058
UTILITY (MAINTAINENCE WORKSHOP)	U	568	5,500	1.5	8,250	13,700	0.041
CIRCULATION, STORAGE, RESTRMS & WALLS	(B)*	615	36,000*	1.5	13,500	22,500	0.027
	Total	2,481					
* Using B (Majority) Occupancy							0.126

0.126 is < 1 OK

OCCUPANT LOAD (TABLE 1004.5) FOR EXITING

GRND FLOOR (NORMAL USE) AREA # Persons 787 SF 5.3 Persons* OPEN OFFICE (FRONT) OPEN OFFICE (REAR) 792 SF 5.3 Persons 150 gross TOTAL - FOR EXITING 10.6 (11) Persons

BASEMENT AREA # Persons **BUSINESS AREA** 568 SF 5.3 Persons

TOTAL - FOR EXITING 5.3 (5) Persons * For a meeting held in front space 787 sf @ 15 sf/pers (loose tables & chairs) occupancy could be 52.5 persons

MAIN LEVEL - TOTAL OCCUPANT LOAD +/- 11 OCCUPANTS < 49 PERSONS THERFORE 1 EXIT REQUIRED (TABLE 1006.2.1) - IF THIS BUILDING WAS USED FOR A MEETING THE OCCUPANCY COULD EXCEED 49 AND WOULD THEREFORE REQUIRE 2 EXITS - 4 DOORS PROVIDED > 49 PERSONS REQUIRES DOORS SWING IN DIRECTION OF TRAVEL - THE 2 DESIGNATED EXITS TO COMPLY. 1 EGRESS SHALL BE ACCESSIBLE - FRONT ENTRANCE ROUTE COMPLIES.

BASEMENT LEVEL - TOTAL OCCUPANT LOAD +/- 5 OCCUPANTS < 49 PERSONS THERFORE = 1 EXIT REQUIRED (TABLE 1006.2.1) - 2 EXITS PROVIDED - < 49 DOOR MAY SWING IN.

WHERE 2 EXIT DOORS REQUIRED THEY MUST BE SEPARATED BY 1/2 THE DIAGONAL OF SPACE

PLUMBING FIXTURE ANALYSIS: (IBC Section 2902.1 - Table 2902.1 - IPC Table 403.1) CLASSIFICATION - BUSINESS: (Office/Meeting Portions of Building) OPEN OFFICE (FRONT) 150 gross 787 SF 5.3 Persons *

792 SF 5.3 Persons OPEN OFFICE (REAR) 150 gross **BUSINESS AREA** 568 SF 5.3 Persons 15 net SUB-TOTAL - FOR PLUMBING FIXTURES 15.9 (16) Persons

Water Closets 1 per 40 for first 80 + 1 per 50 for remainder - $16 \div 40 = <1 - 1$ Required - 2 provided Lavatories * For a meeting held in front space 787 sf @ 15 sf/pers (loose tables & chairs) occupancy could be 52.5 persons - @ 63.1 (63) Persons thus requiring 3 Water Closets and 2 Lavatories be provided. This building is part of a campus

greater than 49 persons is held, the public restroom shall be made available. All fixtures provided in Single-User - non-gender specific Compartments

Section 1109.2 Exception 3. Where multiple single-user toilet rooms are clustered at a single location, at least 50%, but not less than one room for each use at each cluster shall be accessible. One restroom shall be upgraded with Grab Bars to facilitate use by a user in a wheelchair.

Section 1010.1.1 Size of Doors Exception 12: The minimum door opening width (32") shall not apply to non-accessible toilet stalls. (IBC 2021 makes the minimum size 20" clear.)

DRINKING FOUNTAIN & SERVICE SINK Drinking Fountain/Bottle Filler 1 per 100 16÷100 = 1.6 - 1 sink provided in a service bar

NEW WORK IN THIS PROJECT SHALL MEET OR EXCEED THE 2021 IECC EXISTING PORTIONS WHERE MODIFIED SHALL CONFORM.

IECC 2021 Requirements

OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD

Climate Zone 6 - All Other (i.e.	Non-residential)	
Roofs:	Requirement	Proposed
Insulation entirely above deck:	R-30ci	NA .
Metal Buildings:	R-25 + R-11 LS NA	
Attic and other:	R-49	See Wall Sections
Walls, Above Grade	e	
Mass:	R-13.3ci	NA
Metal Building:	R-13 + R-14ci	NA
Metal Framed:	R-13 + R-12.5ci	NA
Wood Framed and other:	R-13 + 7.5ci or R20 + R3.8ci	See Wall Sections
Walls, Below Grade	9	
Below grade wall:	R-7.5ci	NR
Floors		
Mass:	R-16.7ci	NA
Joist/Framing:	R-38	See Wall Sections
Slab-on-Grade		
Unheated Slab:	R-20 for 24" below	NA
Heated Slab:	R-15 for 36" below +R-5 full sla	b NA

LS = Linear System TABLE C402.1.4

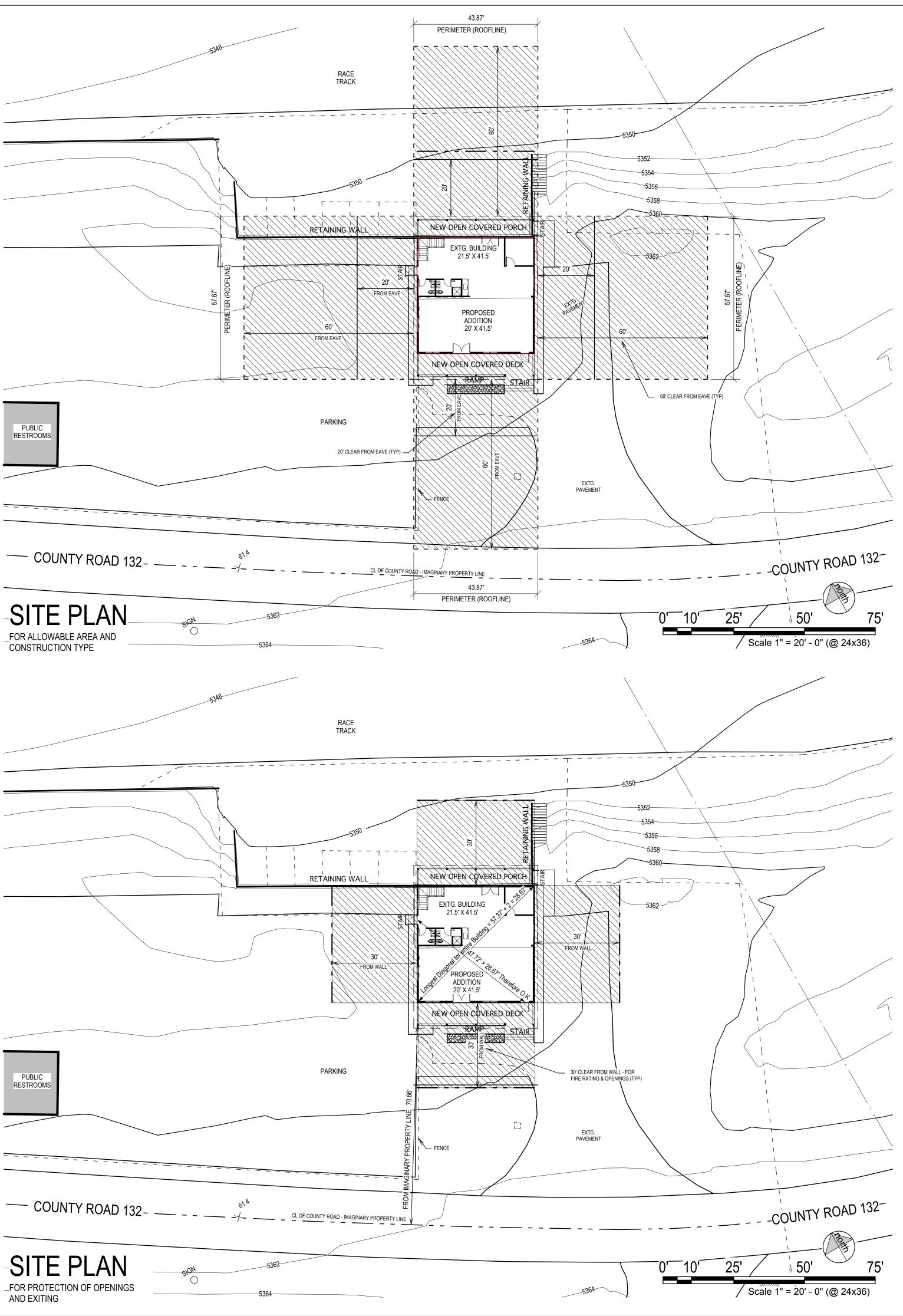
OPAQUE THERMAL ENVELOP	PE COMPONENT MAXIMUM RE	QUIREMENTS, U-FACTOR METHOD
Climate Zone 6 - All Other (i.e. N		
Roofs:	Requirement	Proposed
Insulation entirely above deck:	U-0.032	NA .
Metal Buildings:	U-0.031	NA
Attic and other:	U-0.021	See Wall Sections
Walls, Above Grade	•	
Mass:	U-0.08	NA
Metal Building:	U-0.05	NA
Metal Framed:	U-0.049	NA
Wood Framed and other:	U-0.051	See Wall Sections
Walls, Below Grade		
Below grade wall:	U-0.092	NR
Floors		
Mass:	U-0.051	NA
Joist/Framing:	U-0.027	See Wall Sections
Slab-on-Grade		
Unheated Slab:	U-0.051	NA
Heated Slab:	U-0.062	NA
Opaque Doors		
Nonswinging door:	<i>U</i> -0.31 (R-3.2)	Meet or Exceed
Swinging door:	<i>U</i> -0.37 (R-2.7)	Meet or Exceed

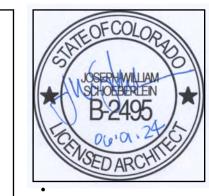
Garage Door ≤ 14% glazing: U-0.31 (R-3.2) Meet or Exceed TABLE C402.4 BUILDING ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS:

Climate Zone 6

vertical Fenesi	tration			
ixed fenestration	U-0.36		Applies	
perable fenestration	U-0.42		Applies	
ntrance doors	U-0.63		Applies	
SHGC	Fixed	Operable		
F < 0.2	U-0.38	U-0.34	Applies	
.2 ≥ PF ≤ 0.5	U-0.46	U-0.41	Applies	
F ≥ 0.5	U-0.61	U-0.54	Applies	
Skylights				
-Factor	<i>U</i> -0.50		Applies	
HGC	U-0.40		Applies	
F = Projection factor				

1 per 25 for first 50 + 1 per 50 for remainder - $16 \div 25 = <1$ - 1 Required - 2 provided with multiple restrooms available on the property. The nearest structure is a public restroom. When a meeting with

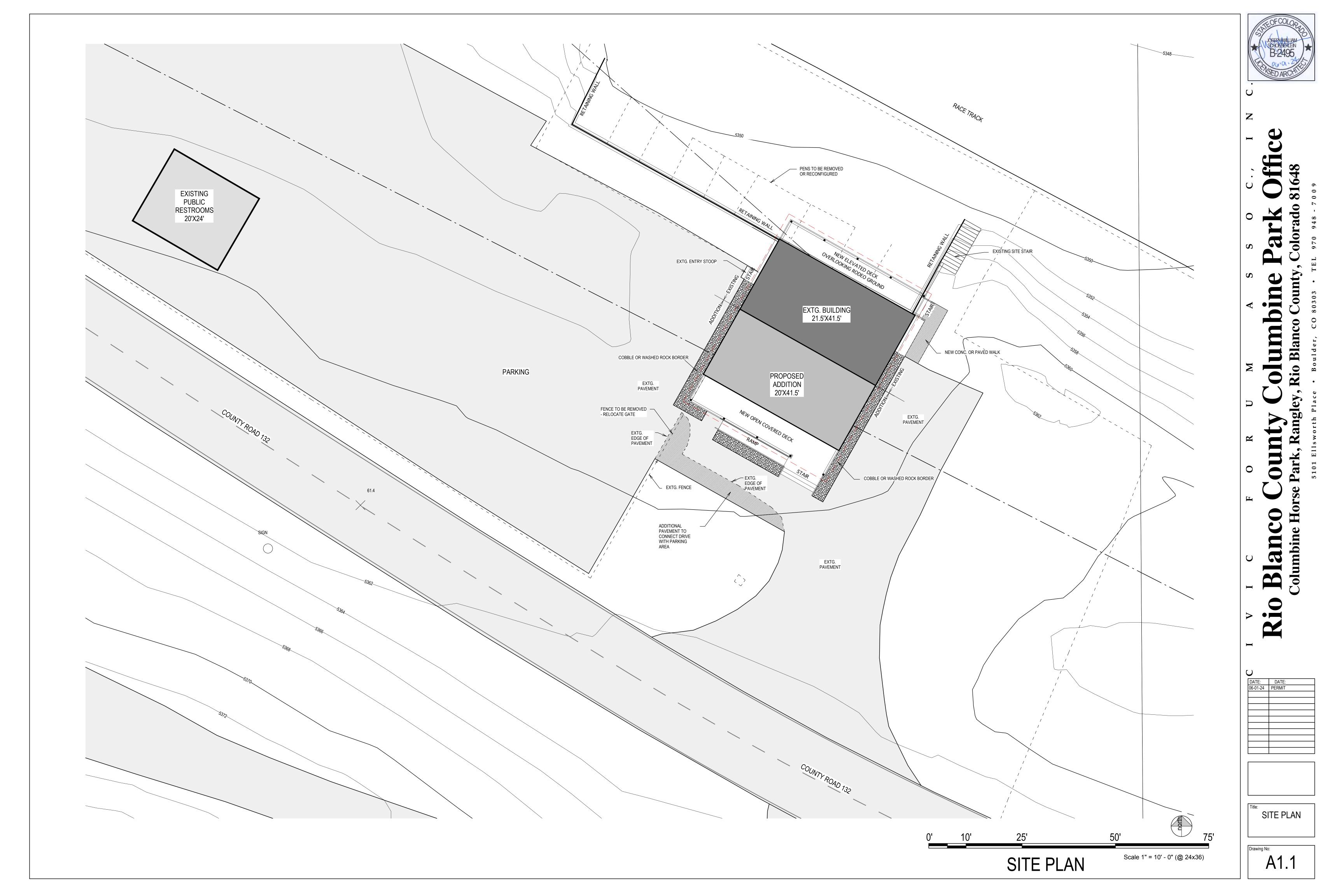


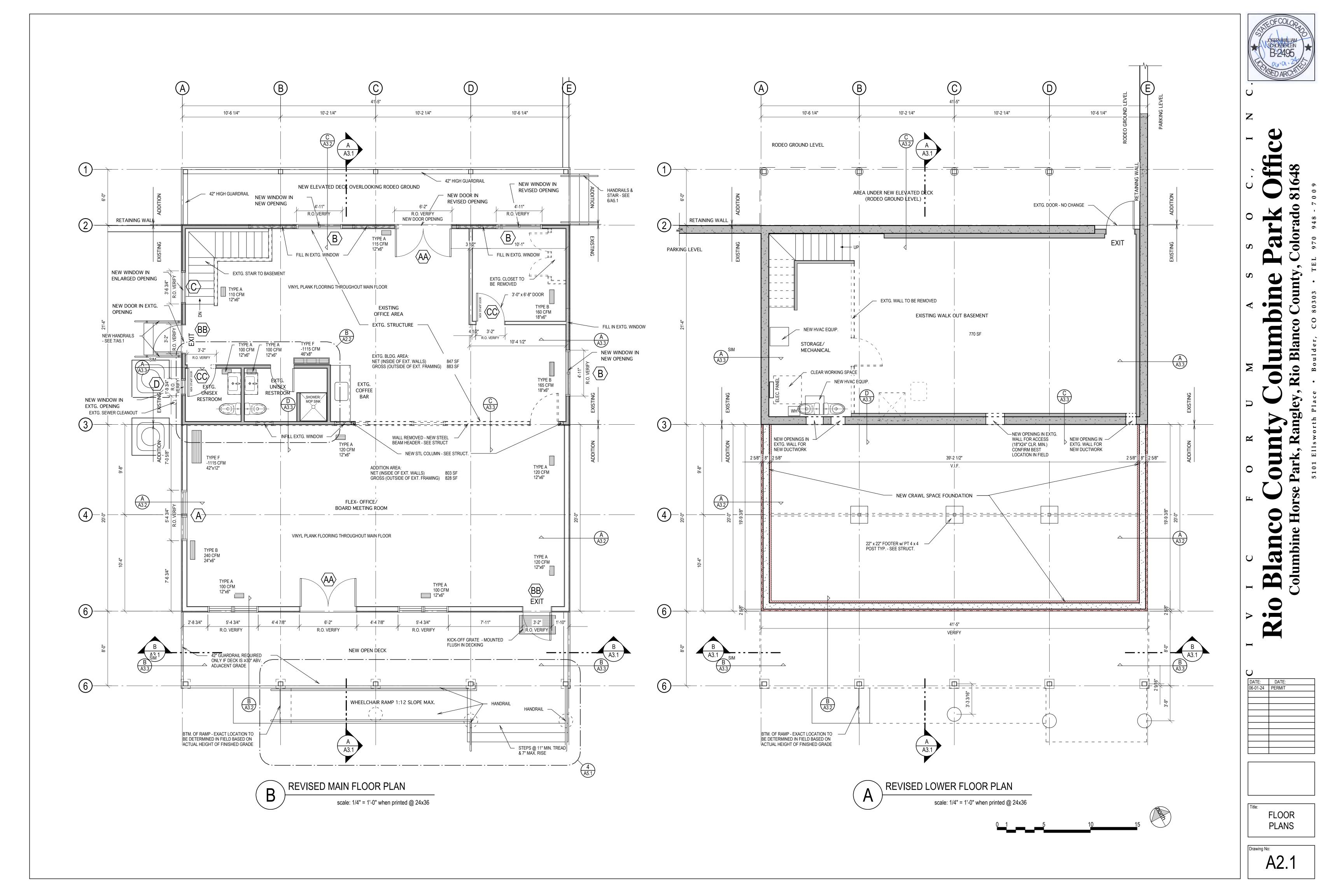


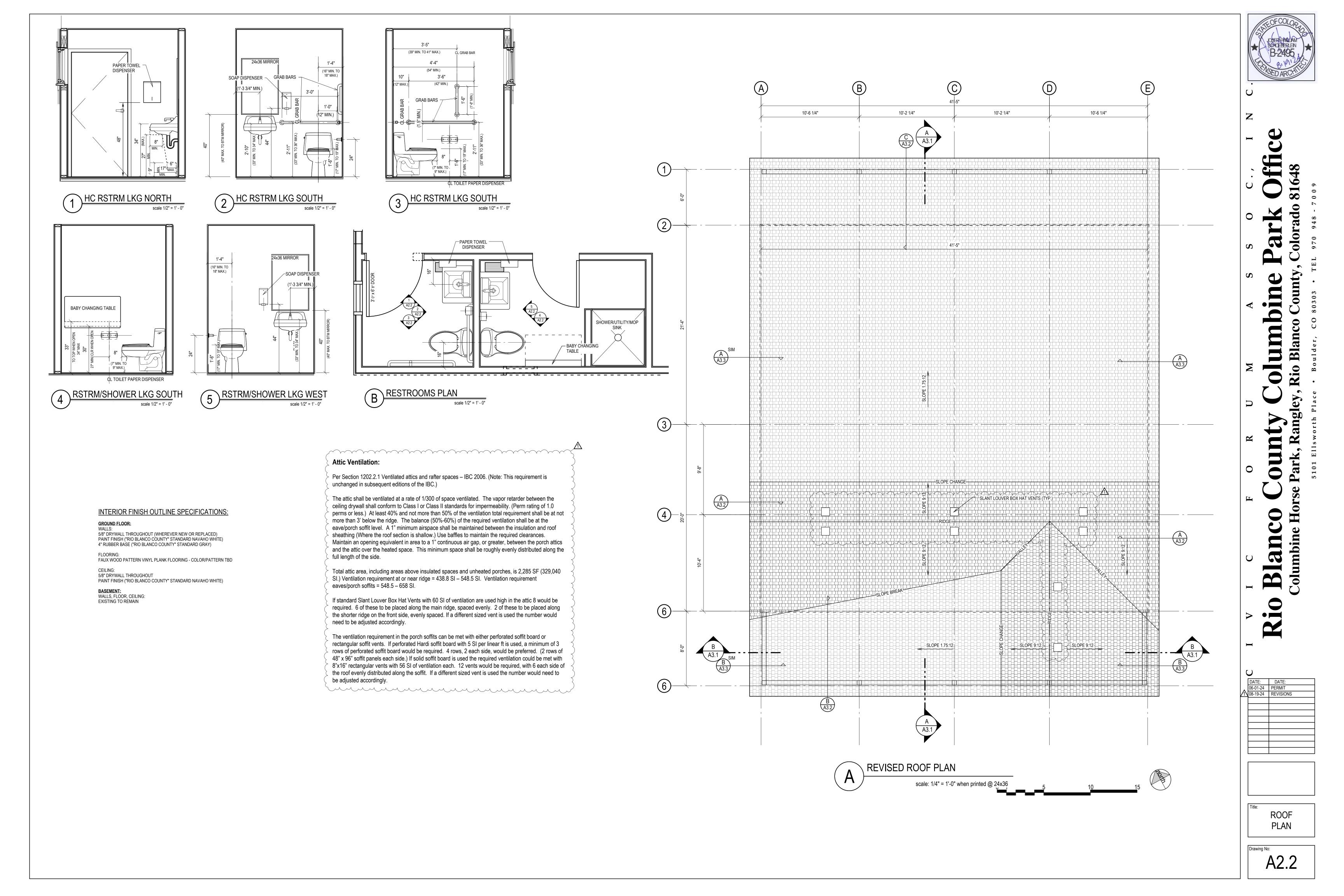
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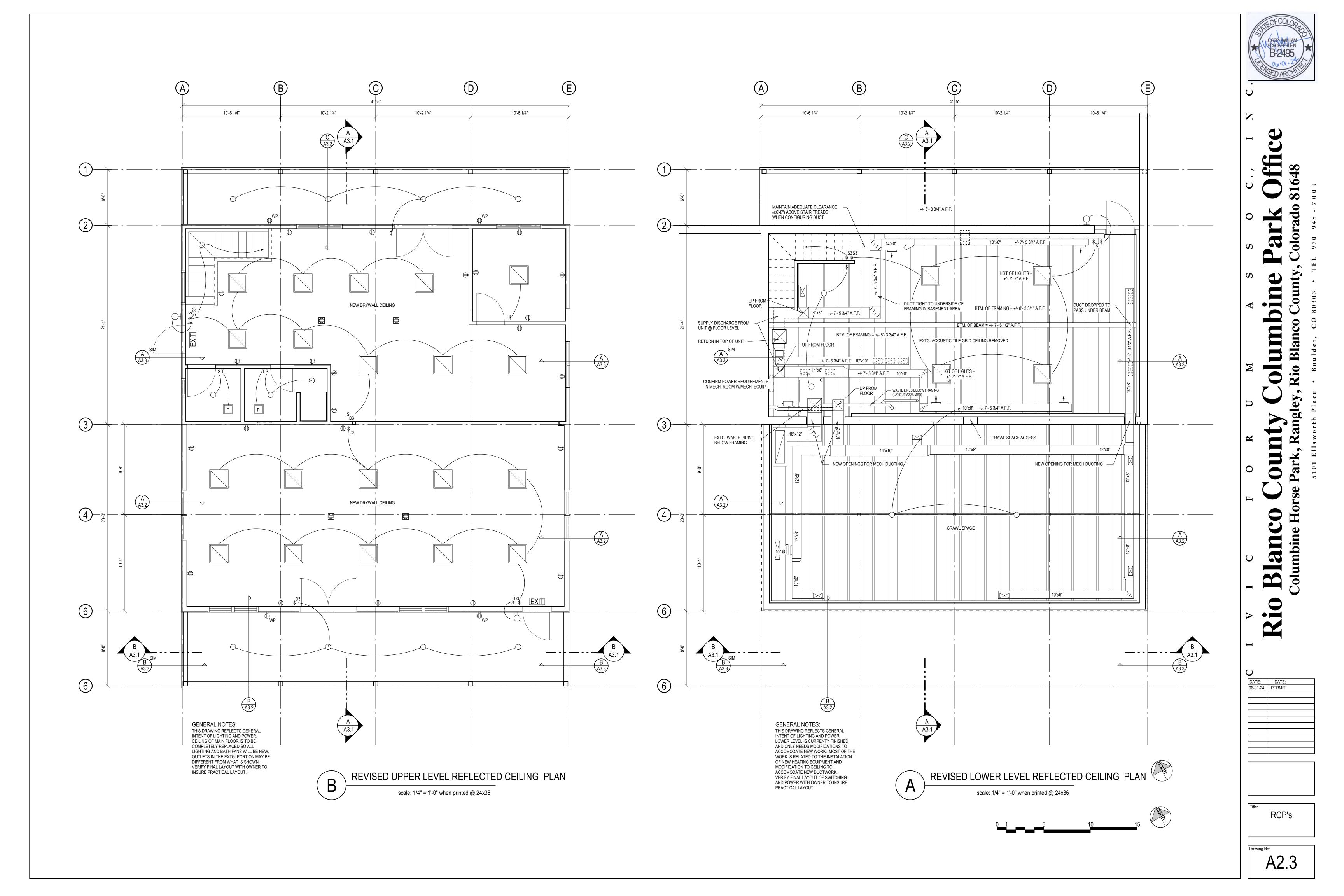
Rio

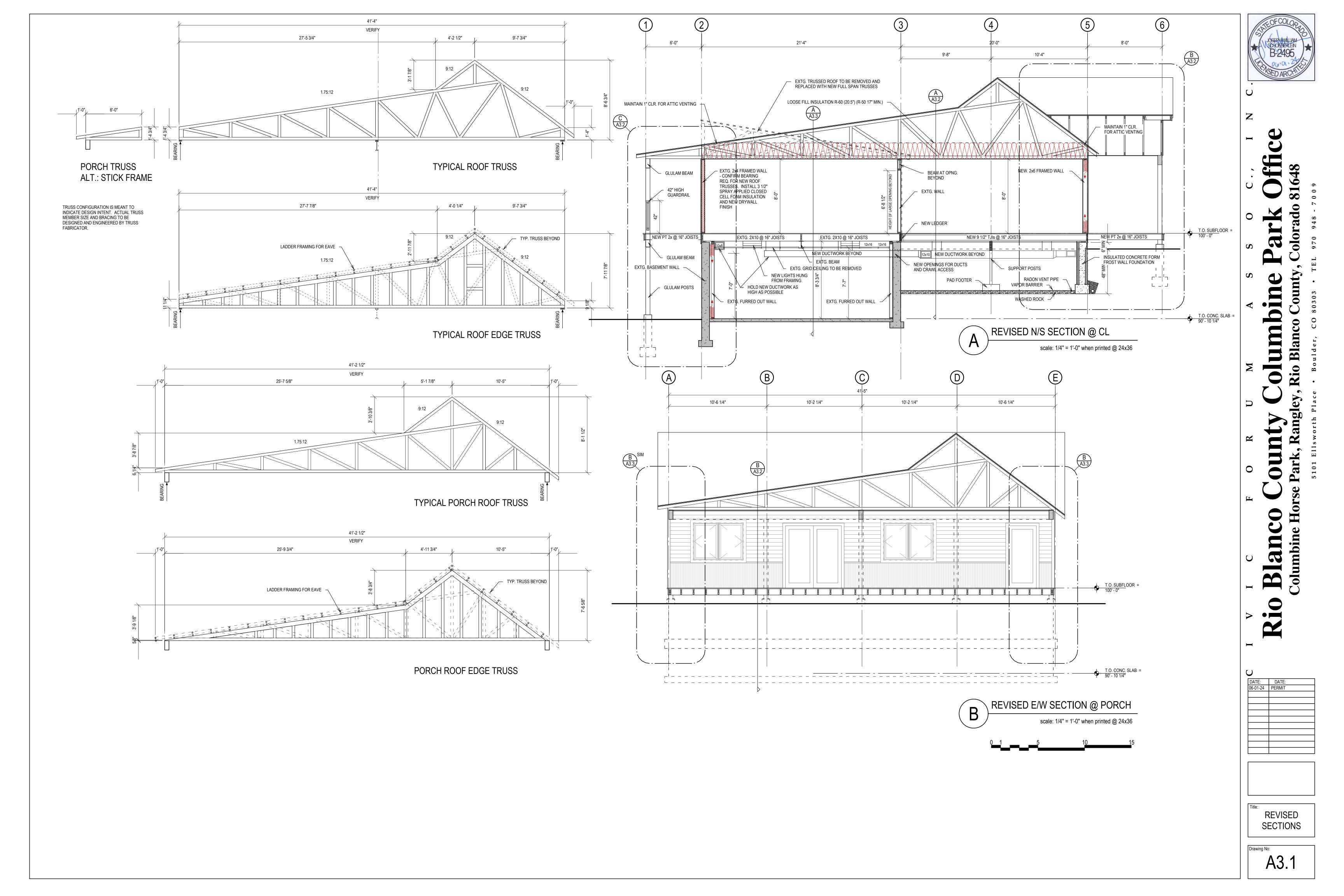
CODE SHEET

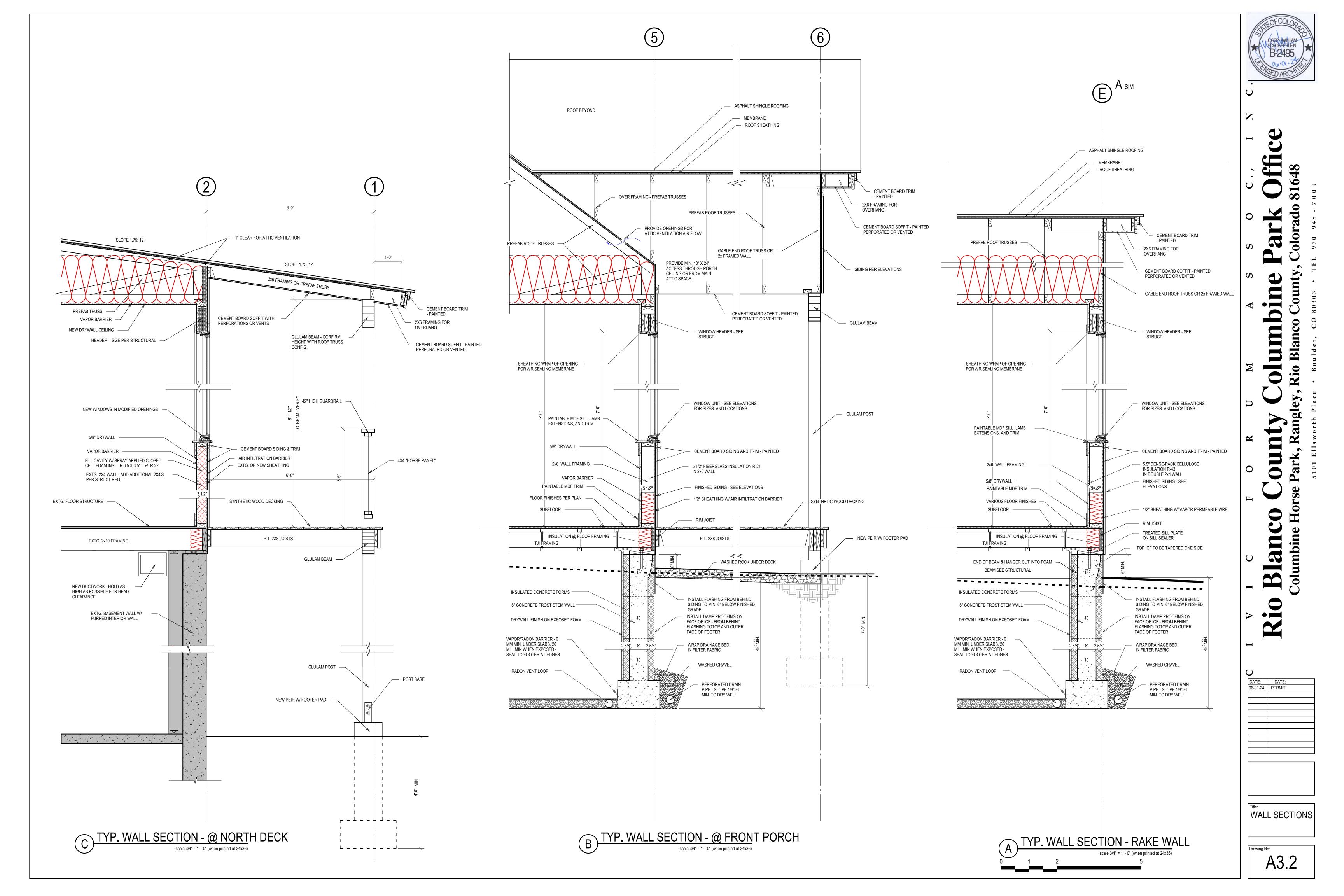


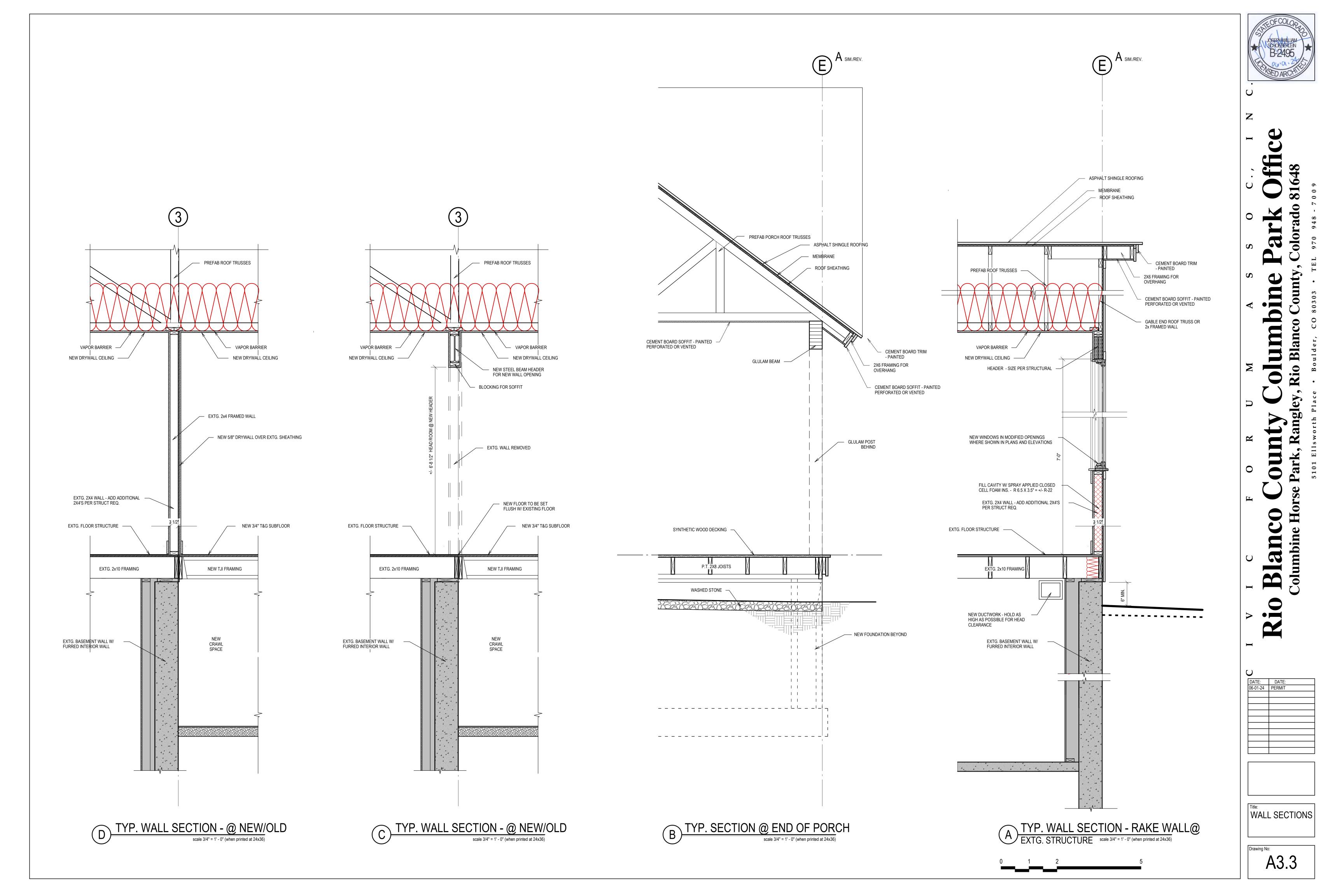


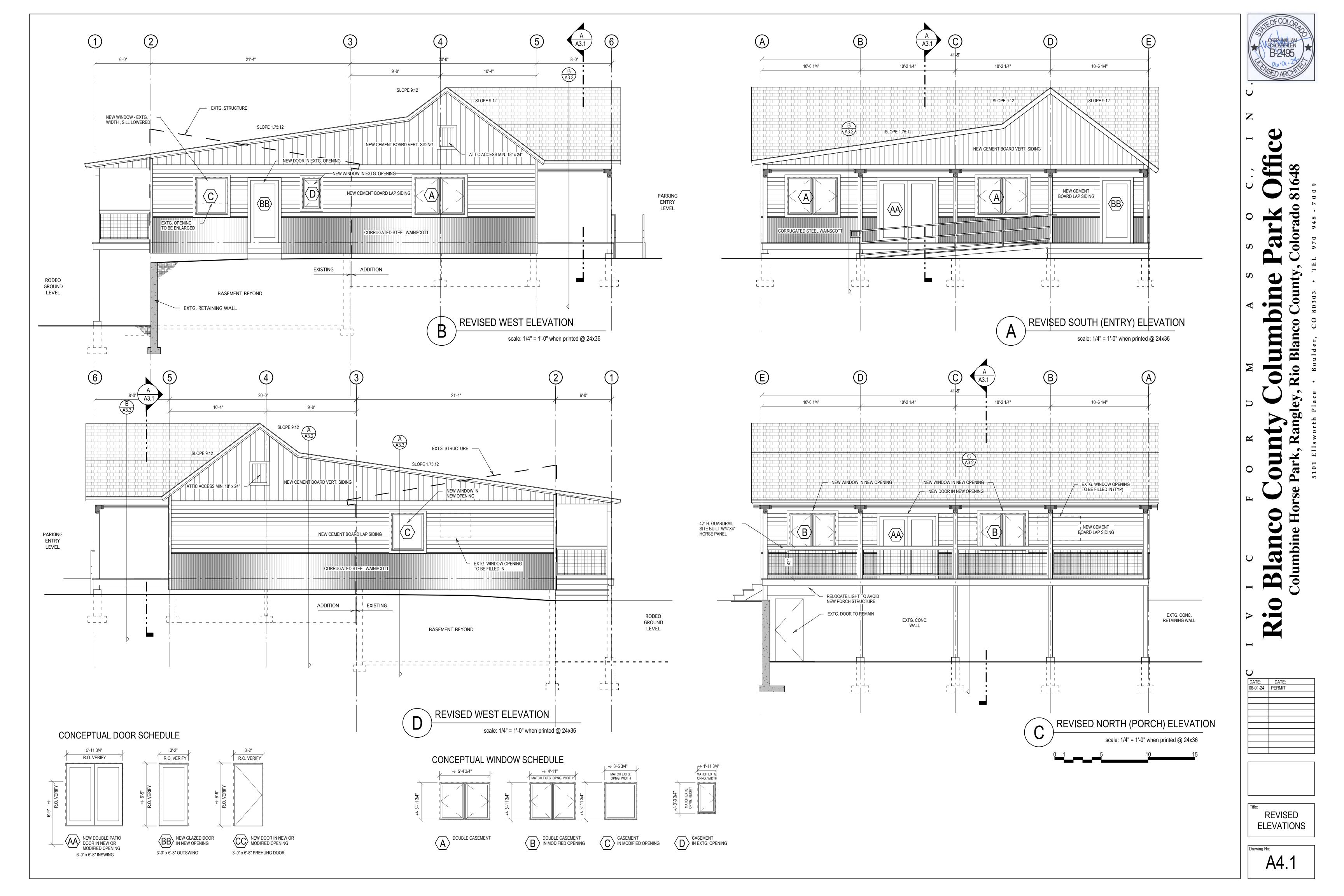


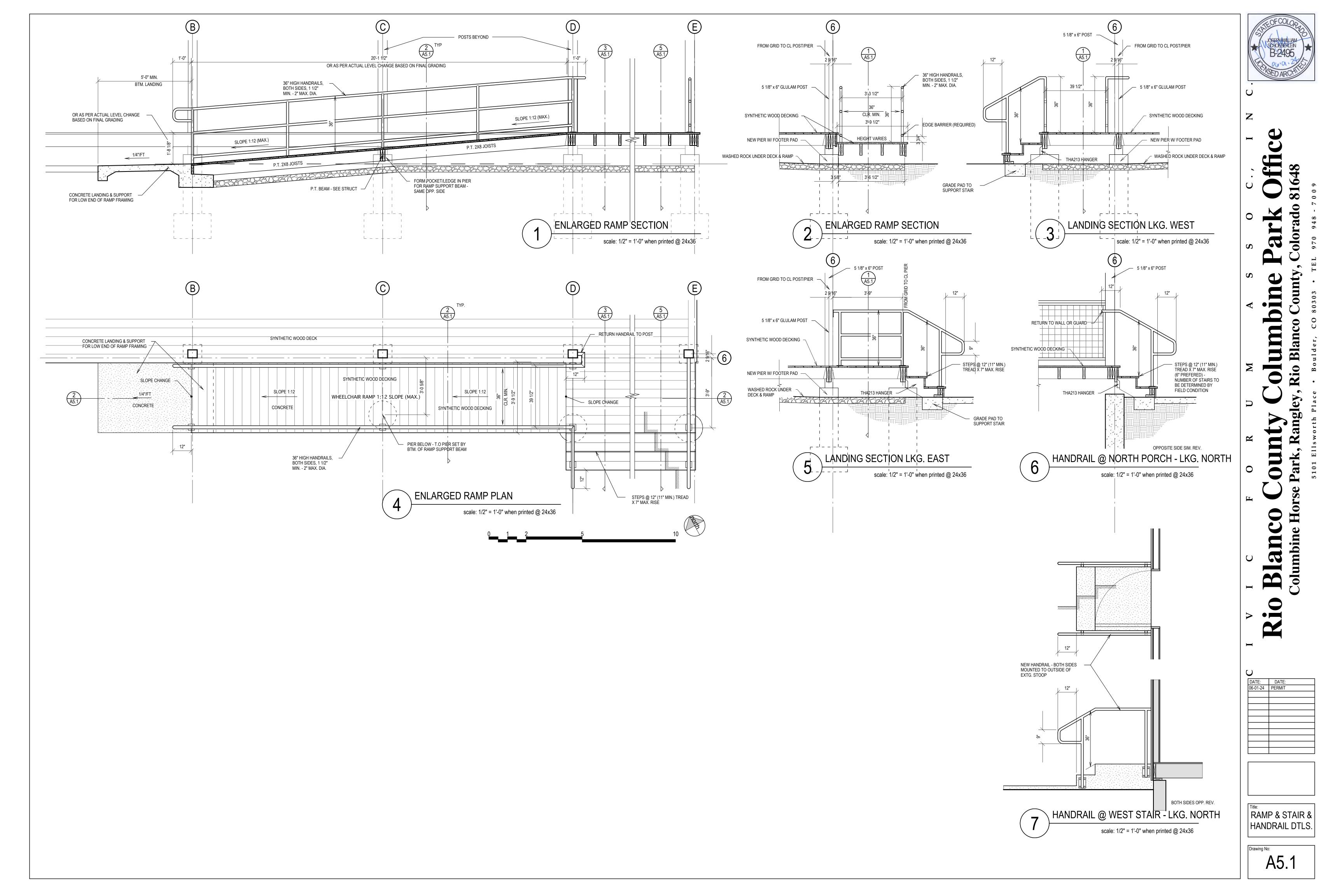


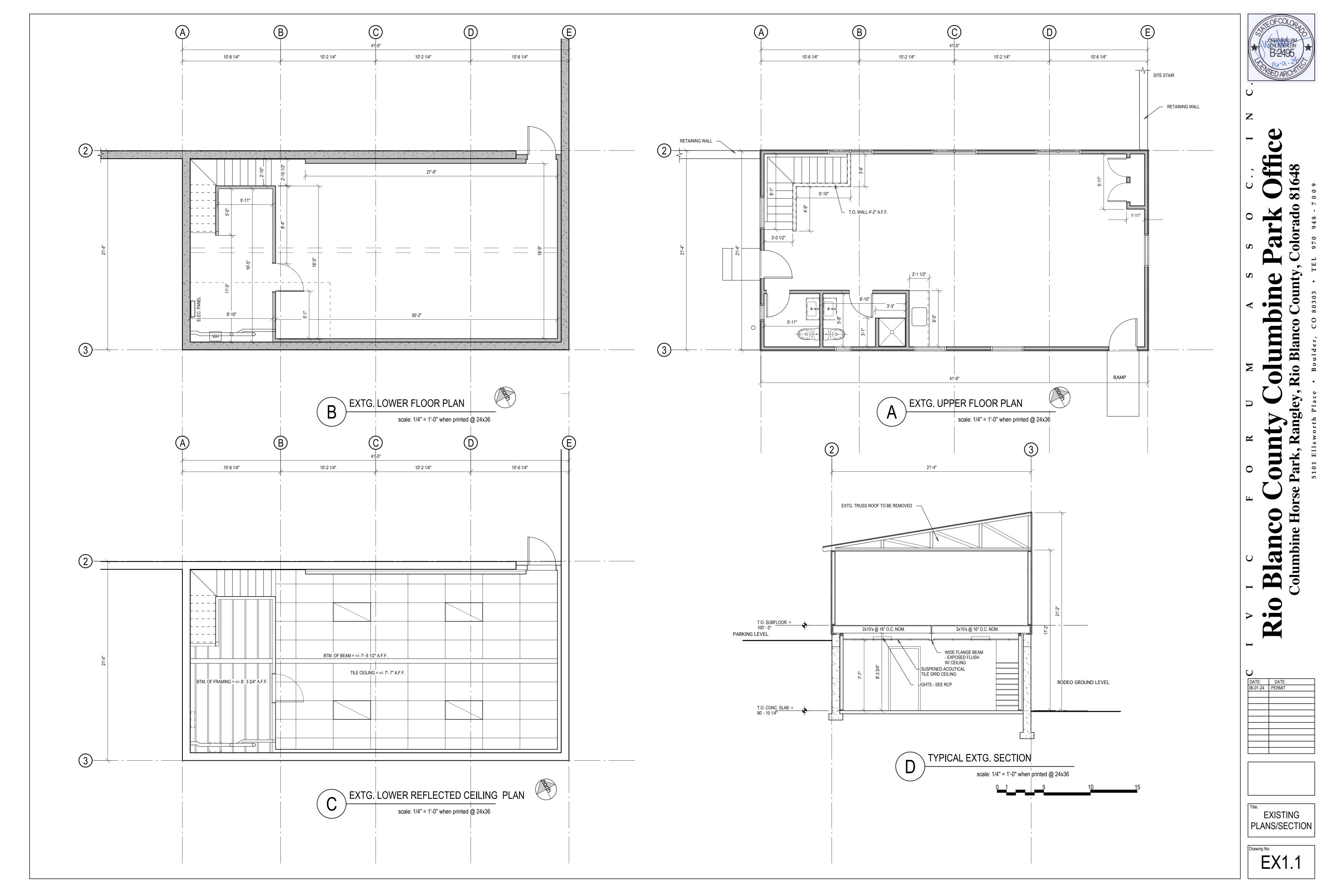


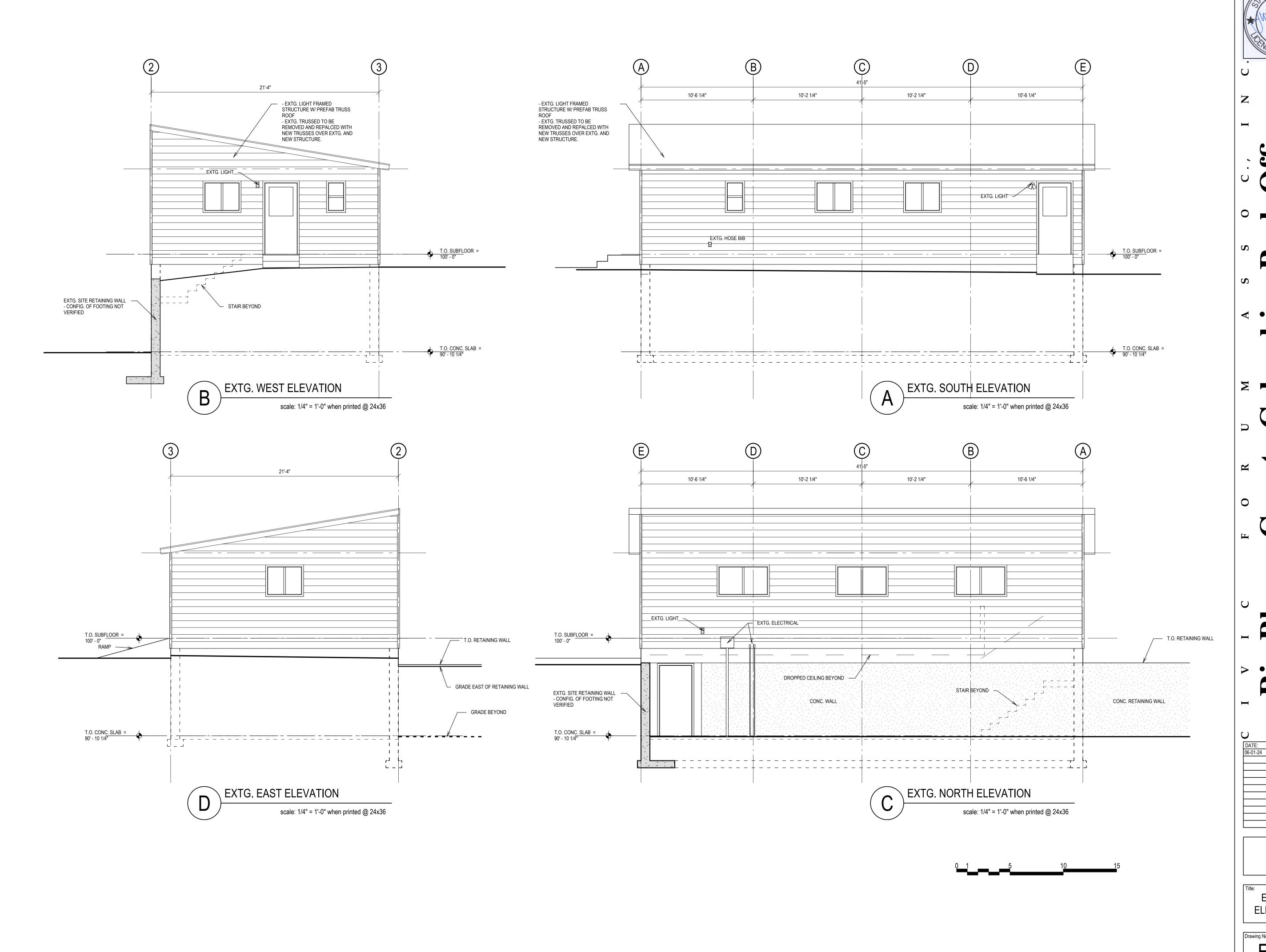












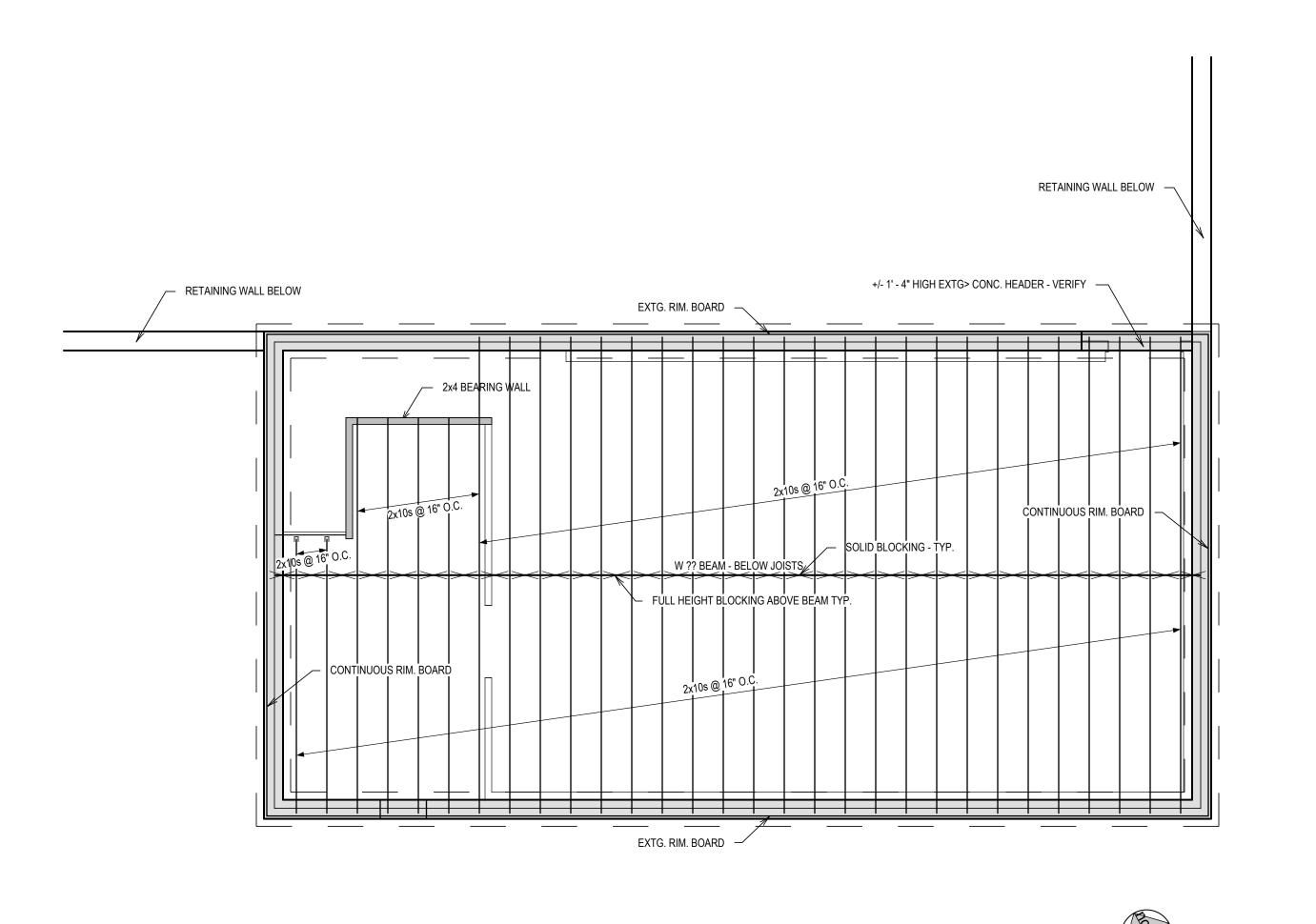
B-2495

CTIVISED ARCHITECT

DATE: DATE: 06-01-24 PERMIT

EXISTING ELEVATIONS

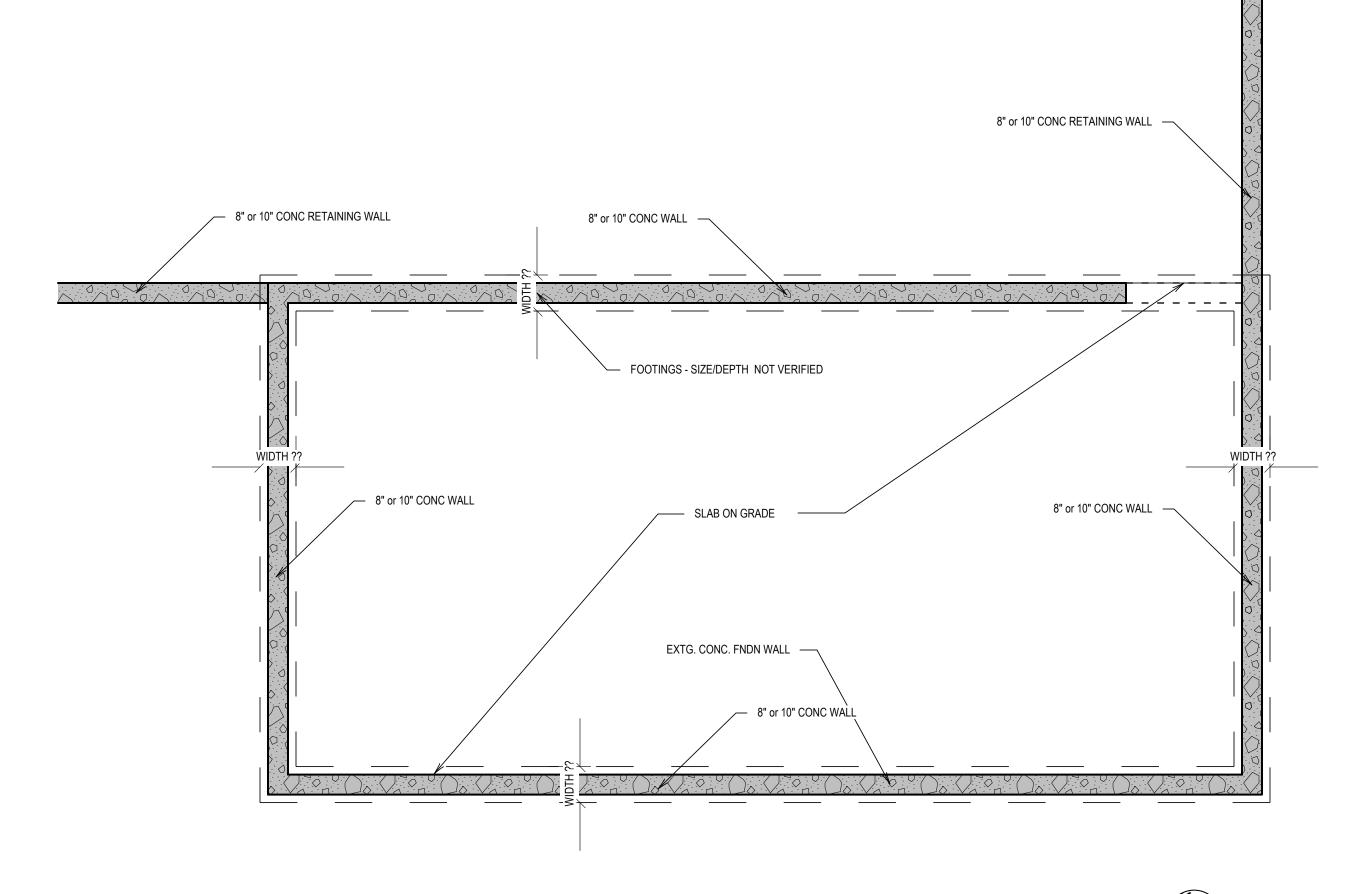
EX1.2



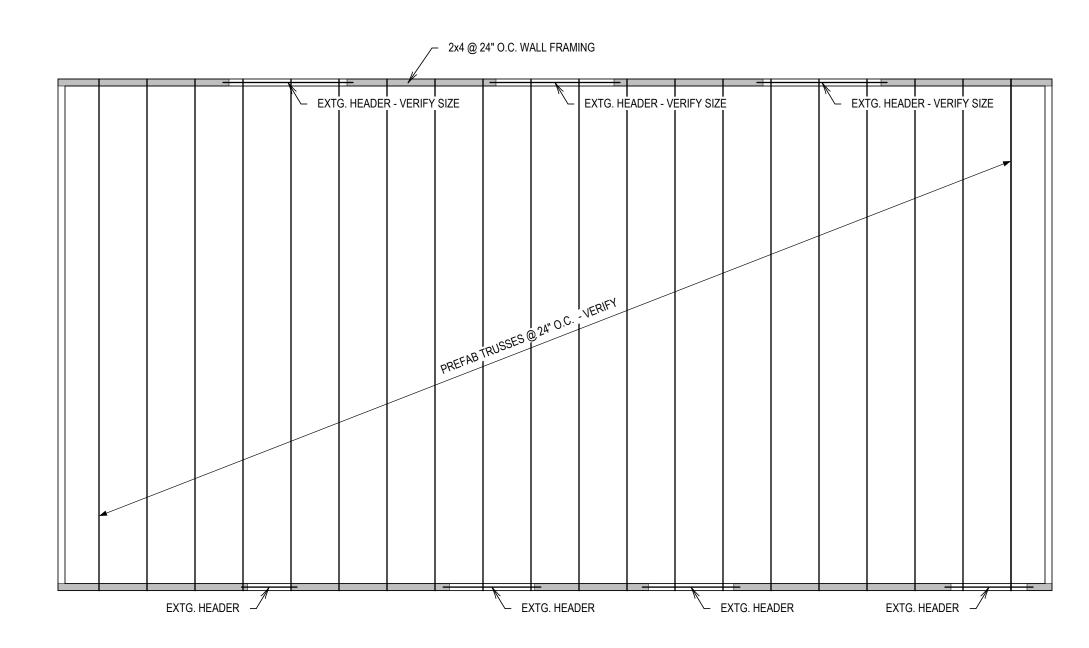
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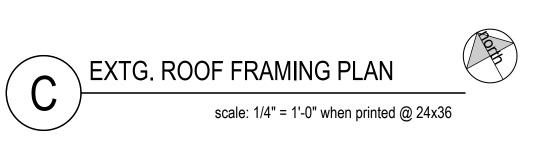
EXTG. FLOOR FRAMING PLAN

scale: 1/4" = 1'-0" when printed @ 24x36



EXTG. FOUNDATION PLAN scale: 1/4" = 1'-0" when printed @ 24x36







EXS1.1

EXISTING

STRUCT PLANS

DATE: DATE: 03-22-24 COORDINATION

of entrained air. Concrete shall have minimum 28 day co	mpressive strengths of:
Element:	Minimum Compressive Strength, f'c (psi)
Basement walls, foundations, and other concrete not exposed to earth or weather:	3500 psi
Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to earth or weather:	3500 psi
Exterior slabs and steps exposed to the weather, and garage floor slabs:	3500 psi
3 Concrete coverage for reinforcing steel shall provide the	following:
Unformed surfaces poured permanently against earth:	3 inches
Formed surfaces exposed to earth or weather:	
#5 bar or less:	1 1/2 inches
#6 bar or greater:	2 inches
4 Hot and cold weather concreting procedures shall conformation Concrete Practice.	m to the recommendations in the ACI manual of
5 Bolts for beam and column bearing plates shall be set wit	th templates.
	the second secon

6 Contractor shall coordinate all embeds, penetrations, openings, and verify all plan dimensions prior to forming and pouring concrete.

Concrete and Masonry Anchors:

1 Anchor bolts are to be ASTM F1554, Grade 36 L type or headed anchor bolts, unless noted otherwise. Embedment shall be a minimum of 16 times anchor diameter unless noted otherwise. Anchor bolts for wood sill plates shall be in the center third of the plate, 12 inches maximum from each end, with a minimum of 2 bolts per plate. Bolts shall be a minimum of 1/2 inch diameter bolts at 48 inches on center with 7 inches minimum embedment into concrete or fully grouted masonry with tightened nuts and

2 Expansion Bolts are to be Kwik Bolt TZ manufactured by Hilti, Inc. Install in accordance with ICC Report ESR-917 or approved update, including standard embedment depths, unless noted otherwise. Proposed substitutions shall have equal or greater capacity and shall be submitted to the engineer for review with product data and code approval reports.

3 Epoxy grouted anchors installed in concrete are to be HIT-Z anchor rods or HAS threaded rods or reinforcing steel installed using HY-200 Adhesive Anchoring System manufactured by Hilti, Inc. Install in accordance with ICC Report ESR-3187 or approved update, including standard embedment depths, unless noted otherwise. Proposed substitutions shall have equal or greater capacity and shall be submitted to the engineer for review with product data and code approval reports.

Structural Steel:

1 Structural steel shall be detailed, fabricated, and erected in accordance with the latest provisions of AISC Manual of Steel Construction.

2 Structural steel rolled shapes shall conform to ASTM A992, Grade 50 for wide flange and channel members, and ASTM A572, Grade 50 for angles and plates. Tube shapes shall conform to ASTM A500 Grade C. Pipe columns shall conform to ASTM A53, Grade B. The latest editions of the requirements shall be used.

3 All structural bolts used in steel framing shall be ASTM F3125, Grade A325 - N installed to a minimum

snug tight condition, unless noted otherwise. 4 All welding shall be performed by an AWS qualified welder.

5 Delay painting within 3" of field welds until welds are completed.

1 Wood Framing shall be kiln dried lumber graded and marked in accordance with the following minimum standards unless noted otherwise:

> Studs, plates, and miscellaneous framing: Douglas Fir Larch No. 2 Dimensional joists, beams, and headers (2X, 3X, Douglas Fir Larch No. 2 Heavy Timber Beams and Columns (6x and larger Spruce Pine Fir No. 1 or Douglas Fir Larch

members) Exposed to weather, moisture, or in direct contact Southern Pine No. 2

2 Glued Laminated (GL) members shall be fabricated in accordance with ANSI/AITC standard A190.1 and be stamped with an AITC quality mark or APA-EWS trademark. Members shall be in accordance with the following minimum standards unless noted otherwise:

Exterior beams exposed to weather

with earth or concrete

Wood Framing:

Alaska Cedar Combination Unbalanced Single Span Beams layup 20F-V12, Fb=2000 psi Alaska Cedar Combination Balanced layup Continuous Span or Cantilever Beams 20F-V13, Fb=2000 psi Columns Alaska Cedar Combination 2, Fc= psi

3 Oriented Strand Lumber (OSL) shall be manufactured by Boise Cascade in accordance with the following minimum standards unless noted otherwise:

Rim joists and Blocking (1 1/4 inch minimum

Versastrand 0.8E thickness) 4 Laminated Veneer Lumber (LVL) shall be manufactured by Boise Cascade. Wall framing shall be 1 1/2 inch wide members and is noted as nominal dimensions similar to dimensional lumber (ie 2x6 LVL). Joists and multiple ply beams shall be pieces of 1 3/4 inch wide engineered lumber noted as the number of plys of true depth dimension lumber (ie (3)-11 7/8 LVL). Single piece beams 3 1/2 inches or wider are noted as true size (ie 3 1/2 x 11 7/8 LVL). Lumber greater in width and grade than that specified may be substituted, such as 1 3/4 inch lumber may be used instead of 1 1/2 inch framing, solid single piece beams of equal width may be used instead of multiple plys of 1 3/4 wide lumber. Grades shall be in accordance with the following minimum standards unless noted otherwise:

> Studs, plates, and wall framing (1 1/2 in. wide) Versastud 1.7 2400E=1700000 psi, Fb= 2400 psi Joists and beams (1 3/4 in. wide) Versalam 2.0 2800E=2000000 psi, Fb= 2800 psi Beams 3 1/2 in. wide or greater Versalam 2.0 3100E=2000000 psi, Fb= 3100 psi

Design is based on products manufactured by Boise Cascade. Alternate manufacturers may be used with review and approval of the architect and structural engineer. Side loaded multiple ply LVL beams shall be attached per the manufacturers' recommendations for the maximum side load as indicated on plan. 5 Wood I-Joists shown on the plans are based on joists manufactured by Boise Cascade. Alternate

manufacturers may be used with review and approval of the architect and structural engineer. 6 Manufactured Wood Roof Trusses shall be designed, fabricated, and erected in accordance with ANSI/TPI National Design Standard for Metal Plate Connected Wood Truss Construction. Trusses shall

be designed for loads indicated, including unbalanced and drifting snow loads in accordance with the IRC. Truss calculations and shop drawings shall bear the stamp of a Colorado Registered Engineer. Submit calculations and shop drawings to the Engineer for review and approval prior to fabrication. Vertical and lateral deflection shall be within the limits of the most current version of ANSI/TPI-1. Girder trusses shall be attached to wall framing with Simpson LGT connectors, or equal, unless noted otherwise.

7 All wood framing details not shown otherwise shall be constructed equal to or better than the minimum standards of the 2006 IBC (International Building Code)

8 Unless noted otherwise, minimum nailing shall be in accordance with the Fastening Schedules and Details of the 2006 IBC (International Building Code)

9 Headers in exterior walls shall be (3)-2x10 with a 2x6 trimmer and 2x6 king stud each side of the opening, unless noted otherwise. Headers in interior load bearing and shear walls shall be(2)-2x10 with a 2x4 or larger trimmer, and 2x4 or larger king stud each side of opening, unless noted otherwise.

10 All exterior walls 10 feet or less in height shall have 2x6 studs at 16 inches on center unless noted otherwise. All interior load bearing partition and shear walls 10 feet or less in height shall have 2x4 or larger study at 16 inches on center unless noted otherwise. Taller exterior and interior walls shall have studs at the size and spacing per the schedule and details on the plan.

11 Provide solid blocking for wood columns and multiple studs through floors to supports below.

12 All steel fasteners, hangers, and plates in contact with pressure treated wood shall be hot dipped galvanized or have other corrosion protection.

13 Roof, floor, and exterior wall sheathing shall be APA rated OSB or plywood for the roof and floor spans as indicated on the sheathing with glue for exterior application. Unless noted otherwise on plans, details, or schedules, sheathing shall meet the following minimum sizes and attachment requirements:

19/32 in. sheathing nailed with 10d @ 6" o.c. along panel edges and 12 inches on center in the panel Floor: 23/32 in. sheathing nailed with 10d @ 6" o.c. along panel edges and 12 inches on center in the panel

Exterior Wall: 7/16 in. sheathing nailed with 8d @ 6" o.c. along all panel edges to blocking or framing and 12 inches on center in the panel field

14 Ceiling and interior wall sheathing shall be Gypsum Wall Board (GWB) rated for the ceiling and wall spans. Unless noted otherwise on plans, details, or schedules, sheathing shall meet the following minimum sizes and attachment requirements:

Framing at 16 inches on center 1/2" GWB attached with #6 x 1 1/4"Type W screws at 7 inches on center to all supports, including perimeter

Framing at 24 inches on center 5/8" GWB attached with #6 x 1 5/8"Type W screws at 7 inches on center to all supports, including perimeter

15 Roof rafters, trusses, and lookout framing shall be attached to walls and bearing beams with H2.5A hurricane clips unless noted otherwise.

16 Provide continuous OSL rim board at perimeter bearing walls. Provide solid I-joist or OSL blocking at all bearing points and at intermediate bearing locations from above an below. Provide double joists under all partition walls and each side of openings unless detailed otherwise. Install I-joist blocking in the first joist space at exterior walls parallel to joist span at 48 inch maximum spacing unless detailed otherwise.

17 Hanger-type connections shall be made with Simpson Strong-Tie connectors and manuracturer supplied or specified fasteners.

18 Wood Nail Fasteners: Nail sizes specified on the drawings are based on the following minimum specifications:

Diameter Nail Length 0.113" 2 1/2" 8d Box 8d Box 0.131" 2 1/2" 8d Common 0.128" 3" 10d Box 0.148" 3" 10d Common 0.148" 3 1/4"

Alternative nails proposed by the contractor shall be submitted with specifications to the structural engineer prior to construction for reivew and approval.

19 Generic Wood Screw Fasteners:

Screw types specified on the drawings are based on the following minimum specifications:

<u>Screw Name</u> Diameter Screw Length #6 GWB #6 Type W 0.138" varies, 5/8" min. penetration into framing #8 Wood Screw 0.164" varies, 1 5/8" min. penetration into framing #10 Wood Screw varies, 2" min. penetration into framing #12 #12 Wood Screw varies, 2 1/4" min. penetration into framing

Alternative screws proposed by the contractor shall be submitted with specifications to the structural engineer prior to construction for reivew and approval.

20 Manufacturer Specific Wood Screw Fasteners:

Manufacturer specific screw types specified on the drawings are based on screws manufactured by Simpson, Inc. Installation shall be in accordance with all manufacturer's requirements and code approval reports ICC-ES ESR-2236 and IAPMO-UES ER-192. Screws shall be in accordance with the following minimum specifications:

<u>ID</u>	Screw Name	<u>Diameter</u>	Screw Length
SDS	SDS Heavy Duty Connector Screw	0.25"	varies, 2 1/2" min. penetration into framing
SDWH	SDWH Timber-Hex HDG Screw	0.276"	varies, 5" min. penetration into framing
SDWS	SDWS Timber Screw	0.219"	varies, 2 1/2" min. penetration into framing

Alternative screws proposed by the contractor shall be submitted with specifications to the structural engineer prior to construction for reivew and approval.

General Requirements:

1 Structural erection and bracing: The structural drawings illustrate the completed structure with all elements in their final positions supported and braced. The contractor, in the proper sequence, shall provide shoring and bracing as may be required during construction to achieve the final completed structure. Contact engineer for consultation (not in contract) as required.

2 Shop drawings: Submit shop and erection drawings for all structural steel, structural aluminum, miscellaneous steel, steel joists and girders, steel deck, masonry reinforcing steel, engineer to review prior to fabrication. This review is for general compliance with the intent of the structural design. The manufacturing or fabrication of any items prior to written review of the shop drawings will be at the risk of the contractor. The architect and/or contractor are responsible for checking quantities, dimensions and coordination with other trades.

3 Dimensions: Check all dimensions against field and architectural drawings prior to construction. Do not

4 Construction practices: The general contractor is responsible for means, methods, techniques, seguences and procedures for construction of this project. Notify structural engineer of omissions or conflicts between the working drawings and existing conditions.

5 Coordinate requirements for mechanical/electrical/plumbing penetrations through structural elements with structural engineer. Prior to installation of such equipment or other items to be attached to the structure, the contractor shall obtain approval for connections and support. Contractor shall furnish required hangers, connections, etc. required for installation of such items, unless specifically noted on plans.

6 Jobsite safety is the sole responsibility of the contractor. All methods used for construction shall be in

accordance with the latest edition of the IBC. 7 The structural engineer may make periodic observation visits to the jobsite for determination of general conformance with the construction documents. Such observation visits shall not replace required inspections by the governing authorities or serve as "special inspections" as may be required by the International Building Code.

8 Though every effort has been made to provide a complete and clear set of construction documents, discrepancies or omissions may occur. Release of these drawings anticipates cooperation and continued communication between the contractor, architect and engineer to provide the best possible structure. These drawings have been prepared for the use of a qualified contractor experienced in the construction

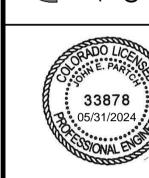
Deferred Submittals:

1 When received and reviewed by the Engineer of Record, the following submittal items will be submitted to the building official for review and approval:

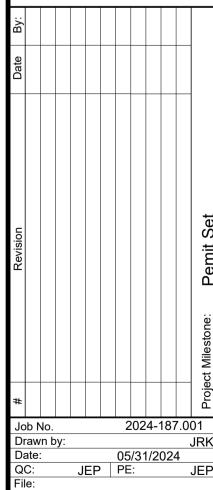
Truss Shop Drawings

techniques and systems depicted.





diti 0



GENERAL NOTES

L ANGLE LAP LAP SPLICE Ld DEVELOPMENT LENGTH LLBB LONG LEG BACK TO BACK LLH LONG LEG HORIZONTAL LLV LONG LEG VERTICAL LONG LONGITUDINAL LSL LAMINATED STRAND LUMBER LSLP LONG SLOTTED HOLE PARALLEL LSLT LONG SLOTTED HOLE TRANSVERSE LVL LAMINATED VENEER LUMBER LW LIGHTWEIGHT

KLF KIPS PER LINEAL FOOT

KSF KIPS PER SQUARE FOOT

KSI KIPS PER SQUARE INCH

M MOMENT MAS MASONRY MATL MATERIAL MAX MAXIMUM MECH MECHANICAL MFD MANUFACTURED MIN MINIMUM MIR MIRROR(ED) MTL METAL

IN INCH

INSUL INSULATION

INT INTERIOR

NA NOT APPLICABLE NIC NOT IN CONTRACT NOM NOMINAL NTS NOT TO SCALE NW NORMAL WEIGHT OAE OR APPROVED EQUAL OC ON CENTER(S) OD OUTSIDE DIAMETER OH OVERHEAD / OVERHANG OPNG OPENING OPP OPPOSITE OSB ORIENTED STRAND BOARD OSL ORIENTED STRAND LUMBER OVS OVERSIZED HOLE

(P) PRO PROPOSED P AXIAL LOAD PAF POWDER ACTUATED FASTENER PARTBD PARTICLEBOARD PC PRECAST PEMB PRE-ENGINEERED METAL BUILDING

PL PLATE PLF POUNDS PER LINEAL FOOT PLY PLYWOOD PRELIM PRELIMINARY PSF POUNDS PER SQUARE FOOT PSI POUNDS PER SQUARE INCH

PT POST TENSION (ED) QTY QUANTITY

R REACTION RAD RADIUS RD ROOF DRAIN REF REFERENCE / REFER TO REINF REINFORCE / REINFORCING REQD REQUIRED RO ROUGH OPENING

PT PRESSURE TREATED

RTU ROOF TOP UNIT SF SQUARE FOOT/FEET SIM SIMILAR SLBB SHORT LEG BACK TO BACK SPEC SPECIFICATION (S) SS STAINLESS STEEL SSLP SHORT SLOTTED HOLE PARALLEL SSLT SHORT SLOTTED HOLE TRANSVERSE STD STANDARD STL STEEL STRUCT STRUCTURE / STRUCTURAL SUSP SUSPENDED

T TOP OF: DECK, CONCRETE, BEAM, PARAPET, STEEL, WALL T&B TOP AND BOTTOM T&G TONGUE AND GROOVE TOW TOP OF WALL TRANS TRANSVERSE

SYST SYSTEM

TYP TYPICAL

UNO UNLESS NOTED OTHERWISE

V SHEAR LOAD VERT VERTICAL VIF VERIFY IN FIELD VNR VENEER

W WIDE FLANGE

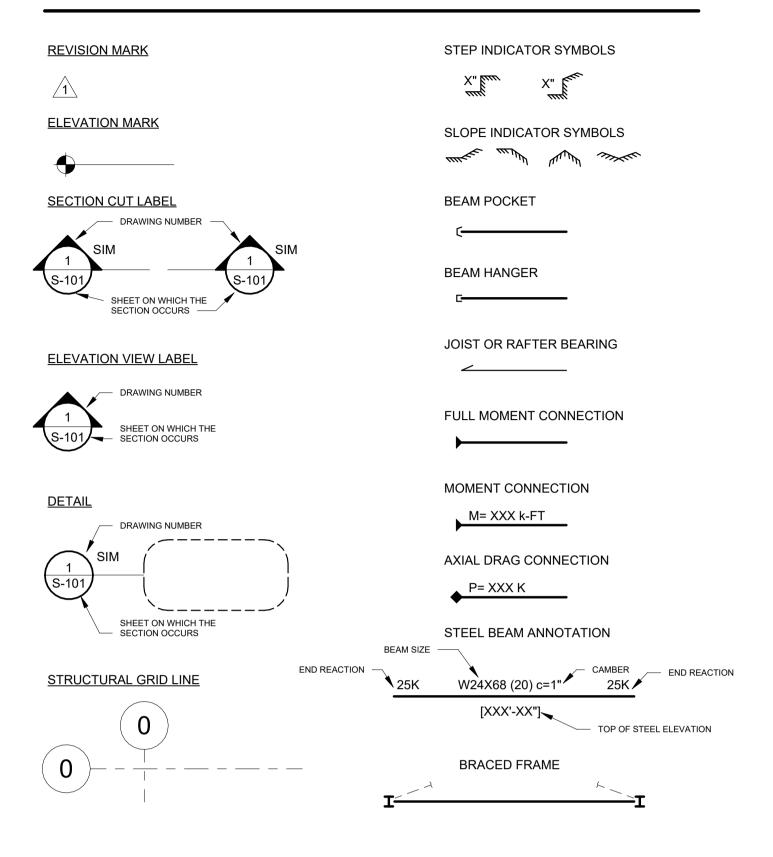
WASH. WASHER WCV WALL COVERING WD WOOD WD BLK WOOD BLOCKING WDB WOOD BASE WDF WOOD FLOORING WDT WOOD TRIM WDV WOOD VENEER WDW WINDOW WF WIDE FLANGE WP WORK POINT WPT WALL PROTECTION WT WINDOW TREATMENT WT STEEL TEE SECTION

XPS EXTRUDED POLYSTYRENE

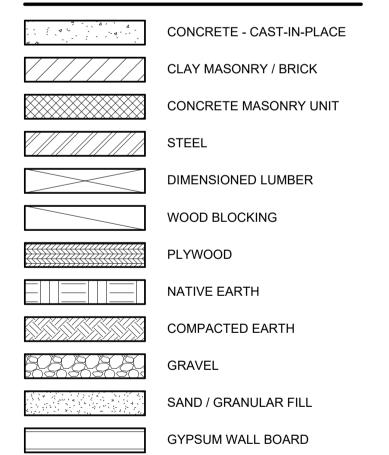
WWR WELDED WIRE REINFORCING

NUMBER / POUND & AND @ AT

SYMBOLS LEGEND

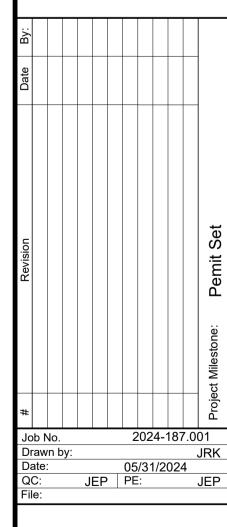


MATERIALS LEGEND





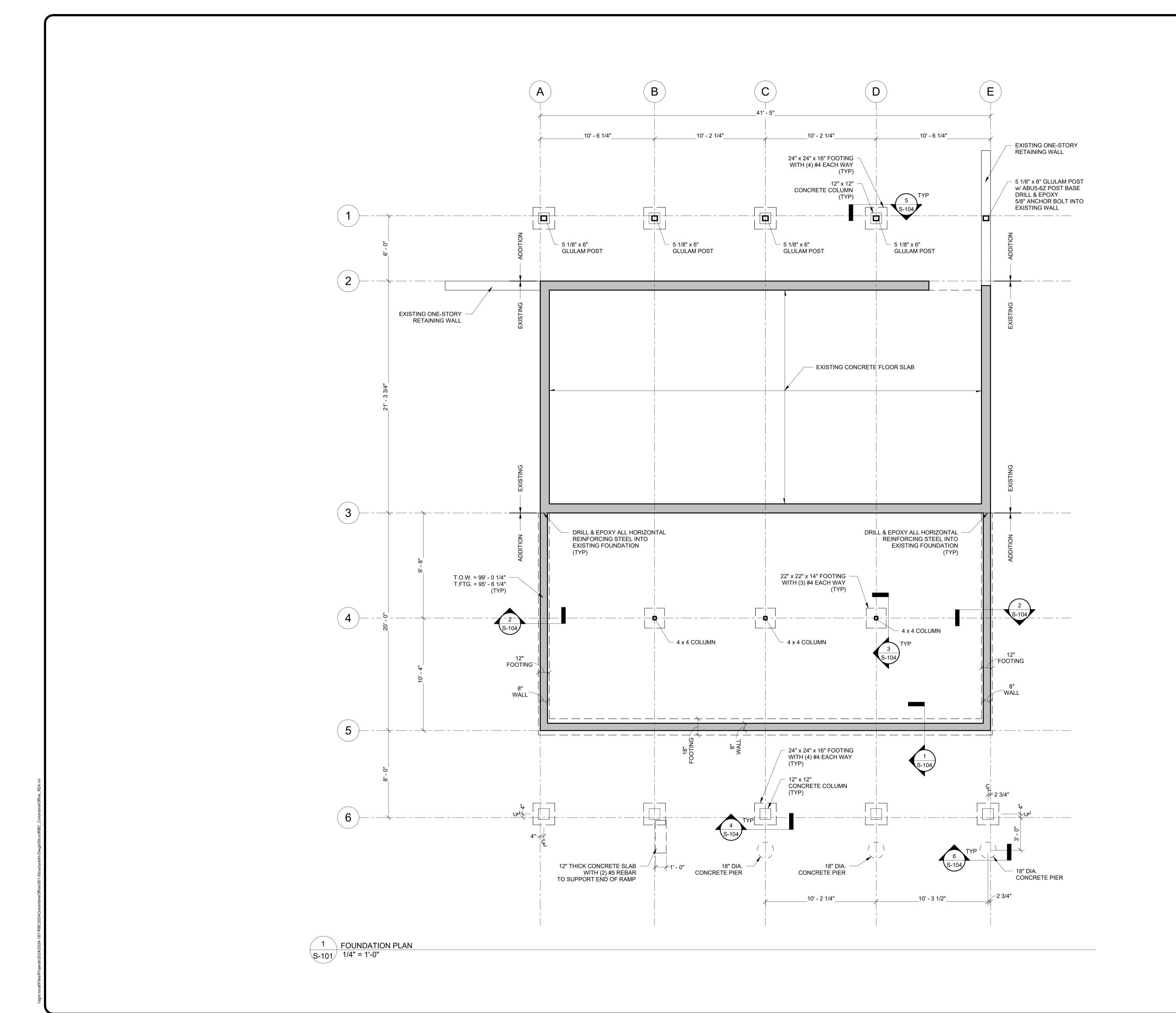
ddition Solumbine Columbine H Rangley, C



 $\mathbf{\Omega}$

SYMBOLS AND **ANNOTATIONS**

Dwg No. S-003

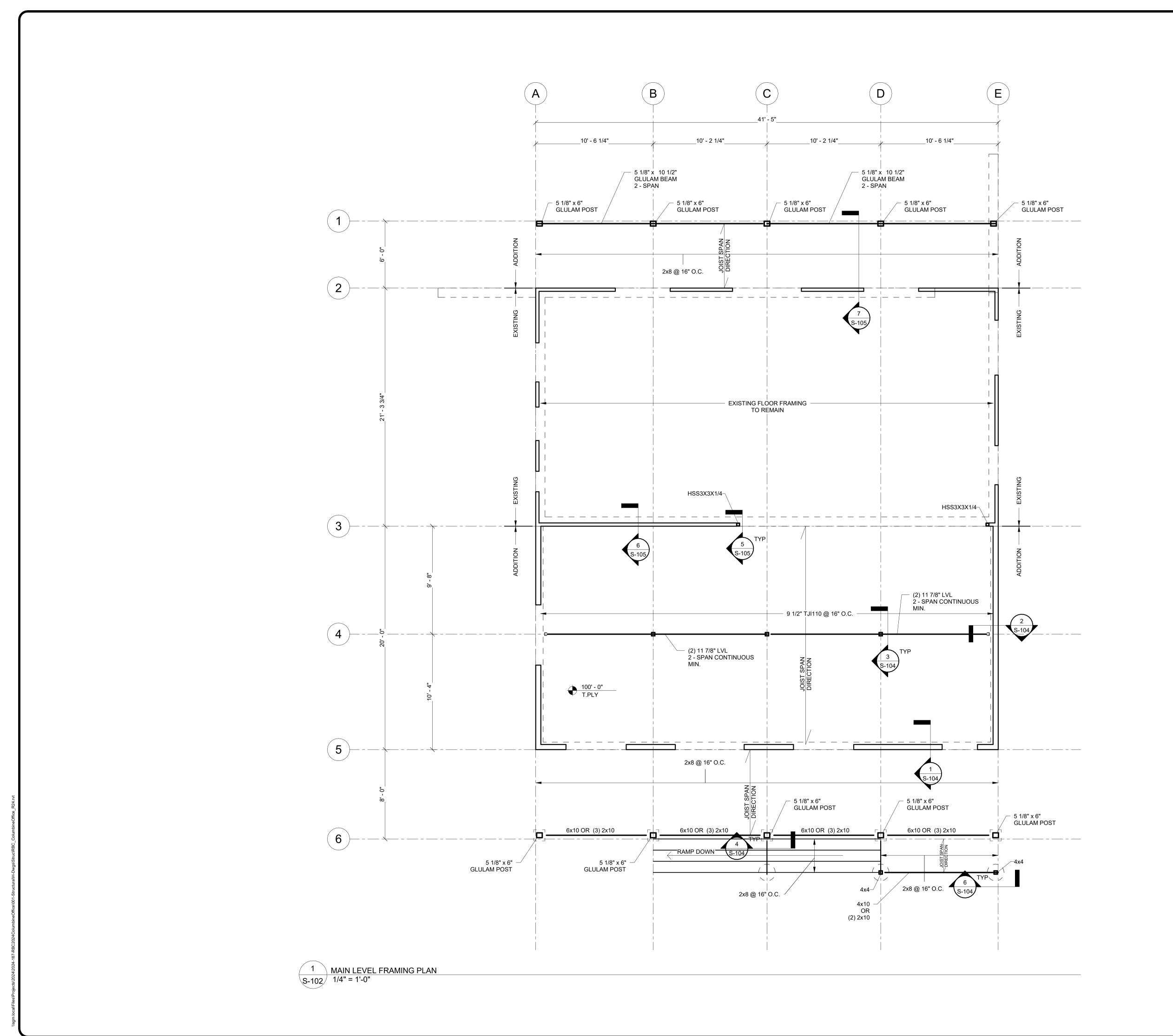






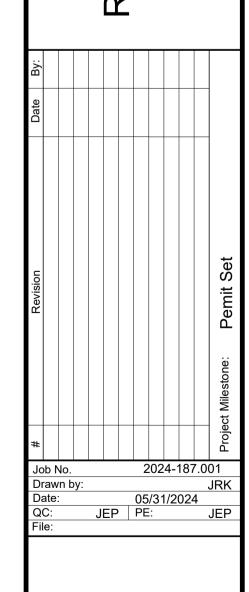
Job No. 2024-187.001
Drawn by: JRK
Date: 05/31/2024
QC: JEP PE: JEP
File:

FOUNDATION PLAN

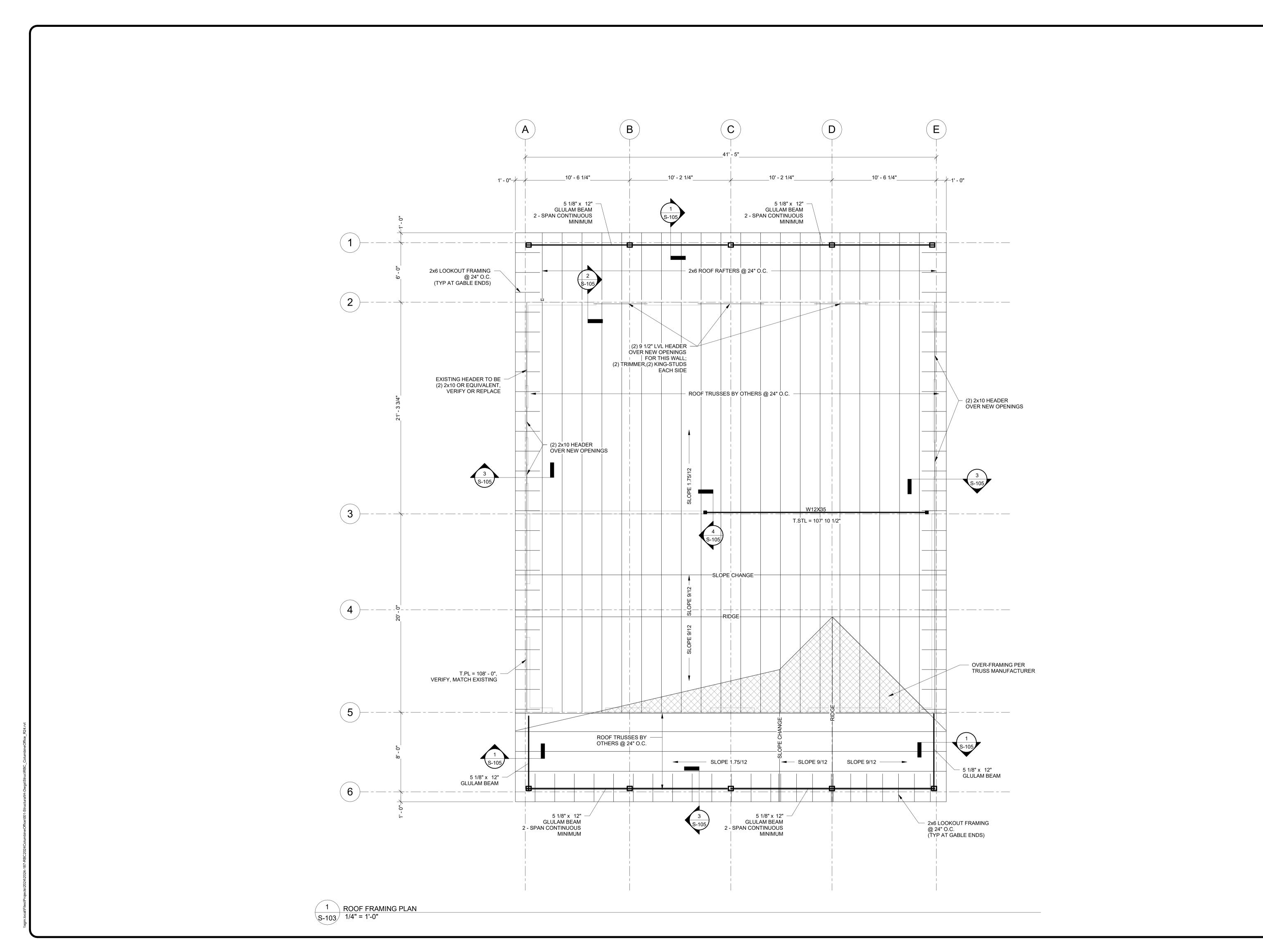




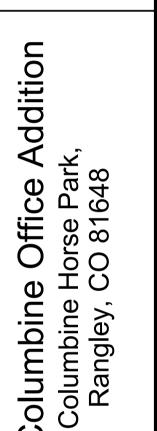


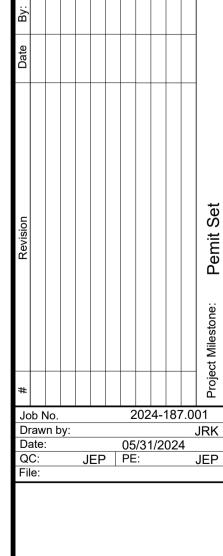


FLOOR FRAMING PLAN



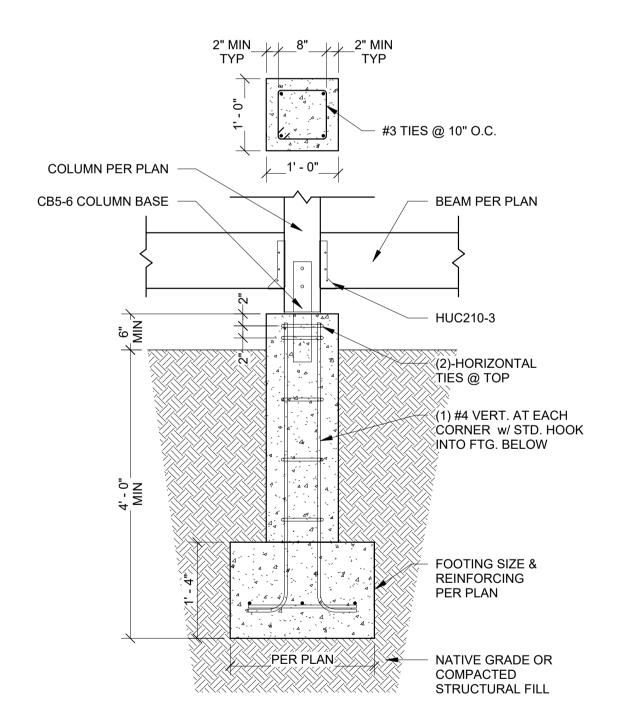




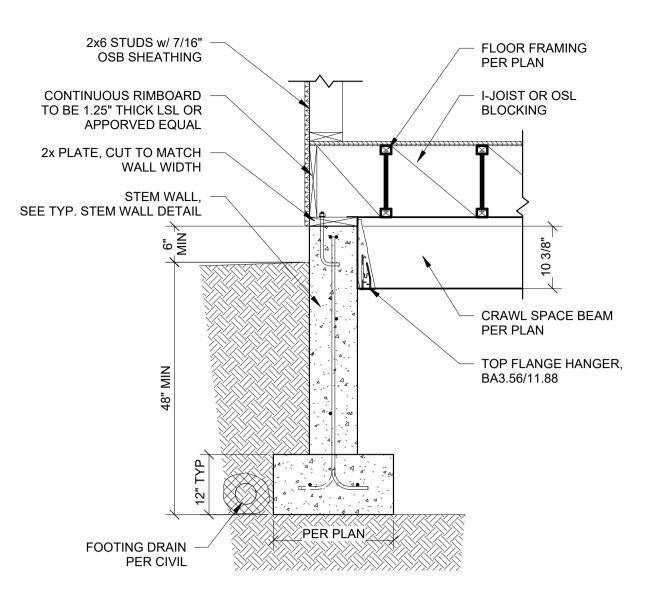


ROOF FRAMING PLAN

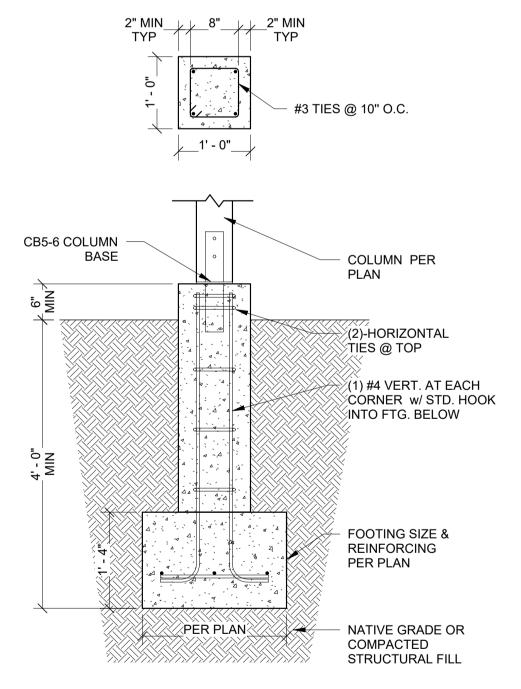
1 TYP STEM WALL WITH JOISTS PERPENDICULAR S-104 3/4" = 1'-0"



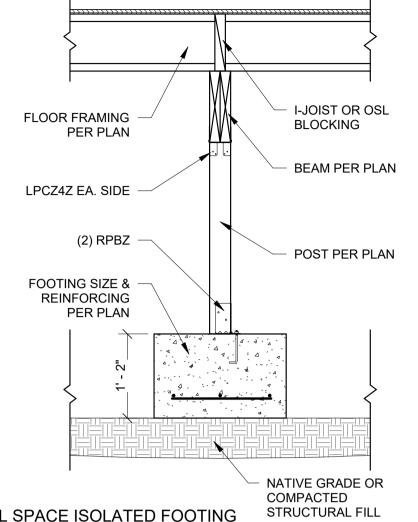
4 TYP ISOLATED FOOTING WITH BEAM CONNECTION 3/4" = 1'-0"



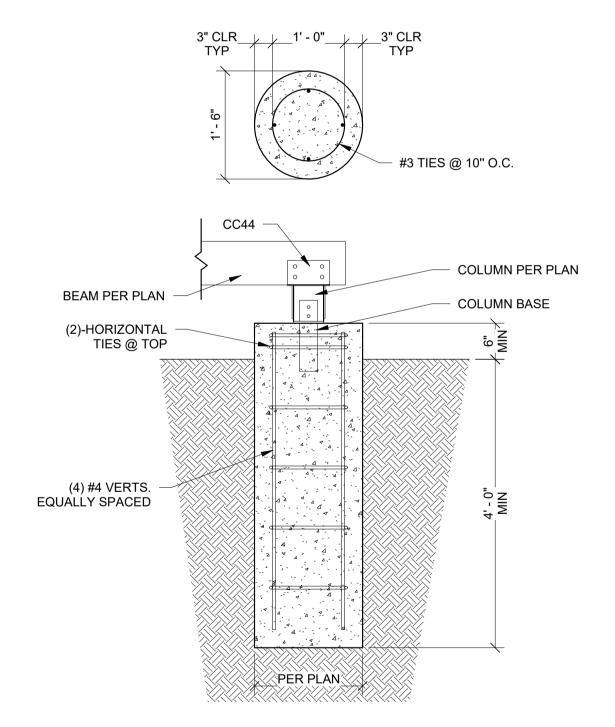




5 TYP ISOLATED FOOTING WITH COLUMN CONNECTION 3/4" = 1'-0"



3 TYP CRAWL SPACE ISOLATED FOOTING STRUCTURAL FILL
S-104 3/4" = 1'-0"

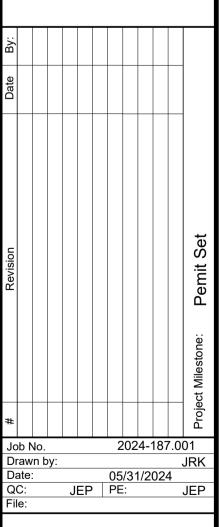


6 TYP CONCRETE PIER S-104 3/4" = 1'-0"





Addition Columbine Hornal Rangley, CC

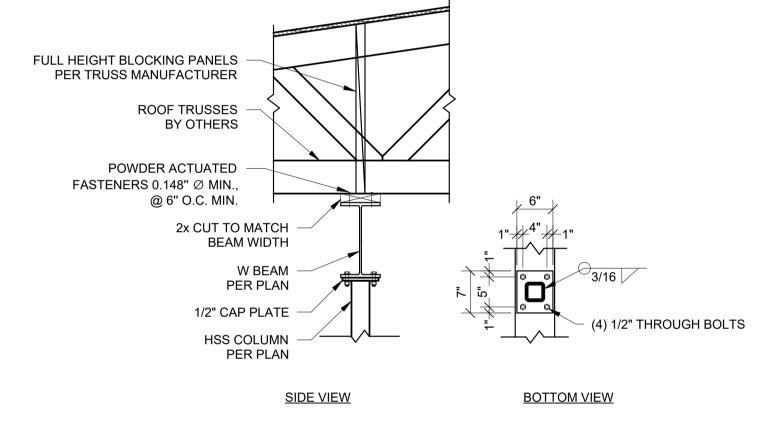


DETAILS (1)

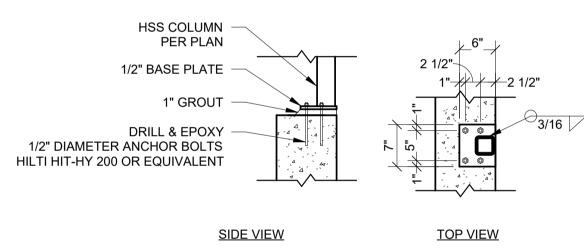
1 TYP HEEL TRUSS BEARING ON TIMBER BEAM S-105 3/4" = 1'-0"

ROOF SHEATHING PER PLAN PER PLAN 2x FLAT BLOCKING -SIMPSON H2.5A CLIP, OUTSIDE FACE OF WALL AT EACH LOOKOUT ROOF TRUSSES ——BY OTHER 2x FLAT BLOCKING DOUBLE TOP PLATE

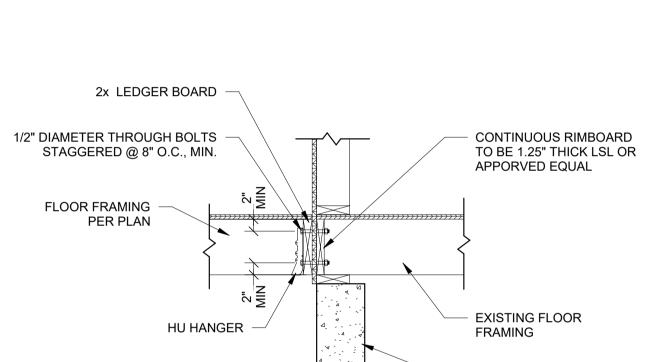
> 2 TYP RAISED HEEL TRUSS BEARING ON STUD WALL S-105 3/4" = 1'-0"



4 STEEL COLUMN TO STEEL BEAM CONNECTION
3/4" = 1'-0"



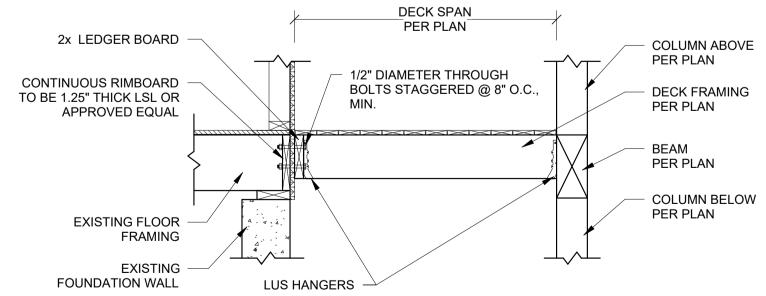
5 STEEL COLUMN TO FOUNDATION CONNECTION
S-105 3/4" = 1'-0"



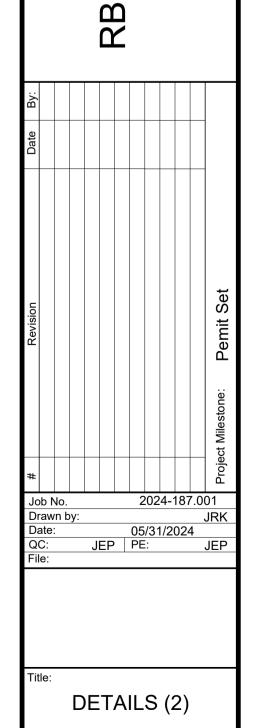
EXISTING

FOUNDATION WALL

6 FLOOR JOISTS LEDGER CONNECTION
S-105 3/4" = 1'-0"



7 DECK FRAMING SECTION S-105 3/4" = 1'-0"



S-105

Addition

Columbine Office Ao Columbine Horse Park, Rangley, CO 81648

2x LOOKOUTS PER PLAN 2x4 FLAT BRACE TOP PLATE CONNECTION PER -SHEAR WALL SCHEDULE W/ 8d @ 6" O.C. 2x BLOCKING IN FIRST TWO TRUSS BAYS @ 48" O.C. TYP GABLE END LOOKOUT FRAMING AT TRUSS FRAMED ROOF S-105 3/4" = 1'-0"

2' - 0"

2x BLOCKING

CONTINUOUS 2x SUBFASCIA

SIMPSON H2.5A CLIP, OUTSIDE FACE OF WALL AT EACH LOOKOUT

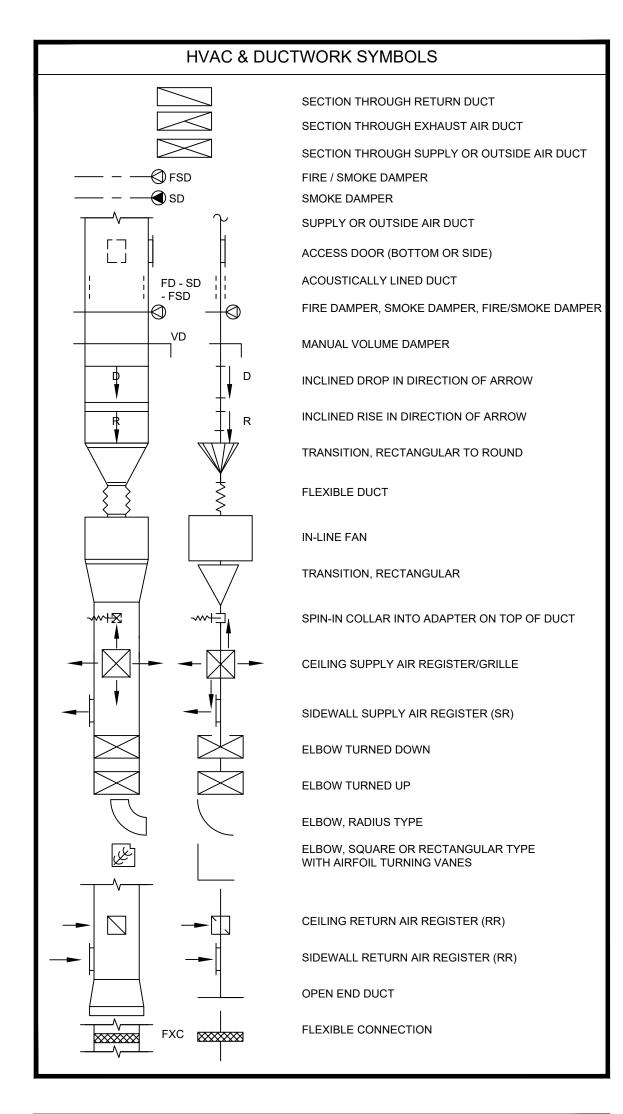
ROOF TRUSSESBY OTHER

2' - 0"

BRACING PER TRUSS MANUF.

TRUSSES PER PLAN

		MECHANICAL	ELEMENTS / VALVING		
	EXISTING EQUIPMENT OR PIPE TO BE REMOVED.		RELIEF/SAFETY VALVE	A	ANCHOR
-	GATE VALVE	<u> </u>	GAS COCK	G EJ	GUIDE
	GLOBE VALVE		AUTOMATIC FILL VALVE		EXPANSION JOINT
	PLUG VALVE	H> MV	MANUAL AIR VENT	FS	FLOW SWITCH
4[BUTTERFLY VALVE	AV 🛆	AUTOMATIC AIR VENT (EXTEND		TEMPERATURE TRANSMITTER
-	BALL VALVE		DISCHARGE TO DRAIN)	PT/PS	PRESSURE TRANSMITTER OR
	SWING CHECK VALVE		FLOW METER-VENTURI	∏ _{тн}	PRESSURE SWITCH
	LIFT CHECK VALVE		FLOW METER-ORIFICE	<u>T</u>	THERMOMETER
	GATE VALVE, ANGLE		DIRECTION OF FLOW		GAUGE WITH GAUGE COCK
	GLOBE VALVE, ANGLE	R D	DIRECTION OF PITCH-RISE OR DROP	\Diamond	& SYPHON (STEAM)
7	DIA DUDA CAA VAL VE		STRAINER		AQUASTAT
	DIAPHRAGM VALVE		STRAINER WITH BLOW OFF VALVE	— — —	GAS PRESSURE REGULATOR
	BALANCING VALVE		PIPE RISING UP		FLOAT OPERATED CONTROL VALVE
CBV	CIRCUIT SETTING BALANCING VALVE		PIPE DROPPING DOWN		0
	THREE WAY CONTROL VALVE	———	CONCENTRIC REDUCER		STEAM TRAP
· -\$1—	TWO WAY CONTROL VALVE		ECCENTRIC REDUCER		EXPANSION LOOP
S		 	UNION - SCREWED OR FLANGED	N VB VB	VACUUM BREAKER
PRV	SOLENOID VALVE	—-₽—	STEAM LEAK DETECTOR	T	THERMOSTAT
PRV 60 PSI	PRESSURE REDUCING VALVE (PRV)	FSD	FIRE SMOKE DAMPER		DIGITAL SENSOR
~V	TEMPERATURE/PRESSURE	©	CARBON MONOXIDE	(S) ⊘ OR 📮	PUMP
→ AIR VENT	RELIEF VALVE	(CD)	CARBON DIOXIDE	<u></u>	
→	HYDRAULIC SEPARATOR		AIR SEPARATOR	HX	HEAT EXCHANGER
7		Ŷ٦			



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
——————————————————————————————————————	HEAT PUMP SUPPLY
HWR	HOT WATER RETURN
——————————————————————————————————————	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
•	POINT OF CONNECTION OF NEW TO EXISTING

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)

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.

SUBSTITUTIONS:

HP HORSEPOWER

HWR HEATING WATER RETURN

HWS HEATING WATER SUPPLY

HX HEAT EXCHANGER

ID INSIDE DIAMETER

IG ISOLATED GROUND

JBOX JUNCTION BOX

KVA KILO VOLT - AMPS

LD LINEAR DIFFUSER

LRA LOCKED ROTOR AMPS

LAT LEAVING AIR TEMPERATURE

HR HOUR HT HEIGHT HTR HEATER

HZ HERTZ

IN INCHES

INV INVERT

K KELVIN

L LENGTH

KW KILOWATT

LV LAVATORY

LF LINEAR FEET

LB POUND

LIN LINEAR

LIQ LIQUID

LM LUMEN

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

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

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.

ABBREVIATIONS:

	ED FLOOR TO CENTER OF DEVICE
Α	AMPS
A.D.	ACCESS DOOR
AAV	AIR ADMITTANCE VALVE
	ABOVE
	AIR CONDITIONING UNIT
	ABOVE COUNTER
	AREA DRAIN (SEE SYMBOLS) ABOVE FINISHED CEILING
	ABOVE FINISHED GRADE
	AMPERE INTERRUPTING
CAPAC	ITY
	ARC FAULT CIRCUIT RUPTERS
	ABOVE FINISHED FLOOR
	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL OR DOOR
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO / VIDEO
	AVERAGE
	AMERICAN WIRE GAGE
BAS BB	BUILDING AUTOMATION SYSTEM BASEBOARD
BD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTOR
BL	BOILER
BLDG	BUILDING
BLW	BELOW
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
	BOTTOM OF PIPE
	BASEMENT BRITISH THERMAL UNIT
C	CHILLER
	COMBINATION ARC FAULT CIRCUIT INTERRUPTERS
CAP	CAPACITY
СВ	CIRCUIT BREAKER
CBV	CIRCUIT BALANCING VALVE
CCT	CORRELATED COLOR TEMPERATURE
CKT	CIRCUIT
CFH	CUBIC FEET PER HOUR
CHWD	CUBIC FEET PER MINUTE CHILLED WATER RETURN
	CHILLED WATER SUPPLY
CI	CAST IRON
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
	COMPRESSOR
	CONCRETE CONDENSATE
	CONNECTION
	CONTINUATION
CONTR	CONTRACTOR
CRI	COLOR RENDERING INDEX
CT	COOLING TOWER
СТ	CURRENT TRANSFORMER
CU	CONDENSING UNIT
CU	CARINET LINIT LIFATER
CVB	CABINET UNIT HEATER CONSTANT VOLUME BOX
CVB CWR	CONSTANT VOLUME BOX CONDENSER WATER RETURN
CWS	CONDENSER WATER RETURN CONDENSER WATER SUPPLY
DB	DRY BULB
	DEPARTMENT
DE	DDINKING EQUINTAIN

DF DRINKING FOUNTAIN

44" FINISH	MOUNTING HEIGHT ABOVE ED FLOOR TO CENTER OF DEVICE	DIA	DIAMETER
	AMPS		DIAGRAM DIFFERENTIAL
A.D.	ACCESS DOOR		DISCHARGE
AAV	AIR ADMITTANCE VALVE	DIV	DIVISION
ABV	ABOVE	DN	DOWN
AC	AIR CONDITIONING UNIT	DS	DUCT SILENCER
AC	ABOVE COUNTER		DRAWING
AD	AREA DRAIN (SEE SYMBOLS)	DX	DIRECT EXPANSION
A.F.C.	ABOVE FINISHED CEILING	(E)	EXISTING
A.F.G.	ABOVE FINISHED GRADE	EA	EXHAUST AIR GRILLE/REGISTER
AIC CAPAC	=	EAT	ENTERING AIR TEMPERATURE
	ARC FAULT CIRCUIT RUPTERS	ECC ECC	ECCENTRIC
A.F.F.	ABOVE FINISHED FLOOR	EF	EXHAUST FAN
AHU	AIR HANDLING UNIT	EFF	EFFICIENCY
ALUM	ALUMINUM	EL	ELEVATION
AP	ACCESS PANEL OR DOOR	ELEC	ELECTRIC
ATS	AUTOMATIC TRANSFER SWITCH	ELEV	ELEVATOR
AV	AUDIO / VIDEO	EM	EMERGENCY FUNCTION
AVG	AVERAGE	ENT	ENTERING
AWG	AMERICAN WIRE GAGE	EMT	ELECTRIC METALLIC TUBE
BAS	BUILDING AUTOMATION SYSTEM	EQ	EQUAL
BB	BASEBOARD	EQUIP	EQUIPMENT
BD	BACK DRAFT DAMPER	EQUIV	EQUIVALENT
BFP	BACK FLOW PREVENTOR	ES	END SWITCH
BL	BOILER	ESP	EXTERNAL STATIC PRESSURE
BLDG	BUILDING	ET	EXPANSION TANK
BLW	BELOW	EWC	ELECTRIC WATER COOLER
вов	BOTTOM OF BEAM	EWT	ENTERING WATER
BOD	BOTTOM OF DUCT	TEMPE	ERATURE
ВОР	BOTTOM OF PIPE	EX	EXHAUST
BSMT	BASEMENT	EXPAN	
BTU	BRITISH THERMAL UNIT		EXTERNAL
С	CHILLER	F	DEGREES FAHRENHEIT
CAFCI	COMBINATION ARC FAULT	FA	FREE AREA
	CIRCUIT INTERRUPTERS	FC	FAN COIL UNIT
CAP	CAPACITY	FC	FOOTCANDLE
СВ	CIRCUIT BREAKER	FCV	FLOW CONTROL VALVE
CBV	CIRCUIT BALANCING VALVE	FD	FIRE DAMPER
CCT	CORRELATED COLOR	FD	FLOOR DRAIN
	TEMPERATURE	FIN	FINISHED
CKT	CIRCUIT	FLA	FULL LOAD AMPS
CFH	CUBIC FEET PER HOUR		FLEXIBLE
CFM	CUBIC FEET PER MINUTE	FLR	FLOOR
	CHILLED WATER RETURN	FOB	FLAT ON BOTTOM
	CHILLED WATER SUPPLY	FOT	FLAT ON TOP
CI	CAST IRON	FP	FIRE PROTECTION
CL	CENTER LINE	FP	FIRE PUMP
CLG	CEILING	FPM	FEET PER MINUTE
CMU	CONCRETE MASONRY UNIT	FPS	FEET PER SECOND
CO	CLEAN OUT	FS	FLOW SWITCH
COL	COLUMN	FSD	FIRE/SMOKE DAMPER
COMP	COMPRESSOR	FT	FEET
CONC	CONCRETE	FXC	FLEXIBLE CONNECTION
	CONDENSATE	GND	GROUND
	CONNECTION	GA	GAUGE
CONT	CONTINUATION	GAL	GALLON
CONTR	R CONTRACTOR	GALV	GALVANIZED
CRI	COLOR RENDERING INDEX	GEC CONDI	GROUND ELECTRODE JCTOR
CT	COOLING TOWER		GFI GROUND FAULT CIRCUIT
CT	CURRENT TRANSFORMER		RUPTER
CU	CONDENSING UNIT	00	CENEDAL CONTRACTOR

GC GENERAL CONTRACTOR

GPH GALLONS PER HOUR

GPM GALLONS PER MINUTE

H 2O WATER

HB HOSE BIBB

HP HEAT PUMP

GRS/LB GRAINS PER POUND

HD HEAD (SEE SCHEDULES)

RESSURE	LV	LOUVER
	LVG	LEAVING
OOLER	LWT	LEAVING WATER TEMPERATURE
	MBH	THOUSANDS OF BTU PER HOUR
	MC	MECHANICAL CONTRACTOR
	MCA	MINIMUM CIRCUIT AMPACITY
	MCB	MAIN CIRCUIT BREAKER
	MD	MOTORIZED DAMPER
EIT	MDP	MAIN DISTRIBUTION PANEL
	MED	MEDIUM
	MFR	MANUFACTURER
	MIN	MINIMUM
.VE	MISC	MISCELLANEOUS
	MLO	MAIN LUG ONLY
	MOCP PROTE	MAXIMUM OVERCURRENT CTION
	MTD	MOUNTED
	MUA	MAKE-UP AIR UNIT
	N	NEUTRAL
	NC	NORMALLY CLOSED
	NEG	NEGATIVE
	NIC	NOT IN CONTRACT
	NL NOT S\	NIGHT / SECURITY LIGHT - DO WITCH
	NO	NORMALLY OPEN
	NOM	NOMINAL
R	NTS	NOT TO SCALE
	OA	OUTSIDE AIR
ION	OBD	OPPOSED BLADE DAMPER
	OC	ON CENTER
	OCC	OCCUPIED
	OCP	OVER CURRENT PROTECTION
	OD	OUTSIDE DIAMETER
Œ	OL	OVERLOAD
	ORD	OVERFLOW ROOF DRAIN
CIRCUIT	OZ	OUNCE
TOD	PBD	PARALLEL BLADE DAMPER

PD PRESSURE DROP

POS POINT OF SALES

POS POSITIVE PRESSURE

PS PRESSURE SWITCH

PRV PRESSURE REDUCING VALVE

PSI POUNDS PER SQUARE INCH

PT PRESSURE TRANSMITTER

PH PHASE

		PACKAGED TERMINAL AIR ITIONER
	PV	PLUG VALVE
	PVC	POLYVINYL CHLORIDE
N	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

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 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

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 WIDTH

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

23-227 JOB NO: DRAWN BY: CHECKED BY:

SHEET NUMBER:

HORSE COUNTY,

COLUMBINE PRIO BLANCO CO

MECHANIC

DATE: | ISSUED FOR:

02/05/2024 REVIEW

05/31/2024 REVIEW

06/04/2024 PERMIT

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on, CO 81501 241-8709

Sulting & Electri

PERMISSION OF THE DESIGNER. THE DRAWINGS AND

SHALL REMAIN THE PROPERTY OF THE DESIGNER EXECUTED OR NOT. THESE DRAWINGS AND

ANY OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT

BY OTHERS EXCEPT BY THE EXPRESSED WRITTEN

PERMISSION OF THE DESIGNER.



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 2006 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. RIO BLANCO COUNTY IS **CLIMATE ZONE 6B**)
- 3. COORDINATE FINAL LOCATION OF THERMOSTAT WITH OWNER PRIOR TO INSTALLATION. IF THERMOSTAT IS LOCATED ON EXTERIOR WALL PROVIDE THERMOSTAT WITH INSULATED BACKING.
- 4. ALL REFRIGERANT LINES SHALL BE INSULATED IN A WORKMAN LIKE MANNER PER MANUFACTURER'S INSTRUCTIONS. REFRIGERANT LINESET LONGEST LENGTHS SHALL LIMITED TO PIPING EQUIVALENT LENGTH SPECIFIED BY HEATPUMP/CONDENSING UNIT MANUFACTURER REQUIREMENTS.
- 5. ROUTE CLEAR CONDENSATE FROM CONDENSATE PUMP TO TAIL PIECE OF NEAREST SINK UPSTREAM OF P-TRAP.
- 6. MECHANICAL CONTRACTOR SHALL FIELD LOCATE EXISTING SYSTEMS AND BUILDING ASSEMBLIES. MECHANICAL CONTRACTOR SHALL COORDINATE NEW MECHANICAL SYSTEMS WITH EXISTING SYSTEMS AND BUILDING ASSEMBLIES AS REQUIRED.
- 7. 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.
- 8. 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 #493 WITH 2-POLE CONFIGURATIONS.

FLAG NOTES:

- 1. NEW 8" Ø HOODED WALL VENT PAINTED TO MATCH EXTERIOR OF BUILDING. PROVIDE WITH BIRDSCREEN. (TYPICAL)
- 2. REFRIGERANT PIPING TO PENETRATE EXTERIOR OF BUILDING AND DROP DOWN WALL TO SERVE RESPECTIVE HEAT PUMP UNITS IN BASEMENT.
- 3. CONDENSATE CLEAR WASTE PUMPED UP THROUGH WALL FROM BASEMENT. PLUMB CONDENSATE PIPING TO TAIL PIECE OF SINK, UPSTREAM OF P-TRAP FROM HEAT PUMP CONDENSATE PUMP. ROUTE IN 3/4"Ø TYPE L COPPER.
- 4. RETURN LINEAR BAR GRILLE SHALL BE SHOWN AS ONE CONTINUOUS GRILLE AND SHALL HAVE BLANK SECTIONS INSTALLED TO COVER FLOORING OVER FLOOR JOISTS. LINEAR BAR GRILLE SHALL BE SUPPLIED BY 3 INDIVIDUAL 18"X12" DUCTS FROM BASEMENT. SEE LINEAR BAR GRILLE DETAIL ON SHEET M2-2.

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OLUMBINE PARK OFFICE NICAL - MAIN FLOOR PLAN

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05/31/2024 REVIEW
06/04/2024 PERMIT



DATE: 07/26/2023

JOB NO: 23-227

DRAWN BY: BCE

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SCALE: AS SHOWN

SHEET NUMBER:

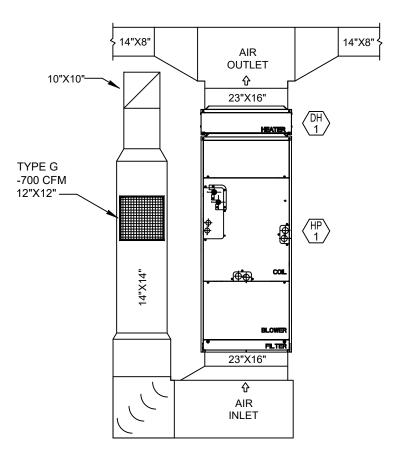
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- 2. DUCT DIMENSIONS DO NOT REFLECT ADDITIONAL DIMENSIONS FOR INSULATION. ALL DUCTING SHALL BE INSULATED PER 2006 IECC CODE REQUIREMENTS. (SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH NOT LESS THAN R-6 INSULATION WHERE LOCATED IN 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. RIO BLANCO COUNTY IS **CLIMATE ZONE 6B**)
- 3. COORDINATE FINAL LOCATION OF THERMOSTAT WITH OWNER PRIOR TO INSTALLATION. IF THERMOSTAT IS LOCATED ON EXTERIOR WALL PROVIDE THERMOSTAT WITH INSULATED BACKING.
- 4. ALL REFRIGERANT LINES SHALL BE INSULATED IN A WORKMAN LIKE MANNER PER MANUFACTURER'S INSTRUCTIONS. REFRIGERANT LINESET LONGEST LENGTHS SHALL LIMITED TO PIPING EQUIVALENT LENGTH SPECIFIED BY HEATPUMP/CONDENSING UNIT MANUFACTURER REQUIREMENTS.
- 5. ROUTE CLEAR CONDENSATE FROM CONDENSATE PUMP TO TAIL PIECE OF NEAREST SINK UPSTREAM OF P-TRAP.
- 6. MECHANICAL CONTRACTOR SHALL FIELD LOCATE EXISTING SYSTEMS AND BUILDING ASSEMBLIES. MECHANICAL CONTRACTOR SHALL COORDINATE NEW MECHANICAL SYSTEMS WITH EXISTING SYSTEMS AND BUILDING ASSEMBLIES AS REQUIRED.
- 7. 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 DRAWING AND FUNCTIONALITY BY ENGINEER.
- 8. 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 #493 WITH 2-POLE CONFIGURATIONS.

FLAG NOTES:

- 1. CONDENSATE CLEAR WASTE SHALL BE PUMPED UP THROUGH WALL AND PIPING TO TAIL PIECE OF SINK, UPSTREAM OF P-TRAP FROM HEAT PUMP CONDENSATE PUMP. ROUTE IN 3/4"Ø TYPE L COPPER.
- 2. THREE INDIVIDUAL 6"X12" DUCTS TO GO UP THROUGH FLOOR AND BETWEEN JOISTS TO SERVE RETURN LINEAR BAR GRILLE ON ABOVE FLOOR. SEE LINEAR BAR GRILLE DETAIL ON SHEET M2-2.
- 3. REFRIGERANT PIPING SERVING HP-1 & 2 TO ROUTE UP WALL TO CONNECT TO OUTDOOR CONDENSING UNITS.
- 4. HEATPUMP DETAIL SHOWING CONNECTIONS OF SUPPLY AND RETURN DUCTWORK SHOWN ON BELOW ON SHEET M1-2.



UPFLOW HEAT PUMP DETAIL

NOT TO SCALE

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AECHANICAL - LOWER FLOOR PLA

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06/04/2024 PERMIT



DATE: 07/26

JOB NO: 23

DRAWN BY:

CHECKED BY:

SCALE: AS SH

SHEET NUMBER:

M1-2

MECHANICAL PROVISIONS

- 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.

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

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
- 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 ARMOUR-FLEX TYPE INSULATION, SHALL BE TYPE "K" COPPER TUBING, WITH WROUGHT COPPER SOLDER TYPE FITTINGS SUITABLE FOR CONNECTION WITH SILVER SOLDER.

- A. THE DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE
- WITH THE "SMACNA" APPLICABLE MANUALS. B. ALL DUCTWORK SHALL BE THE LOW VELOCITY TYPE, UNLESS SPECIFIED
- 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
- 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"

UNLESS OTHERWISE NOTED ON THE DRAWINGS.

FIBERGLASS INSULATING BLANKET WITH ALUMINUM FOIL FACING. H. ALL SUPPLY AND RETURN DUCTWORK 15 FEET DOWNSTREAM OF THE HVAC UNIT SHALL BE INTERNALLY LINED WITH A 1/2" ACOUSTICAL DUCT LINER

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

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 8 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 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 9" 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. COORDINATE INSTALLATION OF ALL ROOF FLASHING AT ROOF PENETRATION.
- B. DO NOT SCALE THIS DRAWING FOR EXACT DIMENSIONS. VERIFY ALL FIGURES, CONDITIONS, AND DIMENSIONS AT THE JOB SITE. D. THE MECHANICAL PLANS ARE INTENDED TO BE DIAGRAMMATIC AND ARE BASED
- ON ONE MANUFACTURE'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL THE DETAILS OF THE EQUIPMENT.
- E. THE CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO ENSURE THAT THE EQUIPMENT WILL FIT IN THE AVAILABLE
- D. 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
- 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.

	INDOOR HEAT PUMP UNIT EQUIPMENT SCHEDULE													
EQUIPMENT NO.	SERVICE	CAPACITY (RTI/HP.)		СҒМ	E.S.P.	EER (EFFICIENCY)	SEER	REFRIGERANT PIPING DIAMETER		ELECTRICAL			MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
			CAPACITY (BTU/HR.) (BTU/HR.)							LIQUID	SUCTION	MCA (AMPS)	MOCP (AMPS)	V./PH./HZ.
HP-1	ADDITION	36,000	30,400	1,125	0.8	13	18.2	3/8"	5/8"	5.5	15	208-230/1/60	TRANE - PVA-A36AA7	NOTE-1 & 2
HP-2	ADDITION	36,000	30,400	1,125	0.8	13	18.2	3/8"	5/8"	5.5	15	208-230/1/60	TRANE - PVA-A36AA7	NOTE-1 & 2

1. PROVIDE INDOOR UNIT WITH REFRIGERANT LINESET RECOMMENDED BY MANUFACTURER, 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHTTIME/DAYTIME SETTINGS, DOWNFLOW KIT, CONDENSATE PUMP (120-230V/1PH/60HZ), ELECTRIC HEAT LOCKOUT, SEPARATE TERMINAL POWER BLOCK, FLEX DUCT CONNECTIONS, VIBRATION ISOLATION. 2. PROVIDE 10 KW ELECTRIC HEATER KIT (MITSUBISHI - EH10-MPA-L(B)) WITH MULTIPLE STAGES MANUFACTURER OPTIONAL ACCESSORY. POWER TO AUXILIARY ELECTRIC RE-HEAT COIL IS SEPARATE FROM HEAT PUMP SYSTEM. (SEE INLINE DUCT HEATER SCHEDULE)

	AIR COOLED CONDENSING UNIT SCHEDULE											
EQUIPMENT	SERVICE	NOMINAL HEATING	NOMINAL COOLING CAPACITY (MBH)	REFRIG. PIPING		ELECTRIC			MANUELOTUBED & MODEL			
NO.		CAPACITY (MBH)		LIQUID	VAPOR	V/PH/HZ	MCA(A)	MOCP (A)	WANUFACTURER & WODEL	OPTIONS/ACESSORIES		
CU-1	ADDITION	30.4	36	3/8"	5/8"	208-230/1/60	24	40	TRANE PUZ-HA36NKA	NOTE-1		
CU-2	EXISTING BUILDING	30.4	36	3/8"	5/8"	208-230/1/60	24	40	TRANE PUZ-HA36NKA	NOTE-1		
	NO .	NO. SERVICE CU-1 ADDITION	NO. SERVICE CAPACITY (MBH) CU-1 ADDITION 30.4	EQUIPMENT NO.SERVICENOMINAL HEATING CAPACITY (MBH)NOMINAL COOLING CAPACITY (MBH)CU-1ADDITION30.436	EQUIPMENT NO.SERVICENOMINAL HEATING CAPACITY (MBH)NOMINAL COOLING CAPACITY (MBH)REFRIG LIQUIDCU-1ADDITION30.4363/8"	EQUIPMENT NO.SERVICENOMINAL HEATING CAPACITY (MBH)NOMINAL COOLING CAPACITY (MBH)REFRIG. PIPING LIQUIDCU-1ADDITION30.4363/8"5/8"	EQUIPMENT NO. SERVICE NOMINAL HEATING CAPACITY (MBH) NOMINAL COOLING CAPACITY (MBH) REFRIG. PIPING EL CU-1 ADDITION 30.4 36 3/8" 5/8" 208-230/1/60	EQUIPMENT NO. SERVICE NOMINAL HEATING CAPACITY (MBH) NOMINAL COOLING CAPACITY (MBH) REFRIG. PIPING ELECTRIC CU-1 ADDITION 30.4 36 3/8" 5/8" 208-230/1/60 24	EQUIPMENT NO. SERVICE NOMINAL HEATING CAPACITY (MBH) NOMINAL COOLING CAPACITY (MBH) REFRIG. PIPING ELECTRIC LIQUID VAPOR V/PH/HZ MCA(A) MOCP (A) CU-1 ADDITION 30.4 36 3/8" 5/8" 208-230/1/60 24 40	EQUIPMENT NO. SERVICE NOMINAL HEATING CAPACITY (MBH) NOMINAL COOLING CAPACITY (MBH) REFRIG. PIPING ELECTRIC MANUFACTURER & MODEL CU-1 ADDITION 30.4 36 3/8" 5/8" 208-230/1/60 24 40 TRANE PUZ-HA36NKA		

1. THIS UNIT IS A SINGLE ZONE SPLIT SYSTEM WITH INDOOR HEAT PUMP ELECTRIC FURNACE. PROVIDE HYPER HEAT LOW AMBIENT HEATING OPERATION (RATED FOR FULL HEATING CAPACITY LISTED IN SCHEDULE DOWN TO -13°F DB), 18" TALL STAND, 4" CONCRETE HOUSE KEEPING PAD, REFRIGERANT LINESET MATCHING MANUFACTURER'S RECOMMENDATION, MATCHING INDOOR 3 TON HEAT PUMP FORCED AIR FURNACE, CENTRAL DRAIN PAN, AIR OUTLET GUIDE, HAIL GUARDS, FRONT WIND BAFFLE. SINGLE PHASE VRF HEAT PUMP CONDENSER MODULES SHALL BE PROVIDED WITH LOCAL POWER SOURCE PROTECTION ICM #493. 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 #493 WITH 2-POLE CONFIGURATIONS.

	EXHAUST FAN SCHEDULE											
EQUIPMENT NO.	SERVICE	CFM	EXTERNAL STATIC PRESS (IN.	MOTOR				MANUFACTURER & MODEL	OPTIONS/ACCESSORIES			
		CFIN	W.G.)	WATTS	HP	RPM	VOLT/PH/HZ	WANUFACTURER & WIODEL	OF HONS/ACCESSORIES			
EF-1	BATHROOM	100	0.77	128.00	0.05	1050	115/1/60	GREENHECK - SP-B150	NOTE-1			
EF-2	BATHROOM	100	0.77	128.00	0.05	1050	115/1/60	GREENHECK - SP-B150	NOTE-1			

1. CEILING EXHAUST FAN. PROVIDE FUSED DISCONNECT. FAN SHALL BE INTERLOCKED WITH WALL SWITCH IN RESTROOM.

	INLINE DUCT HEATER									
EQUIPMENT NO.	SERVICE	BTU/HR	KW	AMPS	V/PH/HZ	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES			
DH-1	SUPPLEMENTAL HEAT	34,120	10	42	240/1/60	MITSUBISHI - EH10-MPA-L(B)	NOTE-1			
DH-2	SUPPLEMENTAL HEAT	34,120	10	42	240/1/60	MITSUBISHI - EH10-MPA-L(B)	NOTE-1			

1. PROVIDE WITH POWER DISCONNECT, MULTI STAGED HEATING ELEMENTS, MERCURY CONTACTOR, PILOT LIGHT (INDICATES UNIT IS ENERGIZED), TIME DELAY RELAY, THERMAL OVERLOAD DETECTION, DUCT THERMOSTAT, AIRFLOW SWITCH. INSTALL INLINE DUCT HEATER DIRECTLY TO THE AIR OUTLET CONNECTION OF THE AIR HANDLER

GRILLE-REGISTER-DIFFUSER SCHEDULE										
EQUIPMENT NO.	SIZE	MODEL	MANUFACTURER	FINISH	OPTIONS/ACCESSORIES					
TYPE A	12"X6"	LBMH	PRICE	ALUMINUM	NOTE-1					
TYPE B	18"X6"	LBMH	PRICE	ALUMINUM	NOTE-1					
TYPE C	24"X6"	LBMH	PRICE	ALUMINUM	NOTE-1					
TYPE D	12"X4"	510	PRICE	ALUMINUM	NOTE-2					
TYPE E	42"X12"	LBMH	PRICE	ALUMINUM	NOTE-3					
TYPE F	42"X18"	LBMH	PRICE	ALUMINUM	NOTE-3					
TYPE G	10"X8"	80	PRICE	ALUMINUM	NOTE-4					
·										

NOTES: COORDINATE ALL MOUNTING TYPES WITH CEILING.

- 1. FLOOR SUPPLY GRILLE, PROVIDE WITH 16A 1/4" BLADE SPACEING 15° DEFLECTION CONSTRUCTION RATED FOR FOOT TRAFFIC, OPPOSED BLADE DAMPER FOR BALANCING, AIR SCOOP, INTEGRAL MANDRAL TUBE, FRAME/BORDER, EXTRUDED ALUMINUM. COORDINATE FINISH WITH OWNER PRIOR TO ORDERING.
- 2. DUCT MOUNTED SUPPLY DIFFUSER. DAMPER FOR BALANCING, AIR SCOOP COORDINATE
- FINISH WITH OWNER PRIOR TO ORDERING.
- 3. FLOOR RETURN GRILLE, PROVIDE WITH 16A 1/4" BLADE SPACEING 15° DEFLECTION CONSTRUCTION RATED FOR FOOT TRAFFIC, AIR SCOOP, INTEGRAL MANDRAL TUBE, FRAME/BORDER, EXTRUDED ALUMINUM. COORDINATE FINISH WITH OWNER PRIOR TO
- 4. DUCT MOUNTED RETURN GRILLE. COORDINATE FINISH WITH OWNER PRIOR TO ORDERING.

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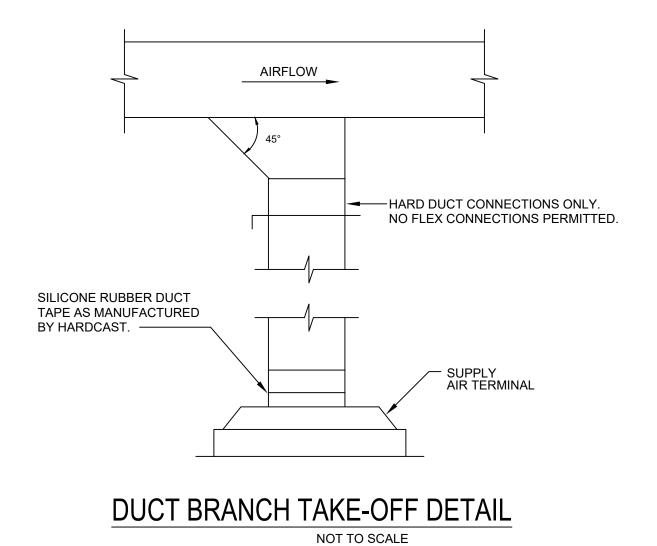
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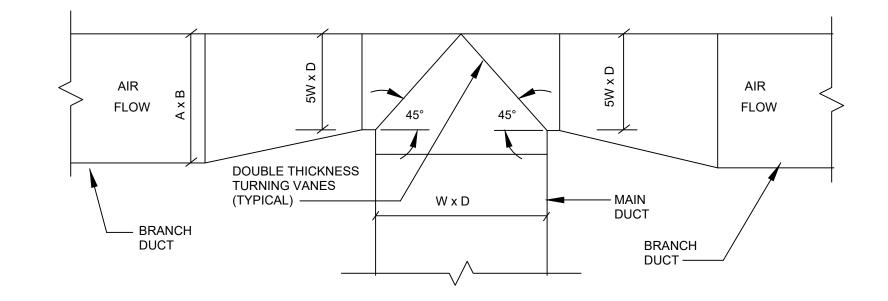


JOB NO: 23-227 DRAWN BY: CHECKED BY: SCALE: SHEET NUMBER:

DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESSES RECTANGULAR DUCTS MAXIMUM SIZE ALUMINUM (MINIMUM THICKNESS, NOMINAL) (MINIMUM THICKNESS, NOMINAL) (INCHES) THROUGH 12 0.022 INCH (26 GAGE, GALV.) 0.020 INCH (NO. 24 B&S GAGE) 0.025 INCH (NO. 22 B&S GAGE) 13 THROUGH 30 0.028 INCH (24 GAGE, GALV.) 0.034 INCH (22 GAGE, GALV.) 31 THROUGH 54 0.032 INCH (NO. 20 B&S GAGE) 0.040 INCH (NO. 18 B&S GAGE) 55 THROUGH 84 0.040 INCH (20 GAGE, GALV.) 0.052 INCH (18 GAGE, GALV.) 0.051 INCH (NO. 16 B&S GAGE) OVER 84

	ROUND DUCTS										
	SPIRAL SEAM DUCT	LONGITUDINAL SEAM DUCT	FITTINGS								
MAXIMUM SIZE	STEEL	STEEL	STEEL								
(INCHES)	(MINIMUM THICKNESS, NOMINAL)	(MINIMUM THICKNESS, NOMINAL)	(MINIMUM THICKNESS, NOMINAL)								
THROUGH 12	0.019 INCH (28 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)								
13 THROUGH 18	0.022 INCH (26 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)								
19 THROUGH 28	0.028 INCH (24 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)								
29 THROUGH 36	0.034 INCH (22 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)								
37 THROUGH 52	0.040 INCH (20 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)								





EQUAL SPLIT AIR FLOW

MAIN DUCT

BRANCH DUCT -

NOTE: DIMENSIONS 'X' AND 'Y' ARE EQUAL TO (BRANCH CFM - MAIN CFM) x W **UNEQUAL SPLIT**

DOUBLE THICKNESS TURNING VANES (TYPICAL) —

FLOW

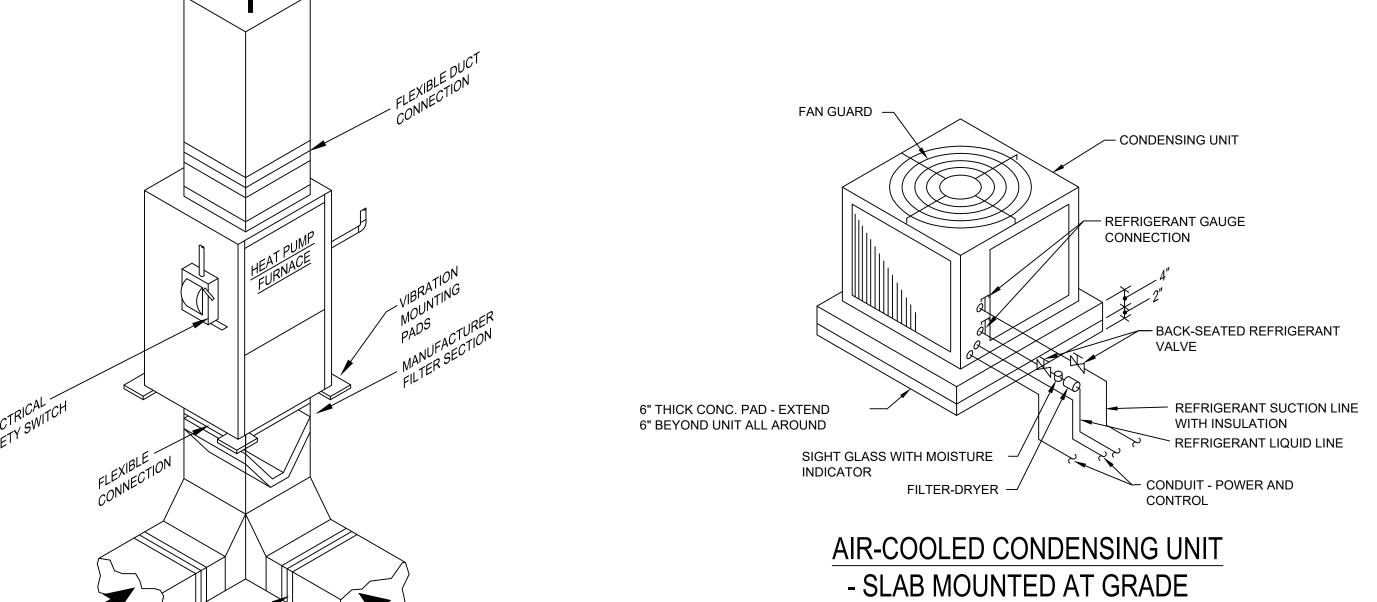
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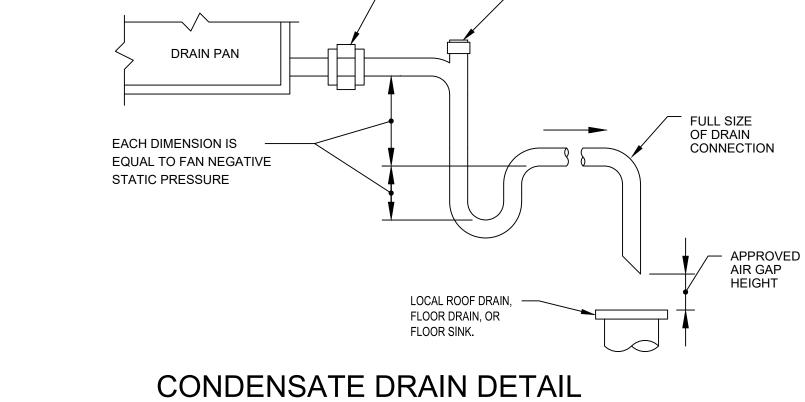
BRANCH DUCT

DUCT TEE CONNECTION DETAIL

NOT TO SCALE

 $W \times D$

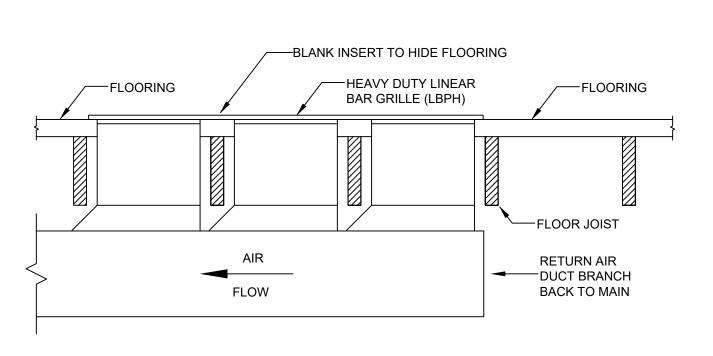




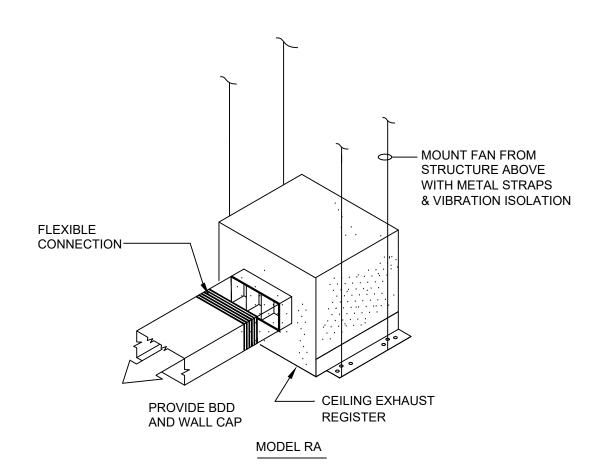
UPFLOW HEAT PUMP FURNACE DETAIL NOT TO SCALE

── 1" FLANGE & HEM - 1 1/2" POCKET SLIP ALTERNATE POSITION OF BOLT BOLT ON 4" CENTERS FLEXIBLE MATERIAL
 AS SPECIFIED 1" X 1/8" BAND IRON — SHEET METAL AS SPECIFIED FOR DUCTWORK 1 1/2" MIN. TO 3" MAX. INSTALLED. 6" NORMAL WITH MAT. TAUT. FLANGED CONN. ON FAN OR AIR SHEET METAL AS SPECIFIED FOR HANDLING UNIT DUCTWORK

RECTANGULAR FLEXIBLE CONNECTION DETAIL



LINEAR BAR GRILLE WITH MULTIPLE DUCT CONNECTIONS NOT TO SCALE



CEILING EXHAUST FAN DETAIL NOT TO SCALE

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SHALL REMAIN THE PROPERTY OF THE DESIGNER
WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS
EXECUTED OR NOT. THESE DRAWINGS AND
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FIRE ALARM EQUIPMENT LEGEND FIRE ALARM CONTROL PANEL FIRE ALARM PULL STATION FIRE ALARM HORN FIRE ALARM STROBE FIRE ALARM HORN/STROBE CEILING MOUNTED SPEAKER (D)---- DUCT DETECTOR REMOTE LAMP SMOKE DETECTOR - PHOTOELECTRIC H)_{135°} 135° STANDARD HEAT DETECTOR PIR PIR DETECTOR DH DOOR HOLD - MAGNETIC HOLD FLOW SWITCH TAMPER SWITCH

COMMUNICATION LEGEND
CLOCK ONLY
CLOCK / PA SPEAKER WALL MOUNTED
ROUND CEILING MOUNTED SPEAKER
SQUARE SPEAKER
INTERCOM PUSH TO CALL SWITCH
WIRELESS ACCESS POINT ABOVE THE CEILING
ABOVE THE CEILING PROJECTOR CONNECTION
WALL MOUNTED HDMI
PLAIN DATA OUTLET
PLAIN DATA OUTLET WITH MOUNTING HEIGHT
COMBINATION DATA/TELEPHONE
FLOOR MOUNTED COMBINATION DATA/TELEPHONE
CEILING MOUNTED COMBINATION DATA/TELEPHONE
TELEVISION OUTLET

SECURITY SYSTEM LEGEND SECURITY CAMERA ADA DOOR OPERATOR PUSH BUTTON ELECTRIC DOOR STRIKE CR CARD READER FOR DOOR OPERATOR

REFER TO THE LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS. A LOWER CASE LETTER NEXT TO A LIGHT CORRESPONDS TO THE SWITCH DESIGNATION. SWITCHES SINGLE POLE SWITCH TWO POLE SWITCH THREE-WAY SWITCH FOUR-WAY SWITCH DIMMER SWITCH \$3D 3 WAY DIMMER SWITCH - (4D INDICATES A 4WAY DIMMER) \$DR DOOR ACTIVATED SWITCH WALL MOUNTED DUAL TECHNOLOGY MANUAL ON / AUTO OFF VACANCY SENSOR \$_{LV} LOW VOLTAGE LIGHT SWITCH \$_{TO} MANUAL MOTOR STARTER \$ PILOT LIGHT SWITCH \$_{OS} AUTO ON / AUTO OFF LIGHT SWITCH \$MO DUAL TECHNOLOGY MOTION / OCCUPANCY SENSOR LIGHT SWITCH \$MA MANUAL ON / AUTO OFF DIMMING LIGHT SWITCH \$ KEY OPERATED LIGHT SWITCH

MO) (MO) CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH

MA) (MA) CEILING MOUNTED DUAL TECHNOLOGY MANUAL ON / AUTO OFF VACANCY SENSOR

LIGHTING LEGEND

OCCUR, THE ITEM SHALL BE PROVIDED AND INSTALLED.

LOWER CASE LETTER INDICATES THE SWITCH CIRCUIT.

\$_T MANUAL ON - TIMED OFF LIGHT SWITCH

\$SC SCENE CONTROL STATION

(DS)(DS) CEILING MOUNTED DAYLIGHT HARVESTING SENSOR

\$_{MS} UNIT LIGHTING MANAGEMENT CONTROL STATION,

LIGHT FIXTURES

VARIATION AND/OR COMBINATION MAY BE USED ON THE PLANS.

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

AN UPPER CASE LETTER NEXT TO A SWITCH INDICATES THE FUNCTION OF THE SWITCH. A

AN UPPER CASE LETTER NEXT TO A LIGHT FIXTURE INDICATES THE TYPE OF FIXTURE.

A NUMBER NEXT TO A RECEPTACLE OR DEVICE INDICATES A CIRCUIT NUMBER.

NOTES:

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
├──�── OPEN STRIP FIXTURE
WALL BRACKET LINEAR FIXTURE
A - WALL MOUNTED SCONCE LIGHT FIXTURE
A - P- RECESSED DOWNLIGHT CAN FIXTURE
A - O- 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

COMPLY WITH LATEST EDITION OF NEC, IECC AND ALL APPLICABLE	

- 1. ALL ELECTRICAL WORK TO 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.

GENERAL ELECTRICAL NOTES:

1. ALL WIRING IS SHOWN DIAGRAMMATICALLY ON DRAWING, FIELD VERIFY ALL CONDITIONS PRIOR

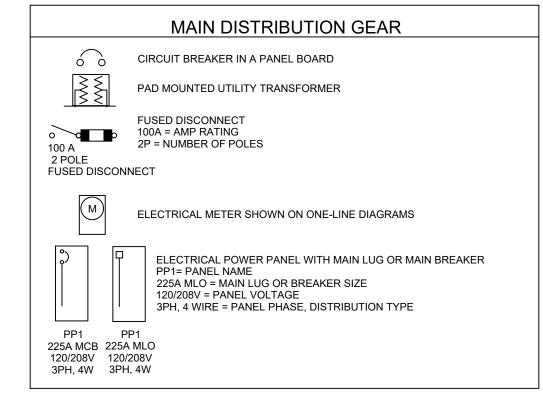
2. ALL CONDUITS AND CONVEYANCES SHALL BE CONCEALED. IN THE EVENT THAT A NEW DEVICE IS

- 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.

ELECTRICAL EQUIPMENT LEGEND BRANCH CIRCUIT PANELBOARD TELEPHONE TERMINAL BOARD C ELECTRIC MOTOR 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. (CENTER LINE TYPE)



		ELECTRICAL DEVICE LEGEND
	<u> </u>	CEILING JUNCTION BOX - SURFACE/FLUSH
	$\mathbb{J}\!$	WALL JUNCTION BOX - SURFACE/FLUSH
	\Rightarrow	DUPLEX RECEPTACLE
	\Box	FLOOR MOUNTED RECEPTACLE
	\bigcirc	SPLIT WIRED DUPLEX RECEPTACLE
	\bigoplus	CEILING MOUNTED DUPLEX RECEPTACLE
		FLOOR MOUNTED FOURPLEX RECEPTACLE
	€	APPLIANCE RECEPTACLE - 3 WIRE
	\ominus	DUPLEX RECEPTACLE
	#	FOURPLEX RECEPTACLE
⊕ ⊕	ABBREVI AC AC GF AC USB AF AF USB AF GF D D USB EM	

<1>

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- 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 INTERIOR DESIGNER'S REFLECTED CEILING PLANS FOR DIMENSIONAL LOCATION OF LIGHT FIXTURES.
- 2. LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE AND SHALL NOT BE

GENERAL PURPOSE WITH MOUNTING HEIGHT.

ELECTRIC HAND DRYER

DRAWING KEY NOTES

ROOM DESIGNATION

OPEN/CLOSE/STOP PUSH BUTTON

THERMOSTAT

- 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
- 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:

ITEM	FURNISHED	SET	POWER WIRED	CONTROI 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)

- 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.

DIA DIAMETER

DIAG DIAGRAM

DIFF DIFFERENTIAL

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

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

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.

ABBREVIATIONS:

DB DRY BULB

DEPT DEPARTMENT

DF DRINKING FOUNTAIN

CWS CONDENSER WATER SUPPLY

44" MOUNTING HEIGHT ABOVE

FINISHED FLOOR TO CENTER OF DEVICE

А	AIVIFS	DIFF	DIFFERENTIAL	HT	HEIGHT
A.D.	ACCESS DOOR	DISCH	DISCHARGE	HTR	HEATER
AAV	AIR ADMITTANCE VALVE	DIV	DIVISION	HWR	HEATING WATER RETURN
ABV	ABOVE	DN	DOWN	HWS	HEATING WATER SUPPLY
AC	AIR CONDITIONING UNIT	DS	DUCT SILENCER	HX	HEAT EXCHANGER
AC	ABOVE COUNTER		DRAWING	HZ	HERTZ
AD	AREA DRAIN (SEE SYMBOLS)	DX	DIRECT EXPANSION	ID	INSIDE DIAMETER
A.F.C.	ABOVE FINISHED CEILING				
A.F.G.	ABOVE FINISHED GRADE	(E)	EXISTING	IG	ISOLATED GROUND
AIC	AMPERE INTERRUPTING	EA	EXHAUST AIR GRILLE/REGISTER	IN	INCHES
CAPAC		EAT	ENTERING AIR TEMPERATURE	INV	INVERT
AFCI	ARC FAULT CIRCUIT	EC	ELECTRICAL CONTRACTOR		JUNCTION BOX
INTER	RUPTERS	ECC	ECCENTRIC	K	KELVIN
A.F.F.	ABOVE FINISHED FLOOR	EF	EXHAUST FAN	KW	KILOWATT
AHU	AIR HANDLING UNIT	EFF	EFFICIENCY	KVA	KILO VOLT - AMPS
ALUM	ALUMINUM	EL	ELEVATION	L	LENGTH
AP	ACCESS PANEL OR DOOR	ELEC	ELECTRIC	LAT	LEAVING AIR TEMPERATURE
ATS	AUTOMATIC TRANSFER SWITCH	ELEV	ELEVATOR	LV	LAVATORY
AV	AUDIO / VIDEO	EM	EMERGENCY FUNCTION	LB	POUND
AVG	AVERAGE	ENT	ENTERING	LD	LINEAR DIFFUSER
AWG	AMERICAN WIRE GAGE	EMT	ELECTRIC METALLIC TUBE	LF	LINEAR FEET
BAS	BUILDING AUTOMATION SYSTEM	EQ	EQUAL	LIN	LINEAR
	BASEBOARD		EQUIPMENT	LIQ	LIQUID
BB			EQUIVALENT	LM	LUMEN
BD	BACK DRAFT DAMPER	ES	END SWITCH	LRA	LOCKED ROTOR AMPS
BFP	BACK FLOW PREVENTOR			LV	LOUVER
BL	BOILER	ESP	EXTERNAL STATIC PRESSURE		
BLDG	BUILDING	ET	EXPANSION TANK	LVG	LEAVING
BLW	BELOW	EWC	ELECTRIC WATER COOLER	LWT	LEAVING WATER TEMPERAT
BOB	BOTTOM OF BEAM	EWT	ENTERING WATER ERATURE	MBH	THOUSANDS OF BTU PER HO
BOD	BOTTOM OF DUCT			MC	MECHANICAL CONTRACTOR
BOP	BOTTOM OF PIPE	EX	EXHAUST	MCA	MINIMUM CIRCUIT AMPACITY
BSMT	BASEMENT	EXPAN		MCB	MAIN CIRCUIT BREAKER
BTU	BRITISH THERMAL UNIT	EXT	EXTERNAL	MD	MOTORIZED DAMPER
С	CHILLER	F	DEGREES FAHRENHEIT	MDP	MAIN DISTRIBUTION PANEL
CAFCI	COMBINATION ARC FAULT	FA	FREE AREA	MED	MEDIUM
	CIRCUIT INTERRUPTERS	FC	FAN COIL UNIT	MFR	MANUFACTURER
CAP	CAPACITY	FC	FOOTCANDLE	MIN	MINIMUM
СВ	CIRCUIT BREAKER	FCV	FLOW CONTROL VALVE	MISC	MISCELLANEOUS
CBV	CIRCUIT BALANCING VALVE	FD	FIRE DAMPER	MLO	MAIN LUG ONLY
CCT	CORRELATED COLOR	FD	FLOOR DRAIN	MOCP	MAXIMUM OVERCURRENT
	TEMPERATURE	FIN	FINISHED		ECTION
CKT	CIRCUIT	FLA	FULL LOAD AMPS	MTD	MOUNTED
CFH	CUBIC FEET PER HOUR	FLEX	FLEXIBLE	MUA	MAKE-UP AIR UNIT
CFM	CUBIC FEET PER MINUTE	FLR	FLOOR	N	NEUTRAL
CHWR	CHILLED WATER RETURN	FOB	FLAT ON BOTTOM	NC	NORMALLY CLOSED
CHWS	CHILLED WATER SUPPLY	FOT	FLAT ON TOP	NEG	NEGATIVE
CI	CAST IRON	FP.	FIRE PROTECTION	NIC	NOT IN CONTRACT
CL	CENTER LINE	FP	FIRE PUMP	NL	NIGHT / SECURITY LIGHT - DO
CLG	CEILING	FPM	FEET PER MINUTE		WITCH
CMU	CONCRETE MASONRY UNIT	FPS		NO	NORMALLY OPEN
			FEET PER SECOND	NOM	NOMINAL
CO	CLEAN OUT	FS	FLOW SWITCH	NTS	NOT TO SCALE
COL	COLUMN	FSD	FIRE/SMOKE DAMPER	OA	OUTSIDE AIR
	COMPRESSOR	FT	FEET	OBD	OPPOSED BLADE DAMPER
CONC	CONCRETE	FXC	FLEXIBLE CONNECTION		
COND	CONDENSATE	GND	GROUND	OC	ON CENTER
CONN	CONNECTION	GA	GAUGE	OCC	OCCUPIED
CONT	CONTINUATION	GAL	GALLON	OCP	OVER CURRENT PROTECTIO
CONTR	R CONTRACTOR	GALV	GALVANIZED	OD	OUTSIDE DIAMETER
CRI	COLOR RENDERING INDEX	GEC	GROUND ELECTRODE	OL	OVERLOAD
CT	COOLING TOWER	COND	JCTOR	ORD	OVERFLOW ROOF DRAIN
СТ	CURRENT TRANSFORMER		GFI GROUND FAULT CIRCUIT	OZ	OUNCE
CU	CONDENSING UNIT		RUPTER	PBD	PARALLEL BLADE DAMPER
CU	COPPER	GC	GENERAL CONTRACTOR	PD	PRESSURE DROP
CUH	CABINET UNIT HEATER	GPH	GALLONS PER HOUR	PH	PHASE
CVB	CONSTANT VOLUME BOX	GPM	GALLONS PER MINUTE	POS	POSITIVE PRESSURE
		GRS/LI	B GRAINS PER POUND	POS	POINT OF SALES
CWR	CONDENSER WATER SURPLY	H 20	WATER	PRV	

HB HOSE BIBB

HP HEAT PUMP

HD HEAD (SEE SCHEDULES)

HP HORSEPOWER PTAC PACKAGED TERMINAL AIR CONDITIONER HR HOUR PV PLUG VALVE HEIGHT PVC POLYVINYL CHLORIDE QTY QUANTITY NG WATER RETURN NG WATER SUPPLY RCP REFLECTED CEILING PLAN EXCHANGER RD ROOF DRAIN REL RELIEF DIAMETER REQD REQUIRED TED GROUND RF RETURN FAN RH RELATIVE HUMIDITY RHC REHEAT COIL TION BOX RLA RATED LOAD AMPS RM ROOM RPM REVOLUTIONS PER MINUTE SC SHORT CIRCUIT SCA SHORT CIRCUIT AVAILABLE SCCR SHORT CIRCUIT CURRENT RATING R DIFFUSER SCH SCHEDULE RFEET SD SMOKE DAMPER SEF SMOKE EXHAUST FAN SF SUPPLY FAN SH SENSIBLE HEAT ED ROTOR AMPS SH SHOWER SP STATIC PRESSURE SPD SURGE PROTECTION DEVICE NG WATER TEMPERATURE SPEC SPECIFICATION SANDS OF BTU PER HOUR SQ SQUARE ANICAL CONTRACTOR SS STAINLESS STEEL UM CIRCUIT AMPACITY SS SAFETY SHOWER CIRCUIT BREAKER STD STANDARD RIZED DAMPER STL STEEL DISTRIBUTION PANEL SYS SYSTEM TEMP TEMPERATURE FACTURER TR TRANSFER GRILLE / REGISTER TR TAMPER RESISTANT LLANEOUS TT TEMPERATURE TRANSMITTER UG ONLY TTB TELECOMMUNICATIONS IUM OVERCURRENT TERMINAL BACKBOARD TYP TYPICAL TFD TX TRANSFORMER UP AIR UNIT UC UNDERCUT DOOR UH UNIT HEATER ALLY CLOSED UNO UNLESS NOTED OTHERWISE UNOCC UNOCCUPIED I CONTRACT UR URINAL / SECURITY LIGHT - DO V VOLTS VA VOLT AMPERE ALLY OPEN VA VALVE VAV VARIABLE AIR VOLUME UNIT O SCALE VFD VARIABLE FREQUENCY DRIVE DE AIR VRF VARIABLE REFRIGERANT FLOW SED BLADE DAMPER VOLT VOLTAGE NTER VTR VENT THROUGH ROOF W WIDTH CURRENT PROTECTION W WATTS DE DIAMETER W/ WITH W/O WITHOUT

PRV PRESSURE REDUCING VALVE

PSI POUNDS PER SQUARE INCH

PT PRESSURE TRANSMITTER

PS PRESSURE SWITCH

WB WET BULB

WC WATER COLUMN

WC WATER CLOSET

WG WATER GAUGE

WP WEATHERPROOF

XFMR TRANSFORMER

WPIU WEATHERPROOF IN-USE

WSR WITHSTAND RATING

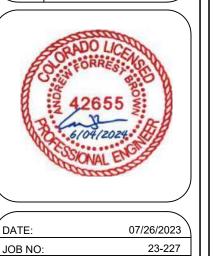
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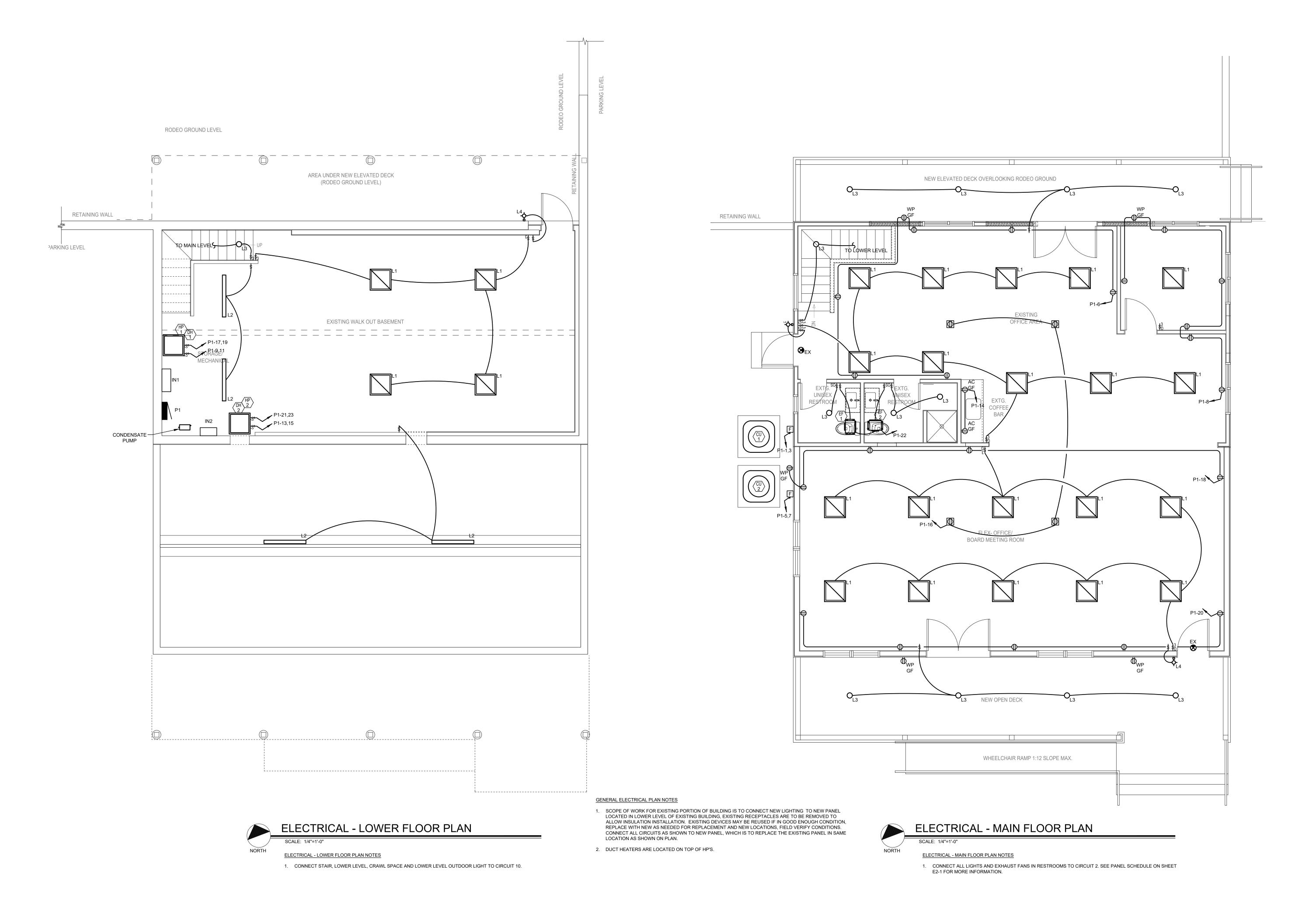
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CO 8150

DATE: | ISSUED FOR: 02/05/2024 REVIEW 05/31/2024 REVIEW 06/04/2024 PERMIT



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June 04, 2024 - 9:24:19am

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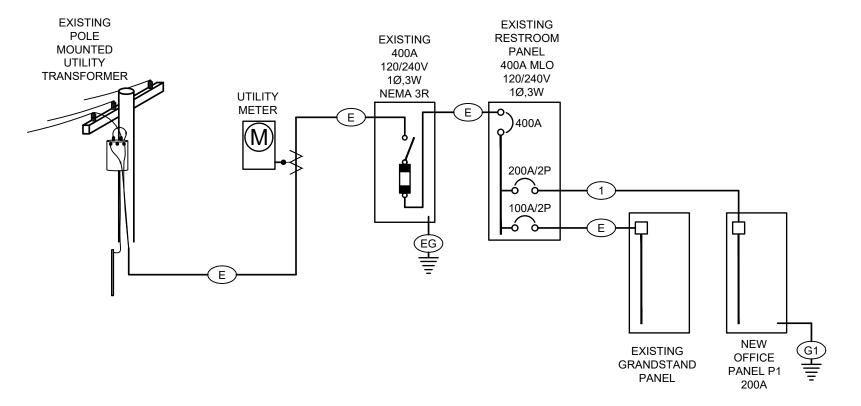
		LU	JMINAIRE	SCHEDULE	
TYPE	MANUFACTURER CATALOG NO.	MANUFACTURER CATALOG NO.	VOLTAGE MOUNTING	DRIVER LAMP SPECIFICATION	DESCRIPTION
L1	COOPER METALUX 22FP4240C	APPROVED EQUIVALENT	120V CEILING/SURFACE/ SUSPENDED	LED 0-10V DIMMING 4465LM, 4000K, 38.3W	2'X2' LED FLAT PANEL
L2	COOPER METALUX 4SLSTP2040DD-120V	APPROVED EQUIVALENT	120V CEILING/SURFACE/ SUSPENDED	LED TRIAC DIMMING 2830LM, 4000K, 23W	4' STRIP LIGHT
L3	COOPER HALO SMD6R12940WH	APPROVED EQUIVALENT	120V CEILING/SURFACE/ SUSPENDED	0-10V DIMMING 1223LM, 4000K, 15.3W	6" ROUND DOWNLIGHT, WET LISTED
L4	COOPER LIGHTING ABW-B1-727-LED-D1-A	APPROVED EQUIVALENT	120V WALL	LED, 3000K, 499LM, 80CRI, 11W	LED WALL SCONCE, UL LISTED, IP66 RATED, FULL CUT OFF
IN1	MULE CEPS-M-5-W-1	APPROVED EQUIVALENT	120V WALL	-	1100 WATT INVERTER FOR UPPER LEVEL LIGHTS
IN2	MULE CEPS-M-2-W-1	APPROVED EQUIVALENT	120V WALL	-	350 WATT INVERTER FOR LOWER LEVEL LIGHTS
EX	LITHONIA LIGHITNG LHQM LED HO	APPROVED EQUIVALENT	120/277V WALL/CEILING	LED EXIT SIGN	LED EXIT SIGN, HIGH IMPACT, FLAME RETARDANT, THERMOPLASTIC HOUSING. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.

NOTES:

- PROVIDE ALL APPURTENANCES REQUIRED TO INSTALL A COMPLETE AND FUNCTIONING SYSTEM.
 COORDINATE SELECTION OF COLORS AND FINISHES WITH ARCHITECT/OWNER.
- 3. EMERGENCY LIGHTING TO BE PROVIDED VIA INVERTERS.

GENERAL NOTES

- 1. 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.
- 2. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION BETWEEN THE APPROPRIATE DISCIPLINES AND CONTRACTORS. ALL EQUIPMENT IS TO BE INSTALLED TO STRICTLY CONFORM TO MANUFACTURER'S INSTALLATION GUIDELINES. ALL EQUIPMENT IS TO BE INSTALLED WITH ALL NECESSARY CONTROL/ACCESSORY OPTIONS TO FUNCTION AS INTENDED. IT IS THE RESPONSIBILITY OF THE EQUIPMENT MANUFACTURER/SUPPLIER AND THE CONTRACTOR/INSTALLER TO PROVIDE COMPLETE INSTALLATION AND FUNCTIONALITY OF ALL EQUIPMENT BASED ON DESIGN SPECIFICATIONS AS OUTLINED BY THE ARCHITECT/ENGINEER.
- 3. COORDINATE ALL DEVICE, FIXTURE AND HARDWARE COLOR SELECTIONS WITH THE ARCHITECT/OWNER PRIOR TO MAKING SHOP DRAWING SUBMITTALS.
- 4. 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.
- 5. ALL SERVICEABLE MECHANICAL EQUIPMENT IS TO BE INSTALLED WITH AN ACCEPTABLE DISCONNECTING MEANS AND/OR SERVICE OUTLET AS REQUIRED BY GOVERNING CODES
- 6. ALL INSTALLED EQUIPMENT THAT REQUIRES MARKING, TAGGING, OR OTHER IDENTIFICATION SHALL BE SO MARKED, TAGGED, OR OTHERWISE IDENTIFIED BY THE CONTRACTOR/INSTALLER AT THE TIME OF INSTALLATION IN COMPLIANCE WITH ALL GOVERNING CODES.
- 7. ALL 120V, SINGLE-PHASE, 15- AND 20-AMPERE BRANCH CIRCUITS SUPPLYING ELECTRICAL OUTLETS OR DEVICES SHALL BE PROVIDED WITH ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION IN ACCORDANCE WITH 2020 NEC 210.12(A)(1) THROUGH (6).
- 8. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL IN ACCORDANCE WITH 2020 NEC 210.8, OR AS MAY BE REQUIRED BY OTHER SECTIONS OF 2020 NEC.
- 9. ELECTRICAL CONTRACTOR SHALL PROVIDE REQUIRED GROUND-FAULT PROTECTION OF EQUIPMENT FOR ALL ELECTRIC HEAT TRACING AND HEATING PANELS IN ACCORDANCE WITH 2020 NEC 427.22, OR AS MAY BE REQUIRED BY OTHER SECTIONS OF 2020 NEC. ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE FOR ANY REQUIRED AT-GRADE ACCESSIBLE SHUTOFF DEVICE(S) OR DISCONNECT(S) FOR ELECTRIC HEAT TRACE INSTALLED ON THE ROOF.
- 10. ELECTRICAL CONTRACTOR SHALL FOLLOW THE APPLICABLE INSTALLATION REQUIREMENTS OF 2020 NEC 406.12; AS AMENDED BY AHJ.
- 11. ELECTRICAL CONTRACTOR SHALL PROVIDE WEATHER-PROOF IN-USE COVERS FOR ALL EXTERIOR RECEPTACLES.
- 12. REFER TO MECHANICAL AND PLUMBING DESIGN DRAWINGS FOR ADDITIONAL EQUIPMENT INFORMATION.



ONE-LINE DIAGRAM

NOT TO SCALE

- NOTES:

 1. ELECTRICAL SCOPE OF WORK FOR DISTRIBUTION EQUIPMENT INVOLVES

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 1. ELECTRICAL SCOPE OF
- REPLACEMENT OF BREAKER THAT FEEDS THE NEW OFFICE PANEL.

 2. PROVIDE GROUNDING AND BONDING TO MEET THE 2023 NEC 250 REQUIREMENTS.

 3. PROVIDE LABELING TO MEET THE REQUIREMENTS OF THE 2023 NEC 110.21.

WIRE SCHEDULE:

- E EXISTING TO REMAIN
- 1-1/2"C (3#3/0AWG(CU,THWN) + 1#6AWG(CU)G)
- EG EXISTING TO REMAIN
- G1) #4AWG TO STRUCTURAL STEEL AND UNDERGROUND WATER PIPE

LOAD SUMMARY (2023 NEC 220.87)

2023 NEC 220.87(1) - MAXIMUM DEMAND DATA OVER 1-YEAR PERIOD: 18.267kW (DATA RECEIVED FROM MLEA UTILITY SERVICE) 2023 NEC 220.87(2) - MAXIMUM DEMAND AT 125% PLUS NEW LOAD: 1.25*18,267,= 22,834+ 33224 = 56.0kW

56.0kW @ 240V 1-PHASE: 232.6A EXISTING 400A MAIN DISCONNECT TO REMAIN

LOAD PTECK LOAD DESCRIPTION POLES CAD CAT	PANEL SCHEDULE	- P1	TYPE: VOLTAGE: ENCLOSURE:	PANELBO 120/240 NEMA1	OARD		SIZE: BRKR: NTING:	225 225 FLUSH	1	WIRES:	1 3 10000	NEUTRAL BUS: YES GROUND BUS: YES
MECH PEATING HECH FEATING HE HEAD HE HEAD HILL HE HELD HILL HELD HELD HILL HE	LOAD TYPE	LOAD DESCRIPTION					۵	I		LOAD TYPE		LOAD DESCRIPTION
## PATECH FEATING ## PATECH FEATER ## PA	MECH COOLING				1	1 '	А	I		LIGHTING		
Part	MECH COOLING						В	1 -		RECEPTACLE		
Company Comp	/IECH COOLING				1	_	А	1 -		RECEPTACLE		
Second S	IECH COOLING						В	1		RECEPTACLE		
Company Comp	MECH YEAR ROUND				1	_	А			LIGHTING		
Control Cont	IECH YEAR ROUND						В	I		MECH YEAR ROU	ND	
STOCK STOC	IECH YEAR ROUND				1		А			RECEPTACLE		
MECH HEATING	/IECH YEAR ROUND					I	В	I		RECEPTACLE		
MECH HEATING	MECH HEATING				1		А			RECEPTACLE		
Part	/IECH HEATING						В			RECEPTACLE		BOARD ROOM RECEPTACLES
PARE	MECH HEATING				1		А			MECH YEAR ROU	ND	EXHAUST FANS
P	MECH HEATING					I	В	I		SPARE		
SPACE	SPARE		RE		1	I	А	I		SPARE		
SPACE	PACE					I	В	I		SPACE		
SPACE	SPACE					I	А			SPACE		
SPACE	PACE						В	I		SPACE		
SPACE	PACE					I	А	I		SPACE		
SPACE	SPACE						В	I		SPACE		
CONNECTED CONNECTED DEMAND DEMAND DEMAND DEMAND PHASE CONNECTED LOAD (VA) LOAD (VA) DEMAND DEMAN	SPACE						А			SPACE		
COADS BY TYPE: CONNECTED DEMAND DEMAND DEMAND PHASE CONNECTED LOAD (VA) FACTOR LOAD (VA) PHASE CONNECTED LOAD (VA) LOAD (AMPS) (PERCENT)	PACE						В	I		SPACE		
CONNECTED DEMAND DEMAND DEMAND PHASE LOAD (VA) LOAD (AMPS) (PERCENT)	PACE						А	I		SPACE		
Phase Load (VA) Factor Load (VA) Phase Load (VA) Load (AMPS) (Percent)	OADS BY TYPE:				1	LOADS BY	Y PHASE	<u>.</u> E:				
IGHTING						PHASE						
MECH HEATING 20000.00 1.00 20000.00 TOTAL/AVERAGE 42973.00 179.05 95.8 MECH COOLING 11600.00 1.00 11600.00 MECH YEAR ROUND 4200.00 1.00 4200.00 MISCELLANEOUS 0.00 1.00 0.00	KITCHEN PROCESS	1233.00 0.00 0.00	1.25 0.00 1.00	1541.25 0.00 0.00		В	_	_	21031.00 21942.00	175.2 182.8	6	A-B: 95.8 B-A: 95.8
MISCELLANEOUS 0.00 1.00 0.00 1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS. MOTOR 0.00 1.00 0.00 SPARE 0.00 1.00 0.00	MECH HEATING MECH COOLING MECH YEAR ROUND	20000.00 11600.00 4200.00	1.00 1.00 1.00	20000.00 11600.00 4200.00				.GE	42973.00	179.05		95.8
	MISCELLANEOUS MOTOR SPARE	0.00 0.00 0.00	1.00 1.00 1.00	0.00 0.00 0.00		THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS.						
TOTAL 42973.00 33131.00			0.20									

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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RECCOLUMBINE PARK OFFICE ELECTRICAL - DETAILS

DATE: ISSUED FOR:

02/05/2024 REVIEW

05/31/2024 REVIEW

06/04/2024 PERMIT



 DATE:
 07/26/2023 \)

 JOB NO:
 23-227

 DRAWN BY:
 BCE

 CHECKED BY:
 BCE

 SCALE:
 AS SHOWN

 SHEET NUMBER:

June 04, 2024 - 9:24:19am