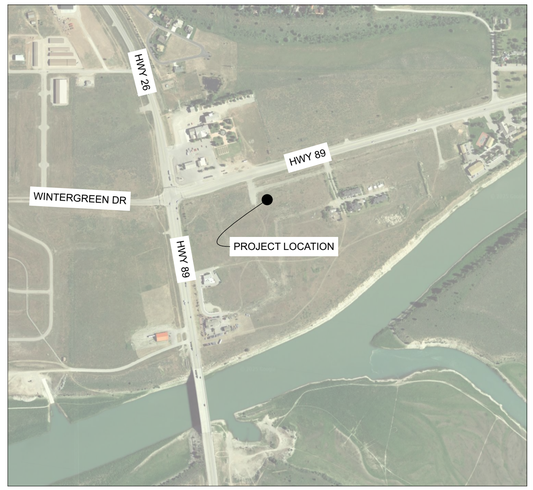
Lodge for Alpine Valley RV Resort

New Construction

TBD Alpine, Wyoming, 83128





VICINITY MAP

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	5/5/25	Issue for AHJ Review

24063

COVER SHEET

G-001

GENERAL NOTES (2024)

1. DRAWINGS AND DESIGNS MAY NOT BE REPRODUCED, COPIED, OR DISTRIBUTED ELECTRONICALLY IF YOU ARE NOT PART OF THE PROJECT TEAM WITHOUT PRIOR APPROVAL OF THE REGISTERED DESIGN PROFESSIONAL OF RECORD.

2. DRAWINGS ARE NOT INTENDED TO BE SCALED. DIMENSIONS ARE SHOWN FOR CLARITY. CONTACT DESIGN PROFESSIONAL OF RECORD FOR CLARIFICATION OF DIMENSIONS WHERE NONE ARE SHOWN.

3. WHERE SPECIFICATIONS PROVIDES INFORMATION DIFFERING FROM THESE GENERAL NOTES, THE SPECIFICATIONS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES.

CODE:
4. WORK CONTAINED IN THESE DOCUMENTS SHALL MEET ALL REQUIREMENTS OF THE LATEST ADOPTED CODES AS APPLIED BY THE JURISDICTION HAVING AUTHORITY OVER THE PROJECT. REFER TO THE CODE ANALYSIS SUMMARY FOR SPECIFIC CODES USED FOR THIS PROJECT.

GENERAL CONDITIONS:
5. REFER TO THE GENERAL CONDITIONS PROVIDED IN THE PROJECT MANUAL FOR SPECIFIC REQUIREMENTS RELATED TO THIS PROJECT.

BUILDING PERMIT FEES INCLUDED:
6. GENERAL CONTRACTOR SHALL INCLUDE COSTS FOR ALL PERMITS RELATED TO THE WORK DEFINED IN THE CONTRACT DOCUMENTS AS PART OF THE TOTAL BID FOR THE PROJECT.

WORKMANSHIP:
7. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE LATEST ADOPTED BUILDING CODE EDITIONS AND THE CONDITIONS AND SPECIFICATIONS OF ALL GOVERNING AUTHORITIES. ALL CONTRACTORS, SUBCONTRACTORS AND WORKMEN SHALL BE KNOWLEDGEABLE AND SKILLED IN THE TASKS ASSIGNED TO THEM.

SITE VERIFICATION:
8. THE CONTRACTOR AND SUBCONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING SITE CONDITIONS, DIMENSIONS AND RELATIONSHIPS TO EXISTING ELEMENTS PROVIDED BY OTHERS. CONTRACTOR SHALL NOTIFY ARCHITECT & OWNER OF CONDITIONS THAT ARE IN CONTRADICTION TO THE INFORMATION PROVIDED IN THESE DOCUMENTS, WHERE SUCH CONDITIONS WILL AFFECT THE WORK DESCRIBED IN THESE DOCUMENTS. FAILURE TO NOTIFY ARCHITECT & OWNER INDICATES ACCEPTANCE OF THE EXISTING CONDITIONS. NO EXTRA COST OR TIME SHALL BE ADDED TO THE CONSTRUCTION CONTRACT DUE TO FAILURE TO ACKNOWLEDGE DISCREPANCIES IN EXISTING SITE CONDITIONS.

DRAWING/SPECIFICATION CONFLICTS:
9. SHOULD DIMENSIONAL ERRORS OCCUR, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO COMMENCEMENT OF THAT PORTION OF THE WORK. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE MEASUREMENTS. DETAIL DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL SMALL-SCALE DRAWINGS. DETAIL REPRESENTATIONS HAVING SCALE AND DIMENSIONS SHALL GOVERN.

WORK INDICATED BUT NOT PARTICULARLY DETAILED OR SPECIFIED SHALL BE EQUAL TO SIMILAR PARTS THAT ARE DETAILED OR SPECIFIED.

THE SUBCONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND BEFORE ANY WORK IS CONSTRUCTED OR FABRICATED. DIMENSIONS ARE TYPICALLY TO FACE OF STRUCTURE AND FRAMING UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE TO VERIFY THICKNESSES OF FINISHES AND ALLOW FOR ADEQUATE CRITICAL CLEARANCES BETWEEN FINISHES WHERE INDICATED AS "CLEAR" IN THE DIMENSIONS.

10. SHOULD A CONFLICT OR DISCREPANCY APPEAR BETWEEN THE DRAWINGS AND SPECIFICATIONS OR BETWEEN ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND/OR CIVIL ENGINEERING DRAWINGS, OR WORK PERFORMED BY OTHERS WHICH AFFECTS THE WORK DESCRIBED IN THESE DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING THROUGH A FORMAL RFI PROCESS AND RECEIVE WRITTEN INSTRUCTIONS PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

SHOULD THE CONTRACTOR PROCEED PRIOR TO RECEIPT OF ARCHITECTS WRITTEN INSTRUCTIONS, THE CONTRACTOR SHALL MAKE GOOD AND CORRECT ANY WORK DAMAGES RESULTING FROM THE PROCEDURE. NO EXTRA COST OR TIME TO THE CONSTRUCTION CONTRACT SHALL BE ALLOWED FOR SUCH CORRECTIONS.

11. SHOULD CONFLICT OR DISCREPANCY APPEAR BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CLARIFICATION ON THE ISSUE. THE MOST RESTRICTIVE OR EXPENSIVE CONSTRUCTION METHOD OR MATERIAL INVOLVED IS ASSUMED AS PART OF THE WORK, UNLESS THE CONTRACTOR RECEIVES WRITTEN CLARIFICATION PRIOR TO BIDDING AS TO THE METHOD OR MATERIALS TO BE EMPLOYED.

ALL DOCUMENTS ARE BINDING:
12. THE CONTRACTOR, SUBCONTRACTOR, SUPPLIERS & ALL TRADES SHALL BE FAMILIAR WITH ALL DOCUMENTS ASSOCIATED WITH THE WORK. INFORMATION SHOWING ON ONE SHALL BE BINDING & IN EFFECT AS IF SHOWN ON ALL. SUBMISSION OF BIDS FOR THIS PROJECT INDICATES ACCEPTANCE OF THE ENTIRE SET OF CONTRACT DOCUMENTS INCLUDING DRAWINGS AND SPECIFICATIONS.

PLAN REVIEW/INSPECTOR CHANGES:
13. THE ARCHITECT SHALL NOT BE HELD RESPONSIBLE FOR CHANGES REQUESTED BY PLAN REVIEWERS AND/OR FIELD INSPECTORS OF THE GOVERNMENTAL AUTHORITIES HAVING JURISDICTION OVER THIS WORK.

SHOULD THE CONTRACT DOCUMENTS BE DEEMED BY THE AUTHORITIES TO BE IN CONFLICT WITH CODE OR REGULATIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF THE CONFLICT AND SHALL NOT PROCEED WITH THE PORTION OF THE WORK IN QUESTION UNTIL RECEIVING WRITTEN ACKNOWLEDGMENT AND DIRECTION FROM THE ARCHITECT.

AT NO TIME IS THE CONTRACTOR TO TAKE DIRECTION FROM THE GOVERNMENTAL AUTHORITIES WHICH DEVIATES FROM THE APPROVED CONSTRUCTION DOCUMENTS. SHOULD THE CONTRACTOR PROCEED PRIOR TO THE RECEIPT OF THE ARCHITECT'S WRITTEN INSTRUCTION, THE CONTRACTOR SHALL CORRECT ANY WORK AND/OR DAMAGES RESULTING FROM THE PROCEDURE. NO COST OR TIME TO THE CONSTRUCTION CONTRACT SHALL BE ALLOWED FOR SUCH CORRECTIONS.

14. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL REVIEW THE FULL CONTENT OF THE PLANS FOR DISCREPANCIES AND OMISSIONS PRIOR TO COMMENCEMENT OF WORK. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR ANY NON-CONFORMANCE WITH THE FULL CONTENT OF THE PLANS AND SPECS.

LIMIT OF CONSTRUCTION:
15. THE CONTRACTOR SHALL CONFINE OPERATIONS AT THE SITE TO AREAS PERMITTED BY LAW, ORDINANCES, PERMITS AND CONTRACT DOCUMENTS AND/OR AS DIRECTED BY THE ARCHITECT. THE CONTRACTOR SHALL NOT UNREASONABLY ENCUMBER THE SITE WITH MATERIALS OR EQUIPMENT. TRASH AND REFUSE SHALL BE PLACED IN ENCLOSED CONTAINERS AND REMOVED AT REGULAR INTERVALS.

SHOP DRAWINGS, SAMPLES AND APPROVALS:
16. NO WORK REQUIRING SHOP DRAWINGS OR SAMPLES SHALL COMMENCE UNTIL THE ARCHITECT HAS REVIEWED THE SUBMISSION AND RESPONDED IN WRITING. SUCH WORK SHALL BE IN ACCORDANCE WITH REVIEWED SHOP DRAWINGS AND SAMPLES.

ARCHITECT AND CONSULTANT ENGINEERS SHALL REVIEW AND RESPOND TO SHOP DRAWINGS, SAMPLES AND APPROVALS WITHIN 15 BUSINESS DAYS. WHERE APPLICABLE, COLOR SELECTION MAY BE DELAYED UNTIL ALL PRODUCT DATA AND SAMPLES REQUIRING COLOR SELECTIONS HAVE BEEN RECEIVED THROUGH THE SUBMITTAL PROCESS AND OWNER APPROVAL IS RECEIVED.

FIRE REQUIREMENTS:
17. ADDRESS NUMBERS MUST BE POSTED ON THE BUILDING, CLEARLY VISIBLE FROM THE STREET AND BE AT LEAST 4" HIGH AND WITH MINIMUM STROKE WIDTH OF 1/2" IN ACCORDANCE WITH IBC SECTION 502.1 (2024).

BLOCKING:
18. PROVIDE ALL BLOCKING REQUIRED FOR ATTACHMENT OF ALL WALL HUNG ITEMS. (I.E. GRAB BARS, COUNTERS, ROOF LADDERS, TOILET ACCESSORIES, ETC.) BLOCKING SHALL BE STANDARD NOMINAL LUMBER SIZES.

EXIT SIGNAGE AND ILLUMINATION:
19. EXIT SIGNS SHALL BE INSTALLED WHEN THERE ARE TWO OR MORE EXITS REQUIRED FROM A ROOM OR STORY. THESE SIGNS SHALL BE PLACED AT EACH EXIT DOOR AND IN SUCH A MANNER AS TO CLEARLY MARK AND INDICATE THE EXIT PATH TO THE EXTERIOR OF THE BUILDING PER IBC SECTION 1013 (2024).

20. THE MEANS OF EGRESS, INCLUDING THE EXIT DISCHARGE, SHALL BE ILLUMINATED AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED PER IBC SECTION 1013.6 (2024).

DOORS AND LANDINGS:
21. EXIT DOORS SHALL BE OPERABLE FROM INSIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFECT. THE MAIN EXIT DOOR MAY BE KEY OPERATED WITH A SIGN STATING, "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED." LETTING TO BE 1" HIGH ON A CONTRASTING BACKGROUND. PER IBC SECTION 1010.2.4.3.3 (2024). PANIC HARDWARE SHALL BE INSTALLED ON EXIT DOORS FROM ASSEMBLY ROOMS WITH AN OCCUPANT LOAD OF 50 OR MORE PER IBC SECTION 1010.2.8 (2024).

22. ALL DOOR HARDWARE AND PLUMBING FIXTURE HANDLES ARE REQUIRED TO MEET THE ICC/ANSI STANDARDS INCLUDING SECTION 309, CHAPTERS 4 & 6 OF ANSI A117.1-2009.

23. PROVIDE A LANDING ON BOTH SIDES OF DOORS PER IBC SECTION 1010.1.5 (2024). WHEN A DOOR LANDING SERVES AN OCCUPANT LOAD OF 50 OR MORE, DOORS IN ANY POSITION SHALL NOT REDUCE THE LANDING DIMENSIONS TO LESS THAN ONE-HALF ITS REQUIRED WIDTH (2024).

24. LANDINGS MUST HAVE A DIMENSION MEASURED IN THE DIRECTION OF TRAVEL OF NOT LESS THAN 44" AND WIDTH NOT LESS THAT THE WIDTH OF THE DOOR. DOORS IN THE FULLY OPEN POSITION SHALL NOT REDUCE THE REQUIRED DIMENSION BY MORE THAT 7" PER IBC SECTION 1010.1.5 (2024).

SAFETY GLAZING:
25. SAFETY GLAZING IS REQUIRED PER IBC SECTION 2406 (2024), IN FIXED OR OPERABLE PANELS WITHIN A 24" ARC OF EITHER VERTICAL EDGE OF A DOOR AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE A STANDING SURFACE. SAFETY GLAZING IS ALSO REQUIRED IN ALL DOORS. SAFETY GLAZING IS ALSO REQUIRED IN GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL, OTHER THAN THOSE LOCATIONS DESCRIBED ABOVE THAT MEETS ALL OF THE FOLLOWING CONDITIONS:

1. EXPOSED AREA OF THE INDIVIDUAL PANE GREATER THAN 9 SQUARE FEET.
2. EXPOSED BOTTOM EDGE LESS THAN 18" ABOVE FLOOR.
3. EXPOSED TOP EDGE GREATER THAN 36" ABOVE FLOOR, AND
4. ONE OR MORE WALKING SURFACES WITHIN 36" HORIZONTALLY OF THE PLANE OF THE GLAZING.

LATERAL BRACING:
26. SUSPENDED CEILING, LIGHT FIXTURES AND HVAC DIFFUSERS SHALL BE SUPPORTED AND LATERALLY BRACED AS SPECIFIED IN THE IBC (2024) AND SECTION 2606 AND CHAPTER 28 FOR CEILING BRACING REQUIREMENTS.

27. INTERIOR WALLS, PERMANENT PARTITIONS AND TEMPORARY PARTITIONS WHICH EXCEED 6'-0" IN HEIGHT SHALL BE CONSTRUCTED TO RESIST ALL LOADS TO WHICH THEY ARE SUBJECT BUT NOT LESS THAN A FORCE OF 5 POUNDS PER SQUARE FOOT APPLIED PERPENDICULAR TO THE WALL. RE: IBC SECTION 1607.16 (2024).

INSULATION:
28. ALL INSULATION MATERIALS, INCLUDING FACING, ARE REQUIRED TO HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A MAXIMUM SMOKE DENSITY OF 450 MAXIMUM, IBC SECTION 720 (2024).

29. WHERE INSULATION IS PROVIDED IN FRAMED CAVITIES, INSULATION SHALL FILL FULL DEPTH OF FRAMED CAVITIES AND FIT TIGHT BETWEEN FRAMING UNLESS SPECIFICALLY NOTED OTHERWISE.

HARDWARE AND CONTROLS:
30. DOOR HARDWARE AND OPERATIONAL CONTROLS SHALL BE OF THE TYPE THAT DOES NOT REQUIRE A TIGHT GRASPING OR PINCHING MOTION THAT COMPLIES WITH IBC CHAPTER 11 AND CABO/ANSI A117.1 REQUIREMENTS FOR ACCESSIBILITY.

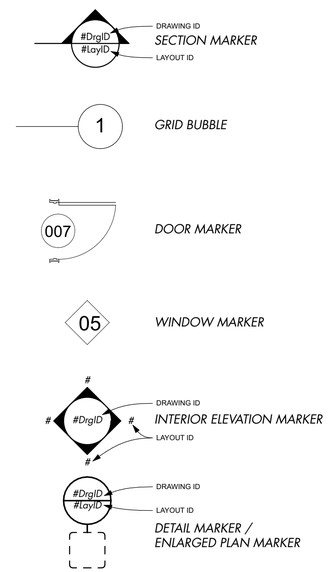
INTERIOR FINISHES:
31. ALL INTERIOR FINISHES FURNISHED FOR THIS PROJECT SHALL COMPLY WITH IBC SECTION 803 AND TABLE 803.13 (2024) FOR MAXIMUM ALLOWABLE FLAME SPREAD AND SHALL HAVE A SMOKE DENSITY NO GREATER THAT 450.

STANDARD ABBREVIATIONS

ABOVE FINISHED FLOOR	AFF
ACOUSTICAL CEILING TILE	ACT
AIR CONDITIONING UNIT	A/C UNIT
AIR HANDLING UNIT	AHU
ALUMINUM	AL
AMERICANS WITH DISABILITIES ACT	ADA
AUTHORITY HAVING JURISDICTION	AHJ
ACCESSORY	ACC
BUILDING	BLDG
CEILING	CLG
CEILING HEIGHT	CLGHT
CLEANOUT	CO
CLEANOUT TO GRADE	COTG
CLEAR	CLR
CLOSET	CLOS.
COLD WATER PIPING	CW
COLUMN	COL
CONCRETE	CONC
CONCRETE MASONRY UN IT	CMU
CONTRACTOR FURNISHED CONTRACTOR INSTALLED	C.F.C.I.
CONTRACTOR FURNISHED OWNER INSTALLED	C.F.O.I.
CORRIDOR	CORR
CUBIC FEET	CU FT
CUBIC INCH	CU IN
CUBIC YARD	CU YD
CUSTODIAN	CUST
DEMOLITION	DEMO
DETAIL	DET
DIMENSION	DIM
DISTANCE	DIST
DOUBLE	DBL
DRAWING	DWG
EACH	EA
ELEVATION	ELEV
ENTRANCE	ENTR
EQUAL	EQ
EQUIPMENT	EQUIP
ETHYLENE PROPYLENE DIENE MONOMER	EPDM
EXISTING	EXIST
EXTERIOR INSULATION AND FINISH SYSTEM	EIFS
EXTERNAL/EXTERIOR	EXT
FACE OF FINISH	FOF
FACE OF MASONRY	FOM
FACE OF STUD	FOS
FACE OF WALL	FOW
FIBERGLASS-FACED GYPSUM BOARD	FFG
FIBER REINFORCED GYPSUM	FRG
FIELD VERIFY	F.V.
FINISH FLOOR	FF
FINISH FLOOR ELEVATION	FFE
FINISH GRADE	FG
FIRE EXTINGUISHER	FE
FLOOR DRAIN	FD
FOOT	FT
FOOTING	FTG
FOUNDATION	FDTN
FURNITURE	FURN
GLASS-FIBER-REINFORCED CONCRETE	GFRC
GLASS-FIBER-REINFORCED GYPSUM	GFRG
GLUED LAMINATED WOOD	GLU LAM
GYPSUM BOARD	GYP BD

HANDICAP	
HARDWOOD	
HEATING, VENT & AIR CONDITIONING	
HEIGHT	
HOLLOW METAL	
HOLLOW STRUCTURAL STEEL	
HORIZONTAL	
HOSE BIB	
HOT WATER	
INSULATION	
INTERIOR / INTERNAL	
INTERNATIONAL	
INTERNATIONAL BUILDING CODE	
KITCHEN	
LAUNDRY	
LAVATORY	
LEFT HAND	
LEFT HAND REVERSE	
LIVING ROOM	
MAXIMUM	
MECHANICAL	
MINIMUM	
MIRROR	
NATURAL GAS	
NON LOAD BEARING	
OPPOSITE	
OWNER FURNISHED CONTRACTOR INSTAL	
OWNER FURNISHED OWNER INSTALLED	
PLASTIC LAMINATE	
POLYVINYL CHLORIDE	
PROPERTY LINE	
QUANTITY	
RADIUS	
RECEPTACLE	
RECESSED CAN LIGHT	
REFLECTED CEILING PLAN	
REINFORCING STEEL BARS	
REQUIRED	
RIGHT HAND	
RIGHT HAND REVERSE	
RIGHT OF WAY	
ROOF DRAIN	
ROOM	
SANITARY SEWER	
SMOKE DETECTOR	
SOLID CORE WOOD	
SQUARE FOOT (FEET)	
STORM DRAIN	
STORM SEWER	
STORAGE	
TONGUE AND GROOVE	
TOP OF BEAM	
TOP OF CONCRETE / CURB	
TOP OF CONCRETE FOOTING	
TOP OF CONCRETE WALL	
TOP OF FINISH FLOOR	
TOP OF FLOOR/FOOTING/FRAME	
TOP OF FOUNDATION	
TOP OF WALL	
TYPICAL	
ULTRAVIOLET	
VAPOR BARRIER	
VERTICAL	
VINYL COMPOSITION TILE	
WALL CLEANOUT	
WALK IN CLOSET	
WITH	
WITHOUT	

SYMBOLS



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C-2974
Date: 05/05/25
STATE OF WYOMING

Original document is on file with the date of issue & signature

Original documents signed by:
J. GRAHAM WHIPPLE
Date original documents signed:
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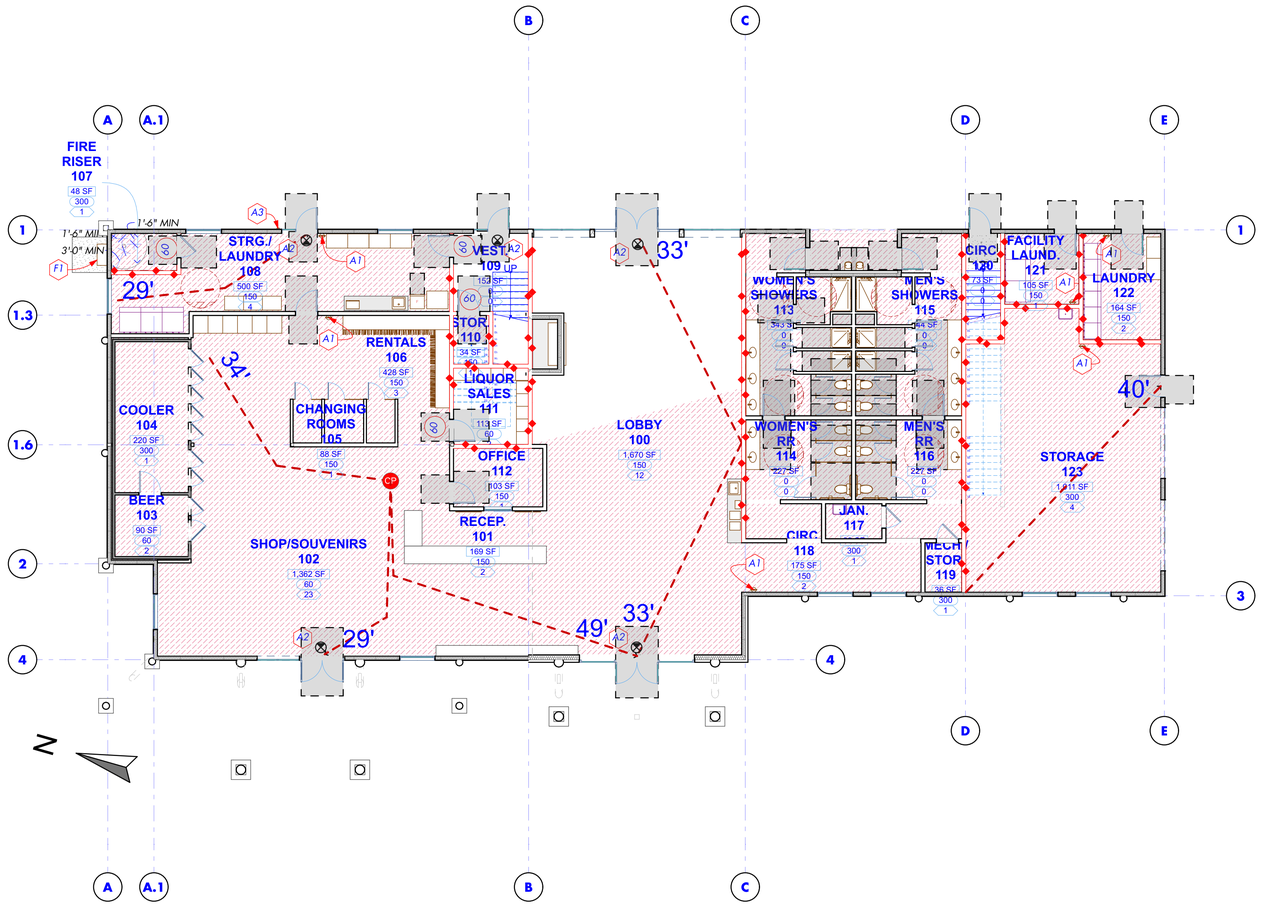
NOTES & LEGENDS

G-002

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OCCUPANCY & OCCUPANT LOAD SCHEDULE

STORY	OCCUPANCY CLASSIFICATION	ZONE NUMBER	ZONE NAME	MEASURED AREA	SPACE FUNCTION	OCCUPANT LOAD	OCCUPANTS
FIRST FLOOR							
	B Business	100	LOBBY	1,669.56	Business	150	12
	B Business	101	RECEP.	168.96	Business	150	2
	B Business	107	FIRE RISER	48.26	Accessory storage areas, mechanical equipment room	300	1
	B Business	109	VEST.	152.44	Circulation	0	0
	B Business	112	OFFICE	103.38	Business	150	1
	B Business	113	WOMEN'S SHOWERS	343.31	RR	0	0
	B Business	114	WOMEN'S RR	226.59	RR	0	0
	B Business	115	MEN'S SHOWERS	344.38	RR	0	0
	B Business	116	MEN'S RR	227.11	RR	0	0
	B Business	117	JAN.	39.19	Accessory storage areas, mechanical equipment room	300	1
	B Business	118	CIRC.	175.17	Business	150	2
	B Business	119	MECH./ STOR.	35.99	Accessory storage areas, mechanical equipment room	300	1
	B Business	120	CIRC.	73.34	Circulation	0	0
	B Business	121	FACILITY LAUND.	104.58	Business	150	1
	B Business	122	LAUNDRY	163.83	Business	150	2
				3,876.09 ft²			**23**
	M Mercantile	102	SHOP/SOUVENIRS	1,361.61	Mercantile	60	23
	M Mercantile	103	BEER	89.56	Mercantile	60	2
	M Mercantile	104	COOLER	219.58	Accessory storage areas, mechanical equipment room	300	1
	M Mercantile	105	CHANGING ROOMS	88.30	Business	150	1
	M Mercantile	106	RENTALS	428.17	Business	150	3
	M Mercantile	111	LIQUOR SALES	112.88	Mercantile	60	2
				2,300.10 ft²			**32**
	S-1 Storage-Moderate	108	STRG./ LAUNDRY	500.12	Business	150	4
	S-1 Storage-Moderate	110	STOR.	34.13	Business	150	1
	S-1 Storage-Moderate	123	STORAGE	1,011.01	Accessory storage areas, mechanical equipment room	300	4
				1,545.26 ft²			**9**



1 FIRST FLOOR LIFE SAFETY PLAN

SCALE: 3/32" = 1'-0"

LIFE SAFETY GENERAL NOTES

A. *SEE "G" SERIES SHEETS FOR ACCESSIBILITY COMPLIANCE DETAILS PERTAINING TO DOOR SWING CLEARANCES, DRINKING FOUNTAIN AND SINK CLEAR SPACE REQUIREMENTS, ACCESSIBLE SIGNAGE, FLOOR TRANSITION DETAILS, ACCESSIBLE MOUNTING HEIGHTS, TOILET, AND SHOWER REQUIREMENTS.*

B. WHERE THERE IS AN ACCESSIBLE CONCEALED FLOOR, FLOOR-CEILING OR ATTIC SPACE, FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENING OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IN THE CONCEALED SPACE. SUCH IDENTIFICATION SHALL:

1. BE LOCATED WITHIN 15FT OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30FT MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION.

2. INCLUDE LETTERING NOT LESS THAN 3 INCHES IN HEIGHT WITH A MINIMUM 3/8 INCH STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORDING, "**FIRE AND/OR SMOKE BARRIER-PROTECT ALL OPENINGS**"

C. BUILDING WILL BE REQUIRED TO MEET APPROPRIATE EMERGENCY RESPONDER RADIO COVERAGE AS OUTLINED IN IFC 1103.2. TESTING SHALL BE REQUIRED TO DETERMINE THE LEVEL OF RADIO COVERAGE. BUILDINGS THAT DO NOT MEET THE MINIMUM REQUIREMENTS FOR EMERGENCY RESPONDER RADIO COVERAGE WILL BE REQUIRED TO INSTALL AN APPROVED RADIO AMPLIFIER SYSTEM.

D. EMERGENCY KEYBOX, BASIS OF DESIGN "KNOXBOX 3200" OR EQUIVALENT

LIFE SAFETY PLAN LEGEND

- 4' — *TRAVEL DISTANCE*
- *EGRESS PATH*
- *TRANSITION POINT FOR COMMON PATH OF EGRESS*
- *PORTABLE FIRE EXTINGUISHER AND CABINET*
- 45 — *45 MINUTE FIRE RATED DOOR ASSEMBLY*
- *60 MIN. FIRE BARRIER WALL ASSEMBLY*
- *30 MIN. FIRE BARRIER CEILING/FLOOR ASSEMBLY*
- *60 MIN. FIRE BARRIER CEILING/FLOOR ASSEMBLY*
- *EXIT SIGN OR DIRECTIONAL EXIT SIGN PER PLANS*
- *DRAFT STOP*
- *MINIMUM CLEAR SPACE/ADA ACCESSIBLILITY CLEARANCE*

ZONE TAG

MECH. RM 102 — *SPACE NAME / FUNCTIONAL USE*
46 SF — *ROOM NUMBER*
300 — *AREA OF ROOM / SPACE*
1 — *OCCUPANT LOAD FACTOR*
CALCULATED OCCUPANCY

LIFE SAFETY PLAN KEYNOTES

A1	EXTINGUISHER - SEE G-400 SERIES SHEETS FOR MOUNTING HEIGHT
A2	EXIT SIGN - SEE ELECTRICAL
A3	EMERGENCY KEY BOX
F1	FIRE DEPARTMENT CONNECTION

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LICENSED ARCHITECT J. GRAHAM WHIPPLE C-2974 Date: 05/05/25 STATE OF WYOMING

Original document is on file with the state licensing signature

Original documents signed by: J. GRAHAM WHIPPLE
Date original documents signed: 5/5/25

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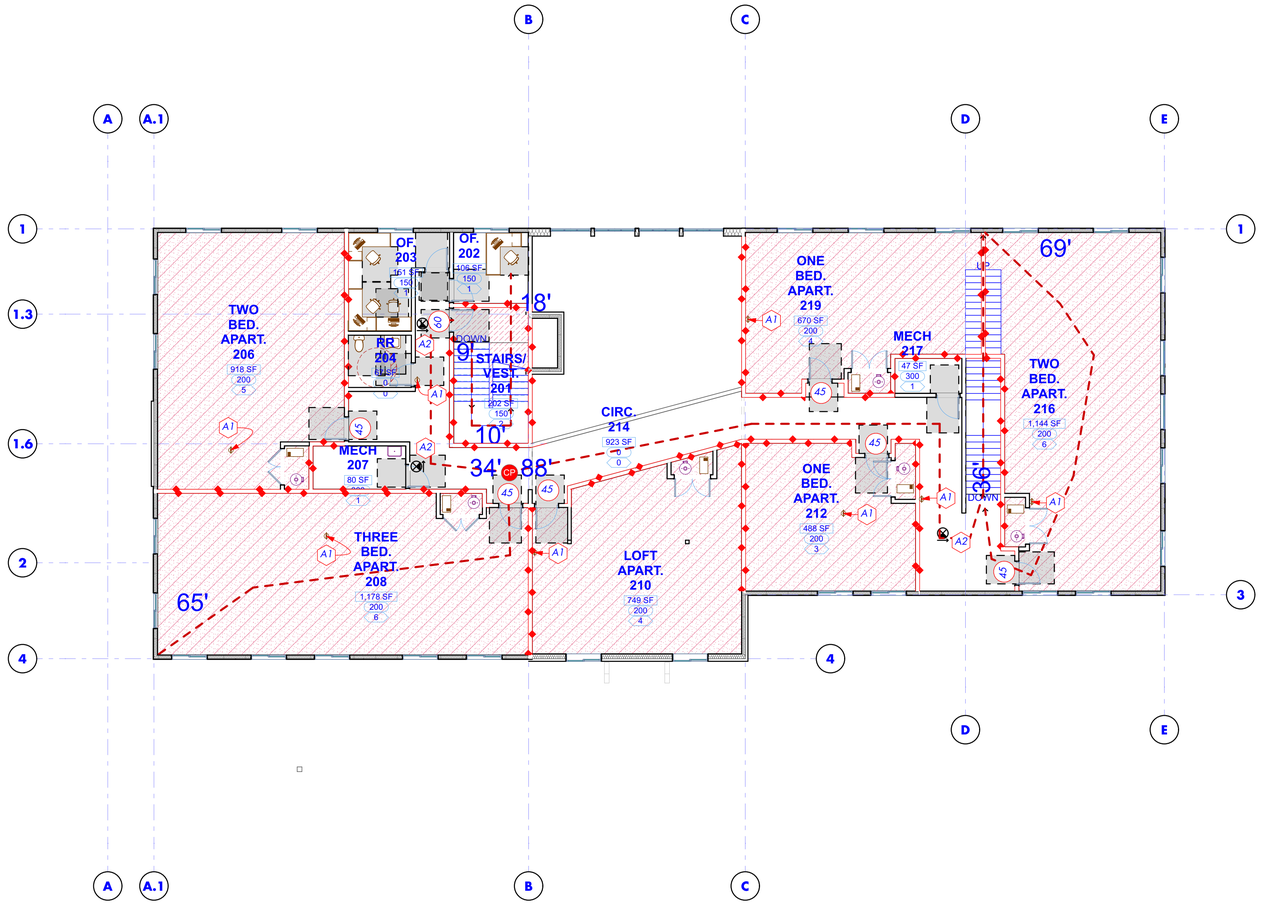
FIRST FLOOR LIFE SAFETY

G-101

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OCCUPANCY & OCCUPANT LOAD SCHEDULE

STORY	OCCUPANCY CLASSIFICATION	ZONE NUMBER	ZONE NAME	MEASURED AREA	SPACE FUNCTION	OCCUPANT LOAD	OCCUPANTS
	B Business	201	STAIRS/ VEST.	201.98	Circulation	150	2
	B Business	202	OF.	105.98	Business	150	1
	B Business	203	OF.	151.46	Business	150	1
	B Business	204	RR	66.50	RR	0	0
	B Business	207	MECH	79.74	Accessory storage areas, mechanical equipment room	300	1
	B Business	214	CIRC.	923.22	Circulation	0	0
	B Business	217	MECH	47.37	Accessory storage areas, mechanical equipment room	300	1
				1,576.25 ft²			**6**
	R-2 Residential-Appartments	206	TWO BED. APART.	918.49	Residential	200	5
	R-2 Residential-Appartments	208	THREE BED. APART.	1,177.74	Residential	200	6
	R-2 Residential-Appartments	210	LOFT APART.	748.58	Residential	200	4
	R-2 Residential-Appartments	212	ONE BED. APART.	487.62	Residential	200	3
	R-2 Residential-Appartments	216	TWO BED. APART.	1,144.43	Residential	200	6
	R-2 Residential-Appartments	219	ONE BED. APART.	670.21	Residential	200	4
				5,147.07 ft²			**28**



1 SECOND FLOOR LIFE SAFETY PLAN
SCALE: 3/32" = 1'-0"

LIFE SAFETY GENERAL NOTES

A. *SEE "G" SERIES SHEETS FOR ACCESSIBILITY COMPLIANCE DETAILS PERTAINING TO DOOR SWING CLEARANCES, DRINKING FOUNTAIN AND SINK CLEAR SPACE REQUIREMENTS, ACCESSIBLE SIGNAGE, FLOOR TRANSITION DETAILS, ACCESSIBLE MOUNTING HEIGHTS, TOILET, AND SHOWER REQUIREMENTS.*

B. WHERE THERE IS AN ACCESSIBLE CONCEALED FLOOR, FLOOR-CEILING OR ATTIC SPACE, FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENING OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IN THE CONCEALED SPACE. SUCH IDENTIFICATION SHALL:

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C. BUILDING WILL BE REQUIRED TO MEET APPROPRIATE EMERGENCY RESPONDER RADIO COVERAGE AS OUTLINED IN IFC 1103.2. TESTING SHALL BE REQUIRED TO DETERMINE THE LEVEL OF RADIO COVERAGE. BUILDINGS THAT DO NOT MEET THE MINIMUM REQUIREMENTS FOR EMERGENCY RESPONDER RADIO COVERAGE WILL BE REQUIRED TO INSTALL AN APPROVED RADIO AMPLIFIER SYSTEM.

D. EMERGENCY KEYBOX, BASIS OF DESIGN "KNOXBOX 3200" OR EQUIVALENT

LIFE SAFETY PLAN LEGEND

- 4' — *TRAVEL DISTANCE*
- *EGRESS PATH*
- *TRANSITION POINT FOR COMMON PATH OF EGRESS*
- *PORTABLE FIRE EXTINGUISHER AND CABINET*
- 45 — *45 MINUTE FIRE RATED DOOR ASSEMBLY*
- *60 MIN. FIRE BARRIER WALL ASSEMBLY*
- *30 MIN. FIRE BARRIER CEILING/FLOOR ASSEMBLY*
- *60 MIN. FIRE BARRIER CEILING/FLOOR ASSEMBLY*
- *EXIT SIGN OR DIRECTIONAL EXIT SIGN PER PLANS*
- *DRAFT STOP*
- *MINIMUM CLEAR SPACE/ADA ACCESSIBLILITY CLEARANCE*

ZONE TAG

MECH. RM 102 — *SPACE NAME / FUNCTIONAL USE*
46 SF — *ROOM NUMBER*
300 — *AREA OF ROOM / SPACE*
1 — *OCCUPANT LOAD FACTOR*
CALCULATED OCCUPANCY

LIFE SAFETY PLAN KEYNOTES

A1 EXTINGUISHER - SEE G-400 SERIES SHEETS FOR MOUNTING HEIGHT
A2 EXIT SIGN - SEE ELECTRICAL
A3 EMERGENCY KEY BOX
F1 FIRE DEPARTMENT CONNECTION

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Original documents signed by: J. GRAHAM WHIPPLE
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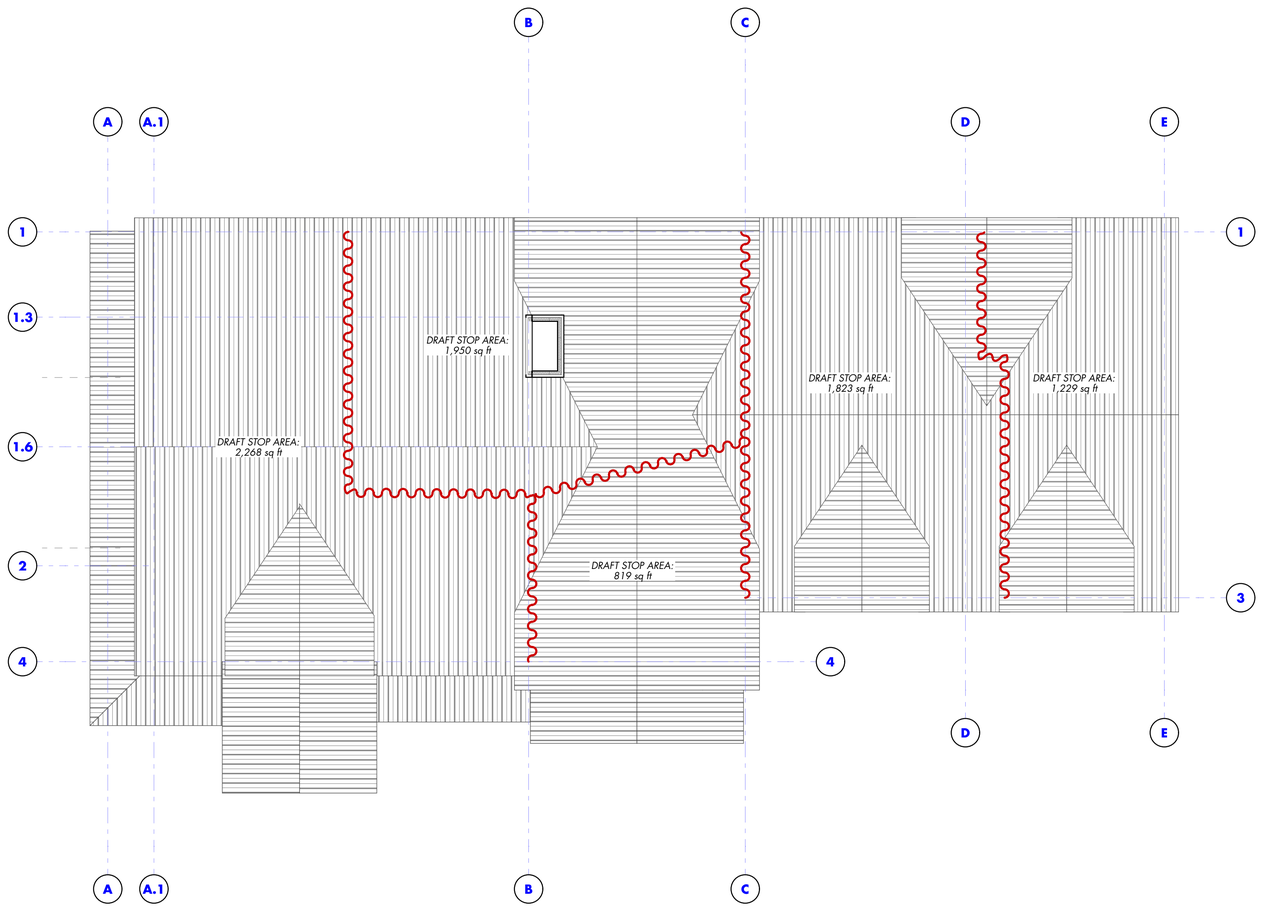
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SECOND FLOOR LIFE SAFETY

G-102

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1 ROOF LIFE SAFETY PLAN
SCALE: 3/32" = 1'-0"

LIFE SAFETY GENERAL NOTES

A. *SEE "G" SERIES SHEETS FOR ACCESSIBILITY COMPLIANCE DETAILS PERTAINING TO DOOR SWING CLEARANCES, DRINKING FOUNTAIN AND SINK CLEAR SPACE REQUIREMENTS, ACCESSIBLE SIGNAGE, FLOOR TRANSITION DETAILS, ACCESSIBLE MOUNTING HEIGHTS, TOILET, AND SHOWER REQUIREMENTS.*

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D. EMERGENCY KEYBOX, BASIS OF DESIGN "KNOXBOX 3200" OR EQUIVALENT

LIFE SAFETY PLAN LEGEND

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- *EGRESS PATH*
- *TRANSITION POINT FOR COMMON PATH OF EGRESS*
- *PORTABLE FIRE EXTINGUISHER AND CABINET*
- 45 — *45 MINUTE FIRE RATED DOOR ASSEMBLY*
- *60 MIN. FIRE BARRIER WALL ASSEMBLY*
- *30 MIN. FIRE BARRIER CEILING/FLOOR ASSEMBLY*
- *60 MIN. FIRE BARRIER CEILING/FLOOR ASSEMBLY*
- *EXIT SIGN OR DIRECTIONAL EXIT SIGN PER PLANS*
- *DRAFT STOP*
- *MINIMUM CLEAR SPACE/ADA ACCESSIBLILITY CLEARANCE*

ZONE TAG

MECH. RM 102 — *SPACE NAME / FUNCTIONAL USE*
46 SF — *ROOM NUMBER*
300 — *AREA OF ROOM / SPACE*
1 — *OCCUPANT LOAD FACTOR*
CALCULATED OCCUPANCY

LIFE SAFETY PLAN KEYNOTES

A1	EXTINGUISHER - SEE G-400 SERIES SHEETS FOR MOUNTING HEIGHT
A2	EXIT SIGN - SEE ELECTRICAL
A3	EMERGENCY KEY BOX
F1	FIRE DEPARTMENT CONNECTION

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J. GRAHAM WHIPPLE
C-2974
Date: 05/05/25
STATE OF WYOMING

Original document is on file with the date of seal/stamp & signature
Original documents signed by: J. GRAHAM WHIPPLE
Date original documents signed: 5/5/25

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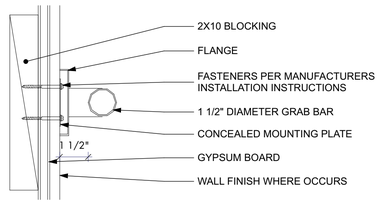
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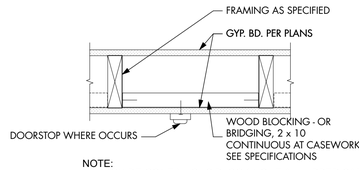
ROOF LIFE SAFETY

G-103

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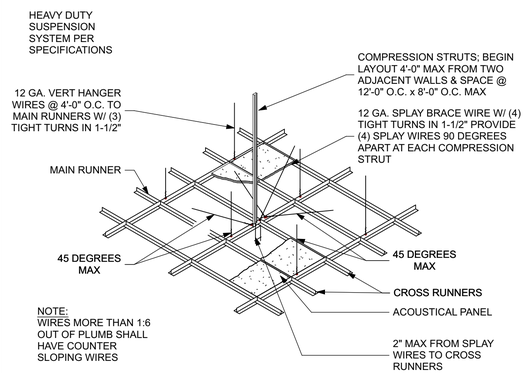
C2 GRAB BAR DETAIL
SCALE: 3" = 1'-0"



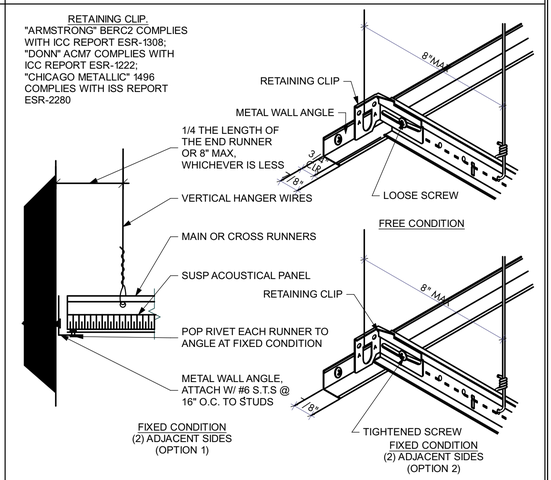
NOTE:
1. PROVIDE CONTINUOUS BLOCKING AT ALL UPPER CABINETS. SEE PLANS AND ELEVATIONS FOR CABINET LOCATIONS. ALSO PROVIDE BLOCKING AT ALL GRAB BARS, WALL MOUNTED SINKS, AND ALL OTHER WALL MOUNTED EQUIPMENT.

2. PROVIDE FIRE RATED BLOCKING AT ALL RATED CONSTRUCTION LOCATIONS

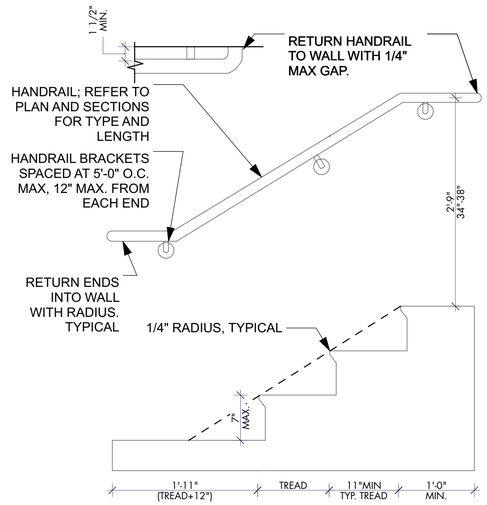
C1 SOLID BLOCKING DETAIL
SCALE: 1 1/2"= 1'-0"



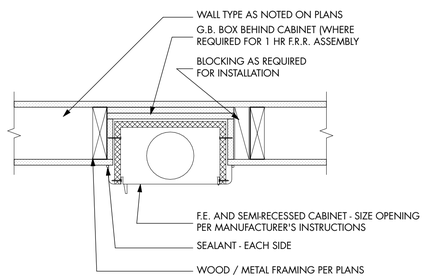
B2 SUSPENDED CEILING GIRD
SCALE: 1/4" = 1'-0"



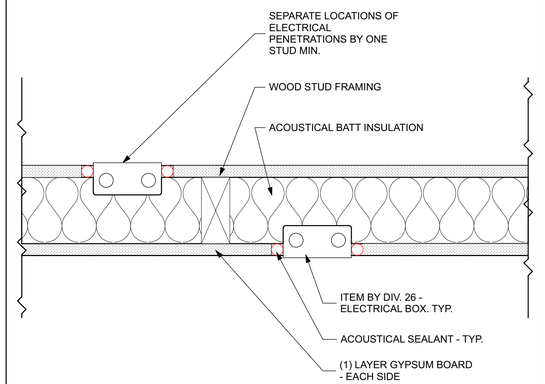
B1 SUSPENDED CEILING @ WALL
SCALE: 3" = 1'-0"



A3 STAIR AND HANDRAIL DETAIL
SCALE: 1" = 1'-0"



A2 RECESSED CABINET
SCALE: 1 1/2"= 1'-0"



A1 STAGGERED OUT DETAIL
SCALE: 3" = 1'-0"

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TYPICAL DETAILS

G-401

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B4 ACCESSIBLE KNEE CLEARANCE

SCALE: 3/4" = 1'-0"

PROTECTED RAILS MAY BE OMITTED WHEN FIXTURE IS LOCATED COMPLETELY IN ALCOVE. SIMILAR DIMENSIONAL CLEARNACES APPLY. SEE FLOOR PLAN.

B3 DRINKING FOUNTAIN

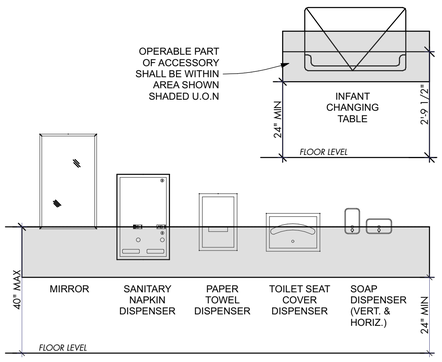
SCALE: 3/4" = 1'-0"

B2 TYP. ADA SHOWER - TRANSFER TYPE

SCALE: 1/2" = 1'-0"

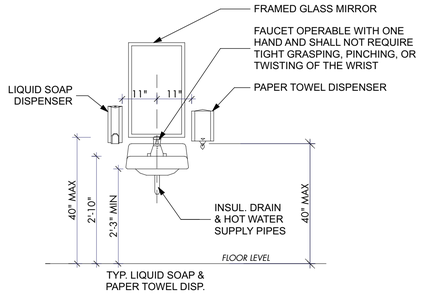
B1 TYP. TOILET PAPER DISPENSER

SCALE: 1/2" = 1'-0"



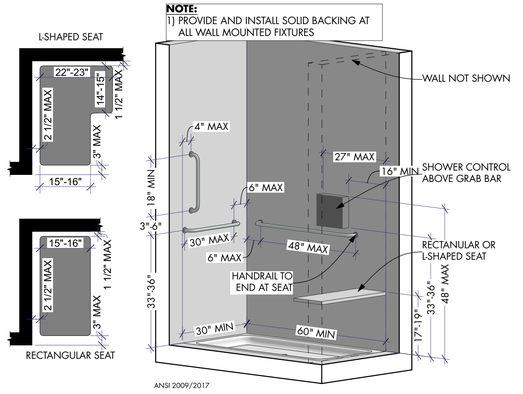
A4 TYP. ADA BATHROOM FIXTURES

SCALE: 1/2" = 1'-0"



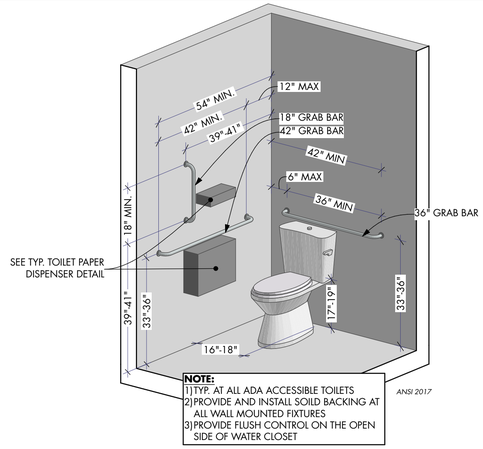
A3 TYP. ADA BATHROOM @ LAV

SCALE: 1/2" = 1'-0"



A2 TYP. ADA SHOWER - ROLL-IN TYPE

SCALE: 1/2" = 1'-0"



A1 TYP. ADA TOILET

SCALE: 1/2" = 1'-0"

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J. GRAHAM WHIPPLE
Date original documents signed:
5/5/25

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AFTON, WY, 83110
PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
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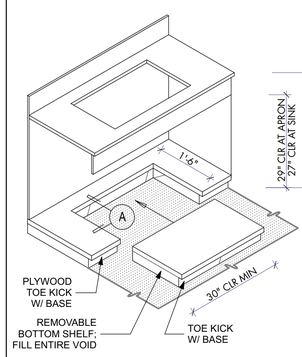
24063

ACCESSIBILITY COMPLIANCE

G-402

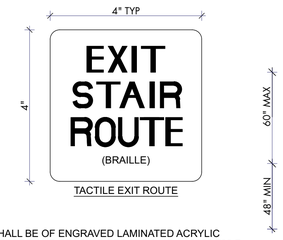
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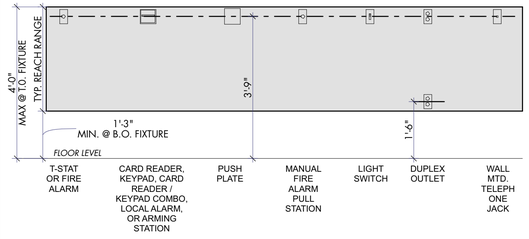
NOTES:
1. DOORS ARE TO BE PROVIDED (NOT SHOWN FOR CLARITY)
2. INSTALL INSULATION ON EXPOSED PIPES UNDER SINK PER PLUMBING SPECS
3. RUN FLOORING AND BASE INTO WHEELCHAIR SPACE
4. NO SHARP OR ABRASIVE SURFACES UNDER SINKS & COUNTER

C2 ACCB. CAB W/ REMOVABLE SHELF
SCALE: 1/2" = 1'-0"

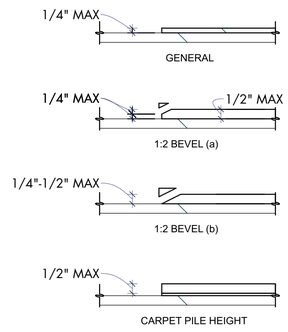


NOTE:
1. SIGN SHALL BE OF ENGRAVED LAMINATED ACRYLIC
2. CHARACTERS AND SPACING PER ICC A117.1 - 2009 703.7

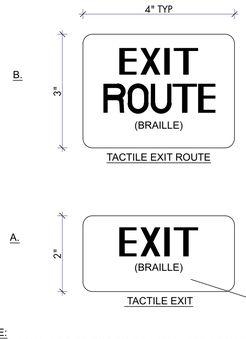
C1 EXIT STAIR ROUTE SIGN
SCALE: 6" = 1'-0"



B3 TYP. MOUNTING HEIGHTS
SCALE: 1/2" = 1'-0"

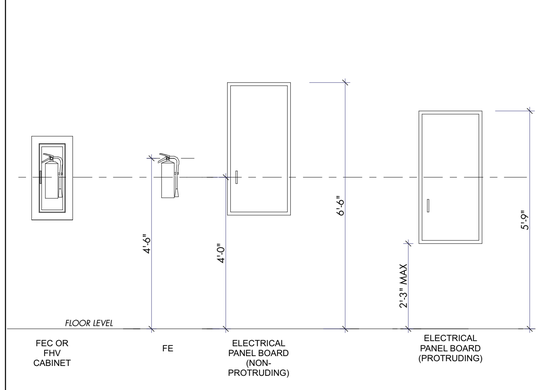


B2 VERTICAL LEVEL CHANGE
SCALE: 3" = 1'-0"

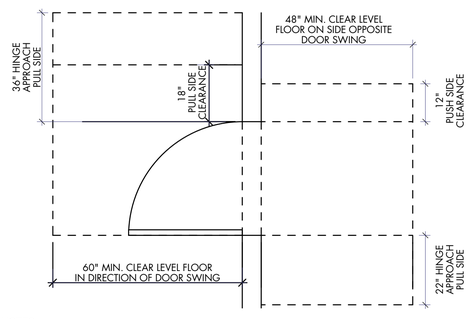


NOTE:
1. SIGN SHALL BE OF ENGRAVED LAMINATED ACRYLIC
2. CHARACTERS AND SPACING PER ICC A117.1 - 2009 703.7

B1 EXIT ROUTE SIGN
SCALE: 6" = 1'-0"

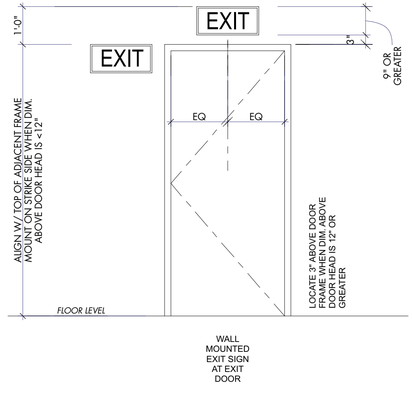


A3 TYP. WALL MOUNTED FIXTURES
SCALE: 1/2" = 1'-0"



NOTES:
1. SIDE CLEARANCE IS ALSO REQUIRED IF THE PLANE OF THE DOOR IS RECESSED MORE THAN 8" FROM WALL PLANE, OR MORE THAN 8" FROM ANY OBSTRUCTION WITHIN 18" HORIZONTALLY OF THE LATCH SIDE.

A2 DOOR CLEARANCES
SCALE: 1/2" = 1'-0"



A1 EXIT SIGN @ DOOR
SCALE: 1/2" = 1'-0"

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Original document is on file with the date of creation & signature

LICENSED ARCHITECT
J. GRAHAM WHIPPLE
C-2974
Date: 05/05/25
STATE OF WYOMING

Original documents signed by:
J. GRAHAM WHIPPLE
Date original documents signed:
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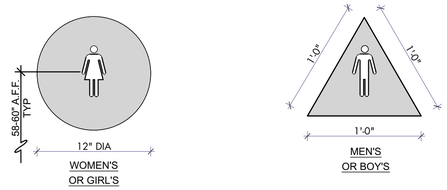
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ACCESSIBILITY COMPLIANCE

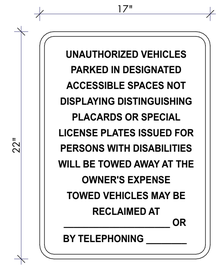
G-403



NOTE:
1. SIGN SHALL BE OF ENGRAVED LAMINATED ACRYLIC AND CHARACTER SPACING PER ICC A117.1 - 2009 703.7 WITH SUBSURFACE COLOR AS SELECTED BY ARCHITECT
2. BACKGROUND COLOR OF SIGN TO CONTRAST WITH DOOR COLOR
3. MOUNT SIGN WITH 1" OF CENTRE OF DOOR LEAF

C2 ACCESSIBLE SIGN - DOOR

SCALE: 1 1/2"= 1'-0"

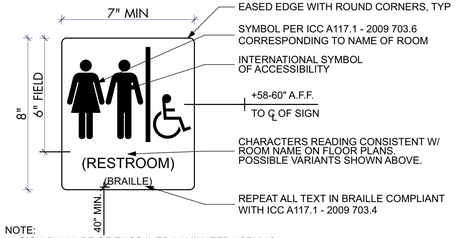


NOTE: ALL LETTERING 1" HIGH.
FILL IN APPROPRIATE INFORMATION AS PERMANENT PART OF THE SIGN

C1 UNAUTHORIZED VEHICLE SIGN

SCALE: 1 1/2"= 1'-0"

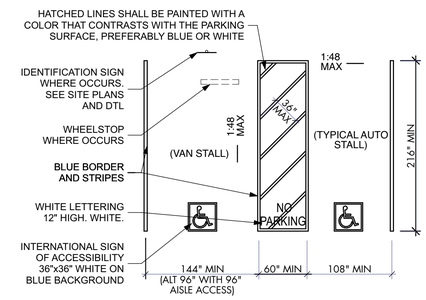




NOTE:
1. SIGN SHALL BE OF ENGRAVED LAMINATED ACRYLIC
2. CHARACTERS AND SPACING PER ICC A117.1 - 2009 703.7
3. MOUNT SIGN AT LATCH SIDE OF DOOR CENTERED IN 18" SPACE
4. CHARACTERS SHOWN IN PARENTHESES SHALL BE UPDATED WITH ACTUAL DESIGNATIONS

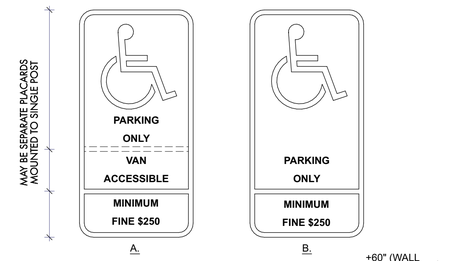
B2 ACCESSIBLE SIGN - WALL

SCALE: 3" = 1'-0"



B1 TYP. ADA & VAN ACC. STALL

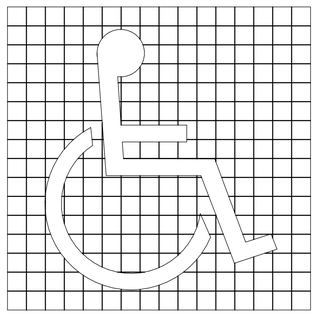
SCALE: 1/8" = 1'-0"



NOTE: ALL LETTERING AND SYMBOLS SHALL BE WHITE ON BLUE BACKGROUND. SIGN SHALL BE >/= 70 SQ. IN. IN AREA

A2 ACCESSIBLE PARKING SIGN

SCALE: 1 1/2"= 1'-0"



SYMBOL SIZE SHALL BE 4" SQUARE MIN
AT ACCESSIBLE ENTRANCES

A1 INT'L SIGN OF ACCESSIBILITY

SCALE: 1" = 1'-0"

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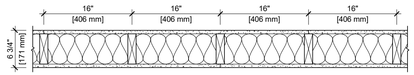
Code Analysis Summary

Building Codes:					2024 International Building Code
					2024 International Fire Code
					2024 International Mechanical Code
Authority Having Jurisdiction:					2024 International Fuel Gas Code
Alpine, WY					2023 National Electrical Code (NEC)
Property Address and Parcel Number					2021 International Plumbing Code
TBD	Lot 22 Snake River Junction Commerical Area				
Parcel # 37182040021700					
Building Occupancy Classification and Use Designation					
Use (Chapter 3)	**Business Group B**		**proposed**		**B**
	Mercantile Group M		**proposed**		**M**
	Residential Group R-2		**proposed**		**R-2**
	Storage Group S-1		**proposed**		**S-1**
Types of Construction (Chapter 6)	**V-B**		**Sprinklered System**		
General Building Heights and Areas				**Proposed Actual**	Allowed by IBC
Allowable Building Height in Feet Above Grade Plane (Table 504.3):				**40**	60
Allowable Number of Stories Above Grade Plane (Table 504.4):				2	2
Allowable Area Factor (Table 506.2):			First Floor	7,721	28,000
			Second Floor	6,723	28,000
Required Separation of Occupancies (Hours) (Table 508.4)				Proposed	Required
Mixed Use Occupancies	B, M & S-1	**Sprinklered System**		**No seperation required**	
	R-2 / B, M, & S-1			**1**	1
Incidental Uses (Table 509)					
Room or Area	Laundry rooms over 100 sqft			**Sprinklered Building**	
Fire-Resistance Rating Requirements for Building Elements (Hours) (Table 601)					
Construction Type					V-B
Primary Structural Frame:					0 Hour
Bearing Walls, Exterior:					0 Hour
Bearing Walls, Interior:					0 Hour
Nonbearing Walls:					0 Hour
Floor Construction and associated secondary structural members:					0 Hour
Roof Construction and associated secondary structural members:					0 Hour
Fire-Resistance Rating Req. for Ext. Walls Based on Fire Separation Distance (Table 602)					
Exterior Walls:	X >/= 30				0 Hour
Fire-Resistance Rated Construction					
Fire Walls (Section 706)					None Required
Fire Barriers (Section 707, Table 508.4)					
	Fire Pump Room (Section 9.13.2.1 Exc. 1)				1hr
	Horizontal Assemblies		Between R-2 / B, M, & S-1		1hr
Fire Partitions (Section 708.3 exc. 2, 420.2, 1018.1)			Separating Dwelling Units		30m
	708.3 exception 1 & 1018.1		Corridor Walls		30m
			Attic Spaces		Draft Stops Required
Smoke Barriers (Section 709)	Smoke Barriers are not required because partitions are <1 hr				
Opening Protectives (Section 716)					
	Protectives for Fire Barriers				1h
	Protectives for Fire Partitions: Corridor Walls (.5hr rated)				20m
	Protectives for Fire Partitions: Separating Dwelling Units (.5hr rated)				20m
Duct and Air Transfer Openings (Section 717) - Fire, Smoke, Fire/Smoke Dampers					
	Penetrations through Fire Barriers (non-egress paths) (717.5.2, except 3)				none required
	Penetrations through Fire Barriers (horizontal exits) (717.5.2.1)				smoke
	Penetrations through Fire Partitions (between suites) (717.5.4, except 4)				none required
	Penetrations through Fire Partitions (corridor walls) (717.4.1)				none required
Fire Protection Systems					
Automatic Sprinkler Systems:					Required
Portable Fire Extinguishers(906):				75' Max	Every 75'
Fire Alarm and Detection System (907.2.9.1):					none required
Smoke Alarms (907.2)					none required
Occupant Load (Table 1004.1.1)	See Occupant Load Schedule Sheet G-101				
Egress Capacity				Required	Provided
Stairways (.3/Story per occupant)	Section 1005.3.1			36" Minimum	2*60"
Other Egress (.2"/occupant):	Section 1005.3.2			32" Minimum	2*60"
Number of Exits Required				2	4
Exit Access Travel Distance (Table 1017.2)				300' Max.	See Plan
Minimum Number of Required Plumbing Fixtures (Table 2902.1)					
Business Group B			1 per #	Required	
W.C.'s			25/50	1.16	
Lavatories			40/80	0.73	
Drinking Fountains			100	0.29	
Service Sink				1.00	
Mercantile Group M			1 per #	Required	
W.C.'s			500	0.06	
Lavatories			750	0.04	
Drinking Fountains			1000	0.03	
Service Sink				1.00	
Storage Group S			1 per #	Required	
W.C.'s			100	0.32	
Lavatories			100	0.32	
Drinking Fountains			1000	0.03	
Service Sink				1.00	
Group B, M, & S Combined				Required	Provided
W.C.'s				1.54	11
Lavatories				1.09	6
Drinking Fountains				0.35	2
Service Sink				3.00	3

Residential Group R			1 per #	Required	Provided
W.C.'s			dwelling unit	6.00	9
Lavatories			dwelling unit	6.00	9
Bathtubs/Showers			dwelling unit	6.00	9
Kitchen			dwelling unit	6.00	6
Automatic Clothes washer			20 dwelling units	1.00	6

DESIGN NO. **UL U305**

FIRE RATING:	1 HOUR
STC RATING:	36
SOUND TEST:	USG-161208
SYSTEM THICKNESS:	6-3/4" [171 MM]
LOCATION:	INTERIOR
FRAMING TYPE:	WOOD STUD (LOAD-BEARING)



ASSEMBLY REQUIREMENTS:

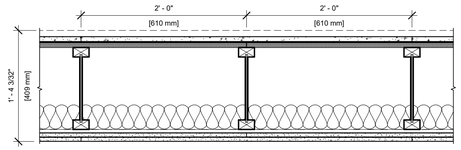
GYPSUM PANELS:	ONE LAYER 5/8" [15.9 MM] SHEETROCK® ECOSMART GYPSUM PANEL (UL TYPE ULIX™)
WOOD STUDS:	2" X 6" [38 X 140 MM] WOOD STUDS, 16" [406 MM] O.C.
INSULATION:	6-1/4" [159 MM] FIBERGLASS INSULATION
GYPSUM PANELS:	ONE LAYER 5/8" [15.9 MM] SHEETROCK® ECOSMART GYPSUM PANEL (UL TYPE ULIX™)

1 VERTICAL FIRE ASSEMBLY

NOT TO SCALE

UL DESIGN NO. L570 2

FIRE RATING:	1 HOUR	IIC:	47
STC:	59	SOUND TEST:	H5048.01
SOUND TEST:	H5048.01		
SYSTEM THICKNESS:	1' 4 3/32"		

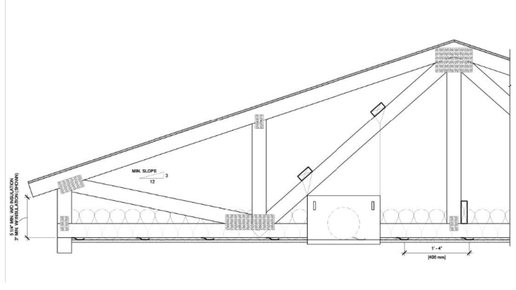


ASSEMBLY OPTIONS:

FINISH FLOORING:	BARE FLOOR
FLOOR TOPPING MIXTURE:	3/4" USG LEVELROCK® BRAND 2500 SERIES UNDERLAYMENT
FLOOR MAT:	1/8" USG LEVELROCK® BRAND SAM-N12™ SOUND ATTENUATION MAT
SUBFLOORING:	23/32" PLYWOOD PANEL
STRUCTURAL WOOD MEMBERS:	11-7/8" WOOD I-JOISTS, SPACED 24" O.C.
INSULATION:	3-1/2" UNFACED GLASS FIBER
RESILIENT CHANNELS:	25 GA. RESILIENT CHANNELS SPACED 16" O.C. (SOUND TESTED WITH RC DELUXE®)
GYPSUM BOARD:	TWO LAYERS 5/8" USG SHEETROCK® BRAND ECOSMART PANELS FIRECODE® X (UL TYPE ULIX™)

2 HORIZONTAL FLOOR FIRE ASSEMBLY

SCALE: 1' = 1'-0"



UL P522

Wood Truss

Fire Rating	**1 hours**
System STC	**n/a**
System IIC	**null**
System Thickness	**Varies**

Visit UL P522 on the UL website

- **Layer 1 - Roofing System:** 1 layer Any UL Class A, B or C Roofing System (TGFU) or prepared Roof Covering (TFWZ)
- **Layer 2 - Roof Sheathing:** 1 layer Nom. 15/32" Thick Wood Structural Panels, Min. Grade "C-D" or "Sheathing"
- **Layer 3 - Trusses:** 1 layer Pitched or Parallel Chord Wood Trusses, Spaced 24" Max. O.C., Fabricated from Nom. 2x4 Lumber, Oriented Vertically or Horizontally. Min. Truss depth shall be 5-1/4" with a Min. Roof Slope of 3/12
- **Layer 4 - Air Duct:** 1 layer Any UL Class 0 or Class 1 Flexible Air Duct
- **Layer 5 - Ceiling Damper:** 1 layer Max. Nom. Area, 324 SQ IN., Max. square size, 18" by 18", Rectangular sizes not to exceed 324 SQ IN. with width of 18" Max., Damper height 14" Max.
- **Layer 6 - Insulation:** 1 layer 3-1/2" Thick Min. Batts and Blankets draped over Resilient Channel and Gypsum Board Ceiling Membrane
- **Layer 7 - Resilient Channel:** 1 layer 1/2" Deep, 25ga., Installed perpendicular to the Trusses, Spaced 16" Max. O.C.
- **Layer 8 - Gypsum Panel:** 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)
  - Sheetrock® Brand EcoSmart Panels Firecode® X

3 ROOF FIRE ASSEMBLY

SCALE: 1' = 1'-0"

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LICENSED ARCHITECT
J. GRAHAM WHIPPLE
C-2974
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STATE OF WYOMING

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CODE ANALYSIS & FIRE RATED SYTEMS

G-405

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GENERAL STRUCTURAL NOTES

(APPLY UNLESS NOTED OTHERWISE ON PLANS/DETAILS)

GENERAL REQUIREMENTS:

1. THE STRUCTURAL SYSTEMS AND MEMBERS DEPICTED HEREIN HAVE BEEN DESIGNED PRIMARILY TO SAFEGUARD AGAINST MAJOR STRUCTURAL DAMAGE AND LOSS OF LIFE, NOT TO LIMIT DAMAGE OR MAINTAIN FUNCTION (IBC SECTION 101.3).

2. THESE DRAWINGS, AND THEIR ASSOCIATED STRUCTURAL CALCULATIONS, HAVE BEEN PERFORMED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE STRUCTURAL ENGINEER'S IN THIS OR SIMILAR LOCALITIES. THEY NECESSARILY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKMEN WHO HAVE A WORKING KNOWLEDGE OF THE INTERNATIONAL BUILDING CODE CONVENTIONAL FRAMING REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR FRAMING ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, IT IS UNDERSTOOD THAT THE CONTRACTOR WILL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR ALL MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION SUCH THAT DESIGN LIVE LOAD PER SQUARE FOOT AS STATED HEREIN IS NOT EXCEEDED. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF AN OPTION IS USED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES, AND SHALL COORDINATE ALL DETAILS.

4. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN. TYPICAL DETAILS AND NOTES ARE NOT NECESSARILY INDICATED ON THE PLANS, BUT SHALL APPLY NONE-THE-LESS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. DETAILS MAY SHOW ONLY ONE SIDE OF CONNECTION OR MAY OMIT INFORMATION FOR CLARITY.

5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT AND STRUCTURAL ENGINEER.

6. ANY INSPECTIONS, SPECIAL (IBC CHAPTER 17) OR OTHERWISE THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR BY THESE PLANS SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY OR THE BUILDING DEPARTMENT, SITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION, UNLESS SPECIFICALLY CONTRACTED FOR.

7. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS, THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL. ITEMS NOT IN ACCORDANCE WITH CONTRACT DRAWINGS SHALL BE FLAGGED UPON HIS REVIEW. VERIFY ALL DIMENSIONS WITH ARCHITECT. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM ORIGINAL CONTRACT DRAWINGS SHALL BE CLOUDED, ANY OF THE AFOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES, SHALL NOT BE CONSIDERED APPROVED AFTER THE STRUCTURAL ENGINEER'S REVIEW, UNLESS NOTED ACCORDINGLY, ANY ENGINEERING PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF A STRUCTURAL ENGINEER REGISTERED IN THE APPROPRIATE STATE. THE SHOP DRAWINGS DO NOT REPLACE THE ORIGINAL CONTRACT DRAWINGS. ITEMS OMITTED OR SHOWN INCORRECTLY AND ARE NOT FLAGGED BY THE STRUCTURAL ENGINEER ARE NOT TO BE CONSIDERED CHANGES TO ORIGINAL DRAWINGS. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY THE OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY. REVIEWING IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. ALLOW (5) WORKING DAYS FOR THE STRUCTURAL ENGINEER'S REVIEW. ONE COPY OF EACH SUBMITTAL WILL BE RETAINED FOR THE STRUCTURAL ENGINEER'S RECORDS.

BASIS FOR DESIGN:

1. BUILDING CODE: 2018 EDITION OF THE IBC WITH CITY/COUNTY AMENDMENTS.

   RISK CATEGORY = II

2. VERTICAL LOADS:

LOCATION	LIVE / SNOW LOAD	DEAD LOAD
ROOF	GROUND = 143 PSF ROOF = 100 PSF	20 PSF
FLOOR	40 PSF	35 PSF (15 PSF MAX GYPCRETE)
STAIRS	100 PSF	25 PSF

3. DEFLECTION LIMITS:

ELEMENTS	LIVE LOAD	TOTAL LOAD
ROOF TRUSSES/JOISTS	L/360	L/240
FLOOR TRUSSES/JOISTS	L/600	L/240
BEAMS	L/360	L/240

4. SEISMIC DESIGN PARAMETERS:

ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE PROCEDURE
IMPORTANCE FACTOR	Ie = 1.00
SITE CLASS	D
SEISMIC DESIGN CATEGORY	D
MAPPED SPECTRAL RESPONSE ACCELERATIONS	S_1 = 0.300, S_S = 1.090
DESIGN SPECTRAL RESPONSE ACCELERATIONS	S_{D1} = 0.510, S_{DS} = 0.880
PERCENT SNOW INCLUDED WITH SEISMIC LOADS	20
VERTICAL SHEAR TRANSFER ELEMENTS:	
PLYWOOD SHEARWALL(S)	R = 6.5, C_S = 0.136

5. WIND DESIGN PARAMETERS (STRENGTH):

ULTIMATE WIND SPEED	115 MPH (3 SECOND GUST)
WIND EXPOSURE	C
IMPORTANCE FACTOR	Iw = 1.00
INTERNAL PRESSURE COEFFICIENT	-0.18
COMPONENT AND CLADDING PRESSURE	40 PSF
NET UPLIFT ON ROOF	20 PSF

FOUNDATION NOTES:

1. IN LIEU OF A GEOTECHNICAL REPORT: THE FOUNDATION HAS BEEN DESIGNED ACCORDING TO THE RECOMMENDATIONS OF CHAPTER 18 OF THE IBC.

2. THE SOIL DESIGN VALUES LISTED BELOW HAVE BEEN APPROVED BY THE CITY/COUNTY BUILDING DEPARTMENT, CONTINGENT THAT THE SOIL ON THE SITE PREDOMINATELY CONSISTS OF SAND AND/OR GRAVEL.

   SPECIFIC SOIL CLASSIFICATIONS SHOULD BE ONE OF THE FOLLOWING: SANDY GRAVEL OR GRAVEL(GW OR GP), SAND(SW AND SP), SILTY SAND(SM), CLAYEY SAND(SC), SILTY GRAVEL(GM), OR CLAYEY GRAVEL(GC). THESE SOIL CLASSIFICATIONS CAN BE FOUND IN TABLE 1806.2 OF CHAPTER 18 OF THE IBC.

   VERIFICATION OF SOIL CLASSIFICATION IS THE RESPONSIBILITY OF THE CONTRACTOR.

THE SOIL DESIGN VALUES FOR THE FOUNDATION ARE:

ALLOWABLE BEARING PRESSURE	1500 PSF
ALLOWABLE LATERAL BEARING PRESSURE	150 PSF/FT
ALLOWABLE LATERAL SLIDING COEFFICIENT	0.25
LATERAL BACKFILL PRESSURE (UNRESTRAINED)	30 PSF/FT
LATERAL BACKFILL PRESSURE (RESTRAINED)	50 PSF/FT

3. A ONE-THIRD INCREASE IN BEARING PRESSURES IS ALLOWED WITH SEISMIC OR WIND LOAD COMBINATIONS. LATERAL BEARING AND LATERAL SLIDING RESISTANCE MAY BE COMBINED.

FOUNDATION BEARING DEPTH
36" BELOW FINISHED GRADE

4. ALL FOUNDATIONS SHALL BEAR ON COMPACTED ENGINEERED FILL OR COMPETENT NATIVE SOIL SUBBASE COMPACTED TO 95% DRY DENSITY (STANDARD PROCTOR). GRADE IS DEFINED AS LOWEST ADJACENT GRADE WITHIN 5 FEET OF THE BUILDING FOR PERIMETER FOOTINGS. WHERE EXTERIOR PAVING OR CONCRETE IS DIRECTLY ADJACENT TO BUILDING, GRADE IS DEFINED AS TOP OF EXTERIOR PAVING AT LEAST 5 FEET FROM BUILDING. CONCRETE FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE OF LOOSE DEBRIS OR UN-COMPACTED MATERIAL AT TIME OF CONCRETE PLACEMENT.

5. CONCRETE SLABS ON GRADE SHALL BE SUPPORTED ON A 4 INCH (MIN) LAYER OF FREE-DRAINING GRANULAR MAT (DRAINAGE FILL COURSE). THE MAT SHOULD CONSIST OF A WELL GRADED SAND AND GRAVEL MIXTURE WITH MAXIMUM 3/4-INCH CRUSHED AGGREGATE. THE GRANULAR MAT SHOULD BE COMPACTED TO NO LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.

6. BACKFILL AGAINST RESTRAINED WALLS SHALL NOT BE PLACED UNTIL AFTER THE WALLS ARE SUPPORTED BY THE COMPLETION OF INTERIOR FLOOR SYSTEMS AND CONCRETE OR GROUT STRENGTH HAS REACHED THE 28 DAY STRENGTH LISTED BELOW.

REINFORCING STEEL:

1. ASTM A615 GRADE 60 (FY = 60 KSI) DEFORMED BARS FOR ALL BARS #4 AND LARGER. ASTM A615 GRADE 40 (FY = 40 KSI) DEFORMED BARS FOR ALL BARS #3 AND SMALLER. GRADE 60 DEFORMED BARS SHALL BE USED FOR CONCRETE WALLS, BEAMS, ELEVATED SLABS AND COLUMN REINFORCING.

2. WELDING OF REINFORCING BARS SHALL BE MADE ONLY TO ASTM A706 GRADE 60 BARS AND ONLY USING E90 SERIES RODS. WELDING OF REINFORCING BARS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS.

3. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

STEEL:

1. MATERIALS: ROLLED W SHAPES, SHALL CONFORM TO ASTM A992 (FY=50 KSI). ALL OTHER STRUCTURAL STEEL SHAPES, ROLLED SECTIONS, BARS AND PLATES SHALL CONFORM TO ASTM A36 (FY = 36 KSI). ALL PIPE STEEL SHALL BE ASTM A501 (FY = 36 KSI) OR ASTM A53, TYPE E OR S, GRADE B (FY = 35 KSI). ALL TUBULAR STEEL SHALL BE ASTM A500 GRADE C (FY = 50 KSI).

2. ALL BOLTS AND STUDS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE. ALL EXPANSION BOLTS TO HAVE CURRENT ICC REPORT RATING FOR MATERIAL INTO WHICH INSTALLATION TAKES PLACE. HEADED STUDS SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY AWS. ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC. SHALL BE INSTALLED WITH STEEL WASHERS AT FACE OF WOOD OR AT SLOTTED HOLES IN STEEL SECTIONS.

3. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION.

4. WELDING SHALL BE BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. ALL WELDING SHALL USE E70 SERIES LOW HYDROGEN RODS UNLESS NOTED OTHERWISE. ALL WELDING PER LATEST AMERICAN WELDING SOCIETY STANDARDS. ALL WELDS ON DRAWINGS ARE SHOWN AS SHOP WELDS. CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. ALL FULL PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.

5. STEEL TO STEEL BOLTED CONNECTIONS: HIGH STRENGTH BOLTS SHALL BE ASTM A325N AND SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE (TYPE "N" CONNECTION UNLESS NOTED OTHERWISE). BOLTS MAY BE TIGHTENED USING ANY AISC APPROVED METHOD.

6. DRYPACK SHALL BE 5,000 PSI FIVE STAR NON-SHRINK GROUT OR EQUIVALENT. INSTALL DRYPACK UNDER BEARING PLATES BEFORE FRAMING MEMBER IS INSTALLED. AT COLUMNS, INSTALL DRYPACK UNDER BASE PLATES AFTER COLUMN HAS BEEN PLUMBED BUT PRIOR TO FLOOR OR ROOF INSTALLATION.

TIMBER LOGS:

1. LOG: LOGS SHALL COMPLY WITH THE LATEST EDITION OF THE GRADING RULES OF THE TIMBER PRODUCTS INSPECTION, INC (TP). ALL LOGS SHALL BE STAMPED WITH THE GRADE MARK OF THE APPROVED LUMBER GRADING AGENCY.

2. LOGS SHALL BE DOUGLAS FIR (DF, D FIR) UNSAWN (UNLESS NOTED OTHERWISE) WITH THE FOLLOWING MINIMUM PROPERTIES: FB = 2,050 PSI, FV = 160 PSI, FC (PERPENDICULAR) = 600 PSI, E =1,600 KSI.

3. ALTERNATE GRADING AGENCY OR SPECIES SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL. LOG FABRICATION AND CONSTRUCTION SHALL CONFORM TO ICC 400-2012: STANDARD ON THE DESIGN AND CONSTRUCTION OF LOG STRUCTURES.

CONCRETE:

1. MINIMUM 28 DAY CONCRETE STRENGTH SHALL BE AS FOLLOWS:

USE:	CONCRETE STRENGTH:	MAX W/C RATIO	AIR ENTRAINMENT
FOOTINGS	3500 PSI	0.50	5.5% ± 1%
FOUNDATION WALLS	4500 PSI	0.45	5.5% ± 1%
INTERIOR CONCRETE SLABS ON GRADE	3500 PSI	0.45	N/A

2. ALL NORMAL WEIGHT CONCRETE SHALL BE REGULAR WEIGHT OF 150 POUNDS PER CUBIC FOOT USING HARD-ROCK AGGREGATES. AGGREGATE USED IN CONCRETE SHALL CONFORM TO ASTM C33.

3. LAP SPLICES FOR BEAMS AND FLOOR SLABS SHALL BE ACCORDING TO CHAPTER 12 OF ACI 318 OR LAP SCHEDULE ON THESE DRAWINGS.

   STAGGER SPLICES A MINIMUM OF ONE LAP LENGTH. NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT ALL CORNERS AND INTERSECTIONS PER TYPICAL DETAILS. VERTICAL WALL BARS SHALL BE SPLICED AT OR NEAR FLOOR LINES.

4. ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" OR "CLR" ARE TO CENTER OF STEEL. MINIMUM COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS FOLLOWS:

LOCATION:	MINIMUM COVER	TOLERANCE
CAST AGAINST EARTH (FOOTINGS)	3"	± 3/8"
SLABS ON GRADE	1 1/2"	± 1/4"
EXPOSED TO EARTH OR WEATHER - #5 AND SMALLER	1 1/2"	± 3/8"
EXPOSED TO EARTH OR WEATHER - #6 AND LARGER	2"	± 3/8"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND ROOF SLAB	1"	1/8"
STRUCTURAL SLABS AND WALLS	3/4"	1/8"
BEAMS AND COLUMNS (PRIMARY) REINFORCEMENT, TIES, STIRRUPS AND SPIRALS	1 1/2"	3/8"

5. MAXIMUM SLUMP FOR ALL CONCRETE SHALL BE 6". PORTLAND CEMENT SHALL CONFORM TO ASTM C150. TYPE V CEMENT SHALL BE USED FOR CONCRETE IN CONTACT WITH ALKALINE SOIL, AND TYPE II ELSEWHERE.

6. NO MORE THAN 90 MINUTES SHALL ELAPSE BETWEEN CONCRETE BATCHING AND CONCRETE PLACEMENT UNLESS APPROVED BY THE TESTING AGENCY.

7. CONCRETE PLACEMENT AND QUALITY SHALL BE PER RECOMMENDATIONS IN ACI 614, ACI 301 AND ACI 318. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND AND UNDER FLOOR DUCTS, ETC. CAST CLOSURE POUR, WHERE SHOWN ON PLANS AROUND COLUMNS AFTER COLUMN DEAD LOAD IS APPLIED. REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE.

   ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING, DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS BEFORE PLACING THE CONCRETE.

8. ALL CONCRETE SLABS ON GRADE SHALL BE DIVIDED INTO AREAS BY CONTROL JOINTS (KEYED OR SAW CUT) SUCH THAT ONE SLAB AREA DOES NOT EXCEED A MAXIMUM LENGTH OF 24 TIMES THE SLAB THICKNESS IN BOTH DIRECTIONS (EXAMPLE: 4" SLAB = 8'-0" LENGTH). SQUARE LAYOUTS ARE PREFERRED, BUT THE SLAB GEOMETRY MAY DICTATE OTHERWISE. THE RATIO OF THE LONG TO SHORT DISTANCE SHALL NOT EXCEED 1.3. IT IS RECOMMENDED THAT SAW CUTS BE MADE WITHIN 16 HOURS OF CONCRETE BATCHING.

   KEYED CONTROL JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING POURING, ALL OTHER JOINTS MAY BE SAW CUT.

9. HORIZONTAL PIPES AND ELECTRICAL CONDUITS SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE AND SLABS ON GRADE EXCEPT WHERE SPECIFICALLY APPROVED OR NOTED BY THE STRUCTURAL ENGINEER. PIPES AND CONDUITS SHALL NOT IMPAIR THE STRENGTH OF THE WORK.

10. FLY ASH MAY BE USED ONLY IF PERMITTED BY ARCHITECTURAL SPECIFICATIONS AND SHALL BE LIMITED TO 18 PERCENT OF CEMENTITIOUS MATERIALS AND SHALL HAVE A REPLACEMENT FACTOR OF 1.2 RELATIVE TO CEMENT REPLACED. NO FLY ASH ADDITIVES SHALL BE USED IN FLATWORK OR ARCHITECTURALLY EXPOSED CONCRETE.

11. COLD/HOT WEATHER CONCRETE CONSTRUCTION: PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH IN COMPLIANCE WITH ACI 305 AND 306.

12. CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY AND APPROVED BY THE STRUCTURAL ENGINEER.

13. LIMIT ALKALI-SILICA REACTION (ASR) TO 0.1% EXPANSION AT 28 DAYS IN CONCRETE MIX AT ALL EXTERIOR CONCRETE AND INTERIOR CONCRETE EXPOSED TO MOISTURE.

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MECHANICAL / PLUMBING

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TBD Alpine, Wyoming, 83128

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00	05/05/2025	ISSUE FOR AHJ REVIEW

24063

GENERAL STRUCTURAL NOTES

S1.0

GENERAL STRUCTURAL NOTES

-CONTINUED - (APPLY UNLESS NOTED OTHERWISE ON PLANS/DETAILS)

WOOD:

1. GENERAL: DO NOT NOTCH OR DRILL JOISTS, BEAMS, OR LOAD BEARING STUDS WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT. DOUBLE UP JOISTS AND BLOCKING UNDER PARTITIONS. PROVIDE 2" (NOMINAL) SOLID BLOCKING AT SUPPORTS OF ALL JOISTS. UNLESS NOTED OTHERWISE ON PLANS/DETAILS PROVIDE 2x SOLID BLOCKING AT MID-HEIGHT OF BEARING STUD WALLS. ALL NAILING NOT NOTED SHALL BE ACCORDING TO IBC TABLE 2304.10.1. JOIST HANGERS AND OTHER MISC. FRAMING ANCHORS SHALL BE SIMPSON STRONG-TIE COMPANY,INC. OR OTHER MANUFACTURER WITH CURRENT ICC-ES APPROVAL.

2. SAWN LUMBER: FRAMING LUMBER SHALL COMPLY WITH THE LATEST EDITION OF THE GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION (WWPA) OR THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB). ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF AN APPROVED LUMBER GRADING AGENCY. SAWN LUMBER SHALL HAVE THE FOLLOWING MINIMUM GRADE UNLESS NOTED OTHERWISE IN SCHEDULES:

USE:	MATERIAL:
2x4 STUDS	DOUGLAS-FIR NO. 2, MINIMUM (U.N.O.)
2x6 STUDS	DOUGLAS-FIR NO. 2, MINIMUM (U.N.O.)
JOISTS, TOP PLATES AND ALL OTHER SAWN LUMBER	DOUGLAS-FIR NO. 2, MINIMUM (U.N.O.)
BEAMS AND POSTS	DOUGLAS-FIR NO. 2, MINIMUM (U.N.O.)

3. PLYWOOD: ALL PLYWOOD SHALL BE C-D OR C-C SHEATHING CONFORMING TO STANDARD PS 1-95. LAY UP PLYWOOD WITH FACE GRAIN IN PERPENDICULAR TO SUPPORTS (ON ROOFS WHERE PLYWOOD IS LAID UP WITH FACE GRAIN PARALLEL TO SUPPORTS, USE A MINIMUM OF 5-PLY PLYWOOD, STAGGER JOINTS). ALL NAILING, COMMON NAILS. BLOCKING AT PANEL EDGES WHERE INDICATED ON PLANS. ALL PLYWOOD SHALL BE OF THE FOLLOWING NOMINAL THICKNESS, SPAN/INDEX RATING AND SHALL BE NAILED AS FOLLOWS UNLESS NOTED OTHERWISE ON THE PLANS:

LOCATION:	NOMINAL THICKNESS:	SPAN INDEX RATING:	EDGE ATTACHMENT:	FIELD ATTACHMENT:
WALL	$^{7}/_{16}$" OR $^{1}/_{2}$"	$^{24}/_{16}$	8d AT 6" O.C.	8d AT 12" O.C.
ROOF	$^{19}/_{32}$" OR $^{5}/_{8}$"	$^{40}/_{20}$	10d AT 6" O.C.	10d AT 12" O.C.
ROOF	$^{23}/_{32}$" OR $^{3}/_{4}$"	$^{48}/_{24}$	10d AT 6" O.C.	10d AT 12" O.C.
ROOF	$^{7}/_{8}$"	$^{60}/_{32}$	10d AT 6" O.C.	10d AT 12" O.C.
FLOOR	$^{3}/_{4}$" T&G	$^{48}/_{24}$	10d AT 6" O.C. OR #8 SCREWS AT 6" O.C.	10d AT 6" O.C. OR #8 SCREWS AT 12" O.C.

SCREWS AT FLOOR SHEATHING SHALL BE #8 SCREWS AND SHALL PENETRATE AT LEAST 1$^{1}/_{2}$" INTO THE SUPPORTING MEMBER. ALL FLOOR SHEATHING SHALL BE GLUED TO SUPPORTING MEMBERS WITH AN APAAFG-01 QUALIFIED ADHESIVE.

PLYWOOD ALTERNATE: AMERICAN PLYWOOD ASSOCIATION PERFORMANCE RATED SHEATHING MAY BE USED AS AN ALTERNATE TO PLYWOOD WITH PRIOR APPROVAL OF OWNER, ARCHITECT AND ROOFER. IT MAY NOT BE USED ON ROOFS WHERE BUILT-UP ROOF SYSTEM IS TO BE GUARANTEED BY ROOFER. RATED SHEATHING SHALL COMPLY WITH CURRENT ICC-ES REPORTS AND SHALL HAVE A SPAN RATING EQUIVALENT TO OR BETTER THAN THE PLYWOOD IT REPLACES. ATTACHMENT AND THICKNESS (WITHIN $^{1}/_{32}$") SHALL BE THE SAME AS THE PLYWOOD IT REPLACES. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

4. NOMINAL 2x AND 3x DECKING. TONGUE AND GROOVE TYPE. MINIMUM Fb = 1,600 PSI, MINIMUM E = 1,300,000 PSI. INSTALL WITH TONGUES UP SLOPE ON PITCHED ROOFS, AND OUTWARD IN THE DIRECTION OF LAYING ON FLAT ROOFS. NAIL EACH PLANK WITH 16d TOENAIL (THRU THE TONGUE) AND 16d FACE NAIL AT EACH SUPPORT. DECK SHALL BE INSTALLED AS SIMPLE SPAN WITH ALL PLANKS BEARING ON TWO SUPPORTS. FOR REFERENCE AND/OR ADDITIONAL INFORMATION SEE AITC 117-2010.

5. GLUED-LAMINATED BEAMS (GLB): GLUED-LAMINATED BEAMS SHALL BE DOUGLAS FIR COMBINATION AT 24F-V4 AT SIMPLE SPAN BEAMS AND 24F-V8 AT MULTI-SPAN AND CANTILEVERED BEAMS WITH THE FOLLOWING MINIMUM PROPERTIES: FB = 2,400 PSI, FV = 190 PSI, FC (PERPENDICULAR) = 650 PSI, E =1,800 KSI. ALL BEAMS SHALL BE FABRICATED USING WATERPROOF GLUE. FABRICATION AND HANDLING PER LATEST AITC AND WCLA STANDARDS. BEAMS TO BEAR GRADE STAMP AND AITC STAMP AND CERTIFICATE. CAMBER AS SHOWN ON DRAWINGS. STANDARD CAMBER IS BASED ON A RADIUS OF CURVATURE OF 5000 FEET.

6. GLUED-LAMINATED COLUMNS: GLUED-LAMINATED COLUMNS SHALL BE DOUGLAS FIR COMBINATION 3 WITH THE FOLLOWING MINIMUM PROPERTIES: FBY = 2,100 PSI, FBX = 2000 PSI, FVY = 230 PSI, FVX = 265 PSI, FC (PERPENDICULAR) = 650 PSI, E =1,900 KSI. ALL COLUMNS SHALL BE FABRICATED USING WATERPROOF GLUE. FABRICATION AND HANDLING PER LATEST AITC AND WCLA STANDARDS. COLUMNS TO BEAR GRADE STAMP AND AITC STAMP AND CERTIFICATE.

7. LAMINATED VENEER LUMBER (LVL): DESIGN, FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST ICC-ES REPORT. MINIMUM PROPERTIES FOR LVLs SHALL BE: FB = 2,600 PSI, FV = 285 PSI, E = 2,000 KSI.

8. PARALLEL STRAND LUMBER (PSL): DESIGN, FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST ICC-ES REPORT. MINIMUM PROPERTIES FOR PSLs SHALL BE: FB = 2,900 PSI, FV = 290 PSI, E = 2,200 KSI.

9. LAMINATED STRAND LUMBER (LSL): DESIGN, FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST ICC-ES REPORT. MINIMUM PROPERTIES FOR LSLs SHALL BE: FB = 2,325 PSI, FV = 310 PSI, E = 1,550 KSI.

10. SILL PLATES RESTING ON CONCRETE OR MASONRY SHALL BE OF TREATED FIR. SHEAR WALLS AND EXTERIOR WALL SILLS AT CONCRETE SLAB SHALL HAVE A MINIMUM OF (2) ANCHOR BOLTS PER PIECE. PROVIDE ANCHOR BOLT AT 9" MAXIMUM, 4" MINIMUM FROM THE END OF EACH PIECE AT SPLICE OR END OF WALL. MAXIMUM ANCHOR BOLT SPACING SHALL BE 72" ON CENTER UNLESS NOTED OTHERWISE ON PLANS OR DETAILS. ALL ANCHOR BOLTS (OTHER THAN BOLTS FOR HOLDOWNS) SHALL EMBED 7" INTO CONCRETE. ANCHOR BOLTS FOR HOLDOWNS SHALL NOT BE CONSIDERED AS PART OF REQUIRED ANCHOR BOLTS ON SHEAR WALLS. ALL EXTERIOR WALLS SHALL BE SECURED WITH MINIMUM ANCHOR BOLTS. INTERIOR WALLS MAY BE SECURED TO CONCRETE WITH EITHER ANCHOR BOLTS OR POWER DRIVEN SHOT PINS UNLESS NOTED OTHERWISE ON PLANS.

11. BOLTING: ALL BOLTS IN WOOD CONNECTIONS SHALL CONFORM TO ASTM A307. BOLTS SHALL BE INSTALLED IN HOLES BORED WITH A BIT $^{1}/_{16}$" LARGER THAN THE Ø (DIAMETER) OF THE BOLT. BOLTS AND NUTS SEATING ON WOOD SHALL HAVE CUT STEEL WASHERS UNDER HEADS AND NUTS. NICK THREADS TO PREVENT LOOSENING.

12. PREFABRICATED WOOD TRUSSES: PREFABRICATED WOOD TRUSSES SHALL BE DESIGNED TO SUPPORT SELF WEIGHT PLUS LIVE LOAD AND SUPERIMPOSED DEAD LOADS. WHERE UNINHABITABLE ATTIC SPACE CAN BE USED FOR STORAGE, A 20 PSF LIVE LOAD ON THE BOTTOM CHORD SHALL BE INCLUDED IN THE ANALYSIS. BRIDGING SIZE AND SPACING BY TRUSS MANUFACTURER UNLESS NOTED OTHERWISE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH DESIGN CALCULATIONS SEALED BY A REGISTERED ENGINEER FOR REVIEW PRIOR TO MANUFACTURE FOR BOTH ROOF AND FLOOR TRUSSES WHEN USED.

SHOP DRAWINGS SHALL SHOW ANY SPECIAL DETAILS REQUIRED AT BEARING POINTS. ALL CONNECTORS SHALL HAVE CURRENT ICC-ES APPROVAL. ADDITIONAL TRUSSES SHALL BE SUPPLIED AS REQUIRED TO SUPPORT MECHANICAL EQUIPMENT. PER IBC SECTION 2303.4 AND TPI-1: EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS, THE DESIGN LOADS, AND THE TRUSS SPACING - WITHIN TWO FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD.

PREFABRICATED WOOD/STEEL WEB JOIST/PURLINS (TJI/TJL SERIES OR EQUAL): DESIGN, FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST EDITION ICC-ES REPORT. CONNECTIONS AND BEARING MATERIAL TO BE DESIGNED AND FURNISHED BY JOIST FABRICATOR. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH DESIGN CALCULATIONS SEALED BY A REGISTERED STRUCTURAL ENGINEER FOR REVIEW PRIOR TO MANUFACTURE. ADDITIONAL JOISTS SHALL BE SUPPLIED AS REQUIRED TO SUPPORT MECHANICAL EQUIPMENT.

DEFERRED SUBMITTAL ITEMS:

PREFABRICATED WOOD ROOF TRUSSES
PREFABRICATED WOOD FLOOR TRUSSES

POST-INSTALLED ANCHORS:

1. EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES. ALL ANCHORS ARE TO BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.

ANCHORAGE TO CONCRETE:

ADHESIVE ANCHORS:

HILTI HIT-HY 200	PER ICC ESR-3187
HILTI HIT-RE 500 V3	PER ICC ESR-3814
SIMPSON AT-XP	PER IAPMO ER-263
SIMPSON SET-XP	PER ICC ESR-2508

MECHANICAL ANCHORS:

HILTI KWIK HUS	PER ICC ESR-3027
HILTI KWIK BOLT-TZ EXPANSION ANCHORS	PER ICC ESR-1917
SIMPSON TITEN HD	PER ICC ESR-2713
SIMPSON STRONG BOLT-2	PER ICC ESR-3037

REBAR DOWELING TO CONCRETE:

ADHESIVES:

HILTI HIT-HY 200	PER ICC ESR-3187
HILTI HIT-RE 500 V3	PER ICC ESR-3814
SIMPSON AT-XP	PER IAPMO ER-263
SIMPSON SET-XP	PER ICC ESR-2508

2. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR OR IAPMO ER SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.

3. INSTALL THE ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

4. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

5. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

SPECIAL INSPECTION ITEMS:

1. THE OWNER OR THE OWNER'S AUTHORIZED AGENT, OTHER THAN THE CONTRACTOR, SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PROVIDE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION ON THE TYPES OF WORK SPECIFIED PER IBC SECTION 1705 AND IDENTIFY THE APPROVED AGENCIES TO THE BUILDING OFFICIAL. SPECIAL INSPECTIONS ARE REQUIRED AS FOLLOWS:

VERIFICATION AND INSPECTION OF STRUCTURAL STEEL (PER AISC 360-CHAPTER N)

VERIFICATION AND INSPECTION	OBSERVE	PERFORM
1. INSPECTION TASKS PRIOR TO WELDING (TABLE N5.4-1)		
A. WELDING PROCEDURE SPECIFICATIONS (WPSS) AVAILABLE		X
B. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE		X
C. MATERIAL IDENTIFICATION (TYPE/GRADE)	X	
D. WELDER IDENTIFICATIONS SYSTEM (THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. (STAMPS, IF USED, SHALL BE THE LOW STRESS TYPE)	X	
E. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY), JOINT PREPARATION, DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION) , BACKING TYPE AND FIT (IF APPLICABLE)	X	
F. CONFIGURATION AND FINISH OF ACCESS HOLES	X	
G. FIT-UP OF FILLET WELDS, DIMENSIONS (ALIGNMENT, GAPS AT ROOT), CLEANLINESS (CONDITION OF STEEL SURFACES) TACKING (TACK WELD QUALITY AND LOCATION)	X	
H. CHECK WELDING EQUIPMENT	X	
2. INSPECTION TASKS DURING WELDING (TABLE N5.4-2)		
A. USE OF QUALIFIED WELDERS	X	
B. CONTROL AND HANDLING OF WELDING CONSUMABLES, PACKAGING, EXPOSURE CONTROL	X	
C. NO WELDING OVER CRACKED TACK WELDS	X	
D. ENVIRONMENTAL CONDITIONS, WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE	X	
E. WPS FOLLOWED, SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.), PROPER POSITION (F, V, H, OH)	X	
F. WELDING TECHNIQUES, INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, EACH PASS MEETS QUALITY REQUIREMENTS	X	
3. INSPECTION TASKS AFTER WELDING (TABLE N5.4-3)		
A. WELDS CLEANED	X	
B. SIZE LENGTH AND LOCATION OF WELDS		X
C. WELDS MEET VISUAL ACCEPTANCE CRITERIA, CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, POROSITY		X
D. ARC STRIKES		X
E. K-AREA (WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75 MM) OF THE WELD).		X
F. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)		X
G. REPAIR ACTIVITIES		X
H. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER		X
4. INSPECTION TASKS PRIOR TO BOLTING (TABLE N5.6-1)		
A. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS		X
B. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	X	
C. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	X	
D. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	X	
E. CONNECTION ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	X	
F. PRE-INSTALLED VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED		X
G. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	X	
5. INSPECTION TASKS DURING BOLTING (TABLE N5.6-2)		
A. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	X	
B. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	X	
C. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	X	
D. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARDS THE FREE EDGES	X	
6. INSPECTION TASKS AFTER BOLTING (TABLE N5.6-3)		
A. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS		X
7. INSPECTOR SHALL BE ON PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL (SECTION N5.7)	X	

SOILS (IBC TABLE 1705.6) (W/O GEOTECH REPORT)

VERIFICATION AND INSPECTION	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY THAT THE IN-PLACE DRY DENSITY OF THE COMPACTED FILL IS NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT DETERMINED IN ACCORDANCE WITH ASTM D 1557.	-	X
2. VERIFY THAT THE COMPACTED FILL ALLOWABLE BEARING PRESSURE IS NOT LESS THAN 1500 PSF.	-	X

2. QUALITY ASSURANCE PROGRAM:

A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

B. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE STRUCTURAL ENGINEER OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL.

ABBREVIATIONS

A.B.C.	AGGREGATE BASE COURSE	HORIZ	HORIZONTAL
A/C	AIR CONDITIONER	K(KIP)	1000 POUNDS
A.F.F.	ABOVE FINISHED FLOOR	KS	KING STUD
ALT	ALTERNATE	L.L	LIVE LOAD
A.B.	ANCHOR BOLT	LBS (#)	POUNDS
@	AT (MEASUREMENT)	LLH	LONG LEG HORIZONTAL
BM	BEAM	LLV	LONG LEG VERTICAL
B.F.F	BELOW FINISHED FLOOR	MIN	MINIMUM
B.O.B.	BOTTOM OF BEAM	MAX	MAXIMUM
B.O.D.	BOTTOM OF DECK	MFR'(S)	MANUFACTURER'(S)
B.O.F.	BOTTOM OF FOOTING	M.C.J.	MASONRY CONTROL JOINT
BRG	BEARING	MECH	MECHANICAL
C.C.	CONCRETE COLUMN	N/A	NOT APPLICABLE
C.I.P.	CAST IN PLACE	N.T.S.	NOT TO SCALE
C L	CENTERLINE	O.C.	ON CENTER
C.L.B.	CENTERLINE OF BEAM	O.F.W.	OUTSIDE FACE OF WALL
C.L.C.	CENTERLINE OF COLUMN	OPP	OPPOSITE
C.L.F.	CENTERLINE OF FOOTING	P.C.	PRECAST CONCRETE
C.L.W.	CENTERLINE OF WALL	PLF	POUNDS PER LINEAR FOOT
CLR	CLEAR	PREFAB	PREFABRICATED
CONC	CONCRETE	PFT	PREFAB FLOOR TRUSSES
C.C.J.	CONCRETE CONTROL JOINT	PRT	PREFAB ROOF TRUSSES
C.S.J.	CONCRETE SAWCUT JOINT	PSF	POUNDS PER SQUARE FOOT
C.M.U.	CONCRETE MASONRY UNIT	PSI	POUNDS PER SQUARE INCH
CONN.	CONNECTION	PT	PRESSURE TREATED
CONT	CONTINUOUS	REINF	REINFORCING
D L	DEAD LOAD	RME	ROOF MOUNTED EQUIPMENT
Ø OR DIA.	DIAMETER	SLH	SHORT LEG HORIZONTAL
DN.	DOWN	SLV	SHORT LEG VERTICAL
DWG(S)	DRAWING(S)	SIM	SIMILAR
E.O.S.	EDGE OF SLAB	SQ	SQUARE
EQ	EQUAL	STD	STANDARD
EQUIP	EQUIPMENT	T L	TOTAL LOAD
EXP. BOLT	EXPANSION BOLT	T.O.B.	TOP OF BEAM
EXP. JT (E.J.)	EXPANSION JOINT	T.O.D.	TOP OF DECK
(E)	EXISTING	T.O.F.	TOP OF EXISTING
E.W.	EACH WAY	T.O.L.	TOP OF LEDGER
F.F.	FINISHED FLOOR	T.O.M.	TOP OF MASONRY
F.O.M.	FACE OF MEMBER	T.O.P.	TOP OF PLATE
F.O.S.	FACE OF STEEL	T.O.S.	TOP OF STEEL
F.O.W.	FACE OF WALL	T.O.W.	TOP OF WALL
GA	GAUGE	TYP	TYPICAL
GALV	GALVANIZED	U.N.O.	UNLESS NOTED OTHERWISE
GSN	GENERAL STRUCTURAL NOTES	VERT	VERTICAL
GLB	GLUED-LAMINATED BEAM	W.W.F.	WELDED WIRE FABRIC
GT	GIRDER TRUSS	W/	WITH
I.F.W.	INSIDE FACE OF WALL	W/O	WITHOUT

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FOR PERMIT ONLY

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FOR PERMIT ONLY

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MECHANICAL / PLUMBING

ELECTRICAL

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

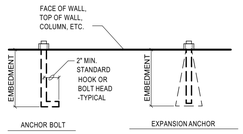
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GENERAL STRUCTURAL NOTES

S1.1

BOLT SIZE	CAST IN PLACE EMBEDMENT(MINIMUM)		EXPANSION ANCHOR EMBEDMENT(MINIMUM)	
	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
1/4"Ø	4"	4"	2"	1.125"
3/8"Ø	5"	4"	3"	1.5"
1/2"Ø	7"	4"	4"	2"
5/8"Ø	8"	5"	5"	2.5"
3/4"Ø	9"	6"	6"	3"
7/8"Ø	10"	7"	7"	3.5"
1"Ø	11"	8"	9"	4"



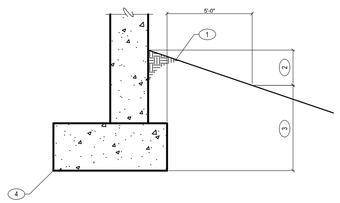
KEY NOTES:
ANCHOR OR BOLT DIAMETERS SPECIFIED IN DETAILS OR ON PLANS SHALL MEET THESE MINIMUM REQUIREMENTS FOR EMBEDMENT.

THICKNESS OF DRYPACK DOES NOT APPLY TOWARDS EMBEDMENT.

EXPANSION ANCHOR APPROVALS:

SIMPSON STRONG BOLT 2 (ESR-3037)
HILTI ANCHORS KWIK-BOLT TZ (ESR-1917).
POWERS POWER-STUD (ESR-2502)

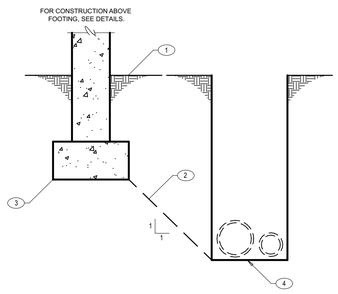
T7 TYPICAL ANCHOR BOLT,AND EXPANSION BOLT SCHEDULE
TD09 NO SCALE



KEYNOTES:
1. SLOPED FINISH GRADE
2. MINIMUM FOOTING DEPTH PER G.S.N. (12" MINIMUM)
3. DEEPEN FOOTING AS REQUIRED TO ACCOUNT FOR SLOPED GRADE
4. CONCRETE FOOTING

NOTE:
A. FOR ADDITIONAL INFORMATION, SEE PLANS AND DETAILS

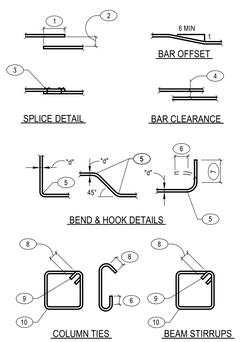
T4 TYPICAL DETAIL FOR FOUNDATION EMBEDMENT
TD04 NO SCALE



KEYNOTES:
1. FINISHED GRADE WHERE OCCURS
2. DO NOT EXCAVATE A TRENCH CLOSER THAN A 45° ANGLE TO BELOW BOTTOM FOOTING OR FOUNDATION
3. BOTTOM OF CONCRETE FOOTING
4. BOTTOM OF TRENCH

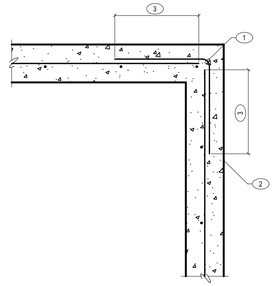
NOTE:
A. DO NOT UNDERCUT EXISTING FOOTINGS
B. NO PIPE OR OTHER UTILITIES SHALL PASS THRU WALL FOOTINGS OR UNDER COLUMN FOOTINGS

T1 TRENCH PARALLEL TO CONTINUOUS STRIP FOOTING
TD01 NO SCALE



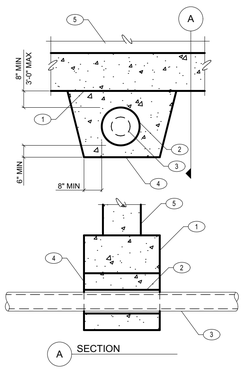
KEYNOTES:
1. LAP - SEE G.S.N. FOR MASONRY AND TYPICAL DETAIL FOR CONCRETE
2. MAXIMUM ½ LAP BUT NOT MORE THAN 6"
3. WIRE TIES
4. 1d (1" MINIMUM)
5. RADIUS = 3d FOR BARS NOT OVER #8; 4d FOR #9, #10, AND #11 BARS; 5d FOR #14 AND #18 BARS. 5d FOR ALL GRADE 40 BARS WITH 180 DEGREE HOOK
6. 4D (4" MINIMUM)
7. 12d (90 DEGREE HOOK)
8. 6d (4" MINIMUM)
9. 135 DEGREE BEND
10. BEND AROUND 1½" PIN FOR #3 BARS. BEND AROUND 2" PIN FOR #4 BARS. BEND AROUND 2½" PIN FOR #5 BARS.

T8 TYPICAL REINFORCING DETAILS
TD10 NO SCALE



KEYNOTES:
1. CORNER DOWELS TO MATCH HORIZONTAL REINFORCEMENT
2. CONCRETE WALL WITH REINFORCEMENT
3. LAP SPLICE PER TYPICAL STEEL REINFORCING LAP SPLICES IN CONCRETE DETAIL

T5 TYPICAL CONCRETE CORNER
TD05 NO SCALE



KEYNOTES:
1. CONCRETE FOOTING
2. SLEEVE - PROVIDE ½" MINIMUM CLEARANCE AROUND PIPE OR CONDUIT
3. PIPE OR CONDUIT
4. CONCRETE FILL TO BE PLACED BEFORE FOOTING IS POURED - FORM SAME AS FOOTING AND POUR FULL WIDTH OF PIPE TRENCH
5. STEM WALL

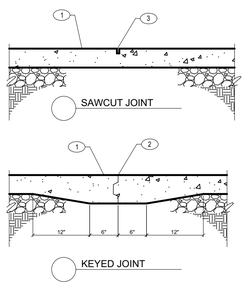
NOTE:
A. NO PIPE SHALL PASS THRU FOOTING OR UNDER COLUMN FOOTINGS. FOR TRENCHES GREATER THAN 3'-6" BELOW BOTTOM OF FOOTING, SEE PIPE PASSING BELOW WALL FOOTING DETAIL.

T2 PIPE PASSING UNDER WALL FOOTING IN SHALLOW TRENCH
TD02 NO SCALE

BAR SIZE	CLASS B TENSION SPLICE LENGTHS					
	f'c = 3,000 PSI		f'c = 4,000 PSI		f'c = 5,000 PSI	
	HORIZONTAL BARS W/ >12" OF CONC. BELOW	VERTICAL AND BOTTOM HORIZONTAL BARS	HORIZONTAL BARS W/ >12" OF CONC. BELOW	VERTICAL AND BOTTOM HORIZONTAL BARS	HORIZONTAL BARS W/ >12" OF CONC. BELOW	VERTICAL AND BOTTOM HORIZONTAL BARS
#3	12"	12"	12"	12"	12"	12"
#4	19"	15"	17"	13"	15"	12"
#5	29"	23"	26"	20"	23"	18"
#6	32"	25"	28"	21"	25"	19"
#7	54"	41"	47"	36"	42"	32"
#8	70"	54"	61"	47"	54"	42"
#9	89"	68"	77"	59"	69"	53"
#10	112"	87"	97"	75"	87"	67"

NOTES:
1. TOP BARS ARE ANY HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.
2. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, SLABS AND WALLS SHALL BE CLASS "B" TENSION LAP SPLICES.

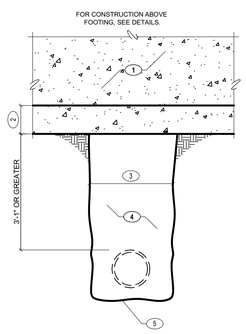
T9 STEEL REINFORCING LAP SPLICES IN CONCRETE
TD14 NO SCALE



KEYNOTES:
1. CONCRETE SLAB ON GRADE
2. CONT KEYED JOINT
3. SAWCUT ⅛" WIDE x ¼ SLAB THICKNESS IN DEPTH - CUT SHALL BE MADE SOON ENOUGH TO PREVENT SHRINKAGE CRACKING, BUT NOT SO SOON AS TO CAUSE SPALLING OF THE CONCRETE WHILE SAWING. WORK MUST BE COMPLETE WITHIN 16 HOURS OF CONCRETE PLACEMENT.

NOTE:
A. KEYED JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING PLACEMENT UNLESS SPECIFICALLY NOTED ON THE PLANS.
B. "TOOL WET JOINT", "ZIP STRIP", ETC SHALL MATCH SAWCUT REQUIREMENTS

T6 CONTROL JOINTS IN CONCRETE SLAB ON GRADE
TD07 NO SCALE



KEYNOTES:
1. STEM WALL
2. CONCRETE FOOTING
3. 1'-6" MAXIMUM (WHERE TRENCH EXCEEDS 1'-6" NOTIFY STRUCTURAL ENGINEER PRIOR TO PLACEMENT OF FOOTINGS)
4. BACKFILL AND RECOMPACT TRENCH PER SOILS REPORT AND SPECIFICATIONS
5. BOTTOM OF TRENCH

NOTE:
A. DO NOT UNDERCUT EXISTING FOOTINGS
B. NO PIPES OR OTHER UTILITIES SHALL PASS THRU WALL FOOTINGS OR UNDER COLUMN FOOTINGS

T3 PIPE PASSING BELOW FOOTING IN DEEP TRENCH
TD03 NO SCALE

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PROFESSIONAL ENGINEER MATTHEW A. TEMAN 15084 STATE OF WYOMING Date 05/05/2025

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JOB NO: JF25-047	PROJECT MANAGER: CJB	CAD OPERATOR: MJS

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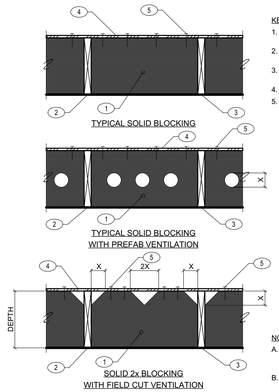
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TYPICAL DETAILS

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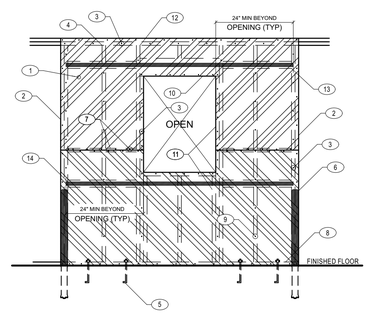
VENTILATION OPENINGS	
DEPTH	X
6"	2"
8"	2.5"
10"	3"
12" OR LARGER	3"



KEYNOTES:
1. SOLID BLOCKING TO BE TIGHT AGAINST PLYWOOD
2. PREFAB WOOD TRUSS OR WOOD JOIST
3. TOP OF WOOD PLATE OR BEAM AS OCCURS
4. PLYWOOD SHEATHING
5. EDGE NAILING

NOTE:
A. FOR CONSTRUCTION BELOW BLOCKING, SEE PLAN AND DETAILS. BLOCKING IS CONTINUOUS
B. INDIVIDUAL SHEAR BLOCKS MAY BE OMITTED EVERY 5TH BLOCK

T14 ELEVATION - TYPICAL SOLID BLOCKING
TD22 NO SCALE

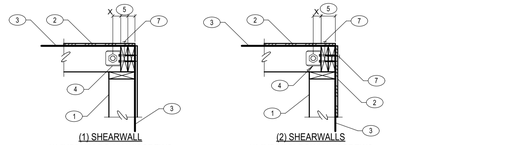


KEYNOTES:
1. SHEATHING MATERIAL
2. SHEARWALL END POST (DBL STUD AT HOLDOWN U.N.O.)
3. EDGE NAILING AT ALL SHEATHING PANEL EDGES - STAGGER NAILS AT DOUBLE STUD END POSTS
4. FULL HEIGHT WOOD STUDS
5. ANCHOR BOLTS TO FOUNDATION OR NAILS TO LOWER FRAMING PER SHEARWALL SCHEDULE
6. SIMPSON STRAP TYPE HOLDOWN, WHERE OCCURS
7. SOLID BLOCKING AND EDGE NAILING REQUIRED AT PLYWOOD SHEET EDGES
8. CONT 2x PT SOLE PLATE
9. FIELD NAILING AWAY FROM PANEL EDGES
10. WOOD HEADER
11. TRIMMER STUD UNDER HEADER AND SILL, PROVIDE ADDITIONAL TRIMMER STUDS WHERE INDICATED ON PLANS
12. FULL HEIGHT KING STUD, PROVIDE ADDITIONAL KING STUDS WHERE INDICATED ON PLANS
13. 2x BLOCKING FOR STRAP NAILING
14. STRAP, PER PLAN, ABOVE AND BELOW OPENING AS SHOWN

T12 STRAP AT OPENING IN SHEAR WALL
TD17 NO SCALE

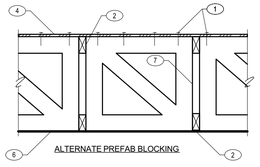
HOLDOWN	X
HDU2, HDU4, HDU5	1-5/16"
HDU8, HDU11	1-3/8"
HDU14	1-9/16"
LTT19	1-3/8"
LTT20B	1-1/2"
HTT4	1-5/16"
HTT5	
HD19	2-1/8"

KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. SHEARWALL SHEATHING, SEE PLAN
3. EDGE OF FOUNDATION
4. SIMPSON HD TYPE HOLDOWN WITH SCREWS
5. SHEARWALL END POST (2 STUDS) TYPICAL, EXCEPT AT HDU11, AND HDU14 WHERE 6x6 POST IS REQUIRED
6. 25) - SIMPSON SDS ¼"x6" LONG WOOD SCREWS, STAGGERED
7. SHEARWALL EDGE NAILING
8. TRIMMER STUD TO SUPPORT HEADER
9. BLOCK TO SUPPORT WINDOW SILL
10. BUILT UP WOOD POST



NOTE:
A. ALL CONDITIONS MAY NOT BE SHOWN. FOR CONDITIONS NOT SHOWN, USE THESE DETAILS AS A GUIDE.
B. SOME LARGER HOLDOWNS REQUIRE 6x6 POSTS, SEE PLANS AND SCHEDULES.
C. WHERE MULTIPLE TRIMMER STUDS OR KING STUDS OCCUR, MAKE ADJUSTMENTS AS REQUIRED.

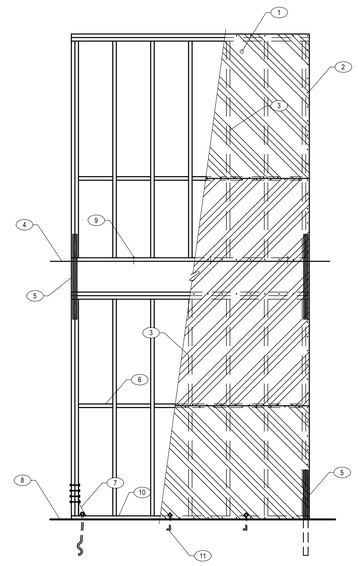
T10 PLAN VIEW - HOLDOWN LOCATIONS/SHEARWALL END POSTS, "HD" TYPE HOLDOWNS USING SCREWS
TD16 NO SCALE



KEYNOTES:
1. EDGE NAILING
2. PREFAB WOOD TRUSS, TRUSS MANUFACTURER SHALL PROVIDE VERTICAL WEB TO MATCH LOCATION OF SHEAR PANEL
3. 7/16" PLYWOOD SHEAR PANEL WITH 8d AT 6" O.C. AT PANEL EDGES AND 8d AT 12" O.C. AT INTERMEDIATE SUPPORTS
4. PLYWOOD SHEATHING AS OCCURS
5. 2x4 AT 4-SIDES
6. TOP OF WOOD PLATE OR BEAM AS OCCURS
7. PREFAB BLOCKING PER TRUSS MANUFACTURER, IN-PLANE SHEAR CAPACITY TO BE 200#

NOTE:
A. FOR CONSTRUCTION BELOW PANEL, SEE PLAN AND DETAILS. BLOCKING IS CONTINUOUS
B. INDIVIDUAL SHEAR PANEL BLOCKS MAY BE PENETRATED OR OMITTED FOR PASSAGE OF HVAC DUCTS

T15 ELEVATION - TYPICAL PLYWOOD SHEAR PANEL BLOCKING
TD23 NO SCALE

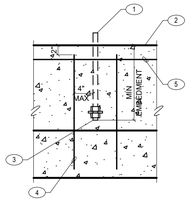


KEYNOTES:
1. SHEATHING MATERIAL
2. DOUBLE STUDS AT EACH END OF SHEARWALL, EDGE NAIL ALONG DOUBLE STUDS
3. FULL HEIGHT WOOD STUDS
4. 2ND FLOOR LINE
5. SIMPSON STRAP TYPE HOLDOWN
6. MIDHEIGHT BLOCKING AND EDGE NAILING REQUIRED AT PLYWOOD SHEET EDGES
7. SIMPSON HD TYPE HOLDOWN
8. 1ST FLOOR LINE
9. BOTTOM PLATE ATTACHMENT
10. CONT 2x PT SOLE PLATE
11. SOLE PLATE ATTACHMENT

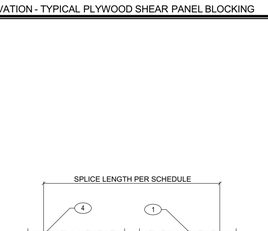
T13 ELEVATION - TYPICAL 2-STORY SHEARWALL
TD18 NO SCALE

ANCHOR SCHEDULE			
ALL-THREAD ANCHOR DIAMETER	MINIMUM EMBEDMENT	MINIMUM VERTICAL BARS (PROVIDE ADDITIONAL VERTICAL BARS AS REQUIRED)	ALTERNATE SIMPSON ANCHOR TYPE (INSTALL PER MANUFACTURER)
½"	12"	---	---
⅝"	16"	(1) #5 OR (2) #4	SB5/8X24
⅞"	18"	(2) #5	SSTB34 OR SB7/8X24
1"	20"	(2) #6	SB1X30

KEYNOTES:
1. HOLDOWN ANCHOR BOLT
2. TOP OF CONCRETE OR COLD JOINT
3. DBL NUT AND 2"Ø PLATE WASHER
4. ADDITIONAL VERTICAL BAR(S), SEE SCHEDULE
5. TOP REINFORCING BAR (#4 BAR MINIMUM) PER PLAN



T11 TYPICAL ANCHORAGE FOR "HD" TYPE HOLDOWN
TD56 NO SCALE



LENGTH OF WALL (BETWEEN CORNERS)	SPLICE LENGTH MINIMUM	NAILS ALONG SPLICE LENGTH
OVER 20'	6'-0"	(30) 16d
LESS THAN 20'	4'-0"	(24) 16d

KEYNOTES:
1. NAILS BETWEEN SPLICE LOCATION PER SCHEDULE - STAGGERED
2. DBL 2x TOP PLATE
3. WOOD STUD WALL, SEE PLAN
4. SPLICE OVER STUD
5. SIMPSON ST6224 OR MSTC40 STRAP AT LOCATIONS WHERE PLATES CAN NOT BE SPLICED

NOTE:
A. DO NOT SPLICE TOP PLATES WITHIN 6'-0" OF ENDS OF PLYWOOD SHEARWALLS. THIS DETAIL REQUIRED AT ALL EXTERIOR WALLS AND OVER SHEARWALLS - NOT REQUIRED AT INTERIOR NON-SHEARWALLS.

T16 ELEVATION - TYPICAL TOP PLATE SPLICE
TD24 NO SCALE

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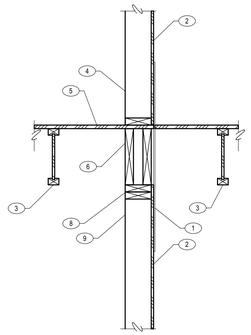
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TYPICAL DETAILS

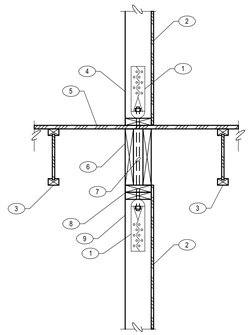
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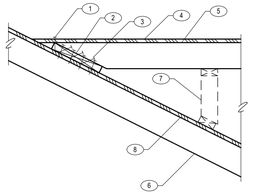


KEYNOTES:
1. HOLDOWN, SEE PLAN
2. WALL SHEATHING AS OCCURS, SEE PLAN
3. WOOD JOIST, SEE PLAN
4. WOOD POST, SEE HOLDOWN SCHEDULE
5. FLOOR SHEATHING, SEE PLAN
6. SOLID BLOCKING WITHIN JOIST BAY
7. ALL THREAD TO MATCH HOLDOWN REQUIREMENTS
8. CONT 2x DBL TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
9. WOOD POST, MATCH POST ABOVE

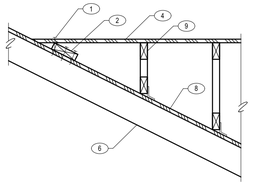


NOTE:
A. FLOOR JOIST ORIENTATION MAY VARY

T21 STRAP AND "HD" TYPE HOLDOWNS BETWEEN FLOORS
TD29 NO SCALE



OPTION 1



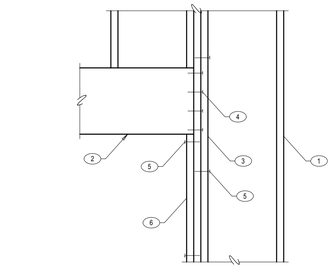
OPTION 2

KEYNOTES:
1. BOUNDARY NAILING 8d NAILS AT 4" O.C.
2. 2x8 (MIN) CONT BEARING PLATE ATTACH PER ATTACHMENT SCHEDULE
3. TOE NAIL OVER-BUILD FRAMING TO BEARING PLATE W/ (3) 16d NAILS MIN
4. ROOF SHEATHING
5. 2x OVERBUILD FRAMING, SEE PLAN
6. TOP CHORD OF TRUSS OR ROOF FRAMING MEMBER, SEE PLAN
7. 2x STUD PONY WALL AS OCCURS ON PLAN (5'-0" O.C. MAX AND WALL SHALL BE CENTERED BETWEEN MAX SPAN)
8. ROOF SHEATHING (SHEATH LOWER ROOF PRIOR TO CONSTRUCTION OF OVER-BUILD)
9. PREFABRICATED OVERBUILD ROOF TRUSS W/ SIMPSON VTCR CLIP AT 24" O.C.

ATTACHMENT SCHEDULE

ROOF SLOPE	PLATE ATTACHMENT
< 4:12	(3) 16d NAILS
4:12 TO 7:12	(5) 16d NAILS
7:12 TO 10:12	(3) #10x3½" LONG SCREWS
10:12 TO 12:12	(4) #10x3½" LONG SCREWS

T19 TYPICAL OVER-BUILD
TD27 NO SCALE



KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. WOOD HEADER
3. KING STUD(S) PER PLAN
4. (2) 16d NAILS AT 2" O.C.
5. 16d NAILS AT 12" O.C.
6. TRIMMER STUD(S) PER PLAN

T17 TYPICAL HEADER CONNECTION
TD25 NO SCALE

KEYNOTES:
1. STEEL COLUMN, SEE PLAN
2. 2x NAILER W/ ⅝" THREADED STUD AT 12" O.C.
3. EDGE NAILING, SEE SHEARWALL SCHEDULE
4. WALL SHEATHING AS OCCURS, SEE PLAN

T22 PLAN - STEEL COLUMN AT WOOD STUD WALL
TD39 NO SCALE

ALTERNATE FASTENER SCHEDULE

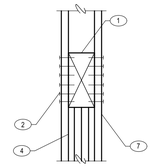
MATERIAL: 7/16" SHEARWALL OR ROOF SHEATHING	
SPECIFIED FASTENER	ALTERNATE FASTENER
8d COMMON AT 12" O.C.	16 GA STAPLE AT 12" O.C.
	15 GA STAPLE AT 12" O.C.
	14 GA STAPLE AT 12" O.C.
	13 GA STAPLE AT 12" O.C.
8d COMMON AT 6" O.C.	16 GA STAPLE AT 4" O.C.
	15 GA STAPLE AT 5" O.C.
	14 GA STAPLE AT 6" O.C.
	13 GA STAPLE AT 6" O.C.
8d COMMON AT 4" O.C.	16 GA STAPLE AT 2.5" O.C.
	15 GA STAPLE AT 3" O.C.
	14 GA STAPLE AT 4" O.C.
	13 GA STAPLE AT 5" O.C.
8d COMMON AT 3" O.C.	15 GA STAPLE AT 2" O.C.
	14 GA STAPLE AT 3" O.C.
	13 GA STAPLE AT 4" O.C.

NOTES:
1. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16" INCH OUTSIDE DIMENSION, AND INSTALLED WITH CROWN PARALLEL TO THE LONG DIMENSION OF FRAMING MEMBER.
2. FRAMING SHALL BE 3x OR WIDER WHEN NAIL SPACING IS LESS THAN 3 INCHES ON CENTER.
3. ALL STAPLES SHALL HAVE 1⅛" LONG LEGS MINIMUM.
4. STAPLE SIZES AND SPACING PER REPORT NO. ICC-ESR-1539

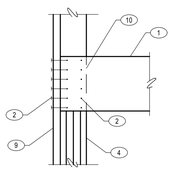
NOTE:
A. MINIMUM STAPLING SPECIFIED HEREIN SHALL BE PROVIDED UNLESS NOTED OTHERWISE ON PLANS, DETAILS OR GENERAL STRUCTURAL NOTES

T20 ALTERNATE SHEATHING STAPLE OPTION
TD32 NO SCALE

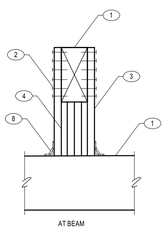
AT TOP PLATE



AT MID WALL



AT CORNER



AT BEAM

KEYNOTES:
1. WOOD BEAM
2. (2) 16d NAILS AT 2" O.C.
3. KING STUD EACH SIDE OF BEAM
4. SOLID BUILT-UP POST BELOW BEAM
5. STRAP BROKEN TOP PLATE ON SIDE OR TOP
6. CONT DBL 2x TOP PLATE W/ LAP SPLICE PER TYPICAL DETAIL
7. FULL-HEIGHT KING STUD EACH SIDE OF BEAM
8. HGA10 CLIP EACH SIDE
9. FULL-HEIGHT KING STUD AT END OF BEAM
10. FULL-HEIGHT KING STUD, OPPOSITE SIDE OF THE BEAM

T18 TYPICAL BEAM POCKET
TD26 NO SCALE

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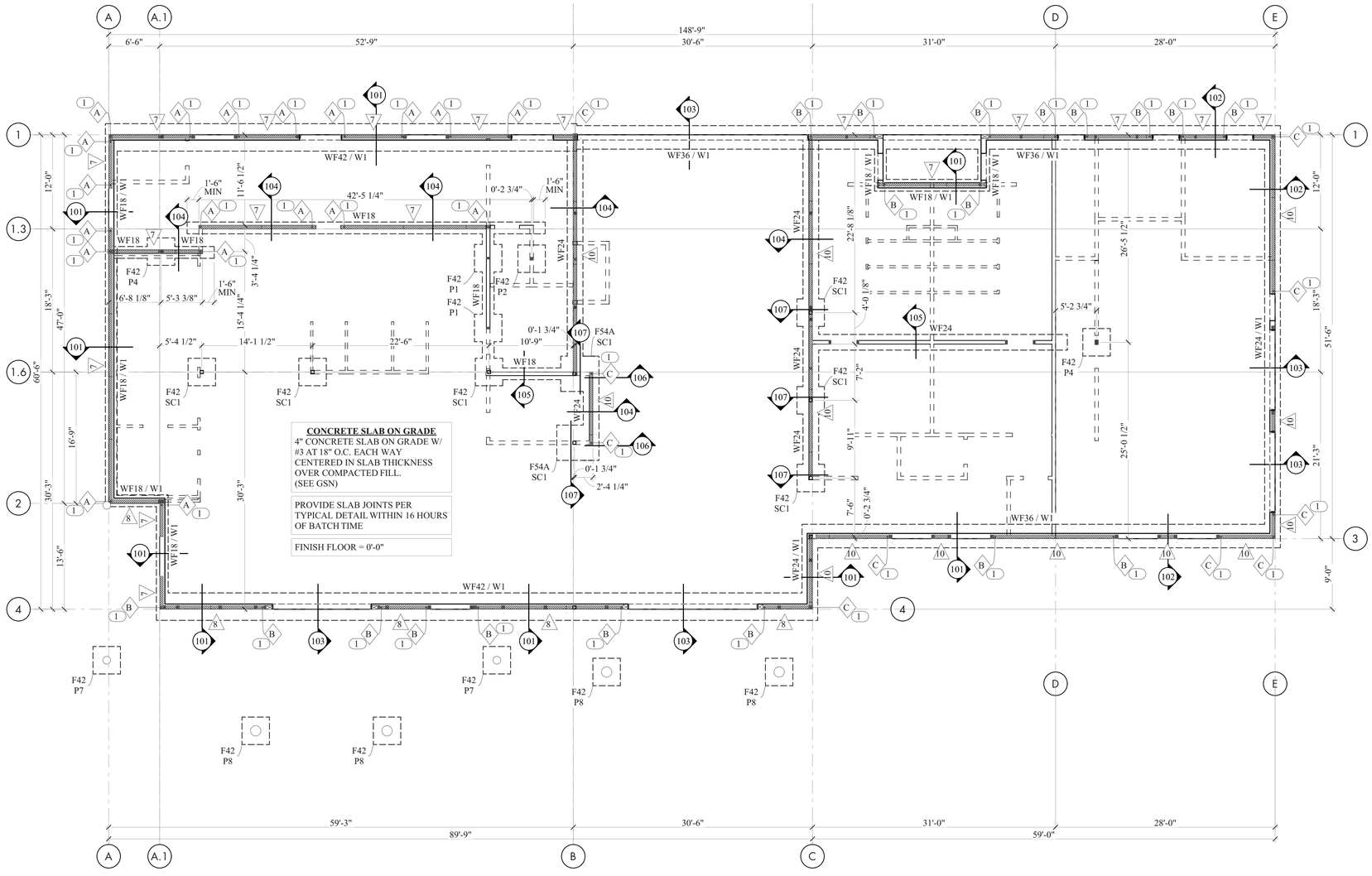
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TYPICAL DETAILS

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CONCRETE SLAB ON GRADE
4" CONCRETE SLAB ON GRADE W/ #3 AT 18" O.C. EACH WAY CENTERED IN SLAB THICKNESS OVER COMPACTED FILL. (SEE GSN)

PROVIDE SLAB JOINTS PER TYPICAL DETAIL WITHIN 16 HOURS OF BATCH TIME

FINISH FLOOR = 0'-0"

FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

POST (P) SCHEDULE

MARK	SIZE	SPECIES AND GRADE	CONNECTION
P1	(2) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P2	(3) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P3	(4) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P4	(5) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P5	6x12	DOUG FIR NO. 1	SEE TYPICAL DETAILS
P6	8x10	DOUG FIR NO. 1	SEE TYPICAL DETAIL
P7	12" DIA. LOG	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P8	16" DIA. LOG	DOUG FIR NO. 2	SEE TYPICAL DETAILS

FOOTING SCHEDULE

MARK	LENGTH	WIDTH	THICKNESS	FOOTING REINFORCING	REMARKS
F42	42"	42"	10"	(5) #4 EACH WAY, BOTTOM	---
F54A	54"	54"	10"	(7) #4 EACH WAY,TOP AND BOTTOM	---
WF18	CONT	18"	10"	(2) #4 CONT BOTTOM	MONO POUR W/ SLAB
WF24	CONT	24"	10"	(2) #4 CONT BOTTOM	STRIP FOOTING
WF36	CONT	36"	12"	(4) #4 CONT W/ #4 AT 16" O.C. TRANSVERSE, TOP AND BOTTOM	CENTER FOOTING ON WALL
WF42	CONT	42"	10"	(5) #4 CONT W/ #4 AT 18" O.C. TRANSVERSE, BOTTOM	CENTER FOOTING ON WALL

WALL (W) SCHEDULE

MARK	THICKNESS AND TYPE	VERTICAL REINFORCING	HORIZONTAL REINFORCING	REMARKS
W1	8" CONCRETE	#4 AT 18" O.C.	#4 AT 18" O.C.	---

FOUNDATION PLAN NOTES

A. VERIFY ALL DIMENSIONS WITH ALL ARCHITECTURAL DRAWINGS.

B. ALL SCHEDULED MARK DESIGNATIONS MAY NOT NECESSARILY BE FOUND ON THIS PLAN. SCHEDULES ARE TYPICAL TO THIS PROJECT.

C. THE DEPTH OF FOOTING DIMENSION INDICATED IN THE G.S.N. IS A MINIMUM. FOUNDATION CONTRACTOR SHALL COORDINATE WITH THE SOILS REPORT AND OTHER TRADES TO INSURE THAT THESE MINIMUMS ARE SUFFICIENT FOR THE WORK. SEE TYPICAL DETAILS FOR ADDITIONAL REQUIREMENTS.

D. ▭ WALLS WITH SOLID LINES DESIGNATED STRUCTURAL (BEARING) WALLS.

E. [– –] WALLS WITH DASHED LINES DESIGNATE NON-STRUCTURAL (NON-BEARING) WALLS.

F. ◇A, ◇6, ◇7, -AS SHOWN ON PLAN INDICATES A SHEARWALL; HATCHING IN WALL DESIGNATES SHEARWALL LENGTH.

G. ◇A ◇B - AS SHOWN ON PLAN INDICATES A SHEARWALL HOLDOWN. SEE HOLDOWN SCHEDULES AND DETAILS FOR ADDITIONAL INFORMATION.

H. W1, W2, ETC. - AS SHOWN ON PLAN INDICATES CONCRETE OR MASONRY WALLS. SEE WALL SCHEDULE FOR ADDITIONAL INFORMATION.

I. WF18, WF24, ETC. - AS SHOWN ON PLAN INDICATES A CONTINUOUS WALL FOOTING. SEE FOOTING SCHEDULE FOR ADDITIONAL INFORMATION.

J. F36, F48, ETC. - AS SHOWN ON PLAN INDICATES A CONCRETE FOOTING. SEE FOOTING SCHEDULE FOR ADDITIONAL INFORMATION.

K. P1, P2, ETC. AS SHOWN ON PLAN INDICATES A WOOD POST. SEE POST SCHEDULE FOR MORE INFORMATION.

L. SC1, SC2, ETC. - AS SHOWN ON PLAN INDICATES A STEEL COLUMN. SEE STEEL COLUMN SCHEDULE FOR ADDITIONAL INFORMATION. COLUMNS START AT THE LEVEL THEY ARE CALLED OUT ON.

M. PROVIDE CONTINUOUS BEARING FOR ALL POSTS AND BUILT-UP STUDS TO THE FOUNDATION PER TYPICAL "SOLID BLOCKING BETWEEN FLOORS" DETAIL.

N. ALL EXTERIOR WALLS SHALL BE CONSTRUCTED WITH TYPE "5" SHEARWALLS, UNO.

O. FOR SIDEWALK AND LANDING LOCATIONS, SEE ARCHITECTURAL DRAWINGS.

(X) PLAN KEYNOTES

1. EMBED ANCHOR FOR HOLDOWN INTO FLUID CONCRETE. SEE TYPICAL DETAILS FOR ADDITIONAL INFORMATION

SHEARWALL TYPE SCHEDULE

NOTES:
1. SHEARWALL TYPES LISTED BELOW ARE NOT JOB SPECIFIC. SOME TYPES MAY NOT BE USED ON THE PLANS.
2. FRAMING MEMBER SUPPORTING MATERIAL SHALL BE SPACED AT 16" ON CENTER (O.C.) MAXIMUM.
3. ANCHOR BOLTS TO FOUNDATION SHALL BE 10" LONG AND SHALL BE EMBED 7" INTO CONCRETE. EXPANSION BOLTS OR SHOT PINS MAY BE USED AT INTERIOR WALLS (AWAY FROM EDGE OF SLAB OR SLAB STEP-DOWN) PER SUPPLEMENTAL INSTRUCTIONS.
4. A MINIMUM OF (2) ANCHOR BOLTS SHALL BE USED ON EACH BASE PLATE PIECE. PROVIDE (1) ANCHOR BOLT MINIMUM WITHIN 9" OF EACH END PIECE.
5. PROVIDE CONTINUOUS DOUBLE 2x TOP PLATE AT ALL SHEARWALLS AND EXTERIOR WALL. UNLESS NOTED OTHERWISE (U.N.O.), LAP SPLICE TOP PLATE A MINIMUM 4'-0" WITH 16d NAILS STAGGERED AT 2" ON CENTER (O.C.) (24) 16d NAILS TOTAL BETWEEN SPLICE JOINTS.)
6. PROVIDE FULL HEIGHT DOUBLE STUDS AT ENDS OF SHEARWALLS UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.
7. BLOCK ALL PANEL EDGES. EDGE NAIL SHEATHING AT BLOCKED EDGES.

MARK	SHEATHING MATERIAL	EDGE NAILING	FIELD NAILING	BOTTOM PLATE ATTACHMENT
◇6	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL	8d COMMON AT 4" O.C.	8d COMMON AT 12" O.C.	CONCRETE: ½"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 24" O.C.
				CONCRETE: ⅝"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 32" O.C.
				WOOD:16d STAGGERED AT 4" O.C.
◇7	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL	8d COMMON AT 3" O.C.	8d COMMON AT 12" O.C.	CONCRETE: ½"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 18" O.C.
				CONCRETE: ⅝"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 26" O.C.
				WOOD:16d STAGGERED AT 3" O.C.
◇8	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL (2) 2x OR 3x STUDS/BLOCKING AT ADJOINING PANEL EDGES.	8d COMMON AT 2" O.C. STAGGER AT ADJOINING PANEL EDGES.	8d COMMON AT 12" O.C.	CONCRETE: ½"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 8" O.C.
				CONCRETE: ⅝"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 14" O.C.
				WOOD:SDS 1/4"x4½" AT 8" O.C.
◇10	7/16" APA RATED SHEATHING (BLOCKED) BOTH SIDES OF WALL (2) 2x OR 3x STUDS/BLOCKING AT ADJOINING PANEL EDGES. (2) 2x OR (1) 3x BOTTOM PLATE.	8d COMMON AT 3" O.C. STAGGER AT ADJOINING PANEL EDGES.	8d COMMON AT 12" O.C.	CONCRETE: ⅝"Ø A.B. W/ 1½"x3"x3" PLATE WASHERS AT 16" O.C.
				WOOD: SDS 1/4"x5½" AT 4½" O.C.

SHEARWALL HOLDOWN SCHEDULE

NOTES:
1. SEE TYPICAL DETAILS FOR ANCHOR BOLT EMBEDMENT REQUIREMENTS.
2. POSTS SHOWN ON THE PLANS ARE A MINIMUM AS REQUIRED TO SUPPORT THE GRAVITY LOADS OF THE STRUCTURE. ADDITIONAL STUDS OR SOLID POSTS MAY BE REQUIRED DEPENDENT ON HOLDOWN TYPES.
3. WHERE JOISTS BEAR ON TOP OF STEM WALL, USE "RJ" TYPE STRAP HOLDOWNS

MARK	HOLDOWN	SHEARWALL END POST UNO ON PLAN	ALTERNATE HOLDOWN	ANCHOR BOLT DIA.
◇A	SIMPSON HTT5 W/ (26) 0.162x2.5" NAILS	(2) 2x STUDS	N/A	5/8"
◇B	SIMPSON HDU8	(2) 2x STUDS	N/A	7/8"
◇C	SIMPSON HDU11	6x6 WOOD POST	N/A	1"

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05/05/2025

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FOUNDATION PLAN

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SHEARWALL HOLDOWN SCHEDULE

NOTES:
1. SEE TYPICAL DETAILS FOR ANCHOR BOLT EMBEDMENT REQUIREMENTS.
2. POSTS SHOWN ON THE PLANS ARE A MINIMUM AS REQUIRED TO SUPPORT THE GRAVITY LOADS OF THE STRUCTURE. ADDITIONAL STUDS OR SOLID POSTS MAY BE REQUIRED DEPENDENT ON HOLDOWN TYPES.
3. WHERE JOISTS BEAR ON TOP OF STEM WALL, USE "RJ" TYPE STRAP HOLDOWNS

MARK	HOLDOWN	SHEARWALL END POST UNO ON PLAN	ALTERNATE HOLDOWN	ANCHOR BOLT DIA.
A	SIMPSON HTT5 W/ (26) 0.162x2.5" NAILS	(2) 2x STUDS	N/A	5/8"
B	SIMPSON HDU8	(2) 2x STUDS	N/A	7/8"
C	SIMPSON HDU11	6x6 WOOD POST	N/A	1"

SHEARWALL TYPE SCHEDULE

NOTES:
1. SHEARWALL TYPES LISTED BELOW ARE NOT JOB SPECIFIC. SOME TYPES MAY NOT BE USED ON THE PLANS.
2. FRAMING MEMBER SUPPORTING MATERIAL SHALL BE SPACED AT 16" ON CENTER (O.C.) MAXIMUM.
3. ANCHOR BOLTS TO FOUNDATION SHALL BE 10" LONG AND SHALL BE EMBED 7" INTO CONCRETE. EXPANSION BOLTS OR SHOT PINS MAY BE USED AT INTERIOR WALLS (AWAY FROM EDGE OF SLAB OR SLAB STEP-DOWN) PER SUPPLEMENTAL INSTRUCTIONS.
4. A MINIMUM OF (2) ANCHOR BOLTS SHALL BE USED ON EACH BASE PLATE PIECE. PROVIDE (1) ANCHOR BOLT MINIMUM WITHIN 9" OF EACH END PIECE.
5. PROVIDE CONTINUOUS DOUBLE 2x TOP PLATE AT ALL SHEARWALLS AND EXTERIOR WALL. UNLESS NOTED OTHERWISE (U.N.O.), LAP SPLICE TOP PLATE A MINIMUM 4'-0" WITH 16d NAILS STAGGERED AT 2" ON CENTER (O.C.) ((24) 16d NAILS TOTAL BETWEEN SPLICE JOINTS.)
6. PROVIDE FULL HEIGHT DOUBLE STUDS AT ENDS OF SHEARWALLS UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.
7. BLOCK ALL PANEL EDGES. EDGE NAIL SHEATHING AT BLOCKED EDGES.

MARK	SHEATHING MATERIAL	EDGE NAILING	FIELD NAILING	BOTTOM PLATE ATTACHMENT
6	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL	8d COMMON AT 4" O.C.	8d COMMON AT 12" O.C.	CONCRETE: 1/2"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 24" O.C.
				CONCRETE: 5/8"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 32" O.C.
				WOOD:16d STAGGERED AT 4" O.C.
7	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL	8d COMMON AT 3" O.C.	8d COMMON AT 12" O.C.	CONCRETE: 1/2"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 18" O.C.
				CONCRETE: 5/8"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 26" O.C.
				WOOD:16d STAGGERED AT 3" O.C.
8	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL (2) 2x OR 3x STUDS/BLOCKING AT ADJOINING PANEL EDGES.	8d COMMON AT 2" O.C. STAGGER AT ADJOINING PANEL EDGES.	8d COMMON AT 12" O.C.	CONCRETE: 1/2"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 8" O.C.
				CONCRETE: 5/8"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 14" O.C.
				WOOD:SDS 1/4"x4 1/2" AT 8" O.C.
10	7/16" APA RATED SHEATHING (BLOCKED) BOTH SIDES OF WALL (2) 2x OR 3x STUDS/BLOCKING AT ADJOINING PANEL EDGES. (2) 2x OR (1) 3x BOTTOM PLATE.	8d COMMON AT 3" O.C. STAGGER AT ADJOINING PANEL EDGES.	8d COMMON AT 12" O.C.	CONCRETE: 5/8"Ø A.B. W/ 1/4"x3"x3" PLATE WASHERS AT 16" O.C.
				WOOD: SDS 1/4"x5 1/2" AT 4 1/2" O.C.

POST (P) SCHEDULE

MARK	SIZE	SPECIES AND GRADE	CONNECTION
P1	(2) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P2	(3) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P3	(4) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P4	(5) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P5	6x12	DOUG FIR NO. 1	SEE TYPICAL DETAILS
P6	8x10	DOUG FIR NO. 1	SEE TYPICAL DETAIL
P7	12" DIA. LOG	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P8	16" DIA. LOG	DOUG FIR NO. 2	SEE TYPICAL DETAILS

WOOD JOIST (WJ) SCHEDULE

MARK	JOIST	FACE MOUNT HANGER	TOP FLANGE HANGER
WJ1	11 7/8" TJI 210 AT 16" O.C.	IUS2.06/11.88	ITS2.06/11.88
WJ2	11 7/8 TJI 360 AT 16" O.C.	IUS2.37/11.88	ITS2.37/11.88
WJ3	2x6 AT 16" O.C.	LUS26	JB26
WJ4	2x8 AT 12" O.C.	LRU28Z	N/A
WJ5	(2) 2x8 AT 16" O.C.	LRU28Z	N/A

(X) PLAN KEYNOTES

1. PROVIDE SOLID BLOCKING BETWEEN FLOORS PER TYPICAL DETAIL AT ALL POSTS FROM ABOVE
2. POST FROM ABOVE TO BLOCK DOWN TO BEAR ON HEADER
3. 6x6 DF NO.1 KING POST, SEE DETAIL 309 FOR ADDITIONAL INFORMATION
4. POST FROM ABOVE TO BEAR DIRECTLY ON BEAM IN FLOOR SYSTEM
5. PROVIDE SOLID BUILT-UP 2x POST IN WALL BETWEEN BEAM IN FLOOR AND HEADER (MATCH BEAM WIDTH)
6. PROVIDE 2x NAILER ON SIDE(S) OF STEEL COLUMN FOR ATTACHMENT TO WOOD FRAMING
7. SIMPSON HGU9.00-SDS HANGER
8. SIMPSON CBH2.37x9.75 CONCEALED BEAM HANGER
9. POCKET BEAM INTO WALL PER TYPICAL DETAIL
10. SIMPSON MIU3.56/11 HANGER
11. FRAME THIS WALL W/ (2) 2x6 WALL STUDS AT 16" O.C.
12. FRAME THIS WALL W/ (2) 1 3/4 x 11 7/8 LVL WALL STUDS AT 16" O.C. OR 3 1/2 x 11 7/8 LVL WALL STUDS AT 16" O.C.
13. FRAME THIS WALL W/ 1 3/4 x 7 1/4 LVL WALL STUDS AT 16" O.C.
14. ATTACH ANCHOR FOR HOLDOWN TO STEEL BEAM PER TYPICAL DETAIL
15. PROVIDE HOLDOWN BETWEEN FLOORS PER TYPICAL DETAIL
16. STRAP ACROSS OPENING PER TYPICAL DETAIL

FLOOR/ROOF FRAMING PLAN NOTES

A. VERIFY ALL DIMENSIONS WITH ALL ARCHITECTURAL DRAWINGS.

B. ALL SCHEDULED MARK DESIGNATIONS MAY NOT NECESSARILY BE FOUND ON THIS PLAN. SCHEDULES ARE TYPICAL TO THIS PROJECT.

C. IF DOUBLE TOP PLATE IS NOTCHED, STEPPED OR BROKEN, PROVIDE A SIMPSON MSTC40 STRAP AT DISCONTINUITY.

D. TYPICAL BEARING WALL FRAMING SHALL BE 2x6 STUDS AT 16" O.C. UNO. WHERE ROOF TRUSSES OR JOISTS SPANS EXCEED 20'-0" ALIGN ADDITIONAL STUD BELOW ROOF FRAMING MEMBER.

E. PROVIDE TRIMMER STUDS (TS) AND KING STUDS (KS) AT OPENINGS AS FOLLOWS, U.N.O.: OPENINGS 6'-0" OR LESS, (1) TS & (1) KS, OPENINGS 6'-1" TO 9'-0", (1) TS & (2) KS, 9'-1" TO 12'-0", (2) TS & (3) KS. FOR ATTACHMENT,SEE "TYPICAL HEADER CONNECTION" DETAIL.

F. [ ] WALLS WITH SOLID LINES DESIGNATED STRUCTURAL (BEARING) WALLS .

G. [- -] WALLS WITH DASHED LINES DESIGNATE NON-STRUCTURAL (NON-BEARING) WALLS .

H. (5) (6) (7) -AS SHOWN ON PLAN INDICATES A SHEARWALL; HATCHING IN WALL DESIGNATES SHEARWALL LENGTH .

I. (A) (B) - AS SHOWN ON PLAN INDICATES A SHEARWALL HOLDOWN. SEE HOLDOWN SCHEDULES AND DETAILS FOR ADDITIONAL INFORMATION .

J. B1, B2, ETC. - AS SHOWN ON PLAN INDICATES A BEAM OR HEADER. SEE BEAM SCHEDULE FOR ADDITIONAL INFORMATION .

K. WJ1, WJ2, ETC. - AS SHOWN ON PLAN INDICATES A WOOD JOIST. SEE WOOD JOIST SCHEDULE FOR ADDITIONAL INFORMATION.

L. P1, P2, ETC. AS SHOWN ON PLAN INDICATES A WOOD POST. SEE POST SCHEDULE FOR MORE INFORMATION.

M. SC1, SC2, ETC. - AS SHOWN ON PLAN INDICATES A STEEL COLUMN. SEE STEEL COLUMN SCHEDULE FOR ADDITIONAL INFORMATION .

N. TIE EACH ROOF TRUSS AT BEARING LOCATIONS WITH (1) H2.5A OR (1) H1 CLIP,AND EACH GIRDER TRUSS WITH (2) H2.5A CLIPS, UNO .

O. TIE EACH ROOF JOIST AT BEARING LOCATIONS WITH (1) H2.5A CLIP, UNO.

P. P PROVIDE BUILT-UP 2x POSTS BELOW EACH GIRDER TRUSS, MATCH GIRDER TRUSS WIDTH, U.N.O .

Q. CS16, CS18, ETC. - AS SHOWN AT WALL OPENINGS, PROVIDE STRAPPING PER "TYPICAL STRAP AT OPENING" DETAIL .

R. PROVIDE CONTINUOUS BEARING FOR ALL POSTS AND BUILT-UP STUDS TO THE FOUNDATION PER TYPICAL "SOLID BLOCKING BETWEEN FLOORS" DETAIL.

S. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF FRAMING CONDITION.

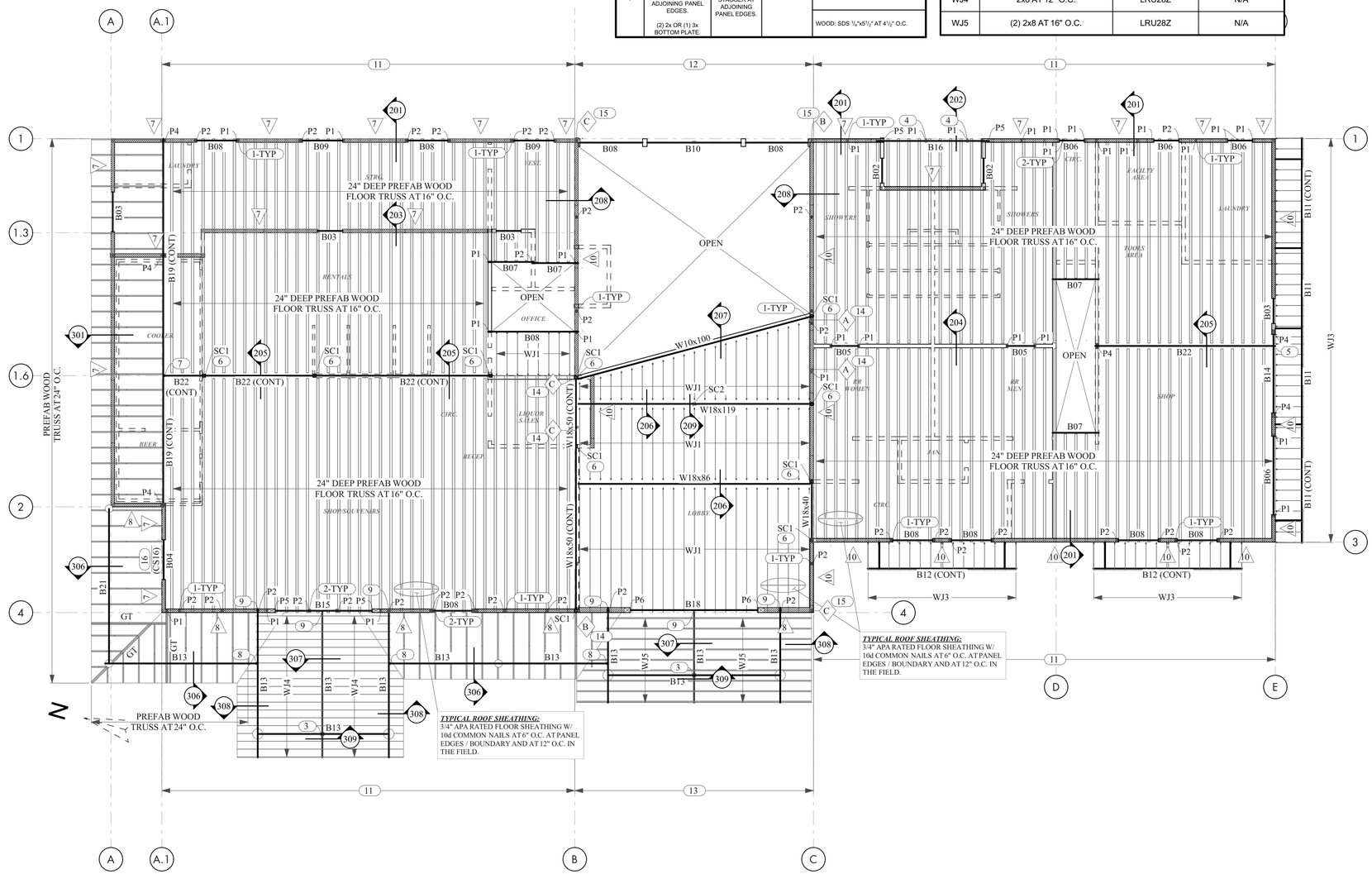
T. ALL EXTERIOR WALLS SHALL BE CONSTRUCTED WITH TYPE "S" SHEARWALLS, UNO.

U. CONTRACTOR TO VERIFY AND BE RESPONSIBLE FOR VARIATIONS IN CONCRETE QUANTITY DUE TO CAMBER, CONSTRUCTION DEAD LOAD DEFLECTIONS AND/OR STRUCTURAL STEEL TOLERANCES OF STEEL BEAMS.

V. FOR CLARITY, ALL FLOOR/ROOF OPENINGS MAY NOT BE SHOWN ON THE FLOOR/ROOF FRAMING PLAN. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. FOR FRAMING AT OPENINGS, SEE TYPICAL DETAILS.

BEAM (B) SCHEDULE

MARK	SIZE
B01	(2) 1 3/4 x 5 1/2 LVL
B02	(2) 2x8 OR 4x8 OR (2) 1 3/4 x 5 1/2 LVL
B03	(2) 2x10 OR 4x10 OR (2) 1 3/4 x 7 1/4 LVL
B04	(3) 2x10 OR 6x10 OR (3) 1 3/4 x 7 1/4 LVL
B05	(2) 1 3/4 x 9 1/2 LVL OR 3 1/2 x 9 1/2 LVL
B06	(3) 1 3/4 x 9 1/2 LVL OR 5 1/4 x 9 1/2 LVL
B07	(2) 1 3/4 x 11 7/8 LVL OR 3 1/2 x 11 7/8 LVL
B08	(3) 1 3/4 x 11 7/8 LVL OR 5 1/4 x 11 7/8 LVL
B09	(3) 1 3/4 x 14 LVL OR 5 1/4 x 14 LVL
B10	(3) 1 3/4 x 16 LVL OR 5 1/4 x 16 LVL
B11	5 1/8 x 12 GLB
B12	5 1/8 x 15 GLB
B13	5 1/8 x 18 GLB
B14	5 1/8 x 27 GLB
B15	5 1/8 x 33 GLB
B16	6 3/4 x 24 GLB
B17	6 3/4 x 33 GLB
B18	6 3/4 x 39 GLB
B19	6 3/4 x 42 GLB
B20	8 3/4 x 15 GLB
B21	8 3/4 x 18 GLB
B22	8 3/4 x 24 GLB
B23	10 3/4 x 27 GLB



SECOND FLOOR & LOW ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

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PROFESSIONAL ENGINEER — MATTHEW A. STEMAN — 15784 — STATE OF WYOMING — 05/05/2025

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SECOND FLOOR & LOW ROOF FRAMING PLAN

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WOOD JOIST (WJ) SCHEDULE

MARK	JOIST	FACE MOUNT HANGER	TOP FLANGE HANGER
WJ1	11 7/8" TJI 210 AT 16" O.C.	IUS2.06/11.88	ITS2.06/11.88
WJ2	11 7/8 TJI 360 AT 16" O.C.	IUS2.37/11.88	ITS2.37/11.88
WJ3	2x6 AT 16" O.C.	LUS26	JB26
WJ4	2x8 AT 12" O.C.	LRU28Z	N/A
WJ5	(2) 2x8 AT 16" O.C.	LRU28Z	N/A

SHEARWALL TYPE SCHEDULE

NOTES:
1. SHEARWALL TYPES LISTED BELOW ARE NOT JOB SPECIFIC. SOME TYPES MAY NOT BE USED ON THE PLANS.
2. FRAMING MEMBER SUPPORTING MATERIAL SHALL BE SPACED AT 16" ON CENTER (O.C.) MAXIMUM.
3. ANCHOR BOLTS TO FOUNDATION SHALL BE 10" LONG AND SHALL BE EMBED 7" INTO CONCRETE. EXPANSION BOLTS OR SHOT PINS MAY BE USED AT INTERIOR WALLS (AWAY FROM EDGE OF SLAB OR SLAB STEP-DOWN) PER SUPPLEMENTAL INSTRUCTIONS.
4. A MINIMUM OF (2) ANCHOR BOLTS SHALL BE USED ON EACH BASE PLATE PIECE. PROVIDE (1) ANCHOR BOLT MINIMUM WITHIN 9" OF EACH END PIECE.
5. PROVIDE CONTINUOUS DOUBLE 2x TOP PLATE AT ALL SHEARWALLS AND EXTERIOR WALL. UNLESS NOTED OTHERWISE (U.N.O.), LAP SPLICE TOP PLATE A MINIMUM 4'-0" WITH 16d NAILS STAGGERED AT 2" ON CENTER (O.C.) ((24) 16d NAILS TOTAL BETWEEN SPLICE JOINTS.)
6. PROVIDE FULL HEIGHT DOUBLE STUDS AT ENDS OF SHEARWALLS UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.
7. BLOCK ALL PANEL EDGES. EDGE NAIL SHEATHING AT BLOCKED EDGES.

MARK	SHEATHING MATERIAL	EDGE NAILING	FIELD NAILING	BOTTOM PLATE ATTACHMENT
6	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL	8d COMMON AT 4" O.C.	8d COMMON AT 12" O.C.	CONCRETE: 1/2"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 24" O.C.
				CONCRETE: 5/8"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 32" O.C.
				WOOD:16d STAGGERED AT 4" O.C.
7	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL	8d COMMON AT 3" O.C.	8d COMMON AT 12" O.C.	CONCRETE: 1/2"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 18" O.C.
				CONCRETE: 5/8"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 26" O.C.
				WOOD:16d STAGGERED AT 3" O.C.
8	7/16" APA RATED SHEATHING (BLOCKED) ONE SIDE OF WALL (2) 2x OR 3x STUDS/BLOCKING AT ADJOINING PANEL EDGES.	8d COMMON AT 2" O.C. STAGGER AT ADJOINING PANEL EDGES.	8d COMMON AT 12" O.C.	CONCRETE: 1/2"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 8" O.C.
				CONCRETE: 5/8"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 14" O.C.
				WOOD:SDS 1/4"x4 1/2" AT 8" O.C.
10	7/16" APA RATED SHEATHING (BLOCKED) BOTH SIDES OF WALL (2) 2x OR 3x STUDS/BLOCKING AT ADJOINING PANEL EDGES. (2) 2x OR (1) 3x BOTTOM PLATE.	8d COMMON AT 3" O.C. STAGGER AT ADJOINING PANEL EDGES.	8d COMMON AT 12" O.C.	CONCRETE: 5/8"Ø A.B. W/ 1"x3"x3" PLATE WASHERS AT 16" O.C.
				WOOD: SDS 1/4"x5 1/2" AT 4 1/2" O.C.

POST (P) SCHEDULE

MARK	SIZE	SPECIES AND GRADE	CONNECTION
P1	(2) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P2	(3) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P3	(4) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P4	(5) 2x6	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P5	6x12	DOUG FIR NO. 1	SEE TYPICAL DETAILS
P6	8x10	DOUG FIR NO. 1	SEE TYPICAL DETAIL
P7	12" DIA. LOG	DOUG FIR NO. 2	SEE TYPICAL DETAILS
P8	16" DIA. LOG	DOUG FIR NO. 2	SEE TYPICAL DETAILS

X PLAN KEYNOTES

1. STRUCTURAL FASCIA INDICATED TO BACKSPAN 6'-0" MIN FROM CORNER OF ROOF
2. INVERTED SIMPSON HU26-3 OR HUC26-3 HANGER
3. 8x8 DF NO.1 KING POST, SEE DETAIL 309 FOR ADDITIONAL INFORMATION
4. FRAME THIS WALL W/ (2) 1 3/4 x 11 7/8 LVL WALL STUDS AT 16" O.C. OR 3 1/2 x 11 7/8 LVL WALL STUDS AT 16" O.C.
5. FRAME THIS WALL W/ 1 3/4 x 7 1/4 LVL WALL STUDS AT 16" O.C.
6. PROVIDE 2x NAILER ON SIDE(S) OF STEEL COLUMN FOR ATTACHMENT TO WOOD FRAMING
7. TRUSS MANUFACTURER TO SPECIFY BEARING ENHANCERS AT EACH TRUSS BEARING LOCATION AS REQUIRED
8. ALIGN ADDITIONAL STUD(S) DIRECTLY BENEATH EACH TRUSS (MATCH TRUSS WIDTH)
9. STRAP ACROSS OPENING PER TYPICAL DETAIL

STEEL COLUMN (SC) SCHEDULE

MARK	SIZE	BASE CONNECTION
SC1	HSS5x5x1/4	SEE DETAILS
SC2	HSS5x5x3/8	SEE DETAILS

ROOF FRAMING PLAN NOTES

A. VERIFY ALL DIMENSIONS WITH ALL ARCHITECTURAL DRAWINGS.

B. ALL SCHEDULED MARK DESIGNATIONS MAY NOT NECESSARILY BE FOUND ON THIS PLAN. SCHEDULES ARE TYPICAL TO THIS PROJECT.

C. IF DOUBLE TOP PLATE IS NOTCHED, STEPPED OR BROKEN, PROVIDE A SIMPSON MSTC40 STRAP AT DISCONTINUITY.

D. TYPICAL BEARING WALL FRAMING SHALL BE 2x6 STUDS AT 16" O.C. UNO. WHERE ROOF TRUSSES OR JOISTS SPANS EXCEED 20'-0" ALIGN ADDITIONAL STUD BELOW ROOF FRAMING MEMBER.

E. PROVIDE TRIMMER STUDS (TS) AND KING STUDS (KS) AT OPENINGS AS FOLLOWS, U.N.O.: OPENINGS 6'-0" OR LESS, (1) TS & (1) KS, OPENINGS 6'-1" TO 9'-0", (1) TS & (2) KS, 9'-1" TO 12'-0", (2) TS & (3) KS. FOR ATTACHMENT,SEE "TYPICAL HEADER CONNECTION" DETAIL.

F. _____ WALLS WITH SOLID LINES DESIGNATED STRUCTURAL (BEARING) WALLS .

G. [— —] WALLS WITH DASHED LINES DESIGNATE NON-STRUCTURAL (NON-BEARING) WALLS .

H. 5 6 7 , -AS SHOWN ON PLAN INDICATES A SHEARWALL; HATCHING IN WALL DESIGNATES SHEARWALL LENGTH.

I. B1, B2, ETC. - AS SHOWN ON PLAN INDICATES A BEAM OR HEADER. SEE BEAM SCHEDULE FOR ADDITIONAL INFORMATION .

J. WJ1, WJ2, ETC. - AS SHOWN ON PLAN INDICATES A JOIST. SEE JOIST SCHEDULE FOR ADDITIONAL INFORMATION.

K. P1, P2, ETC. AS SHOWN ON PLAN INDICATES A WOOD POST. SEE POST SCHEDULE FOR MORE INFORMATION.

L. SC1, SC2, ETC. - AS SHOWN ON PLAN INDICATES A STEEL COLUMN. SEE STEEL COLUMN SCHEDULE FOR ADDITIONAL INFORMATION. COLUMNS START AT THE LEVEL THEY ARE CALLED OUT ON .

M. TIE EACH ROOF TRUSS AT BEARING LOCATIONS WITH (1) H2.5A OR (1) H1 CLIP, AND EACH GIRDER TRUSS WITH (2) H2.5A CLIPS, UNO.

N. TIE EACH ROOF JOIST AT BEARING LOCATIONS WITH (1) H2.5A CLIP, UNO.

O. PROVIDE BUILT-UP 2x POSTS BELOW EACH GIRDER TRUSS, MATCH GIRDER TRUSS WIDTH, U.N.O .

P. OVERBUILD PONY WALLS (MAX 5'-0" SPACING FOR 2x6 OVERBUILD FRAMING AT 16" O.C. W/ SIMPSON LUS26 HANGER) PER "TYPICAL OVERBUILD" DETAIL.

Q. CS16, CS18, ETC. - AS SHOWN AT WALL OPENINGS, PROVIDE STRAPPING PER "TYPICAL STRAP AT OPENING" DETAIL .

R. PROVIDE CONTINUOUS BEARING FOR ALL POSTS AND BUILT-UP STUDS TO THE FOUNDATION PER TYPICAL "SOLID BLOCKING BETWEEN FLOORS" DETAIL

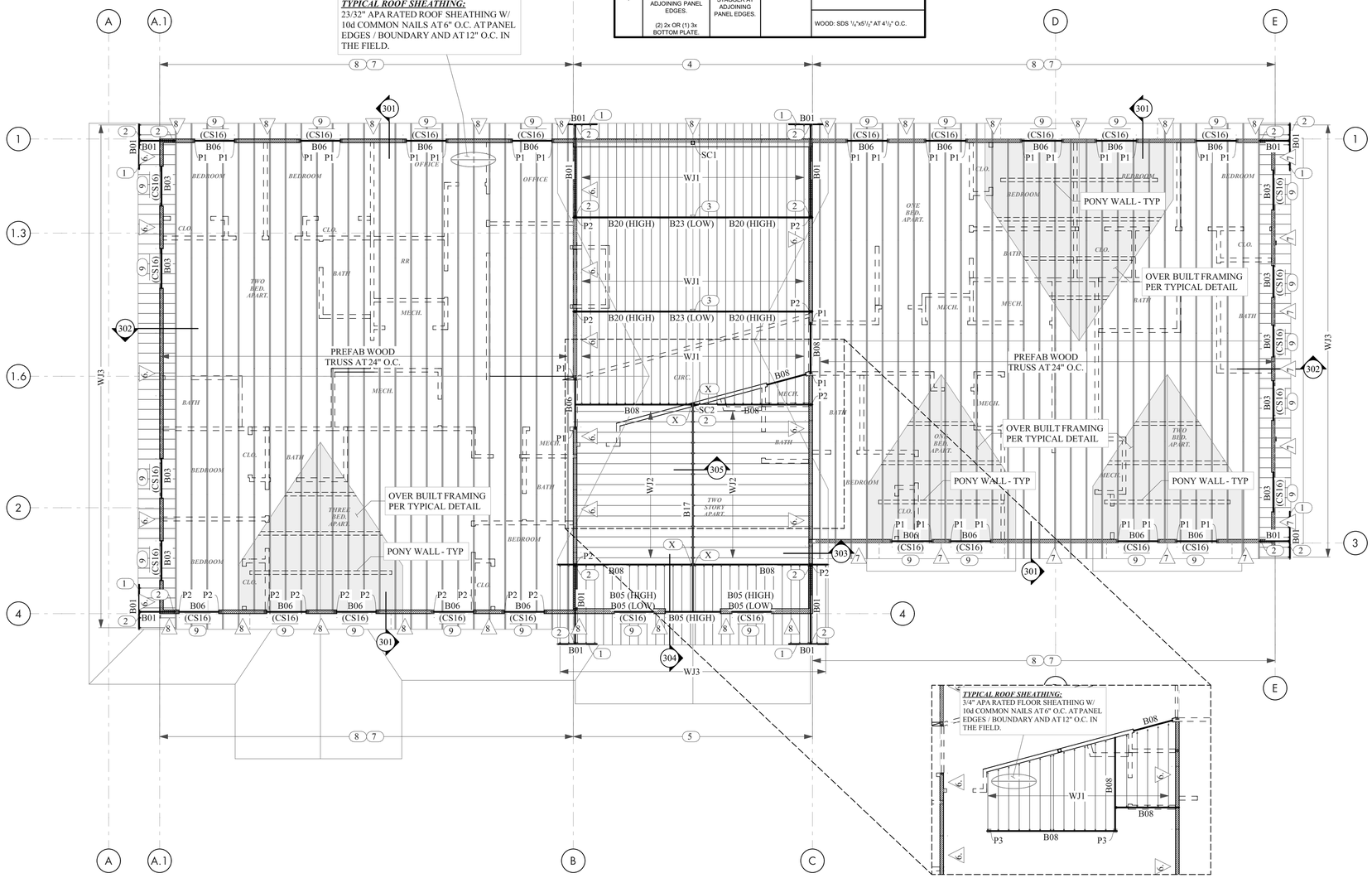
S. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF FRAMING CONDITION.

T. ALL EXTERIOR WALLS SHALL BE CONSTRUCTED WITH TYPE "S" SHEARWALLS, UNO.

U. FOR CLARITY, ALL ROOF OPENINGS MAY NOT BE SHOWN ON THE ROOF FRAMING PLAN. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. FOR FRAMING AT OPENINGS, SEE TYPICAL DETAILS.

BEAM (B) SCHEDULE

MARK	SIZE
B01	(2) 1 3/4 x 5 1/2 LVL
B02	(2) 2x8 OR 4x8 OR (2) 1 3/4 x 5 1/2 LVL
B03	(2) 2x10 OR 4x10 OR (2) 1 3/4 x 7 1/4 LVL
B04	(3) 2x10 OR 6x10 OR (3) 1 3/4 x 7 1/4 LVL
B05	(2) 1 3/4 x 9 1/2 LVL OR 3 1/2 x 9 1/2 LVL
B06	(3) 1 3/4 x 9 1/2 LVL OR 5 1/4 x 9 1/2 LVL
B07	(2) 1 3/4 x 11 7/8 LVL OR 3 1/2 x 11 7/8 LVL
B08	(3) 1 3/4 x 11 7/8 LVL OR 5 1/4 x 11 7/8 LVL
B09	(3) 1 3/4 x 14 LVL OR 5 1/4 x 14 LVL
B10	(3) 1 3/4 x 16 LVL OR 5 1/4 x 16 LVL
B11	5 1/8 x 12 GLB
B12	5 1/8 x 15 GLB
B13	5 1/8 x 18 GLB
B14	5 1/8 x 27 GLB
B15	5 1/8 x 33 GLB
B16	6 3/4 x 24 GLB
B17	6 3/4 x 33 GLB
B18	6 3/4 x 39 GLB
B19	6 3/4 x 42 GLB
B20	8 3/4 x 15 GLB
B21	8 3/4 x 18 GLB
B22	8 3/4 x 24 GLB
B23	10 3/4 x 27 GLB



UPPER ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

LOFT FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

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FOR PERMIT ONLY

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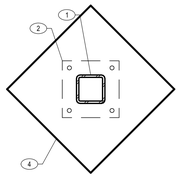
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UPPER ROOF FRAMING PLAN

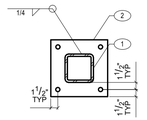
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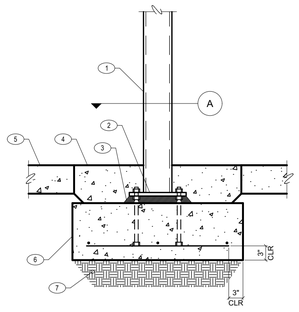
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KEYNOTES:
1. STEEL COLUMN, SEE PLAN
2. STEEL BASE PLATE W/ LEVELING NUTS, SEE COLUMN SCHEDULE
3. ±1½" NON-SHRINK GROUT
4. CONCRETE CLOSURE POUR. POUR AFTER DEAD LOADS ARE IN PLACE
5. CONCRETE SLAB ON GRADE, SEE PLAN
6. CONCRETE FOOTING, SEE PLAN
7. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN



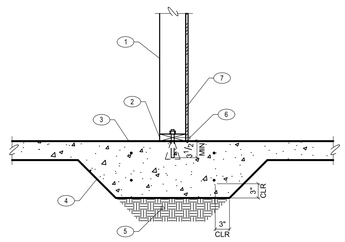
A PLAN





107 STEEL COLUMN AT FOUNDATION
NO SCALE

KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. CONT 2x PT SOLE PLATE W/ ANCHOR BOLTS PER SHEARWALL SCHEDULE
3. CONCRETE SLAB ON GRADE, SEE PLAN
4. CONCRETE FOOTING, SEE PLAN
5. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN
6. EDGE NAILING, SEE SHEARWALL SCHEDULE
7. WALL SHEATHING AS OCCURS, SEE PLAN

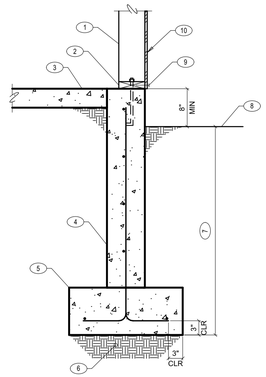


104 WOOD STUD WALL AT FOUNDATION
NO SCALE

KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. CONT 2x PT SOLE PLATE W/ Ø.145" MIN SHOT PIN AT 32" O.C.
3. CONCRETE SLAB ON GRADE, SEE PLAN
4. CONCRETE FOOTING, SEE PLAN
5. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN

105 WOOD STUD WALL AT FOUNDATION
NO SCALE

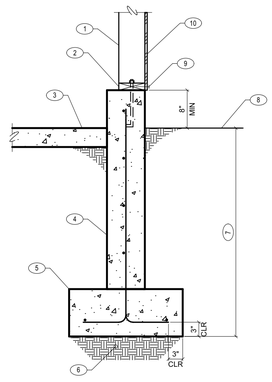
KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. CONT 2x PT SOLE PLATE W/ ANCHOR BOLTS PER SHEARWALL SCHEDULE
3. CONCRETE SLAB ON GRADE, SEE PLAN
4. CONCRETE FOOTING, SEE PLAN
5. CONCRETE FOOTING, SEE PLAN
6. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN
7. MINIMUM FOOTING DEPTH, SEE GSN
8. SIDEWALK, PAVEMENT, OR FINISH GRADE PER ARCH
9. EDGE NAILING, SEE SHEARWALL SCHEDULE
10. WALL SHEATHING AS OCCURS, SEE PLAN



NOTES:
A. WATERPROOF ANY EXTERIOR WOOD FRAMING WITHIN 8" OF GRADE PER ARCH DRAWINGS

101 WOOD STUD WALL AT FOUNDATION
NO SCALE

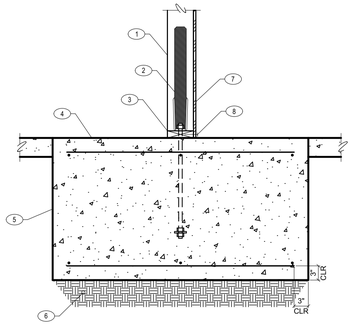
KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. CONT 2x PT SOLE PLATE W/ ANCHOR BOLTS PER SHEARWALL SCHEDULE
3. CONCRETE SLAB ON GRADE, SEE PLAN
4. CONCRETE WALL, SEE PLAN
5. CONCRETE FOOTING, SEE PLAN
6. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN
7. MINIMUM FOOTING DEPTH, SEE GSN
8. SIDEWALK, PAVEMENT, OR FINISH GRADE PER ARCH
9. EDGE NAILING, SEE SHEARWALL SCHEDULE
10. WALL SHEATHING AS OCCURS, SEE PLAN



NOTES:
A. WATERPROOF ANY EXTERIOR WOOD FRAMING WITHIN 8" OF GRADE PER ARCH DRAWINGS

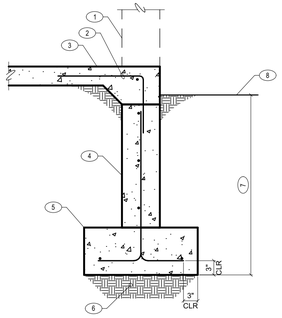
102 WOOD STUD WALL AT FOUNDATION
NO SCALE

KEYNOTES:
1. WOOD STUD WALL, SEE PLAN
2. HOLDOWN, SEE PLAN, ATTACH PER MANUFACTURER
3. CONT 2x PT SOLE PLATE W/ ANCHOR BOLTS PER SHEARWALL SCHEDULE
4. CONCRETE SLAB ON GRADE, SEE PLAN
5. CONCRETE FOOTING, SEE PLAN
6. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN
7. WALL SHEATHING AS OCCURS, SEE PLAN
8. EDGE NAILING, SEE SHEARWALL SCHEDULE



106 WOOD STUD WALL AT FOUNDATION
NO SCALE

KEYNOTES:
1. WALL BEYOND, SEE PLAN
2. #4 BENT DOWEL AT 18" O.C.
   18" / 18"
3. CONCRETE SLAB ON GRADE, SEE PLAN
4. CONCRETE WALL, SEE PLAN
5. CONCRETE FOOTING, SEE PLAN
6. COMPACTED SUB-GRADE BELOW FOOTING, SEE PLAN
7. MINIMUM FOOTING DEPTH, SEE GSN
8. SIDEWALK, PAVEMENT, OR FINISH GRADE PER ARCH



103 CONCRETE SLAB AT FOUNDATION
NO SCALE

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05/05/2025

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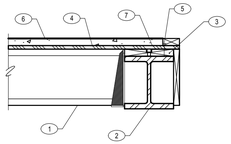
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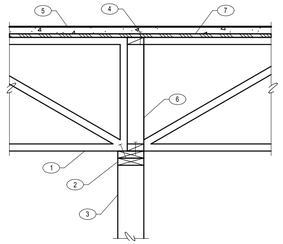
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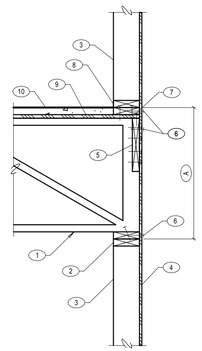
KEYNOTES:
1. WOOD JOIST W/ HANGER, SEE PLAN
2. STEEL BEAM, SEE PLAN
3. CONT 2x NAILER W/ ¾"Ø THREADED STUDS W/ WASHER AT 24" O.C. (COUNTER SINK AS REQUIRED)
4. FLOOR SHEATHING, SEE PLAN
5. BOUNDARY NAILING, SEE PLAN
6. 1½" GYP-CRETE, SEE ARCH
7. NO FLOOR SHEATHING SPLICE AT BEAM, FLOOR SHEATHING TO EXTEND CONTINUOUS TO EDGE OF FLOOR

207 WOOD JOIST AT STEEL BEAM
NO SCALE



KEYNOTES:
1. WOOD TRUSS W/ (2) 16d NAILS, SEE PLAN
2. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
3. WOOD STUD WALL, SEE PLAN
4. BOUNDARY NAILING, SEE PLAN
5. 1½" GYP-CRETE, SEE ARCH
6. WOOD TRUSS BLOCKING W/ (4) 16d NAILS BETWEEN EACH TRUSS
7. FLOOR SHEATHING, SEE PLAN

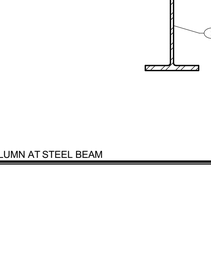
204 WOOD TRUSS AT WOOD STUD WALL
NO SCALE



KEYNOTES:
1. WOOD TRUSS W/ (2) 16d NAILS, SEE PLAN
2. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
3. WOOD STUD WALL, SEE PLAN
4. WALL SHEATHING AS OCCURS, SEE PLAN
5. CONT 2x12 RIBBON BOARD W/ (4) 16d NAILS INTO EACH WOOD TRUSS
6. EDGE NAILING, SEE SHEARWALL SCHEDULE
7. BOUNDARY NAILING, SEE PLAN
8. CONT DBL 2x BOTTOM PLATE, ATTACH PER SHEARWALL SCHEDULE
9. FLOOR SHEATHING, SEE PLAN
10. 1½" GYP-CRETE, SEE ARCH

NOTES:
A. EXTEND WALL SHEATHING PAST DBL TOP PLATE NO WALL SHEATHING SPLICE BETWEEN DBL TOP PLATE AND BOTTOM PLATE

201 WOOD TRUSS AT WOOD STUD WALL
NO SCALE



KEYNOTES:
1. WOOD TRUSS, SEE PLAN
2. 2x4 X 6'-0" LONG AT 48" O.C. W/ (2) 16d NAILS AT EACH TRUSS
3. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
4. WOOD STUD WALL, SEE PLAN
5. WALL SHEATHING AS OCCURS, SEE PLAN
6. EDGE NAILING, SEE SHEARWALL SCHEDULE
7. WOOD TRUSS W/ 16d NAILS AT 4" O.C., SEE PLAN
8. BOUNDARY NAILING, SEE PLAN
9. CONT 2x BOTTOM PLATE, ATTACH PER SHEARWALL SCHEDULE
10. FLOOR SHEATHING, SEE PLAN
11. 1½" GYP-CRETE, SEE ARCH

NOTES:
A. EXTEND WALL SHEATHING PAST DBL TOP PLATE NO WALL SHEATHING SPLICE BETWEEN DBL TOP PLATE AND BOTTOM PLATE

208 WOOD TRUSS AT WOOD STUD WALL
NO SCALE

KEYNOTES:
1. WOOD TRUSS W/ HANGER, SEE PLAN
2. WOOD BEAM, SEE PLAN
3. FLOOR SHEATHING, SEE PLAN
4. BOUNDARY NAILING, SEE PLAN
5. 1½" GYP-CRETE, SEE ARCH

205 WOOD TRUSS AT WOOD BEAM
NO SCALE

KEYNOTES:
1. WOOD TRUSS W/ HANGER, SEE PLAN
2. WOOD BEAM, SEE PLAN
3. EDGE NAILING, SEE SHEARWALL SCHEDULE
4. WALL SHEATHING AS OCCURS, SEE PLAN
5. BOUNDARY NAILING, SEE PLAN
6. WOOD STUD WALL, SEE PLAN
7. CONT DBL 2x BOTTOM PLATE, ATTACH PER SHEARWALL SCHEDULE
8. FLOOR SHEATHING, SEE PLAN
9. 1½" GYP-CRETE, SEE ARCH

202 WOOD TRUSS AT WOOD BEAM
NO SCALE

KEYNOTES:
1. STEEL COLUMN, SEE PLAN
2. STEEL BEAM, SEE PLAN

NOTES:
A. SEE CORRESPONDING DETAILS FOR ADDITIONAL INFORMATION

209 STEEL COLUMN AT STEEL BEAM
NO SCALE

KEYNOTES:
1. WOOD JOIST W/ TOP FLANGE HANGER, SEE PLAN
2. STEEL BEAM, SEE PLAN
3. CONT 2x NAILER W/ ¾"Ø THREADED STUDS W/ WASHER AT 24" O.C. (COUNTER SINK AS REQUIRED)
4. FLOOR SHEATHING, SEE PLAN
5. BOUNDARY NAILING, SEE PLAN
6. 1½" GYP-CRETE, SEE ARCH

206 WOOD JOIST AT STEEL BEAM
NO SCALE

KEYNOTES:
1. WOOD TRUSS W/ (2) 16d NAILS, SEE PLAN
2. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
3. WOOD STUD WALL, SEE PLAN
4. WALL SHEATHING AS OCCURS, SEE PLAN
5. EDGE NAILING, SEE SHEARWALL SCHEDULE
6. WOOD TRUSS BLOCKING W/ (4) 16d NAILS BETWEEN EACH TRUSS
7. FLOOR SHEATHING, SEE PLAN
8. BOUNDARY NAILING, SEE PLAN
9. 1½" GYP-CRETE, SEE ARCH

203 WOOD TRUSS AT WOOD STUD WALL
NO SCALE

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PROFESSIONAL ENGINEER MARK E. TEMAN 15084 STATE OF IDAHO Date 05/05/2025 WYOMING

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IDAHO FALLS, ID 83401
PHONE: (208) 840-5673

MECHANICAL / PLUMBING

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TBD Alpine, Wyoming, 83128

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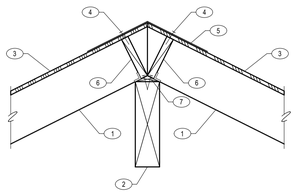
24063

FLOOR FRAMING DETAILS

S4.0

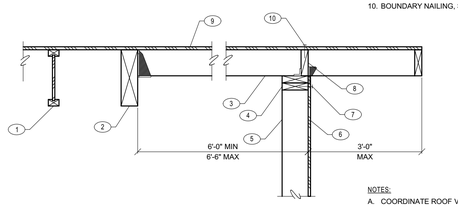
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KEYNOTES:
1. WOOD JOIST, SEE PLAN
2. WOOD BEAM, SEE PLAN
3. ROOF SHEATHING SEE PLAN
4. BOUNDARY NAILING, SEE PLAN
5. LSTA24 STRAP AT 24" O.C., STRAP TOPS OF JOIST TOGETHER
6. 2x BLOCKING W/ A35 CLIP BETWEEN EACH JOIST
7. CONT SHAPED WOOD BLOCK W/ 16d NAILS AT 6" O.C. STAGGERED

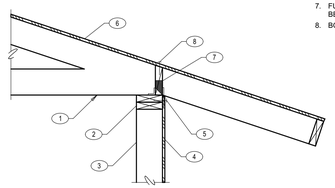
307 WOOD JOIST AT WOOD BEAM
NO SCALE



KEYNOTES:
1. WOOD JOIST, SEE PLAN
2. WOOD BEAM, SEE PLAN
3. WOOD JOIST W/ CLIP AND HANGER, SEE PLAN
4. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
5. WOOD STUD WALL, SEE PLAN
6. WALL SHEATHING AS OCCURS, SEE PLAN
7. EDGE NAILING, SEE SHEARWALL SCHEDULE
8. 2x BLOCKING W/ A35 CLIP BETWEEN EACH JOIST
9. ROOF SHEATHING, SEE PLAN
10. BOUNDARY NAILING, SEE PLAN

NOTES:
A. COORDINATE ROOF VENTILATION
B. FASCIA PER ARCHITECTURAL DETAILS

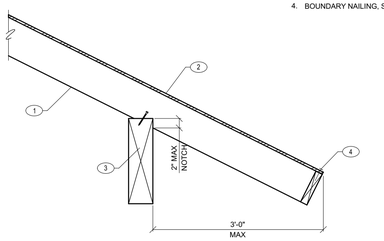
304 WOOD JOIST AT WOOD STUD WALL
NO SCALE



KEYNOTES:
1. WOOD TRUSS W/ CLIP, SEE PLAN
2. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
3. WOOD STUD WALL, SEE PLAN
4. WALL SHEATHING AS OCCURS, SEE PLAN
5. EDGE NAILING, SEE SHEARWALL SCHEDULE
6. ROOF SHEATHING, SEE PLAN
7. FULL-HEIGHT 2x BLOCKING BETWEEN EACH TRUSS W/ A35 CLIP
8. BOUNDARY NAILING, SEE PLAN

NOTES:
A. 2x BLOCKING MAY BE OMITTED EVERY THIRD BAY
B. COORDINATE ROOF VENTILATION
C. FASCIA PER ARCHITECTURAL DETAILS

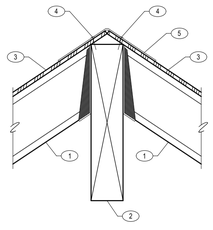
301 WOOD TRUSS AT WOOD STUD WALL
NO SCALE



KEYNOTES:
1. WOOD JOIST W/ SIMPSON SDWC15600 TRUSS SCREW, SEE PLAN
2. ROOF SHEATHING, SEE PLAN
3. WOOD BEAM, SEE PLAN
4. BOUNDARY NAILING, SEE PLAN

NOTES:
A. COORDINATE ROOF VENTILATION
B. FASCIA PER ARCHITECTURAL DETAILS

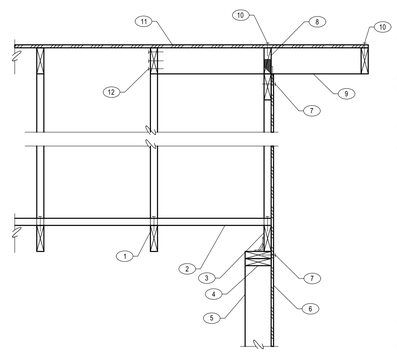
308 WOOD JOIST AT WOOD BEAM
NO SCALE



KEYNOTES:
1. WOOD JOIST W/ HANGER, SEE PLAN
2. WOOD BEAM, SEE PLAN
3. ROOF SHEATHING, SEE PLAN
4. BOUNDARY NAILING, SEE PLAN
5. LSTA18 STRAP AT 32" O.C., STRAP TOPS OF JOISTS TOGETHER

NOTES:
A. COORDINATE ROOF VENTILATION

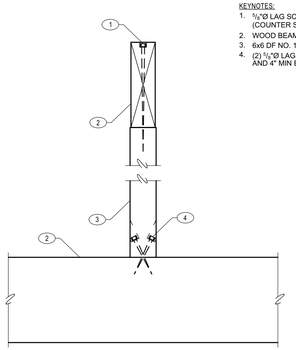
305 WOOD JOIST AT WOOD BEAM
NO SCALE



KEYNOTES:
1. WOOD TRUSS, SEE PLAN
2. 2x4 x 8'-0" LONG AT 6'-0" O.C. W/ (2) 16d NAILS AT EACH TRUSS
3. WOOD TRUSS W/ HGA10 CLIP AT 36" O.C.
4. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
5. WOOD STUD WALL, SEE PLAN
6. WALL SHEATHING AS OCCURS, SEE PLAN
7. EDGE NAILING, SEE SHEARWALL SCHEDULE
8. 2x BLOCKING W/ LTP4 BETWEEN EACH JOIST
9. WOOD JOIST W/ CLIP, SEE PLAN
10. BOUNDARY NAILING, SEE PLAN
11. ROOF SHEATHING, SEE PLAN
12. (3) 16d NAILS AT EACH JOIST

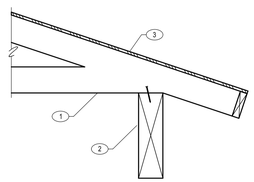
NOTES:
A. COORDINATE ROOF VENTILATION
B. FASCIA PER ARCHITECTURAL DETAILS

302 WOOD TRUSS AT WOOD STUD WALL
NO SCALE



KEYNOTES:
1. ⅝"Ø LAG SCREW W/ 5" MIN EMBEDMENT (COUNTER SINK AS REQUIRED)
2. WOOD BEAM, SEE PLAN
3. 6x6 DF NO. 1 WOOD KING POST
4. (2) ⅝"Ø LAG TOE SCREWS W/ WASHER AND 4" MIN EMBEDMENT

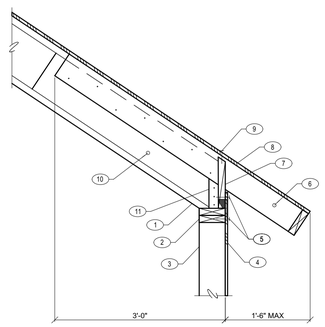
309 WOOD BEAM AT WOOD KING POST
NO SCALE



KEYNOTES:
1. WOOD TRUSS W/ (2) 3 ½" LONG #10 TOE SCREWS, SEE PLAN
2. WOOD BEAM, SEE PLAN
3. ROOF SHEATHING, SEE PLAN

NOTES:
A. COORDINATE ROOF VENTILATION
B. FASCIA PER ARCHITECTURAL DETAILS

306 WOOD TRUSS AT WOOD BEAM
NO SCALE



KEYNOTES:
1. WOOD JOIST W/ CLIP, SEE PLAN
2. CONT DBL 2x TOP PLATE W/ LAP SPLICE, SEE TYPICAL DETAIL
3. WOOD STUD WALL, SEE PLAN
4. WALL SHEATHING AS OCCURS, SEE PLAN
5. EDGE NAILING, SEE SHEARWALL SCHEDULE
6. 2x6 TAIL AT EACH JOIST W/ (2) 16d NAILS AT 6" O.C. STAGGERED
7. 2x BLOCKING BETWEEN EACH JOIST
8. ROOF SHEATHING, SEE PLAN
9. BOUNDARY NAILING, SEE PLAN
10. WEB STIFFENER PER TYPICAL DETAIL
11. 2x4 BEVELED BLOCK W/ (6) 16d NAILS

NOTES:
A. NO WALL SHEATHING SPLICE BETWEEN BLOCKING AND TOP PLATE. IF SHEATHING BREAKS PROVIDE A35 CLIP AT EACH BLOCK
B. COORDINATE ROOF VENTILATION
C. FASCIA PER ARCHITECTURAL DETAILS

303 WOOD JOIST AT WOOD STUD WALL
NO SCALE

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FOR PERMIT ONLY

PROFESSIONAL ENGINEER MATTHEW A. TEMAN 15084 STATE OF IDAHO 05/05/2025

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JOB NO: JF25-047	PROJECT MANAGER: CJB	CAD OPERATOR: MJB

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ROOF FRAMING DETAILS

S5.0



1 COMMERCIAL BUILDING PERMIT APPLICATION - SITE PLAN
SCALE: 1" = 20'

SITE PLAN GENERAL NOTES

A. SEE CIVIL FOR EXACT PARKING SIZINGS AND LOCATION

SITE PLAN LEGEND

- PROPERTY LINE
- SETBACKS
- EASEMENTS
- OVERHEAD POWER — OHP
- UNDERGROUND POWER — UGP
- STORM DRAIN — SD
- SANITARY SEWER — SS
- WATER — CW
- COMPRESSED AIR — A
- CENTER LINE
- GAS/PROPANE LINE — G

CONCRETE SIDEWALK/FLATWORK

CONCRETE SIDEWALK/FLATWORK

PAVERS

LANDSCAPING AREA

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J. GRAHAM WHIPPLE
C-2974
Date: 05/05/25
STATE OF WYOMING

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Date original documents signed:
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ARCHITECTURAL SITE PLAN

AS-001



1 SITE AREAS AND USAGE
SCALE: 1:720

PARKING REQUIREMENTS:

PER L.U.D.C., SECTION 3-204 - MRC MIXED RESIDENTIAL AND COMMERCIAL DISTRICT

RESIDENTIAL PARKING REQUIREMENTS

§ h.1: 600 S.F./ DWELLING UNIT
6 DWELLING UNITS = 3600 S.F. REQUIRED
200 S.F./PARKING = 18 PARKING SPACES REQUIRED
TOTAL PARKING AREA UNDER § H.1 = ***18 SPACES EQUIVALENT***

OR CALCULATED BASED ON UNIT TYPE:
§ h.4: DWELLING UNITS
QTY (2) 1 BEDROOM APTS = 2 SPACES REQUIRED
QTY (4) 2 BEDROOM APTS = 8 SPACES REQUIRED
10 SPACES TOTAL REQUIRED
§ h.4: GUEST PARKING 1:2 APARTMENTS
3 GUEST PARKING SPACES REQUIRED
TOTAL PARKING UNDER § H.4 = ~~13 SPACES REQUIRED~~ (area requirement is larger)

COMMERCIAL PARKING REQUIREMENTS

TABLE 3-1 - MINIMUM PARKING FOR MRC DISTRICT
RESIDENTIAL - SEE ABOVE. 18 SPACES EQUIVALENT AREA REQUIRED

COMMERCIAL: 1 SPACE / 600S.F.
8,395 S.F. 1st FLOOR
374 S.F. 2nd FLOOR
8,769 S.F. TOTAL / 600 = 15 SPACES REQ'D

TOTAL PARKING REQUIRED: 18 RESIDENTIAL
15 COMMERCIAL
33 TOTAL PARKING REQUIRED

PARKING PROVIDED: **52 SPACES FOR MIXED USE BUILDING**

SITE AREAS & USAGE

LOT AREA:
BUILDING SITE: 23,006 s.f.
ADJACENT SITE: 719,409 s.f.

		REQ'D (20%)	PROVIDED
LANDSCAPING & PERVIOUS	BUILDING SITE:	4,601	**459 s.f.**
	ADJACENT SITE:	143,882	**419,055 s.f.**
PAVED AREA	BUILDING SITE:	7,089 s.f	
	ADJACENT SITE:	300,354 s.f.	
		REQ'D (20%)	PROVIDED
SNOW STORAGE	BUILDING SITE:	1,418	**459 s.f**
	ADJACENT SITE:	60,071	**63,585 s.f.**
	TOTAL	**61,489**	**64,044 s.f**

STORM DRAINAGE SHARED STORM SWALE AREAS FOR LOTS 22 & 21

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C-2974
Date: 05/05/25
STATE OF WYOMING

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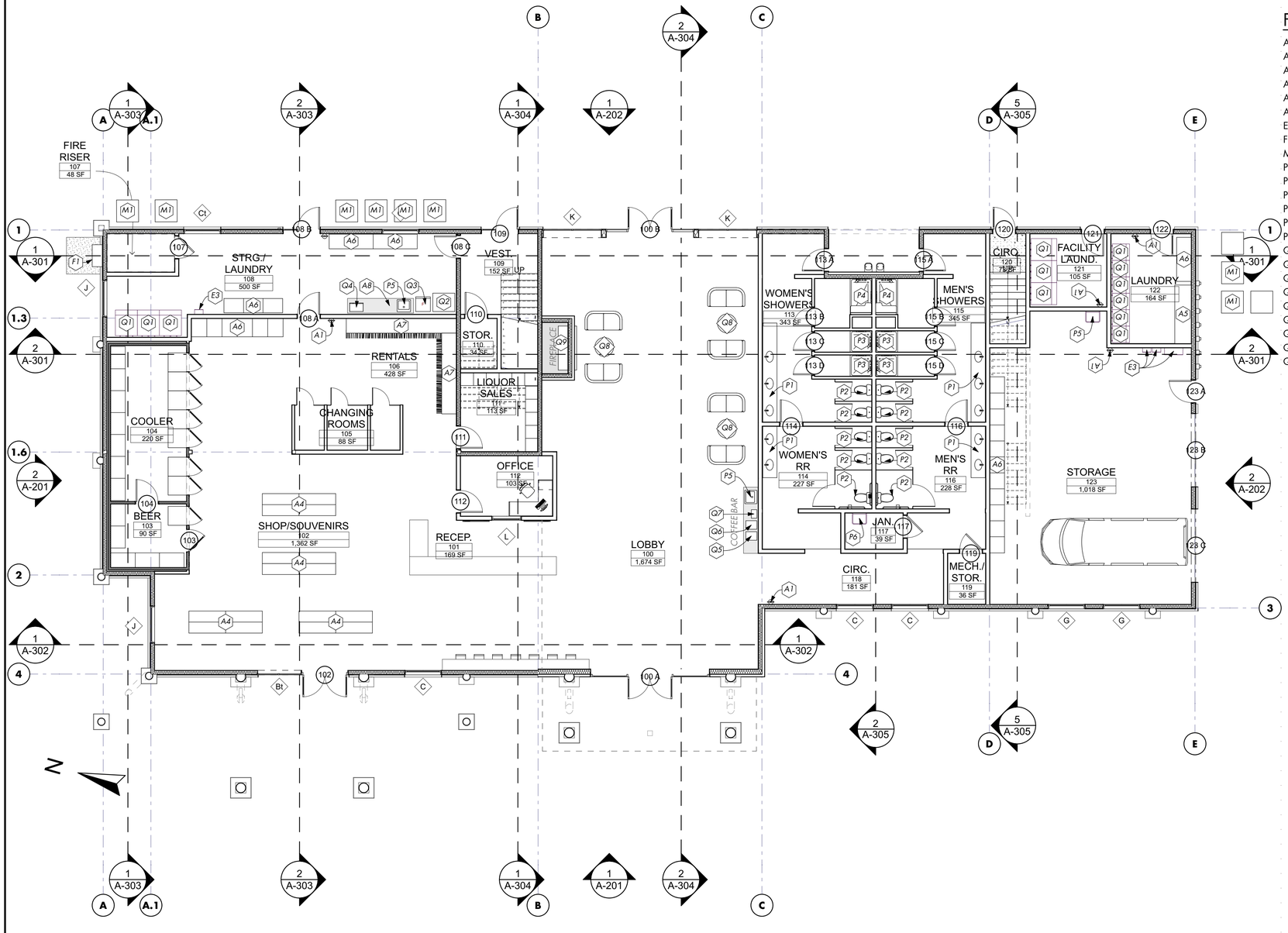
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ARCHITECTURAL SITE - SHARED SITE UTILIZATION

AS-002



1 FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

A. ALL DIMENSIONS ARE SHOWN TO THE FACE OF WALL FRAMING UNLESS SPECIFICALLY NOTED OTHERWISE
B. HINGE SIDE OF DOOR SHALL BE LOCATED 4" TO INSIDE CORNER OF INTERSECTING WALLS UNLESS SPECIFICALLY NOTED OTHERWISE
C. SEE G-401 FOR TYPICAL DETAILS PERTAINING TO STANDARD HANDRAILS COMPLIANCE, GRAB BAR BACKING, DOOR STOP BACKING, RECESSED FIRE CABINETS AND STAGGERED OUTLET DETAILS.

FLOOR PLAN LEGEND

ROOM NAME
ROOM NUMBER

FLOOR PLAN KEYNOTES

A3	EMERGENCY KEY BOX
A4	GONDOLA
A5	COUNTERTOP
A6	STORAGE SHELVING
A7	HANGING STORAGE FOR WETSUITS
A8	CABINET AND COUNTERTOP
E3	ELECTRICAL - DISTRIBUTION PANEL
F1	FIRE DEPARTMENT CONNECTION
M1	CONDENSING UNIT, SEE MECHANICAL
P1	SINK WITH COUNTERTOP
P2	TOILET
P3	SHOWER INSERT
P4	ADA SHOWER STALL WITH BENCH
P5	SINK, SEE PLUMBING
P6	JANITOR SINK
Q1	WASHER/DRYER, PROVIDE POWER - SEE ELECTRICAL
Q2	ICE MAKER
Q3	REFRIGERATOR
Q4	MICROWAVE
Q5	CAPPUCCINO MACHINE
Q6	DRIP COFFEE
Q7	HOT WATER
Q8	FURNITURE OFOI
Q9	GAS FIREPLACE INSERT

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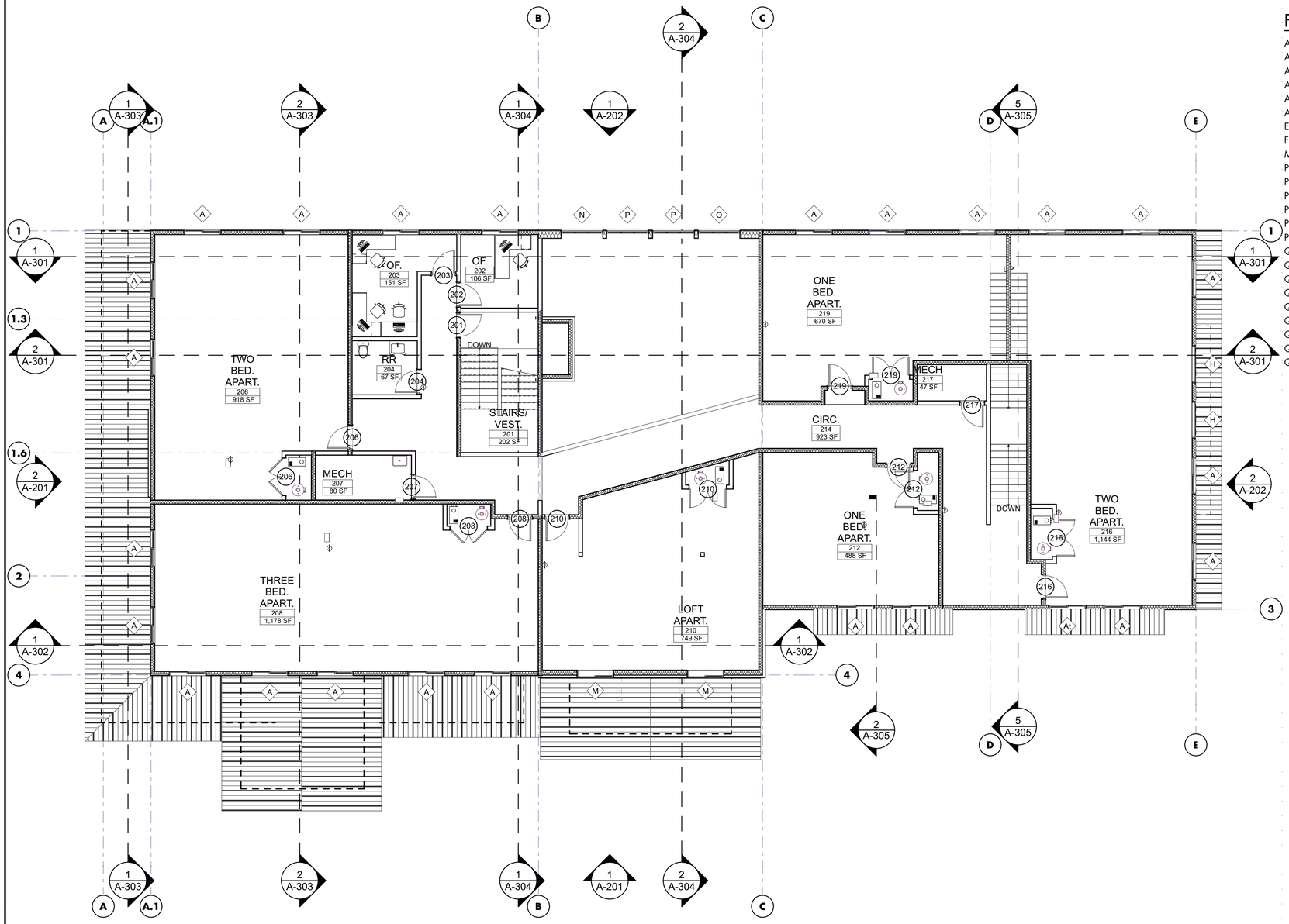
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FIRST FLOOR PLAN

A-100



1 SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

A. ALL DIMENSIONS ARE SHOWN TO THE FACE OF WALL FRAMING UNLESS SPECIFICALLY NOTED OTHERWISE
B. HINGE SIDE OF DOOR SHALL BE LOCATED 4" TO INSIDE CORNER OF INTERSECTING WALLS UNLESS SPECIFICALLY NOTED OTHERWISE
C. SEE G-401 FOR TYPICAL DETAILS PERTAINING TO STANDARD HANDRAILS COMPLIANCE, GRAB BAR BACKING, DOOR STOP BACKING, RECESSED FIRE CABINETS AND STAGGERED OUTLET DETAILS.

FLOOR PLAN LEGEND

ROOM NAME
ROOM NUMBER

FLOOR PLAN KEYNOTES

A3	EMERGENCY KEY BOX
A4	GONDOLA
A5	COUNTERTOP
A6	STORAGE SHELVING
A7	HANGING STORAGE FOR WETSUITS
A8	CABINET AND COUNTERTOP
E3	ELECTRICAL - DISTRIBUTION PANEL
F1	FIRE DEPARTMENT CONNECTION
M1	CONDENSING UNIT, SEE MECHANICAL
P1	SINK WITH COUNTERTOP
P2	TOILET
P3	SHOWER INSERT
P4	ADA SHOWER STALL WITH BENCH
P5	SINK, SEE PLUMBING
P6	JANITOR SINK
Q1	WASHER/DRYER, PROVIDE POWER - SEE ELECTRICAL
Q2	ICE MAKER
Q3	REFRIGERATOR
Q4	MICROWAVE
Q5	CAPPUCCINO MACHINE
Q6	DRIP COFFEE
Q7	HOT WATER
Q8	FURNITURE OFOI
Q9	GAS FIREPLACE INSERT

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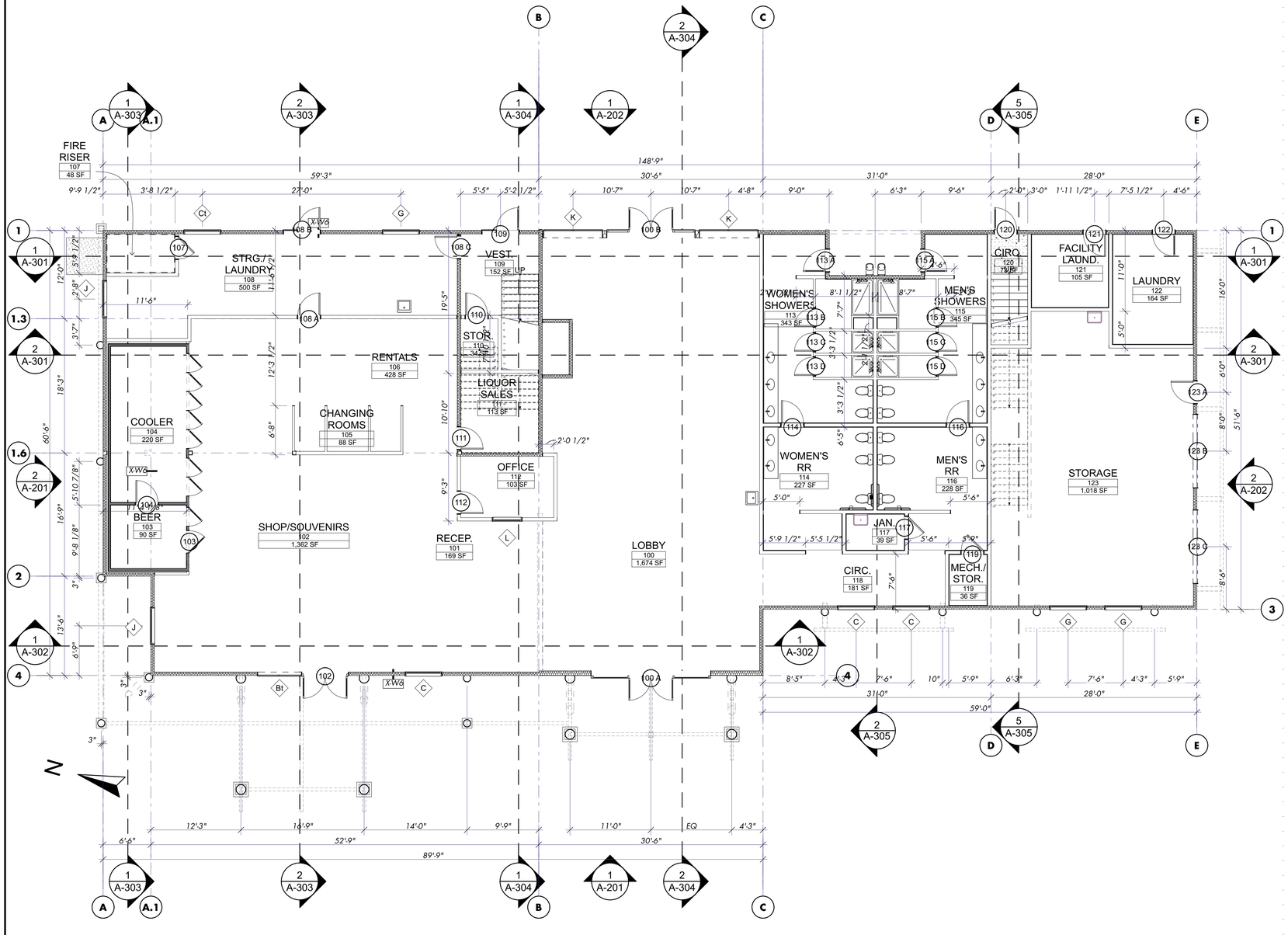
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SECOND FLOOR PLAN

A-101

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1 FIRST FLOOR DIMENSION PLAN
SCALE: 1/8" = 1'-0"

DIMENSIONED PLAN GENERAL NOTES

A. *ALL DIMENSIONS ARE SHOWN TO THE FACE OF WALL FRAMING UNLESS SPECIFICALLY NOTED OTHERWISE*
B. *HINGE SIDE OF DOOR SHALL BE LOCATED 4" TO INSIDE CORNER OF INTERSECTING WALLS UNLESS SPECIFICALLY NOTED OTHERWISE*
C. *CRITICAL DIMENSIONS ARE SHOWN. IF DIMENSIONS ARE NOT INDICATED WITHIN A STRING OF DIMENSIONS, THE MISSING DIMENSION IS THE DESIRED SEGMENT THAT CAN ALLOW FOR SLIGHT ADJUSTMENTS IN LENGTH.*

DIMENSION PLAN KEYNOTES

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305 1st STREET, IDAHO FALLS, ID 83401
PH: 208.757.5700

LICENSED ARCHITECT
J. GRAHAM WHIPPLE
C-2974
Date: 05/05/25
STATE OF WYOMING

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Original documents signed by:
J. GRAHAM WHIPPLE
Date original documents signed:
5/5/25

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PHONE: (208) 840-5673

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PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

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FIRST FLOOR DIMENSION PLAN

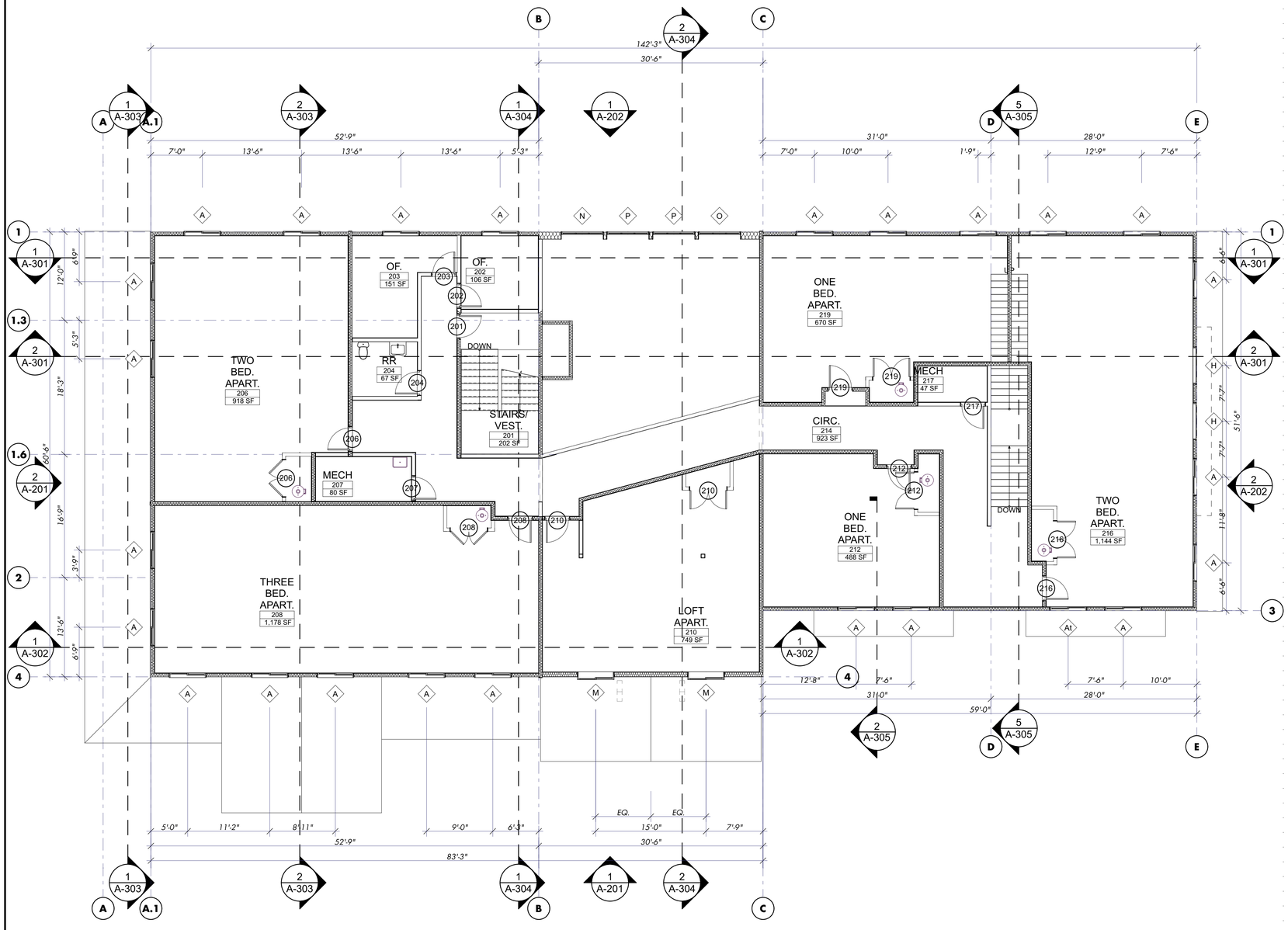
A-102

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DIMENSIONED PLAN GENERAL NOTES

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B. *HINGE SIDE OF DOOR SHALL BE LOCATED 4" TO INSIDE CORNER OF INTERSECTING WALLS UNLESS SPECIFICALLY NOTED OTHERWISE*
C. *CRITICAL DIMENSIONS ARE SHOWN. IF DIMENSIONS ARE NOT INDICATED WITHIN A STRING OF DIMENSIONS, THE MISSING DIMENSION IS THE DESIRED SEGMENT THAT CAN ALLOW FOR SLIGHT ADJUSTMENTS IN LENGTH.*

DIMENSION PLAN KEYNOTES ⬡



1 SECOND FLOOR DIMENSION PLAN
SCALE: 1/8" = 1'-0"

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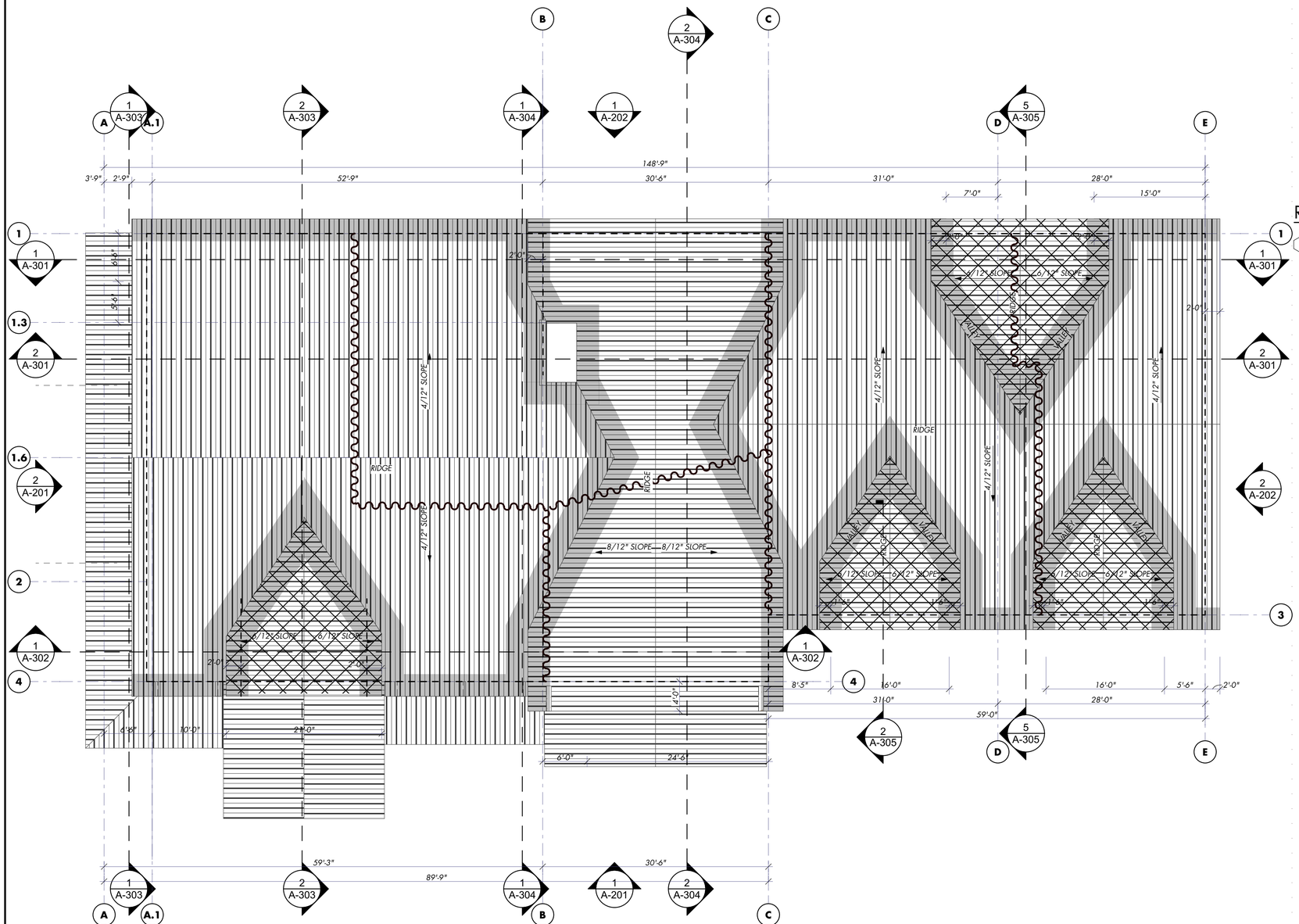
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SECOND FLOOR DIMENSION PLAN

A-103

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1 ROOF PLAN
SCALE: 1/8" = 1'-0"

ROOF PLAN GENERAL NOTES

A. G.C. TO PROVIDE PHYSICAL SAMPLES OF EXTERIOR FINISHES FOR ARCHITECT/ OWNER TO REVIEW PIROR TO ORDERING AND INSTALLATION
B. CONFIGURATION OF ROOF SLOPES, CRICKETS & TRANSITIONS AS SHOWN ALLOWS FOR PROPER DRAINAGE ACROSS ROOF. CONTRACTORS SHALL ENSURE POSITIVE DRAINAGE IS ACHIEVED BASED ON FINAL PLACEMENT OF EQUIPMENT.

ROOF PLAN LEGEND

STANDING SEAM METAL ROOF

GUTTER
DOWNSPOUT

DRAFT STOP, ANY OPENING THROUGH DRAFT STOP NEEDS TO BE EQUIPPED WITH SELF CLOSING HINGES AND LATCHET

OVERBUILD ROOF DORMERS

ICE & WATER SHIELD (TYPICAL 3' ON EACH SIDE OF VALLEY)

ROOF PLAN KEYNOTES

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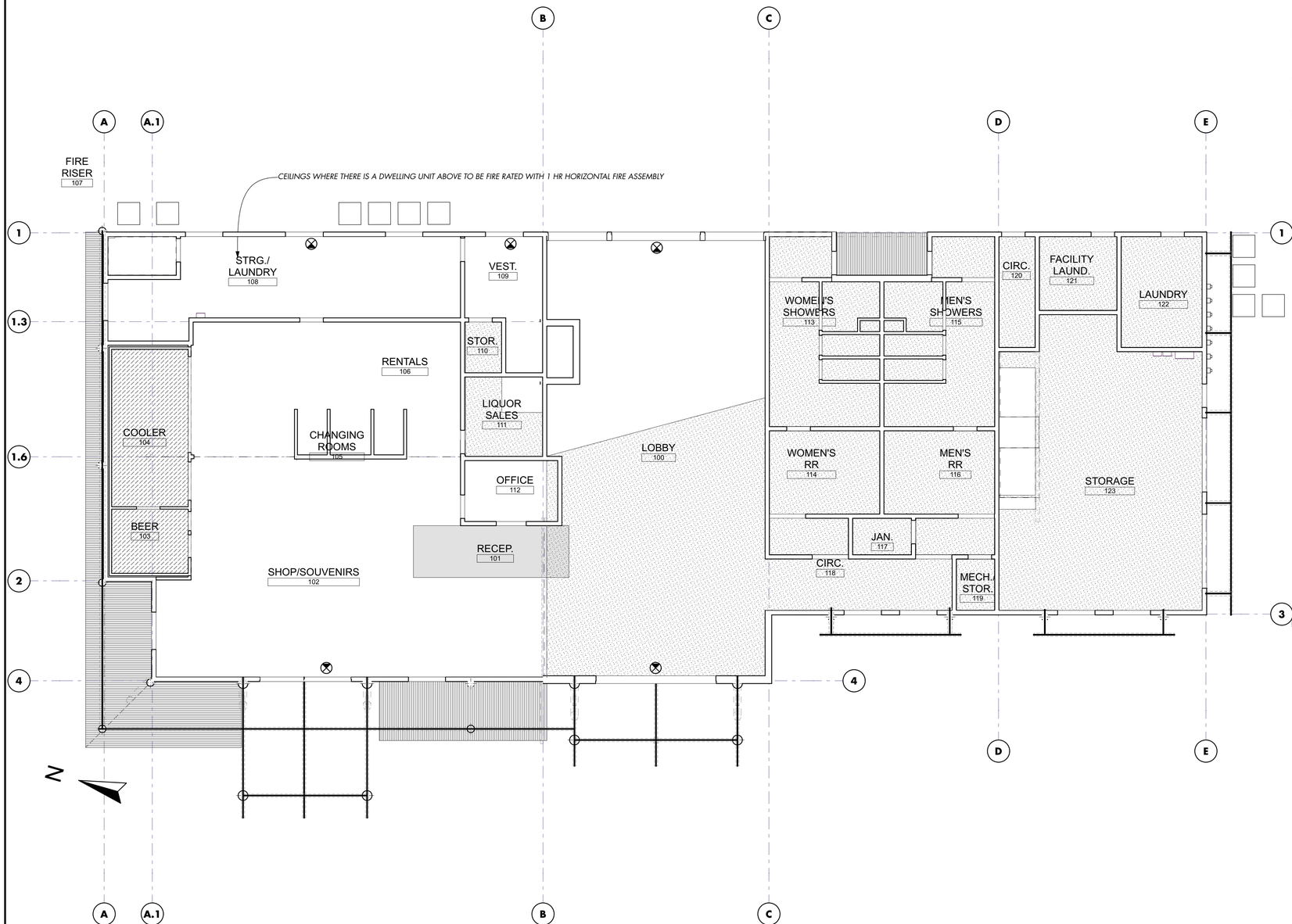
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ROOF PLAN

A-121

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1 FIRST FLOOR RCP
SCALE: 1/8" = 1'-0"

CEILING PLAN GENERAL NOTES

A. SEE B2/G-401 & B1/G-401 FOR TYPICAL CEILING GRID DETAILS
B. CEILING ELEVATION MARK IS TO THE UNDERSIDE OF STRUCTURE OR BOTTOM OF CEILING GRID, UNLESS NOTED OTHERWISE.
C. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR MANUFACTURER'S INFORMATION AND SPECIFICATIONS CONCERNING FIXTURES SHOWN ON THIS PLAN
D. REFER TO SHEET AF-100 FOR FINISH TYPE SCHEDULE, INCLUDING CEILING SPECIFICATIONS
E. ALL WALL SHALL EXTEND TO THE DECKING ABOVE. GYP BD SHALL EXTEND TO 6" ABOVE THE LOWEST ADJACENT CEILING HEIGHT, OR TO STRUCTURE WHERE STRUCTURE IS EXPOSED. CONTRACTOR SHALL PROVIDE COMPRESSION TRACK WITH SLIP JOINT CONSTRUCTION AT ALL WALL/DECK CONNECTIONS.
F. CEILING DIFFUSERS TO MATCH COLOR OF SURROUNDING CEILING. REFER TO FINISH SCHEDULE ON SHEET A2.2.
G. CONTRACTOR TO STUDY AND COMPARE THE REFLECTED CEILING PLANS WITH THE MECHANICAL AND ELECTRICAL DRAWINGS FOR LUMINARIES, DIFFUSERS, AND GRILLES. REPORT TO THE ARCHITECT ANY ERROR, INCONSISTENCY OR OMISSION DISCOVERED.
H. EXPOSED DUCTWORK TO REMAIN WITH FACTORY FINISH AND MUST BE SPIRAL.

CEILING PLAN LEGEND

ROOM NAME
ROOM NUMBER

- GYPSUM BOARD CEILING
- 2'X2' ACCOUSTICAL CEILING TILE
- 2'X4' ACCOUSTICAL CEILING TILE
- CAN LIGHT, SEE ELECTRICAL
- SUSPENDED LIGHT, SEE ELECTRICAL
- 1'X4' LIGHT, SEE ELECTRICAL
- 2'X4' CEILING GRID LIGHT, SEE ELECTRICAL
- VANITY LIGHT, SEE ELECTRICAL
- EXHAUST VENT, SEE MECHANICAL
- SUPPLY DIFFUSER, SEE MECHANICAL
- RETURN VENT, SEE MECHANICAL
- CEILING ELEVATION MARKER

RCP KEYNOTES

A2	EXIT SIGN - SEE ELECTRICAL
A2	EXIT SIGN - SEE ELECTRICAL
A2	EXIT SIGN - SEE ELECTRICAL
A2	EXIT SIGN - SEE ELECTRICAL
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FIRST FLOOR RCP

A-150



1 SECOND FLOOR RCP
SCALE: 1/8" = 1'-0"

CEILING PLAN GENERAL NOTES

A. SEE B2/G-401 & B1/G-401 FOR TYPICAL CEILING GRID DETAILS
B. CEILING ELEVATION MARK IS TO THE UNDERSIDE OF STRUCTURE OR BOTTOM OF CEILING GRID, UNLESS NOTED OTHERWISE.
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F. CEILING DIFFUSERS TO MATCH COLOR OF SURROUNDING CEILING. REFER TO FINISH SCHEDULE ON SHEET A2.2.
G. CONTRACTOR TO STUDY AND COMPARE THE REFLECTED CEILING PLANS WITH THE MECHANICAL AND ELECTRICAL DRAWINGS FOR LUMINARIES, DIFFUSERS, AND GRILLES. REPORT TO THE ARCHITECT ANY ERROR, INCONSISTENCY OR OMISSION DISCOVERED.
H. EXPOSED DUCTWORK TO REMAIN WITH FACTORY FINISH AND MUST BE SPIRAL.

CEILING PLAN LEGEND

ROOM NAME
ROOM NUMBER

- GYPSUM BOARD CEILING
- 2'X2' ACCOUSTICAL CEILING TILE
- 2'X4' ACCOUSTICAL CEILING TILE
- CAN LIGHT, SEE ELECTRICAL
- SUSPENDED LIGHT, SEE ELECTRICAL
- 1'X4' LIGHT, SEE ELECTRICAL
- 2'X4' CEILING GRID LIGHT, SEE ELECTRICAL
- VANITY LIGHT, SEE ELECTRICAL
- EXHAUST VENT, SEE MECHANICAL
- SUPPLY DIFFUSER, SEE MECHANICAL
- RETURN VENT, SEE MECHANICAL
- CEILING ELEVATION MARKER

RCP KEYNOTES

A2	EXIT SIGN - SEE ELECTRICAL
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J. GRAHAM WHIPPLE
C-2974
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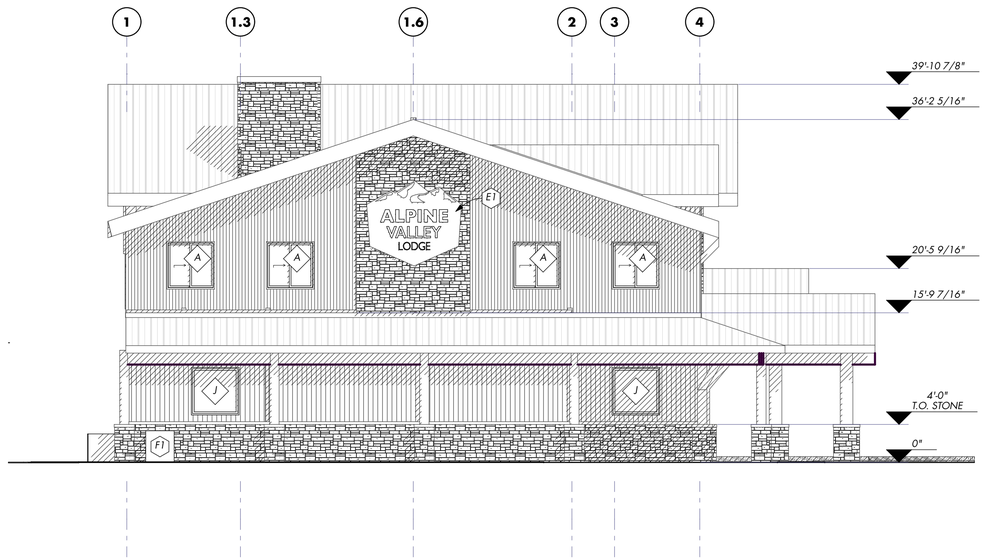
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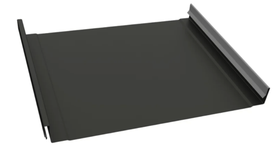
SECOND FLOOR RCP

A-151



2 NORTH ELEVATION

SCALE: 1/8" = 1'-0"



STANDING SEAM METAL ROOF



EXTERIOR STONE



WEATHERED WOOD SIDING



CORRUGATED METAL SIDING

BUILDING ELEVATION GENERAL NOTES

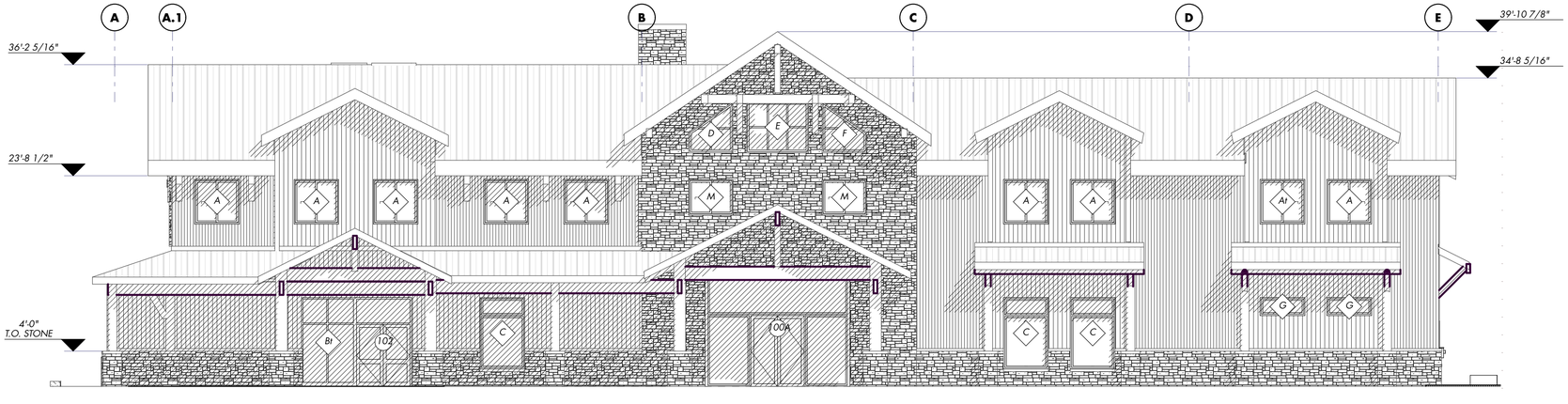
A. G.C. TO PROVIDE PHYSICAL SAMPLES OF EXTERIOR FINISHES FOR ARCHITECT/ OWNER TO REVIEW PIROR TO ORDERING AND INSTALLATION

BUILDING ELEVATION LEGEND

- WEATHERED WOOD SIDING
- CORRUGATED METAL SIDING
- STONE

BUILDING ELEVATION KEYNOTES

A3	EMERGENCY KEY BOX
E1	BUILDING SIGNAGE, PROVIDE POWER - SEE ELECTRICAL
E2	ELECTRICAL METER
F1	FIRE DEPARTMENT CONNECTION
M1	CONDENSING UNIT, SEE MECHANICAL



1 WEST ELEVATION

SCALE: 1/8" = 1'-0"

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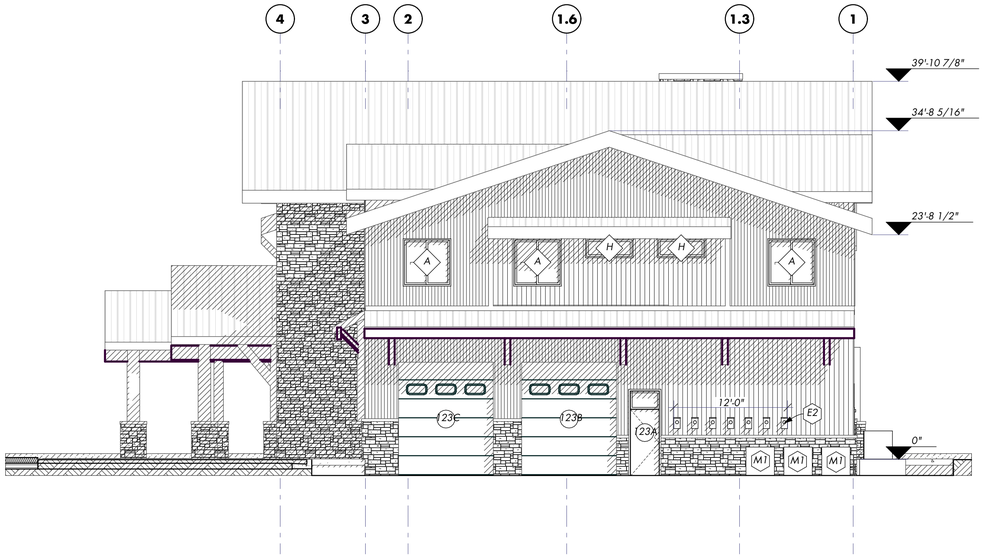
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EXTERIOR ELEVATIONS

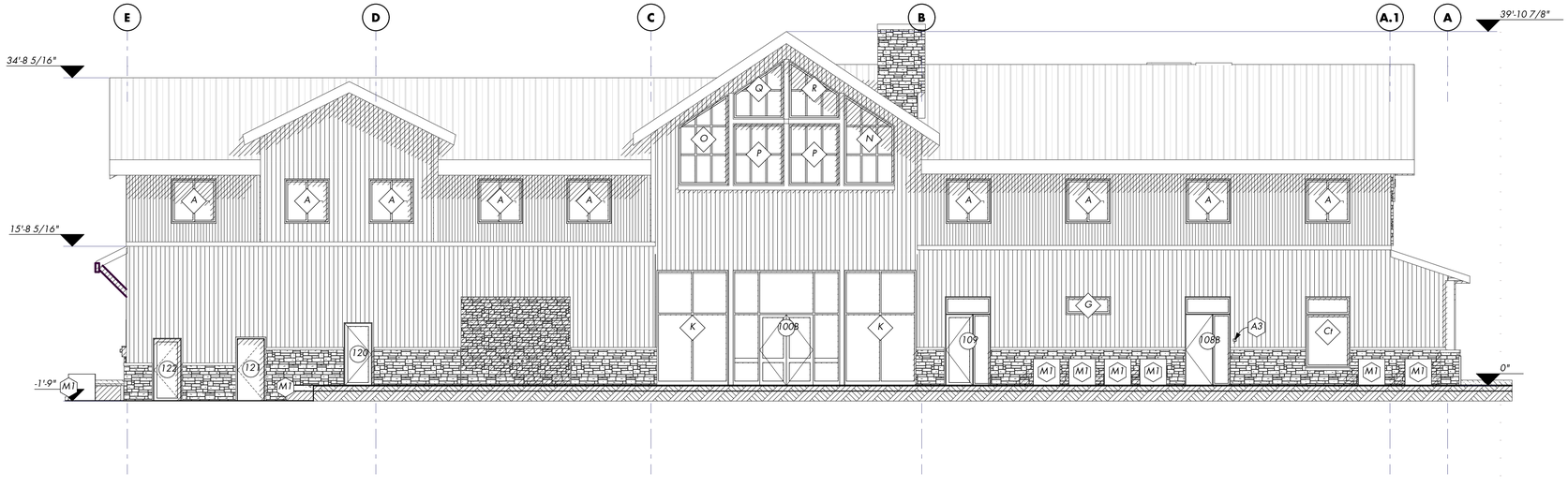
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2 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



1 EAST ELEVATION

SCALE: 1/8" = 1'-0"

BUILDING ELEVATION GENERAL NOTES

A. G.C. TO PROVIDE PHYSICAL SAMPLES OF EXTERIOR FINISHES FOR ARCHITECT/ OWNER TO REVIEW PIROR TO ORDERING AND INSTALLATION

BUILDING ELEVATION LEGEND

- WEATHERED WOOD SIDING
- CORRUGATED METAL SIDING
- STONE

BUILDING ELEVATION KEYNOTES

A3	EMERGENCY KEY BOX
E1	BUILDING SIGNAGE, PROVIDE POWER - SEE ELECTRICAL
E2	ELECTRICAL METER
F1	FIRE DEPARTMENT CONNECTION
M1	CONDENSING UNIT, SEE MECHANICAL

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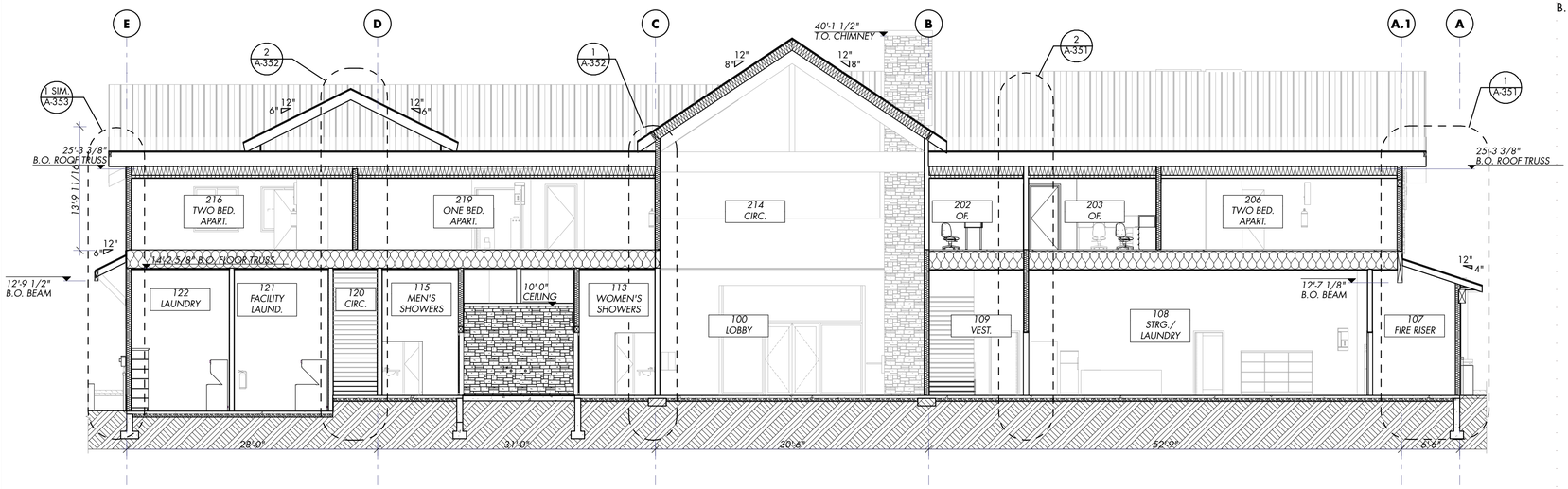
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EXTERIOR ELEVATIONS

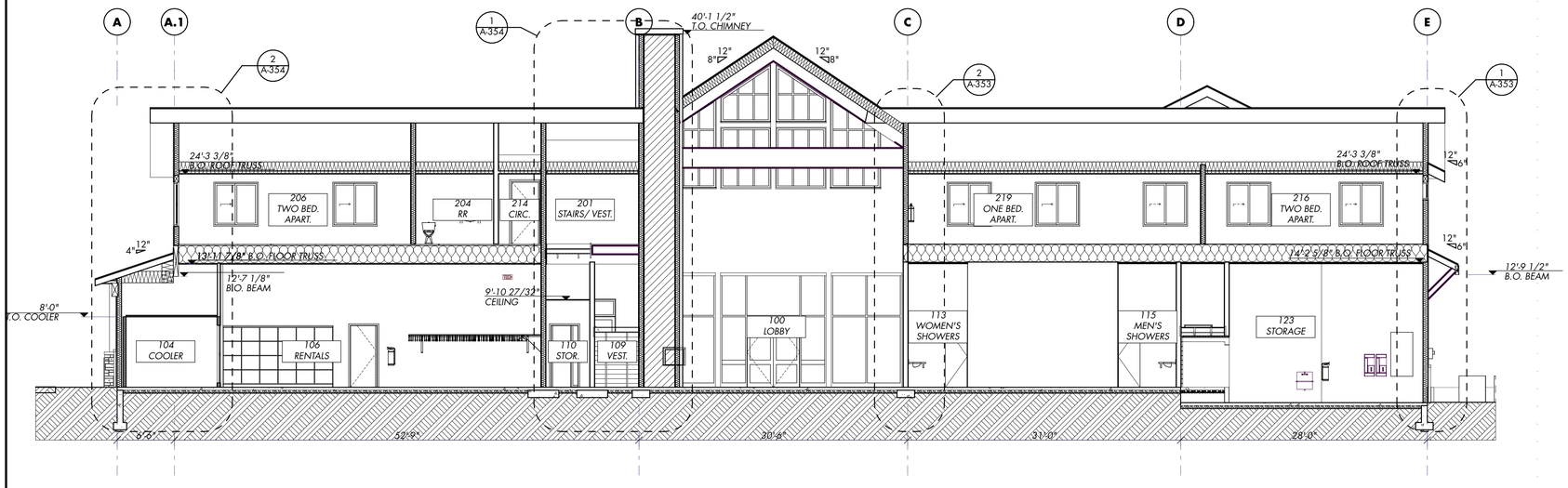
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1 BUILDING SECTION 1.1

SCALE: 1/8" = 1'-0"



2 BUILDING SECTION 1.4

SCALE: 1/8" = 1'-0"

BUILDING SECTION GENERAL NOTES

A. ALL EXTERIORS WALLS TO CONSIST OF R-22 MINIMUM INSULATION - INSULATION COMPOSITE SHALL CONSIST OF 2" MINIMUM SPRAYED-IN POLYURETHANE INSULATION WITH AN ADDITIONAL R19 BATT FACED BATT INSULATION TO FILL THE DEPTH OF THE FRAMED CAVITY. INSULATION IS TO BE CONTINUOUS THROUGHOUT THE ENTIRE STUD CAVITY.

B. R-49 MINIMUM INSULATION IN ALL ROOF ASSEMBLIES.

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PH: 208.757.5700

LICENSED ARCHITECT
J. GRAHAM WHIPPLE
C-2974
Date: 05/05/25
STATE OF WYOMING

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J. GRAHAM WHIPPLE
Date original documents signed:
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ELECTRICAL

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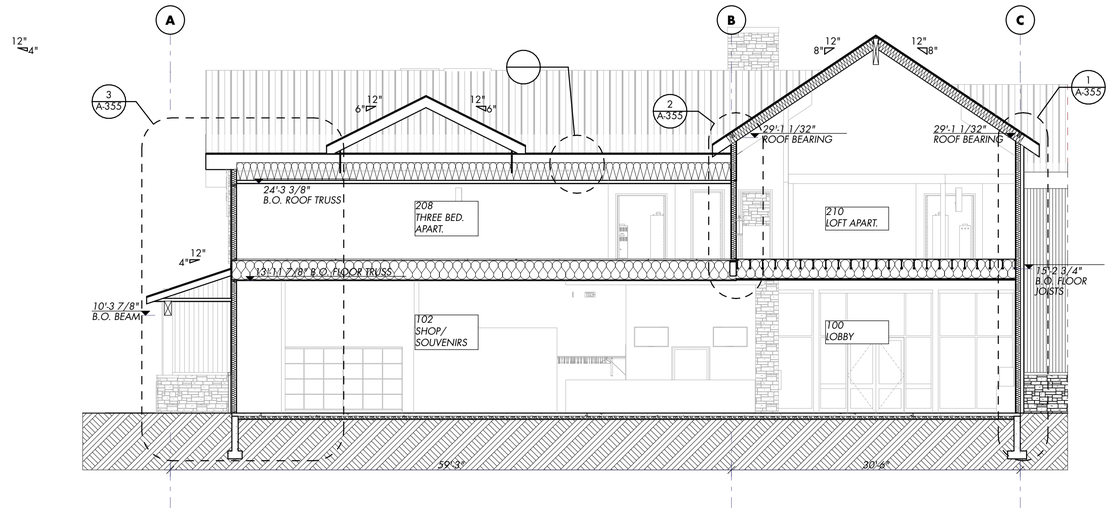
Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
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24063

BUILDING SECTIONS

A-301



1 BUILDING SECTION 3.8

SCALE: 1/8" = 1'-0"

BUILDING SECTION GENERAL NOTES

A. ALL EXTERIORS WALLS TO CONSIST OF R-22 MINIMUM INSULATION - INSULATION COMPOSITE SHALL CONSIST OF 2" MINIMUM SPRAYED-IN POLYURETHANE INSULATION WITH AN ADDITIONAL R19 BATT FACED BATT INSULATION TO FILL THE DEPTH OF THE FRAMED CAVITY. INSULATION IS TO BE CONTINUOUS THROUGHOUT THE ENTIRE STUD CAVITY.

B. R-49 MINIMUM INSULATION IN ALL ROOF ASSEMBLIES.

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BUILDING SECTIONS

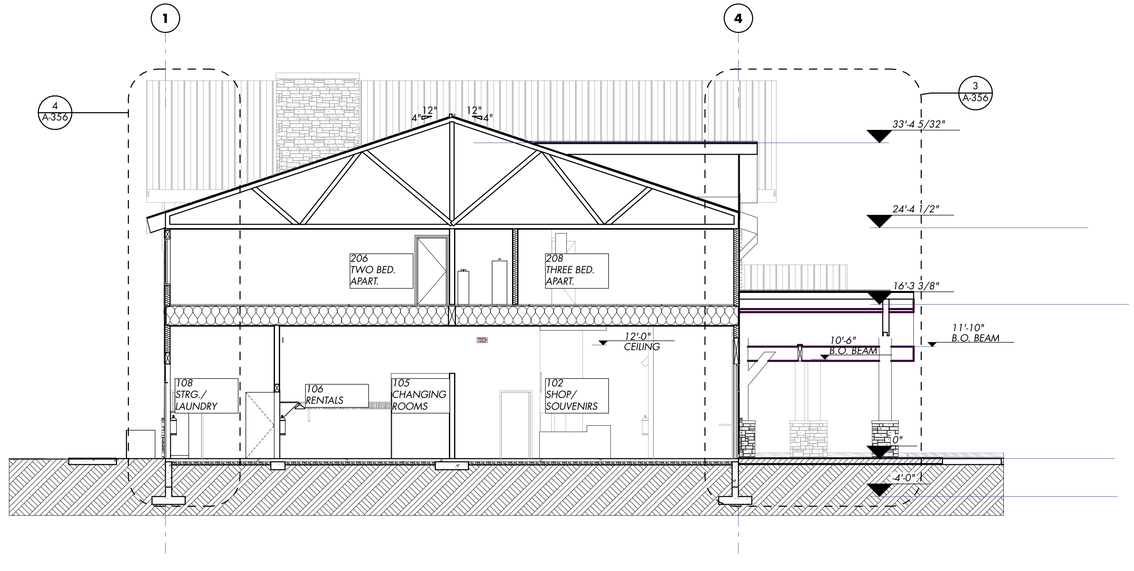
A-302

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B. R-49 MINIMUM INSULATION IN ALL ROOF ASSEMBLIES.



2 BUILDING SECTION A.5

SCALE: 1/8" = 1'-0"

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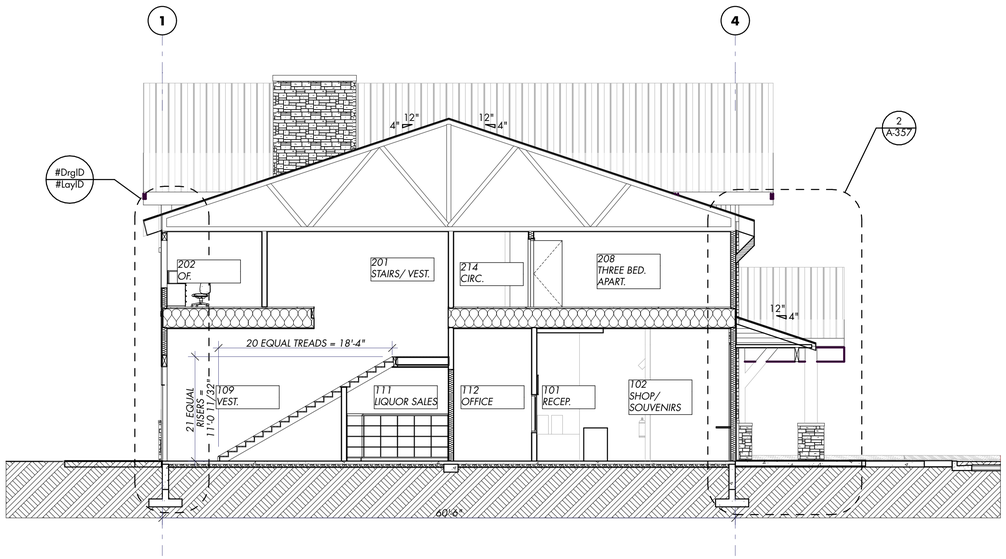
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BUILDING SECTIONS

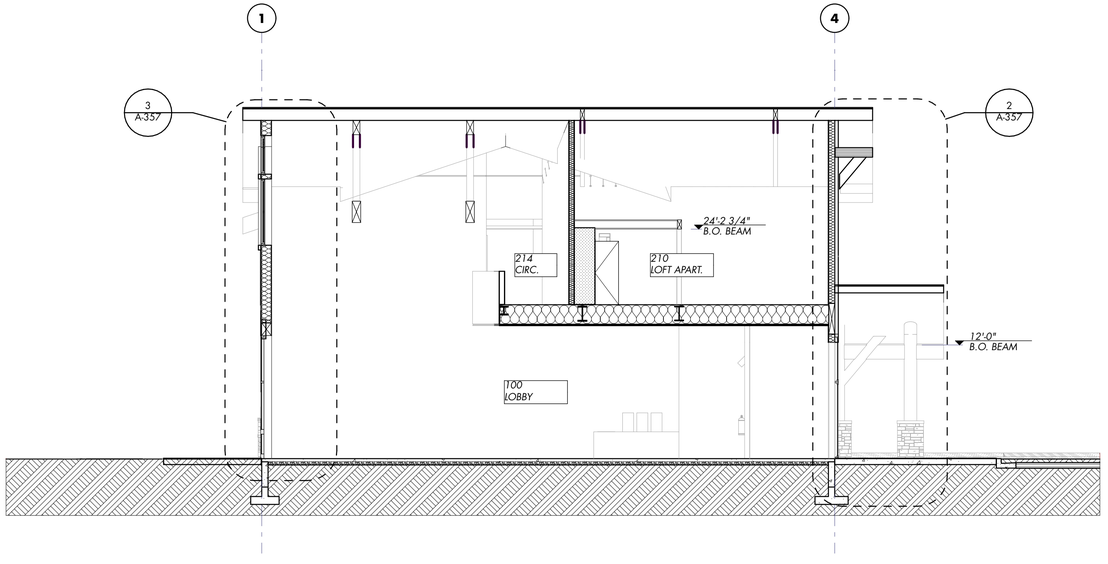
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1 BUILDING SECTION A.9

SCALE: 1/8" = 1'-0"



2 BUILDING SECTION B.8

SCALE: 1/8" = 1'-0"

BUILDING SECTION GENERAL NOTES

A. ALL EXTERIORS WALLS TO CONSIST OF R-22 MINIMUM INSULATION - INSULATION COMPOSITE SHALL CONSIST OF 2" MINIMUM SPRAYED-IN POLYURETHANE INSULATION WITH AN ADDITIONAL R19 BATT FACED BATT INSULATION TO FILL THE DEPTH OF THE FRAMED CAVITY. INSULATION IS TO BE CONTINUOUS THROUGHOUT THE ENTIRE STUD CAVITY.

B. R-49 MINIMUM INSULATION IN ALL ROOF ASSEMBLIES.

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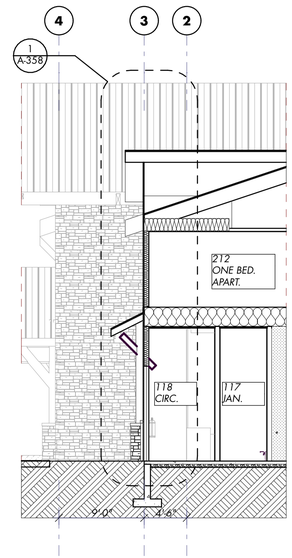
Lodge for Alpine Valley RV Resort
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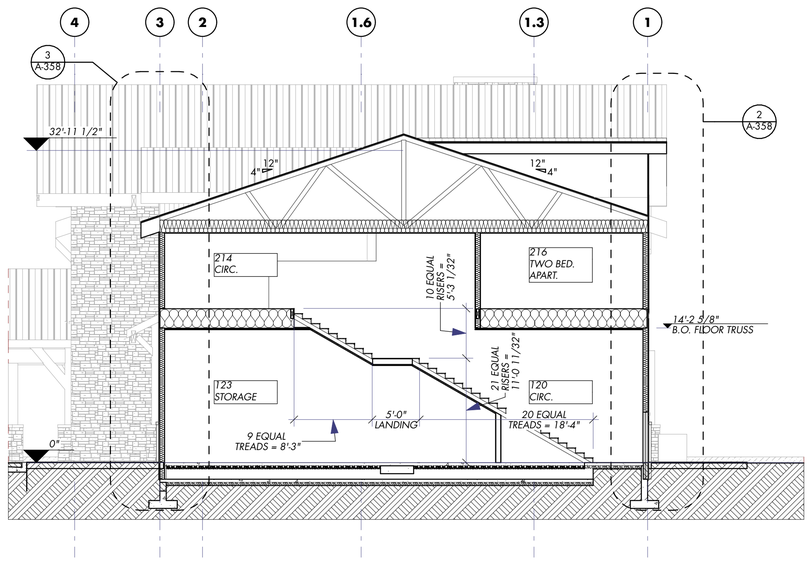
BUILDING SECTIONS

A-304



2 PARTICAL SECTION C.5

SCALE: 1/8" = 1'-0"



5 BUILDING SECTION D.2

SCALE: 1/8" = 1'-0"

BUILDING SECTION GENERAL NOTES

A. ALL EXTERIORS WALLS TO CONSIST OF R-22 MINIMUM INSULATION - INSULATION COMPOSITE SHALL CONSIST OF 2" MINIMUM SPRAYED-IN POLYURETHANE INSULATION WITH AN ADDITIONAL R19 BATT FACED BATT INSULATION TO FILL THE DEPTH OF THE FRAMED CAVITY. INSULATION IS TO BE CONTINUOUS THROUGHOUT THE ENTIRE STUD CAVITY.

B. R-49 MINIMUM INSULATION IN ALL ROOF ASSEMBLIES.

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TBD Alpine, Wyoming, 83128

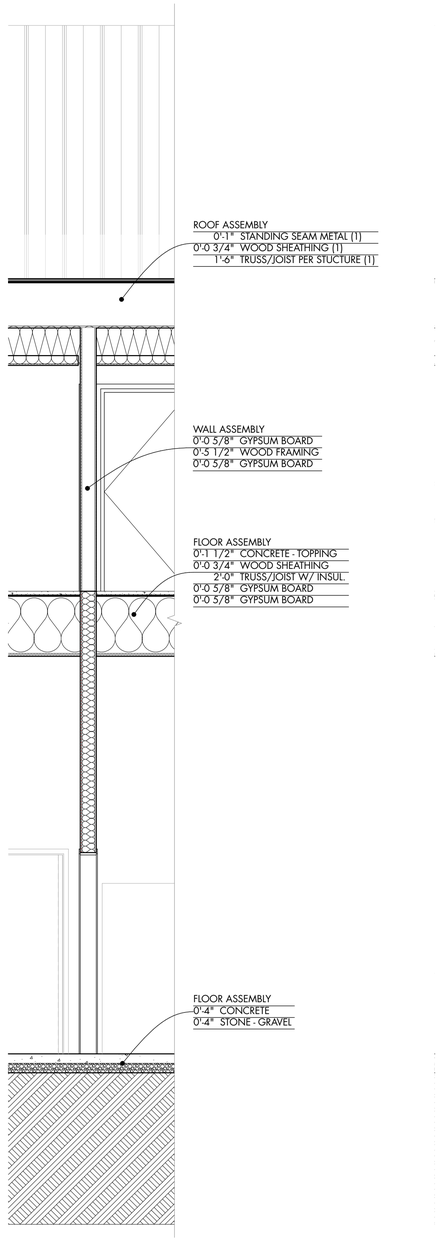
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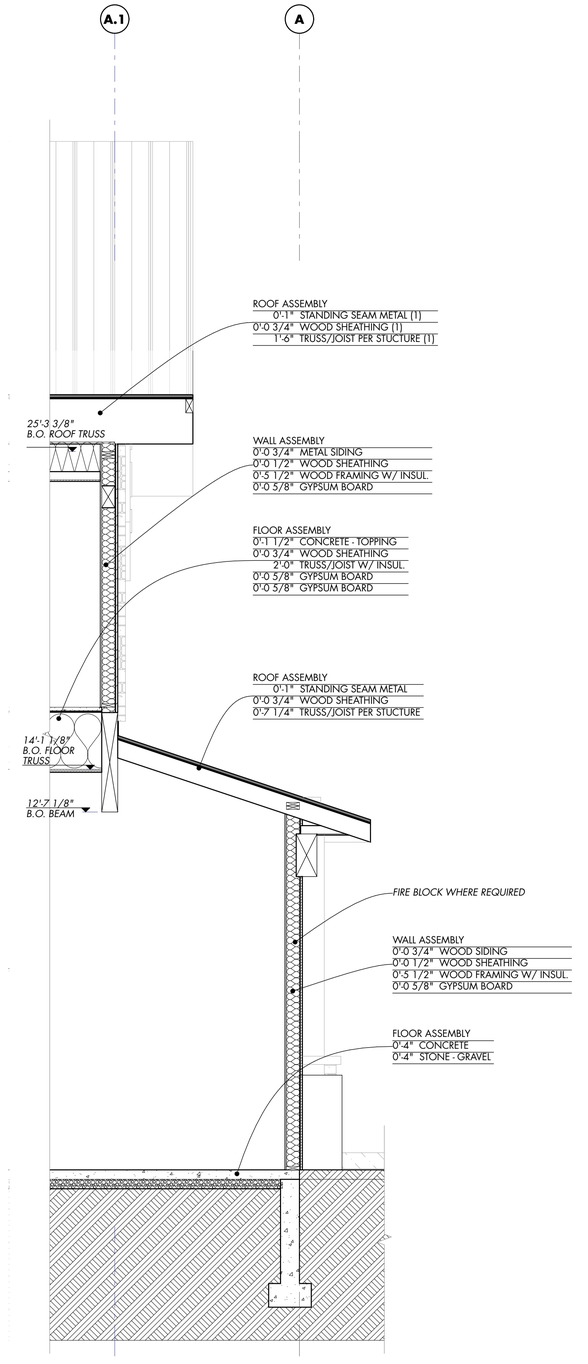
BUILDING SECTIONS

A-305

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2 WALL SECTION 1.1
SCALE: 3/8" = 1'-0"



1 WALL SECTION 1.1 @ A
SCALE: 3/8" = 1'-0"

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STATE OF WYOMING

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Date original documents signed:
5/5/25

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PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

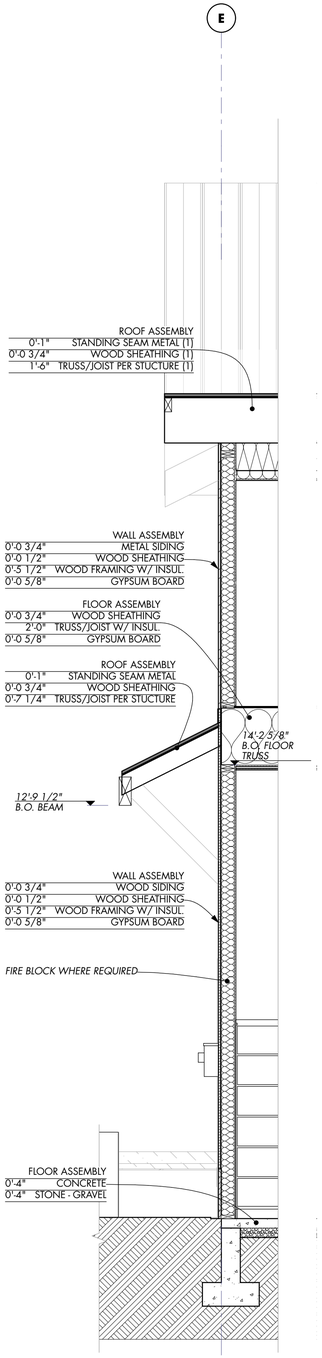
ID	DATE	DESCRIPTION
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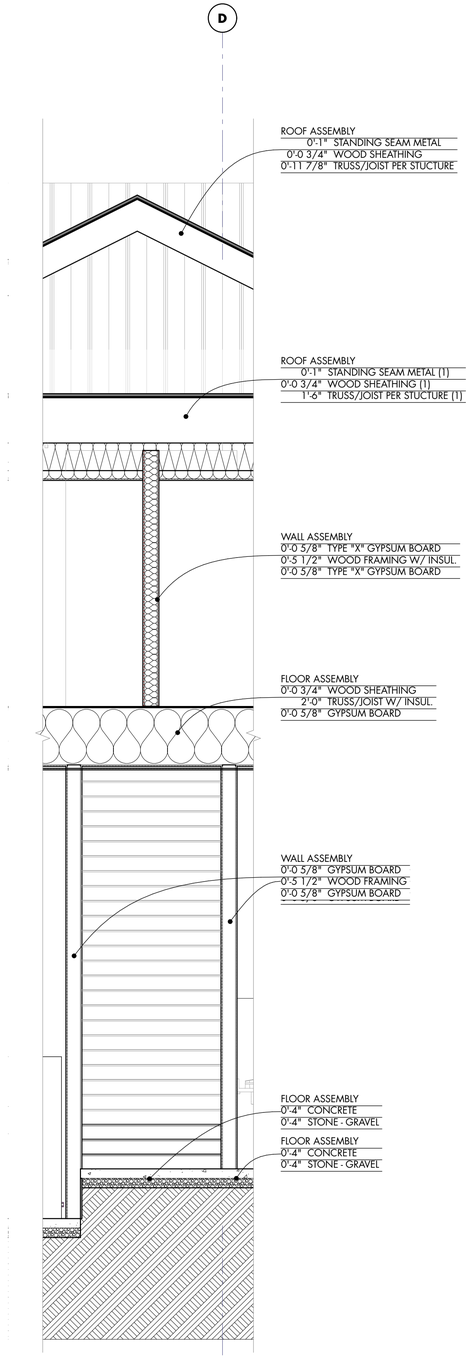
WALL SECTIONS

A-351

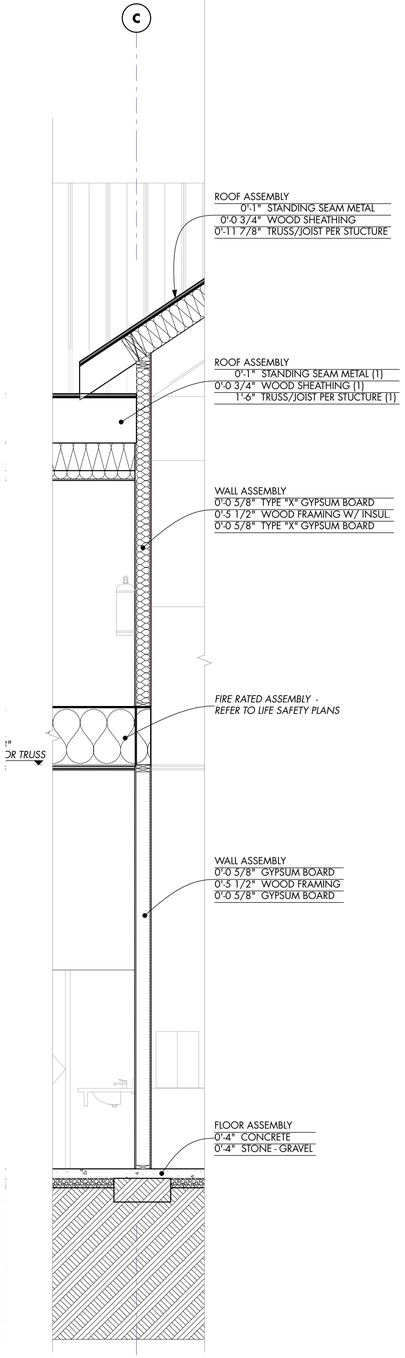
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3 WALL SECTION 1.1 (1)
SCALE: 3/8" = 1'-0"



2 WALL SECTION 1.1
SCALE: 3/8" = 1'-0"



1 WALL SECTION 1.1
SCALE: 3/8" = 1'-0"

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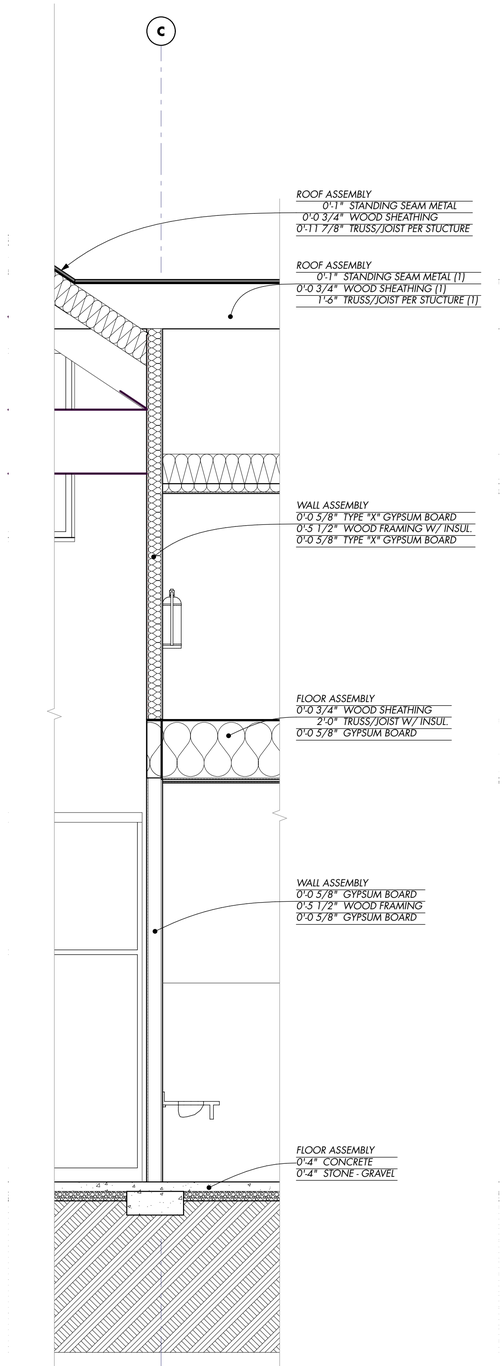
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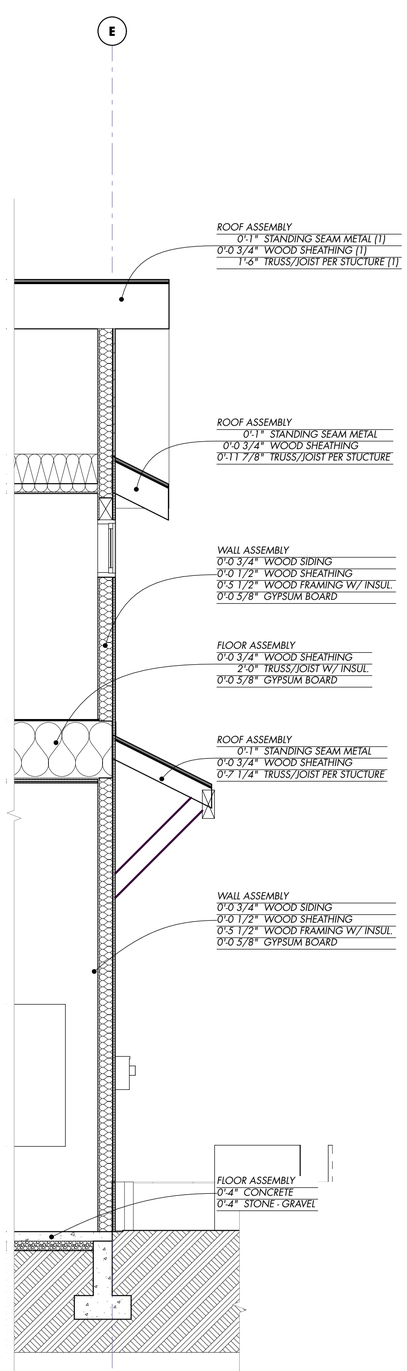
WALL SECTIONS

A-352

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2 WALL SECTION 1.4
SCALE: 3/8" = 1'-0"



1 WALL SECTION 1.4
SCALE: 3/8" = 1'-0"

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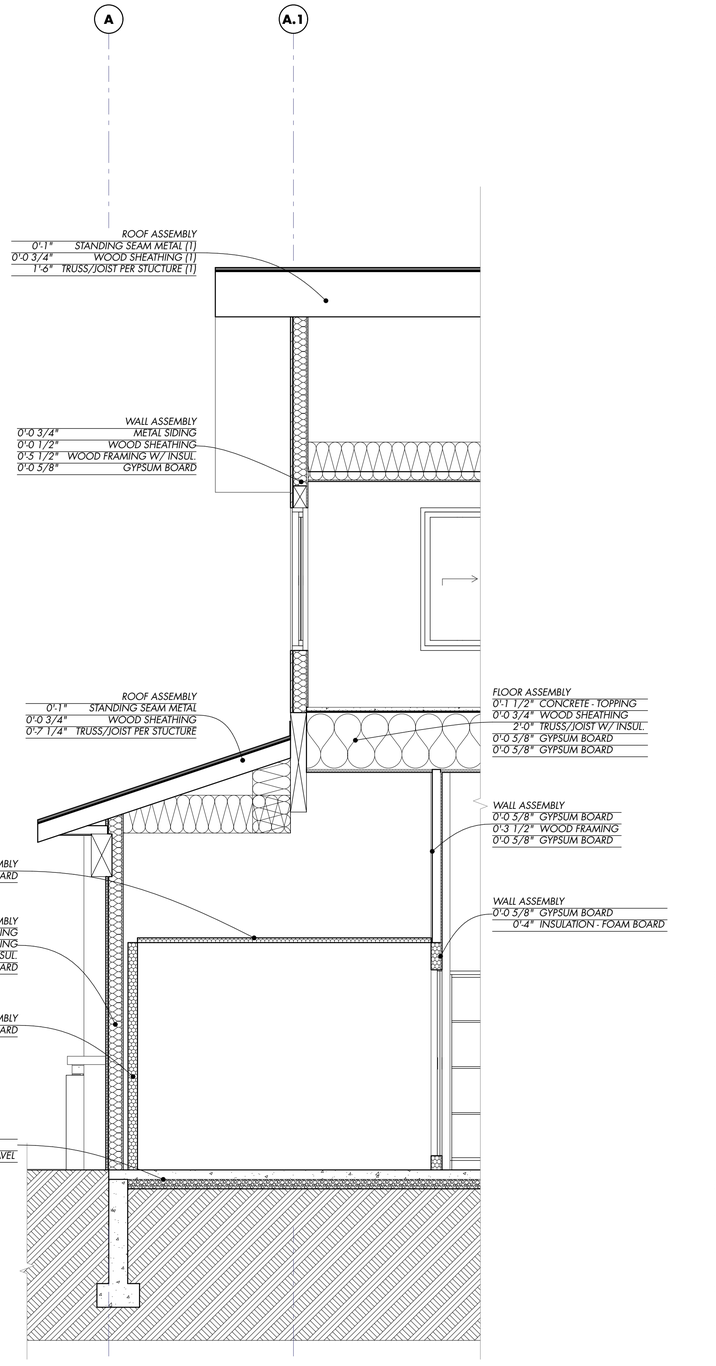
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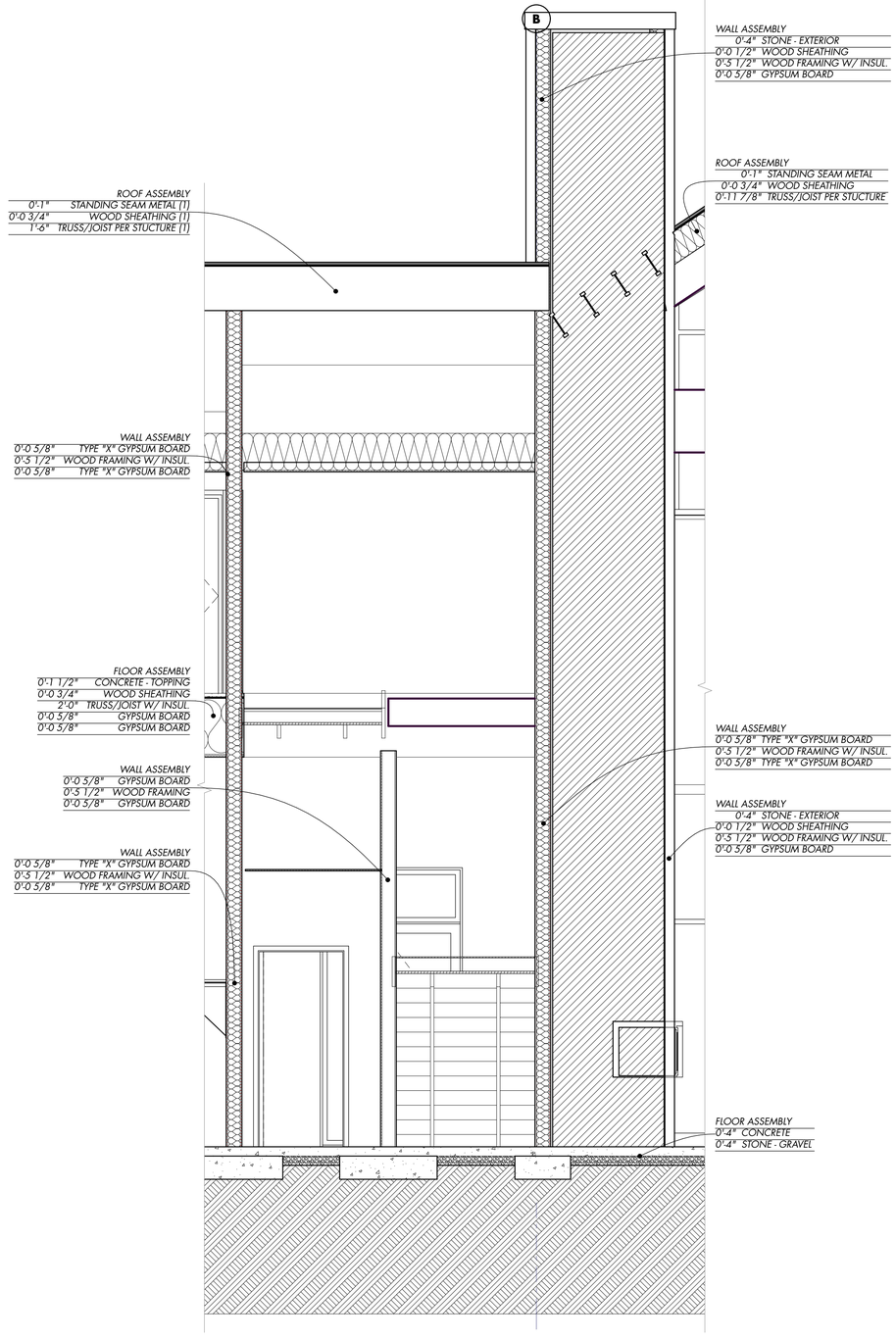
WALL SECTIONS

A-353



2 WALL SECTION 1.4

SCALE: 3/8" = 1'-0"



1 WALL SECTION 1.4

SCALE: 3/8" = 1'-0"

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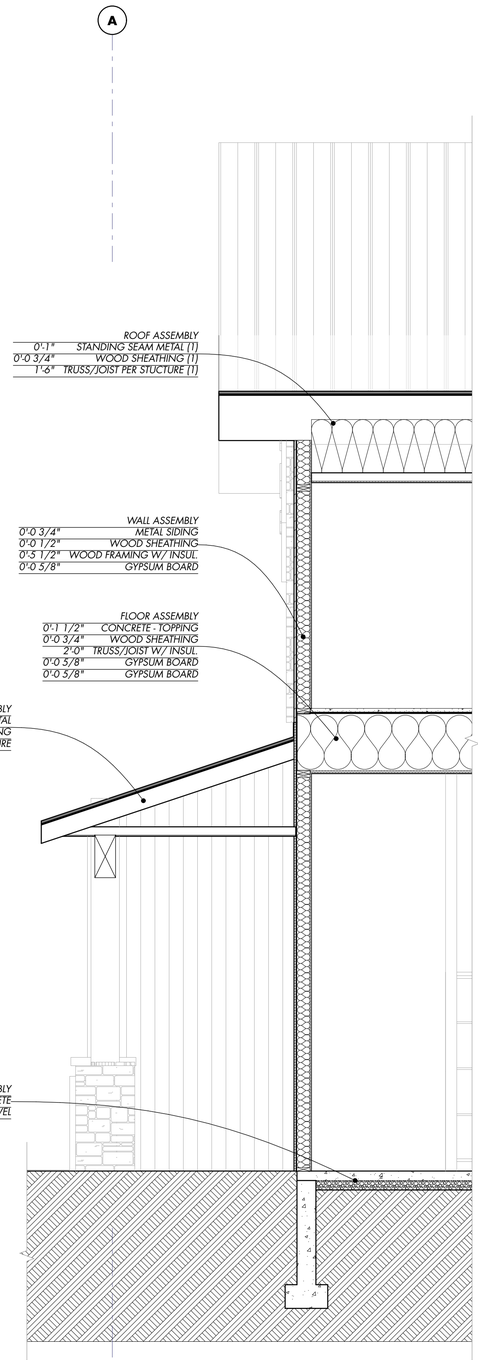
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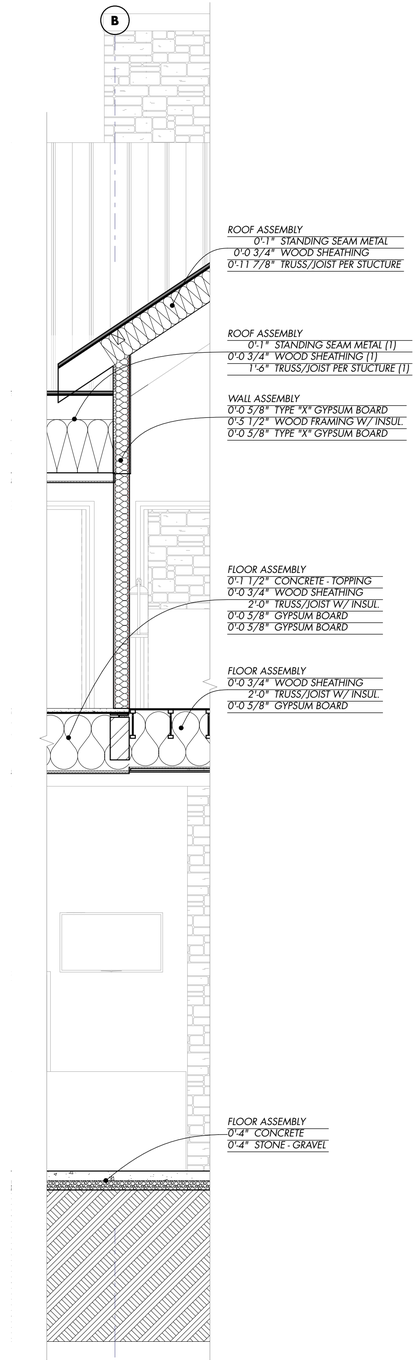
WALL SECTIONS

A-354

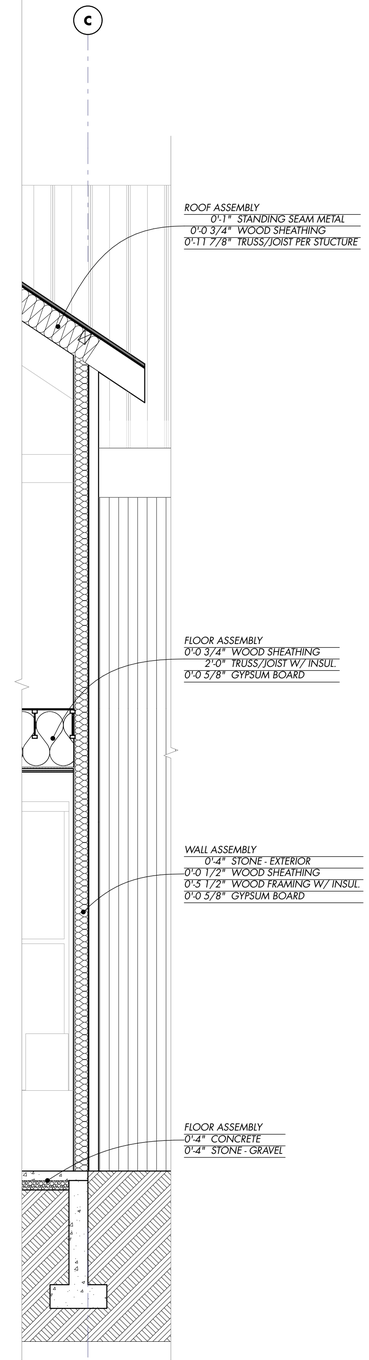
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3 WALL SECTION 3.8
SCALE: 3/8" = 1'-0"



2 WALL SECTION 3.8
SCALE: 3/8" = 1'-0"



1 WALL SECTION 3.8
SCALE: 3/8" = 1'-0"

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305 1st STREET, IDAHO FALLS, ID 83401
PH: 208.757.5700

LICENSED ARCHITECT
J. GRAHAM WHIPPLE
C-2974
Date: 05/05/25
STATE OF WYOMING

Original document is on file with the date of creation & signature

Original documents signed by:
J. GRAHAM WHIPPLE
Date original documents signed:
5/5/25

STRUCTURAL
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AFTON, WY. 83110
PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

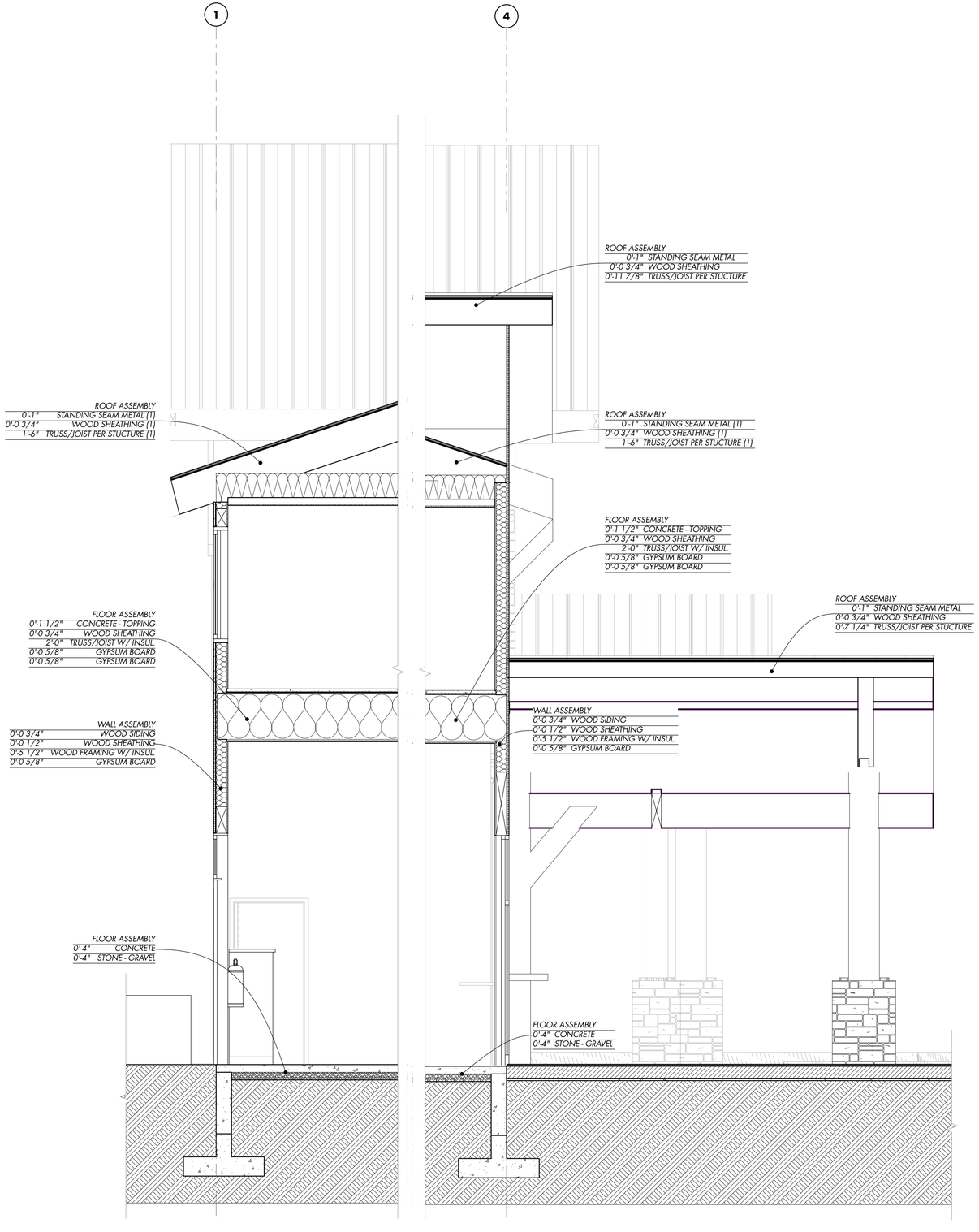
ID	DATE	DESCRIPTION
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WALL SECTIONS

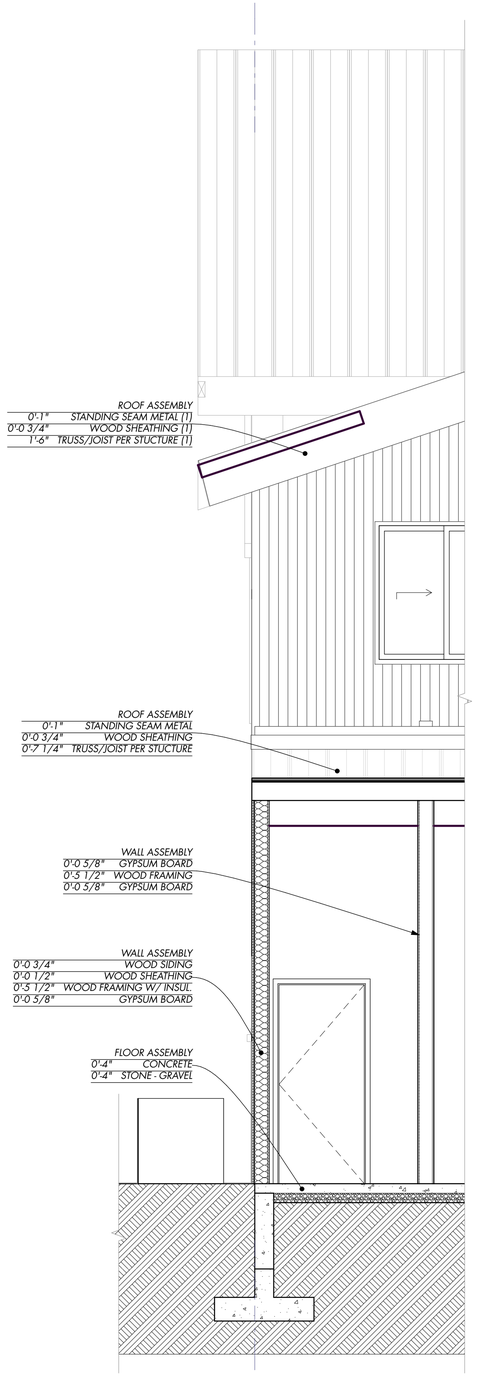
A-355

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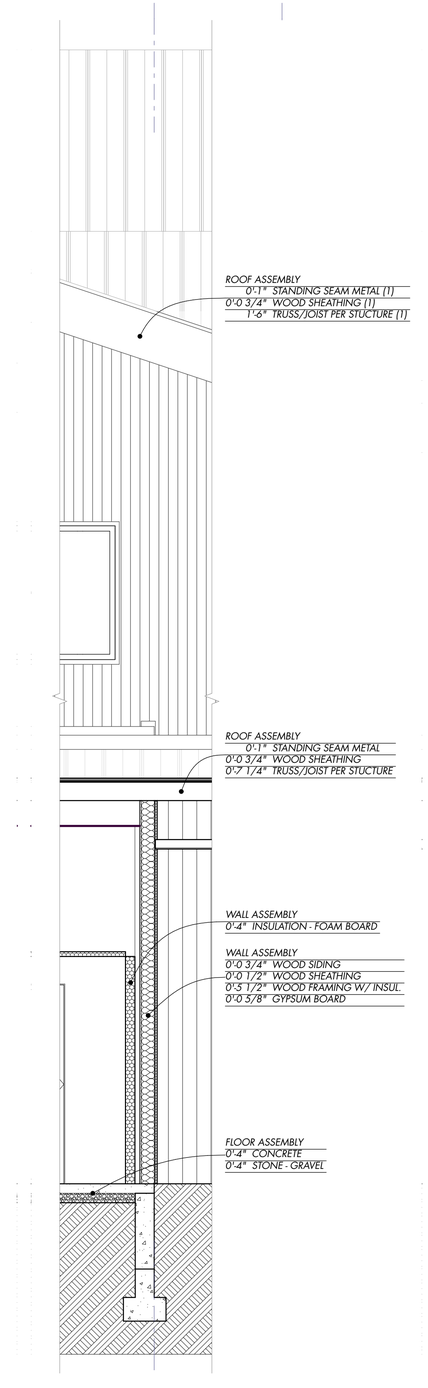


4 WALL SECTION A.5
SCALE: 3/8" = 1'-0"

3 WALL SECTION A.5
SCALE: 3/8" = 1'-0"



2 WALL SECTION A.1
SCALE: 3/8" = 1'-0"



1 WALL SECTION A.1
SCALE: 3/8" = 1'-0"

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TBD Alpine, Wyoming, 83128

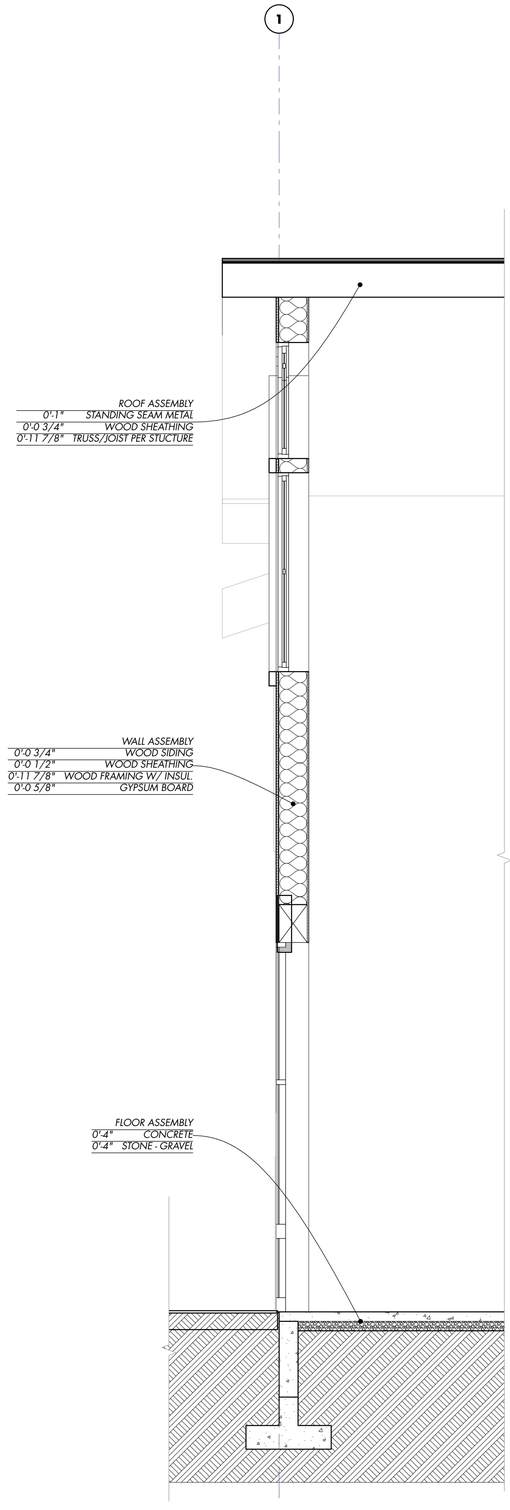
ID	DATE	DESCRIPTION
00	5/5/25	Issue for AHJ Review

24063

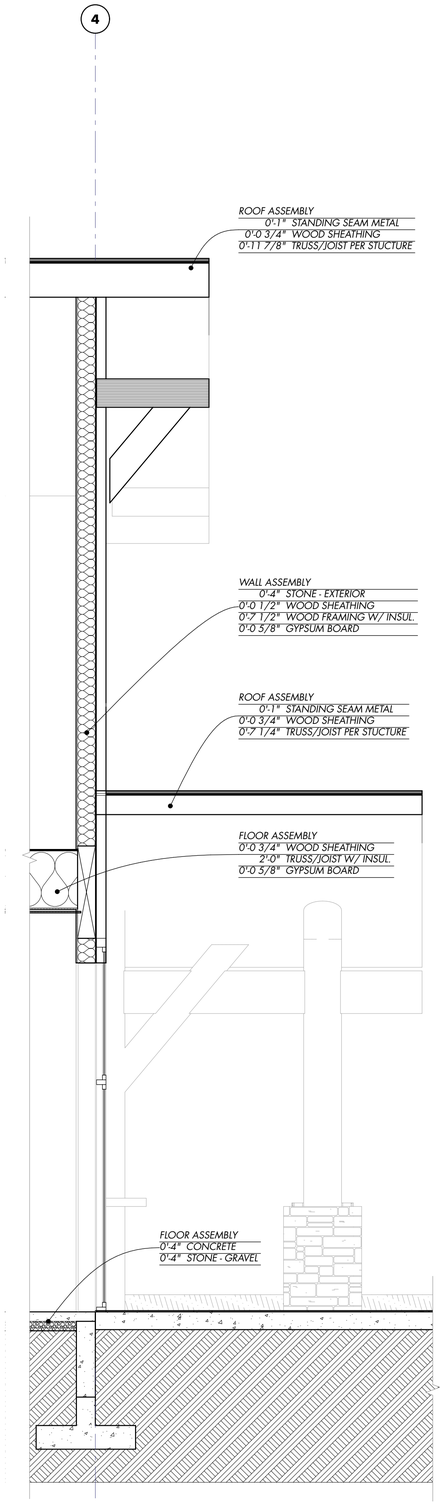
WALL SECTIONS

A-356

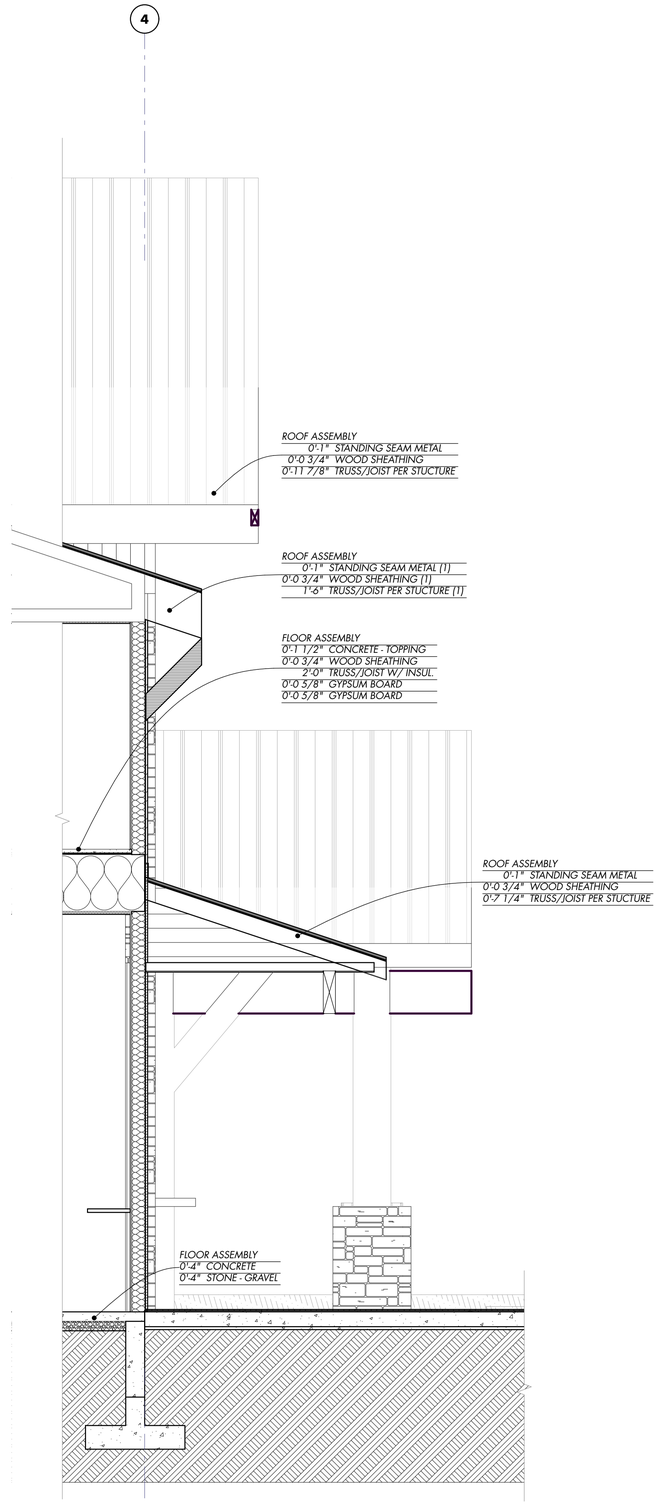
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3 WALL SECTION B.8
SCALE: 3/8" = 1'-0"



2 WALL SECTION B.8
SCALE: 3/8" = 1'-0"



1 WALL SECTION A.9
SCALE: 3/8" = 1'-0"

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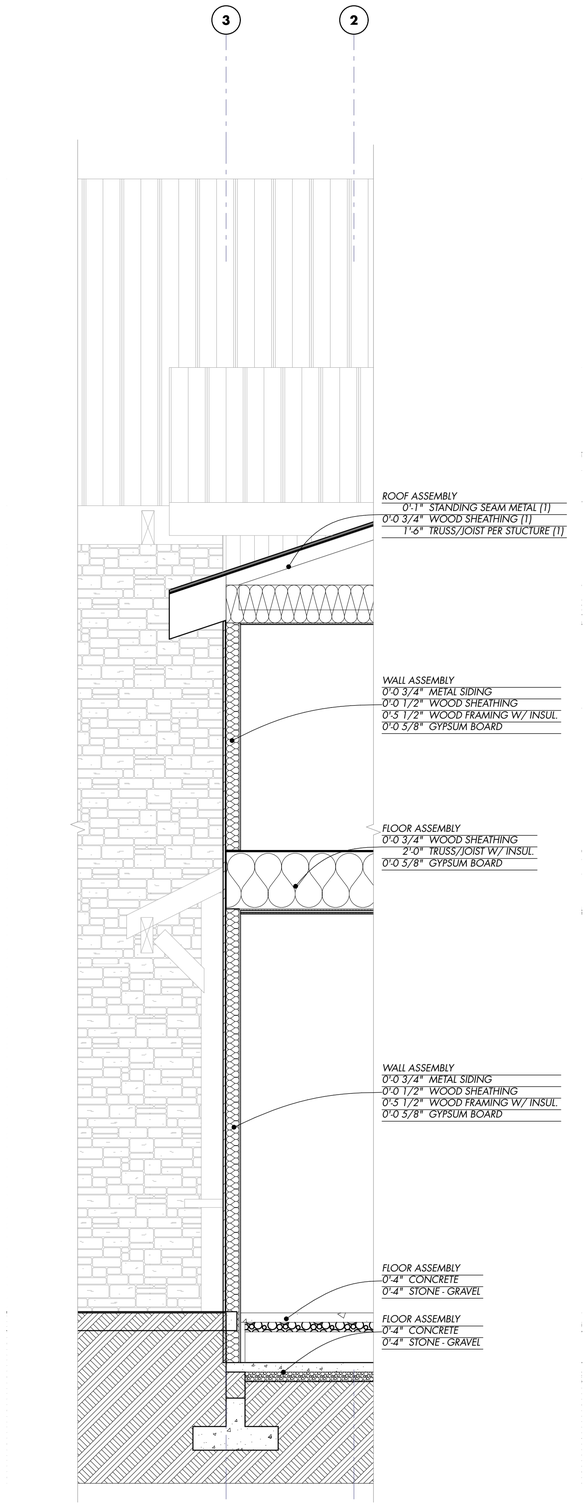
Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

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24063

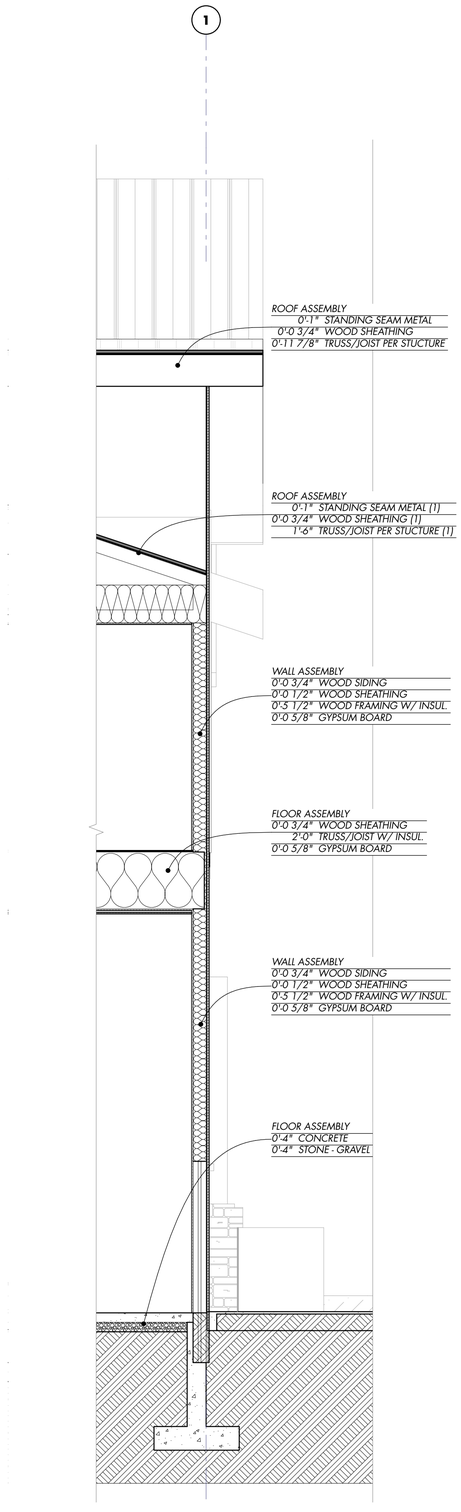
WALL SECTIONS

A-357



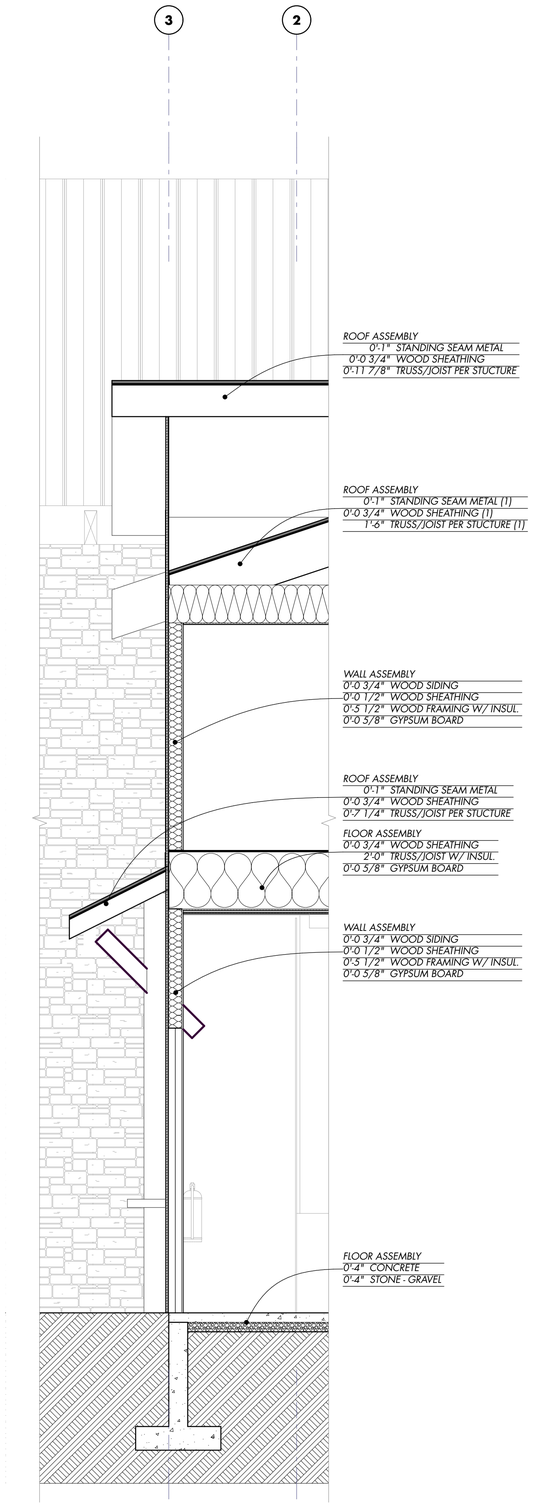
3 WALL SECTION D.2

SCALE: 3/8" = 1'-0"



2 WALL SECTION D.2

SCALE: 3/8" = 1'-0"



1 WALL SECTION C.5

SCALE: 3/8" = 1'-0"

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C-2974
Date: 05/05/25
STATE OF WYOMING

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Original documents signed by:
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Date original documents signed:
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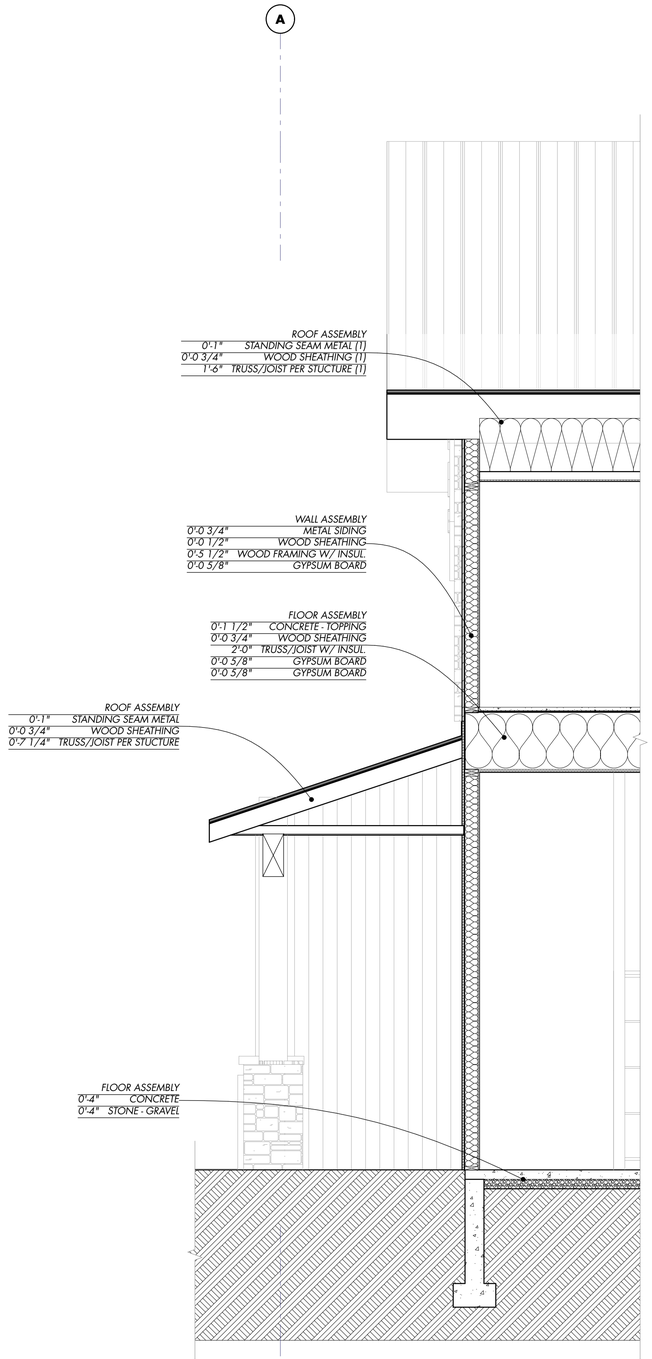
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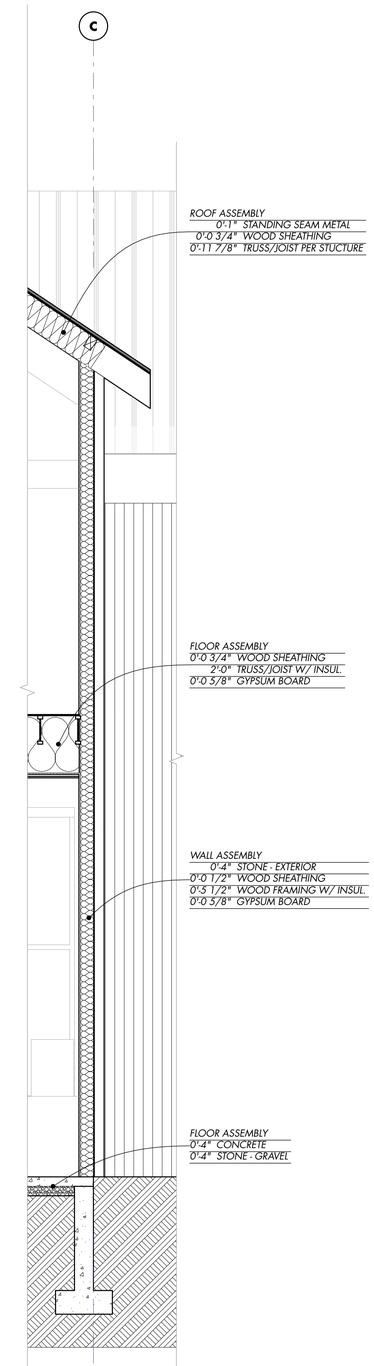
WALL SECTIONS

A-358

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1 WALL SECTION 3.8
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2 WALL SECTION 3.8
SCALE: 3/8" = 1'-0"

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WALL SECTIONS

A-359

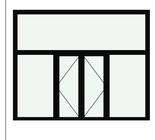
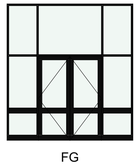
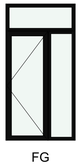
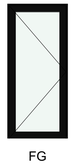
HM = HOLLOW METAL; IM = INSULATED METAL; SCW = SOLIDCORE WOOD; WD = WOOD; A/G= ALUMIN/ GLASS;

DOOR SCHEDULE

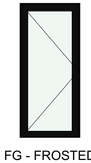
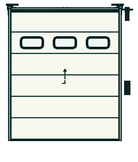
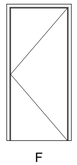
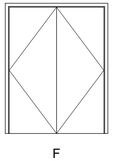
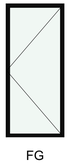
ROOM	ROOM NAME	DOOR LEAF				DOOR FRAME					DETAILS	HARDWARE		RATINGS		REMARKS
		NOMINAL WIDTH	NOMINAL HEIGHT	LEAF THICKNESS	MATERIAL	TYPE (SEE DOOR LEGEND)	MATERIAL	FINISH	HEAD	JAMB	SILL	FUNCTION	SET	FIRE	STC	
100 A	LOBBY	6'-0"	8'-0"	1 3/4"	IM	A	ALUM					ENTRANCE	-	NR		
100 B	LOBBY	6'-0"	8'-0"	1 3/4"	IM	B	ALUM					ENTRANCE	-	NR		
102	SHOP/SOUVENIRS	6'-0"	7'-0"	1 3/4"	IM	C	HM					ENTRANCE	-	NR		
103	BEER	3'-0"	7'-0"	1 3/4"	-	M	-					PASSAGE	-	NR		
104	COOLER	3'-0"	7'-0"	1 3/4"	-	K	-					-	-	NR		
107	FIRE RISER	3'-0"	7'-0"	1 3/4"	IM	H	ALUM					-	-	60		
108 A	STRG./ LAUNDRY	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	NR		
108 B	STRG./ LAUNDRY	3'-0"	8'-0"	1 3/4"	IM	D	HM					ENTRANCE	-	NR		
108 C	STRG./ LAUNDRY	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PASSAGE	-	60		
109	VEST.	3'-0"	8'-0"	1 3/4"	IM	E	HM					ENTRANCE	-	NR		
110	STOR.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					STOREROOM	-	60		
111	LIQUOR SALES	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					-	-	60		
112	OFFICE	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					OFFICE	-	NR		
113 A	WOMEN'S SHOWERS	3'-0"	7'-0"	1 3/4"	IM	I	HM					PUBLIC RESTROOM	-	NR		
113 B	WOMEN'S SHOWERS	2'-6"	7'-0"	1 3/4"	-	K	-					-	-	NR		
113 C	WOMEN'S SHOWERS	2'-6"	7'-0"	1 3/4"	-	K	-					-	-	NR		
113 D	WOMEN'S SHOWERS	2'-6"	7'-0"	1 3/4"	-	K	-					-	-	NR		
114	WOMEN'S RR	3'-0"	7'-0"	1 3/4"	-	H	-					PUBLIC RESTROOM	-	NR		
115 A	MEN'S SHOWERS	3'-0"	7'-0"	1 3/4"	IM	I	HM					-	-	NR		
115 B	MEN'S SHOWERS	2'-6"	7'-0"	1 3/4"	-	K	-					-	-	NR		
115 C	MEN'S SHOWERS	2'-6"	7'-0"	1 3/4"	-	K	-					-	-	NR		
115 D	MEN'S SHOWERS	2'-6"	7'-0"	1 3/4"	-	K	-					-	-	NR		
116	MEN'S RR	3'-0"	7'-0"	1 3/4"	-	H	-					PUBLIC RESTROOM	-	NR		
117	JAN.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					STOREROOM	-	NR		
119	MECH./ STOR.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					STOREROOM	-	NR		
120	CIRC.	3'-0"	7'-0"	1 3/4"	IM	G	HM					ENTRANCE	-	NR		
121	FACILITY LAUND.	3'-0"	7'-0"	1 3/4"	IM	H	HM					ENTRANCE	-	NR		
122	LAUNDRY	3'-0"	7'-0"	1 3/4"	IM	G	HM					ENTRANCE	-	NR		
123 A	STORAGE	3'-0"	7'-0"	1 3/4"	IM	F	HM					ENTRANCE	-	NR		
123 B	STORAGE	10'-0"	12'-0"	1.575"	IM	J	HM					-	-	NR		
123 C	STORAGE	10'-0"	12'-0"	1.575"	IM	J	HM					-	-	NR		
201	STAIRS/ VEST.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PASSAGE	-	60		
202	OF.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					OFFICE	-	NR		
203	OF.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					OFFICE	-	NR		
204	RR	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	NR		
206	TWO BED. APART.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	45		
206	TWO BED. APART.	5'-0"	6'-8"	1 3/4"	SC WOOD	L	WD					STOREROOM	-	NR		
207	MECH	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					STOREROOM	-	NR		
208	THREE BED. APART.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	45		
208	THREE BED. APART.	5'-0"	6'-8"	1 3/4"	SC WOOD	L	WD					PRIVACY	-	NR		
210	LOFT APART.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	45		
210	LOFT APART.	5'-0"	6'-8"	1 3/4"	SC WOOD	L	WD					STOREROOM	-	NR		
212	ONE BED. APART.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	45		
212	ONE BED. APART.	5'-0"	6'-8"	1 3/4"	SC WOOD	L	WD					STOREROOM	-	NR		
216	TWO BED. APART.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	45		
216	TWO BED. APART.	5'-0"	6'-8"	1 3/4"	SC WOOD	L	WD					STOREROOM	-	NR		
217	MECH	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					STOREROOM	-	NR		
219	ONE BED. APART.	3'-0"	7'-0"	1 3/4"	SC WOOD	K	WD					PRIVACY	-	45		
219	ONE BED. APART.	5'-0"	6'-8"	1 3/4"	SC WOOD	L	WD					STOREROOM	-	NR		

F=FLUSH; FG=FULL GLASS;

DOOR LEGEND

DOOR LEAF TYPE	A	B	C	D	E	F	G
VIEW							
STYLE	FG	FG	FG	F	FG	F	FG
TEMPERED	☒	☒	☒	☒	☒	☒	☒

DOOR LEGEND

DOOR LEAF TYPE	H	I	J	K	L	M
VIEW						
STYLE	F	FG - FROSTED		F	F	FG
TEMPERED	☐	☒	☐	☐	☐	☒

DOOR GENERAL NOTES

A. *INTERIOR DOORS TO BE TRIMMED TO A CLEARANCE OF 1/2" OFF FINISHED FLOOR SURFACE EXCEPT FOR RESTROOM DOORS - RESTROOM DOORS TO BE TRIMMED 1" OFF FINISHED FLOOR SURFACE*
B. *DUE TO MULTIPLE USE, SOME OF THE DETAILS REFERRED TO IN THE DOOR SCHEDULE ARE REVERSED AND/OR TURNED FROM THE DIRECTION SHOWN ON THE FLOOR PLAN. THE GENERAL INTENT OF DETAILS SHALL IN ALL CASES BE FOLLOWED AND THE ARCHITECT CONSULTED SHOULD QUESTIONS ARISE.*
C. *ALL DOORS, DOOR FINISHES, HARDWARE TYPES, HARDWARE FINISHES, FLOOR FINISHES, AND WALL FINISHES SHALL BE REVIEWED AND VERIFIED BY THE OWNER.*
D. *REFER TO FLOOR PLAN A-101 FOR DOOR LOCATIONS*
E. *INTERIOR DOORS ARE TO BE ADA COMPLIANT AND TO RECEIVE LEVER HANDLE HARDWARE.*
F. *PROVIDE SIGNAGE FOR MEN AND WOMEN RESTROOMS. SIGN TO BE MOUNTED 60" HIGH ON WALL, 9" FROM LATCH SIDE OF DOOR.*

DOOR HARDWARE NOTES:

1. *HARDWARE FINISH BY OWNER*
2. *TYPICAL HINGE SIZE TO BE 4.5 X 4.5, ALL DOORS 3'6" OR WIDER TO HAVE 5 X 4.5 HINGES.*
3. *ALL DOOR HARDWARE SHALL BE MOUNTED 40" ABOVE FINISH FLOOR, U.N.O.*
4. *WHEN APPLICABLE CARD READERS TO BE LOCATED WITHIN 18" OF DOOR STRIKE.*
5. *PER. ADA 404.2.8.A, INSTALL CLOSERS SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE DOOR WILL TAKE AT LEAST 5 SECONDS TO MOVE TO A POSITION 12 DEGREES FROM THE LATCH.*
6. *DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON DOORS REQUIRED TO BE ACCESSIBLE BY CHAPTER 11 OF THE IBC SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE. SEE P-LEVER DESIGN BELOW*

HW-1 *(STOREFRONT ENTRANCE)*
3 HINGES
1 OVERHEAD CLOSER W/ CUSH'N STOP
1 SET OF SEALS
1 BOTTOM WEATHER STRIPPING
1 THRESHOLD
1 ENTRANCE - LEVER FUNCTION ACCESS KEYPAD

HW-2 *(STOREFRONT ENTRANCE)*
1 CONTINUOUS HINGE
1 CYLINDER LOCKSET - ENTRANCE
1 EXIT DEVICE
1 OVERHEAD CLOSER W/ CUSH'N STOP
1 SET OF SEALS
1 BOTTOM WEATHER STRIPPING
1 THRESHOLD

HW-3 *(STOREFRONT ENTRANCE)*
1 CONTINUOUS HINGE
1 CYLINDER LOCKSET - ENTRANCE
1 EXIT DEVICE
1 OVERHEAD CLOSER W/ CUSH'N STOP
1 SET OF SEALS

HW-4 *(INT. STOREFRONT ENTRANCE)*
1 CONTINUOUS HINGE
1 CYLINDER LOCKSET - ENTRANCE
1 OVERHEAD CLOSER W/ CUSH'N STOP
1 SET OF SEALS

HW-5 *(OFFICE)*
3 HINGE
1 LOCKSET - OFFICE
1 SET OF SEALS
1 SET OF SILENCERS
1 COAT HOOK
1 WALL DOOR STOP

HW-6 *(STOREROOM)*
3 HINGE
1 LOCKSET - STORAGE
1 SET OF SEALS
1 SET OF SILENCERS
1 WALL DOOR STOP

HW-7 *(OFFICE)*
3 HINGE
1 LOCKSET - OFFICE
1 SET OF SEALS
1 SET OF SILENCERS
1 WALL DOOR STOP
2 KICK PLATE

HW-8 *(PRIVATE RR)*
3 HINGE
1 LOCKSET - PRIVACY
1 CLOSER
1 SET OF SEALS
1 KICKSTOP
1 MOP PLATE
1 WALL DOOR STOP

HW-9 *(PASSAGE)*
3 HINGE
1 LATCH-SET - PASSAGE
1 OVERHEAD CLOSER W/ CUSH'N STOP
1 SET OF SEALS

HW-10 *(PASSAGE)*
3 HINGE
1 LATCH-SET - PASSAGE
1 WALL DOOR STOP

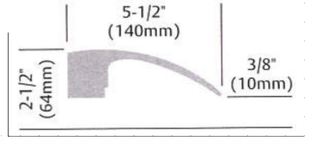
HW-11 *(PER LEAF) (DOUBLE DOOR - PASSAGE)*
3 HINGE
1 LATCH-SET - PASSAGE
1 WALL DOOR STOP
1 FLUSH BOLT ON INACTIVE LEAF
1 DUST PROOF FLOOR STRIKE

HW-12 *(ENTRANCE)*
3 HINGE
1 LOCKSET - ENTRANCE
1 OVERHEAD CLOSER W/ CUSH'N STOP
1 SET OF SEALS
1 SET OF SEALS

P Lever Design

- Lever: P–Solid Cast





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Original document is on file with the original architect's signature

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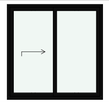
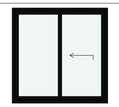
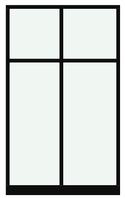
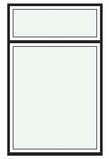
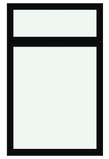
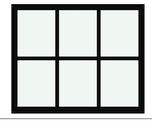
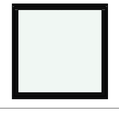
ID	DATE	DESCRIPTION
00	5/5/25	Issue for AHJ Review

24063

DOOR SCHEDULE

A-601

WINDOW SCHEDULE

ID	WINDOW SIZE NOMINAL WIDTH	WINDOW SIZE NOMINAL HEIGHT	TYPE	VIEW	TEMPERED	GLAZING	REMARKS
A	5'-0"	5'-0"	Sliding		☐	Double	
At	5'-0"	5'-0"	Sliding		☒	Double	
Bt	6'-0"	10'-0"	Fixed		☒	Double	
C	5'-0"	8'-0"	Fixed		☐	Double	
Ct	5'-0"	8'-0"	Fixed		☒	Double	
D	5'-0"	5'-9"	Fixed		☐	Double	
E	7'-0"	5'-9"	Fixed		☐	Double	
F	5'-0"	5'-9"	Fixed		☐	Double	
G	5'-0"	2'-0"	Fixed		☐	Double	
H	5'-0"	2'-0"	Fixed		☐	Double	
J	5'-0"	5'-0"	Fixed		☐	Double	

WD = WOOD; AL = ALUMIN; FG = FIBERGLASS; MTL = METAL; V = VINYL

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C-2974
Date: 05/05/25
STATE OF WYOMING

Original document is on file with the date of seal/stamp & signature

Original documents signed by:
J. GRAHAM WHIPPLE
Date original documents signed:
5/5/25

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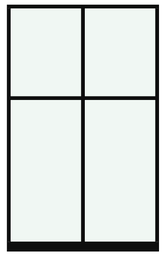
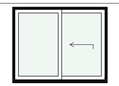
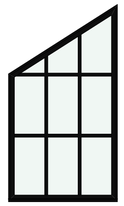
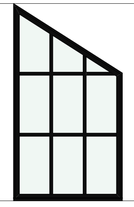
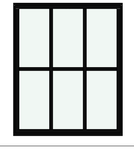
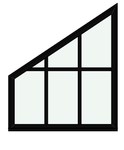
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24063

WINDOW SECHEDULE

A-602

WINDOW SCHEDULE

ID	WINDOW SIZE NOMINAL WIDTH	WINDOW SIZE NOMINAL HEIGHT	TYPE	VIEW	TEMPERED	GLAZING	REMARKS
K	8'-0"	13'-0"	Fixed		☐	Double	
L	4'-0"	4'-0"	Fixed		☐	Double	
M	5'-0"	4'-0"	Fixed		☐	Double	
N	5'-9"	10'-5"	Fixed		☐	Double	
O	5'-9"	10'-5"	Fixed		☐	Double	
P	5'-9"	7'-0"	Fixed		☐	Double	
Q	5'-9"	6'-9"	Fixed		☐	Double	
R	5'-9"	6'-9"	Fixed		☐	Double	

WD = WOOD; AL = ALUMIN; FG = FIBERGLASS; MTL = METAL; V = VINYL

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STATE OF WYOMING

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TBD Alpine, Wyoming, 83128

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24063

WINDOW SECHEDULE

A-603

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MECHANICAL ABBREVIATIONS

A/C or AC	AIR CONDITIONING	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	KWH	KILOWATT HOUR
AHU	AIR HANDLING UNIT		
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	LAT	LEAVING AIR TEMPERATURE
		LAV	LAVATORY
BTU	BRITISH THERMAL UNITS	LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
BTUH	BTUS PER HOUR	LWT	LEAVING WATER TEMPERATURE
CA	COMBUSTION AIR	MAX	MAXIMUM
CC	COOLING COIL	MCA	MINIMUM CIRCUIT AMPS
CFM	AIR FLOW RATE (CUBIC FEET PER MINUTE)	MOCP	MAXIMUM OVERCURRENT PROTECTION
CHWR	CHILLED WATER RETURN	MIN	MINIMUM
CHWS	CHILLED WATER SUPPLY		
CLG	CEILING	NC	NOISE CRITERIA
CW	COLD WATER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
		NTS	NOT TO SCALE
DEG or °	DEGREE		
DIA or Ø	DIAMETER	OSA	OUTSIDE AIR
DB	DRY BULB		
		PD	PRESSURE DROP
EA	EXHAUST AIR	PH or Ø	PHASE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
EER	ENERGY EFFICIENCY RATIO		
ESP	EXTERNAL STATIC PRESSURE	RA	RETURN AIR
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
		RTU	ROOFTOP UNIT
FCO	FLOOR CLEANOUT		
FD	FIRE DAMPER	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SEER	SEASONAL ENERGY EFFICIENCY RATIO
FLR	FLOOR	SFD	COMBINATION SMOKE/FIRE DAMPER
FPM	FEET PER MINUTE	SP	STATIC PRESSURE
FT	FEET	SYM	SYMBOL
GA	GAUGE	T & P	TEMPERATURE AND PRESSURE
GCO	GRADE CLEANOUT	TEMP	TEMPERATURE
GPM	WATER FLOW RATE (GALLONS PER MINUTE)	TYP	TYPICAL
HC	HEATING COIL	UMC	UNIFORM MECHANICAL CODE
HP	HORSE POWER	UPC	UNIFORM PLUMBING CODE
HVAC	HEATING, VENTILATING, AIR CONDITIONING	URL	URINAL
HW	HOT WATER		
HWR	HOT WATER RETURN	VTR	VENT THROUGH ROOF
HWS	HOT WATER SUPPLY	V	VOLTS
IBC	INTERNATIONAL BUILDING CODE	W/	WITH
IECC	INTERNATIONAL ENERGY CONSERVATION CODE	WB	WET-BULB
IFC	INTERNATIONAL FIRE CODE	WC	WATER CLOSET
IFGC	INTERNATIONAL FUEL GAS CODE	WCO	WALL CLEANOUT
IMC	INTERNATIONAL MECHANICAL CODE	WH	WATER HEATER
IPC	INTERNATIONAL PLUMBING CODE		
NOTE:	THIS IS A STANDARD LIST OF COMMONLY USED MECHANICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.		

MECHANICAL GENERAL NOTES

1. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) LATEST EDITION, AND ALL APPLICABLE LOCAL AND STATE CODES.
2. ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL AND STATE CODES.
3. ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4. MECHANICAL CONTRACTORS SHALL RECEIVE PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER BEFORE MAKING CUTS THROUGH ANY STRUCTURAL MEMBER.
5. MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH CONSTRUCTION SUPERVISOR AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
6. THE MECHANICAL CONTRACTORS SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWINGS PRIOR TO ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
7. SEE MECHANICAL SCHEDULE SHEET FOR SCHEDULED CAPACITIES OF ALL MECHANICAL EQUIPMENT AND MATERIALS SPECIFIED.
8. DOMESTIC WATER SERVICE IS PROVIDED WITH AN APPROVED BACKFLOW PREVENTER ASSEMBLY.
9. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL BACKFLOW DEVICES TO INSPECTED BY A CERTIFIED BACKFLOW TECHNICIAN BEFORE THE USE OF THE BUILDING POTABLE WATER SYSTEM.
10. ALL MECHANICAL EQUIPMENT TO BE PROPOSED MUST BE ON THE APPROVED LIST PRIOR TO SUBMITTALS. ALL APPROVED MANUFACTURERS MUST BE CAPABLE OF MEETING THE REQUIREMENTS OF THE SPECIFIED EQUIPMENT.
11. RUNOUT AND HOOKUP SIZES TO INDIVIDUAL PLUMBING FIXTURES CAN BE FOUND ON THE PLUMBING FIXTURE SCHEDULE.
12. PROVIDE REMOTE CEILING ACCESS BALANCE DAMPERS WITH CONCEALED CHROME PLATE COVERS FOR BALANCE DAMPERS LOCATED ABOVE HARD CEILINGS.
13. PAINT VTR'S, FLUES, EXHAUST CAPS, AND OTHER MECHANICAL ITEMS ON THE ROOF TO MATCH THE ROOF COLOR.
14. INSULATED FLEXIBLE DUCTWORK--IN LENGTHS OF 6'-0" OR LESS--MAY BE USED FOR RUNOUTS TO AIR TERMINALS.
15. MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN ALL FRESH AIR INTAKES AND EXHAUST OR GAS FLUE DISCHARGES.
16. LOCATE ACCESS HATCHCES SO AS TO PROVIDE OPTIMUM SERVICEABILITY TO EQUIPMENT AND/OR VALVING. SEE ARCHITECTURAL SPECIFICATION FOR TYPE AND COLOR. COORDINATE LOCATION WITH ARCHITECTURAL, STRUCTURAL, AND LIGHTING.
17. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT PIPE OR DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO PIPE OR DUCT SIZES.

MECHANICAL AND PLUMBING DRAWINGS LEGEND

	FLEXIBLE DUCTWORK		THREE WAY CONTROL VALVE
	DUCTWORK		TWO WAY CONTROL VALVE
	DUCTWORK BREAK		PRESSURE REDUCING VALVE
	DUCTWORK OR PIPING RISE		GATE VALVE
	CONCENTRIC SQUARE TO ROUND TRANSITION		REDUCER
M	MOTORIZED DAMPER		GLOBE VALVE
	MANUAL VOLUME DAMPER		BALL VALVE
AIRFLOW	SPIN-IN FITTING W/ AIR EXTRACTOR AND HAND DAMPER		BUTTERFLY VALVE
AIRFLOW	HIGH EFFICIENCY FITTING W/ HAND DAMPER		BALANCE VALVE
$	SWITCH		CHECK VALVE
T	THERMOSTAT	FCO	FLOOR CLEANOUT
H	HUMIDISTAT	WCO	WALL CLEANOUT
S	TEMPERATURE SENSOR	GCO	GRADE CLEANOUT
CO2	CARBON DIOXIDE SENSOR		WATER HAMMER ARRESTOR
CO	CARBON MONOXIDE SENSOR		FLOOR DRAIN
NO	NITROUS OXIDE SENSOR		FLOOR SINK
SD	DUCT SMOKE DETECTOR		GAS PRESSURE REGULATOR W/ GAS COCK
	COMBINATION SMOKE/FIRE DAMPER		PRESSURE RELIEF VALVE
	FIRE DAMPER		VENT-THROUGH-ROOF
	SMOKE DAMPER	VENT	
— #	EQUIPMENT CALLOUT	SOIL, WASTE, OR SANITARY SEWER	
	TURNING VANES	AW	ACID WASTE LINE
	INTAKE OR EXHAUST	AV	ACID VENT LINE
	DIRECTION OF AIRFLOW	SD	STORM DRAIN
D-X CFM X-Ø	SUPPLY DIFFUSER	RD	ROOF DRAIN LINE
R-X X-Ø	RETURN GRILLE	OD	OVERFLOW DRAIN LINE
R-X CFM X-Ø	EXHAUST GRILLE	CD	CONDENSATE DRAIN LINE
G-X CFM X-Ø	FLOOR GRILLE		DOMESTIC COLD WATER (CW)
	CEILING EXHAUST FAN		DOMESTIC HOT WATER (HW)
	TEMPERATURE GAUGE		DOMESTIC HOT WATER RETURN (HWR)
	PRESSURE GAUGE (LIQUID FILLED W/ ISOLATION VALVE)	TW	TEMPERED WATER (TW)
TS	TEMPERATURE SENSOR (DUCT OR PIPING)	MPG	MEDIUM PRESSURE NATURAL GAS
FS	FLOW SWITCH	G	LOW PRESSURE NATURAL GAS
	STAINLESS STEEL BRAIDED FLEX CONNECTION	F	FIRE SPRINKLER LINE
	ELASTOMETRIC FLEX CONNECTOR	GWS	GEOTHERMAL WATER SUPPLY
	SUCTION DIFFUSER	GWR	GEOTHERMAL WATER RETURN
	Y TYPE STRAINER (1-1/2" OR LARGER PROVIDED W/ BLOW DOWN VALVE)	CWS	CHILLED WATER SUPPLY
	FLOW DIRECTION	CWR	CHILLED WATER RETURN
	DEMOLITION / EQUIPMENT TO BE REMOVED	CS	CONDENSER WATER SUPPLY
	NEW TO EXISTING CONNECTION POINT	CR	CONDENSER WATER RETURN
(E)	EXISTING	HWS	HEATING WATER SUPPLY
(F)	FUTURE	HWR	HEATING WATER RETURN
(N)	NEW	L	LIQUID REFRIGERANT LINE
	REDUCED PRESSURE BACKFLOW PREVENTER	S	SUCTION REFRIGERANT LINE
	DOUBLE CHECK BACKFLOW PREVENTER		SLOPE PIPE IN DIRECTION OF ARROW
	UNION		PIPE ANCHOR
	AIR VENT		PIPE GUIDE
	TRIPLE DUTY VALVE		CAP
NOTE:	THIS IS A LIST OF COMMONLY USED MECHANICAL AND PLUMBING SYMBOLS. SOME OF THE SYMBOLS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.		

ENERGY CODE COMPLIANCE

A. COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE IS REQUIRED FOR THIS PROJECT. THESE NOTES COVER MANDATORY REQUIREMENTS OF THE CODE. ADDITIONAL REQUIREMENTS ARE NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS.

B. MINIMUM REQUIREMENTS FOR SUPPLY AND RETURN DUCTWORK INSULATION:

R-6: DUCTS LOCATED IN DIRECTLY OR INDIRECTLY CONDITIONED SPACES INSIDE THE BUILDING THERMAL ENVELOPE (SUCH AS ABOVE A CEILING, IN A WALL, IN A SOFFIT, OR IN A CHASE/SHAFT).

R-12: DUCTS LOCATED OUTSIDE THE BUILDING THERMAL ENVELOPE (SUCH AS IN A COLD ATTIC OR ON THE ROOF).

C. CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER, THE R-VALUES OF THE ACTUAL INSULATION USED. R-VALUES SHALL BE INSTALLED VALUES.

D. WHERE DUCTS USED FOR COOLING ARE EXTERNALLY INSULATED, THE INSULATION SHALL BE COVERED WITH A VAPOR RETARDER HAVING A MAXIMUM PERMEANCE OF 0.05 PERM OR ALUMINUM FOIL HAVING A MINIMUM THICKNESS OF 2 MILS. INSULATION HAVING A PERMEANCE OF 0.05 PERMS OR LESS SHALL NOT BE REQUIRED TO BE COVERED. ALL JOINTS AND SEAMS SHALL BE SEALED TO MAINTAIN THE CONTINUITY OF THE VAPOR RETARDER.

E. ALL DUCT JOINTS, SEAMS, AND CONNECTIONS SHALL BE FASTENED AND SEALED WITH WELDS, GASKETS, ADHESIVES, MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED PER UL181A OR UL181B. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS. DUCT CONNECTIONS TO FLANGES OR EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED.

F. MINIMUM REQUIREMENTS (THICKNESS) FOR PIPING INSULATION: REFER TO PROJECT SPECIFICATIONS.

G. DOMESTIC HOT WATER PIPING SYSTEMS SHALL BE INSULATED WITH 1" INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT2-°F.

H. DOMESTIC WATER HEATERS WHICH ARE NOT PROVIDED WITH INTEGRAL HEAT TRAPS AND SERVE NONCIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING AT THE WATER HEATER.

I. DOMESTIC HOT WATER SYSTEMS WITH RECIRCULATION PUMPS OR ELECTRIC HEAT TRACE SHALL BE CONTROLLED WITH 7-DAY TIME CLOCKS.

J. AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE O&M MANUAL SHALL CONTAIN THE FOLLOWING INFORMATION AS A MINIMUM:
   a. EQUIPMENT CAPACITY (INPUT & OUTPUT).
   b. EQUIPMENT OPERATING AND MAINTENANCE INSTRUCTIONS.
   c. CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES.
   d. CONTROL SYSTEM SETPOINTS SHALL BE SHOWN ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR IN PROGRAMMING COMMENT ON DDC SYSTEMS.
   e. A COMPLETE WRITTEN NARRATIVE ON HOW EACH MECHANICAL SYSTEM IS INTENDED TO OPERATE.

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PRELIMINARY

NOT FOR CONSTRUCTION
5/1/2025

Project No. 25-077

STRUCTURAL

KORE 4 STRUCTURAL ENGINEERING
2295 N YELLOWSTONE HWY, UNIT 6
IDAHO FALLS, ID 83401
PHONE: (208) 840-5673

MECHANICAL / PLUMBING

MUSGROVE ENGINEERING
234 S. WHISPERWOOD WAY
BOISE, ID 83709
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ELECTRICAL

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CIVIL

SUNRISE ENGINEERING
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AFTON, WY, 83110
PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

MECHANICAL COVER

M-001

SECTION 15100 – MECHANICAL GENERAL PROVISIONS

PART 1 – GENERAL

1.1 SCOPE:
A. General
1. The Bidding Requirements, Contract Requirements, and the General Requirements of these specifications shall govern all parts of the work.
B. Work Included:
1. Install work in accordance with these specifications and the accompanying plans. Furnish all labor, material, and equipment together with all incidental items not specifically shown or specified which are required by good practice to provide the complete mechanical systems as described.
2. The HVAC Contractor(s) and all sub-tier Contractors shall provide installed equipment cut sheets and purchase orders required for utility rebates.
C. Coordination and Site Visits:
1. This section of the work requires examination of and reference to all architectural, structural, and electrical drawings for construction conditions that may affect the work. Inspect the building and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, which prevents following good practices or the intent of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.

1.2 CODES, PERMITS, FEES:
A. Install all work in accordance with applicable codes and standards. Obtain all required permits; pay all required fees including utility connections or extensions, in connection with this portion of the construction. Obtain all required certificates of inspections for the work.

PART 2 – PRODUCTS

2.1 MATERIALS AND WORKMANSHIP:
A. Materials:
1. All materials and equipment shall be of first quality, new, full size and weight, standard in every respect, and suitable for the space required. Use the same manufacturer for products of similar class or service, such as valves, pumps, controls, and air handlers. Protect all materials against loss, theft, or damage before and after installation.
2. Furnish equipment that will operate under all conditions of load without any sound or vibration that is objectionable in the opinion of the Architect/Engineer. Vibration or noise considered objectionable will be corrected by the Subcontractor at his expense.
3. Furnish and install all necessary foundations, supports, pads, bases, and piers required for all materials and equipment furnished under this contract.
4. Provide all required fire stopping at piping and duct penetrations of fire rated walls, floors, ceilings, and roofs. Fire stopping shall be Dow Corning Fire Stop Sealant 2000 or Fire Stop Foam 2001, or approved equal.
B. Workmanship:
1. All materials and equipment shall be installed in a neat and workmanlike manner by competent specialists for each sub trade. Work shall be installed to the satisfaction of the Architect/Engineer with unsatisfactory work removed and reinstalled to his satisfaction at no extra cost to the Owner.
2. Provide all cutting and patching necessary to install the work specified in this section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the Architect/Engineer. Provide all sleeves and inserts required before the floors and walls are built.
3. Locate all equipment that must be serviced in fully accessible positions. Provide clearance for removal of replacement parts and components, and with necessary couplings or flanges to remove the component for maintenance.

2.2 SUBMITTALS AND SUBSTITUTIONS:
A. Prebid Approval:
1. Manufacturer's trade names and catalog numbers stated herein are intended to indicate the quality of equipment or materials desired. All manufacturers not specifically listed require prior approval. Submit catalog data, including specifications, of the proposed equipment to the Architect/Engineer for his approval at least 10 calendar days prior to bid opening. Notice of such approvals will be published in an addendum. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.
B. Submittals:
1. Within thirty days after award of this contract, provide six copies of a complete list of all materials and equipment proposed for this project. List shall contain make, type, manufacturer's name, and trade designation of all materials and equipment. Submittal shall also include manufacturer's complete specification for each item, including capacities, ratings, etc., and dimensions as required to check space requirements. Provide six copies of all submittals. The scheduled equipment is the basis of design for capacity, weights, physical size, etc. Alternate manufacturers shall not exceed the weight or physical size. Any changes to the Architectural, Structural, Mechanical, Electrical, and Control systems due to alternate manufacturers shall be the responsibility of the Contractor and Supplier.
2. Approval of submittals shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect's /Engineer's attention to deviations at the time of submission, and obtained his written approval. Approval of submittals does not relieve the contractor from responsibility for errors in shop drawings or literature.
C. Equipment Requiring Submittals
1. Rooftop A/C Units
2. Exhaust Fans
3. Grilles, Registers, Diffusers
4. Flexible Ductwork
5. Plumbing Fixtures and Trim
6. Cast Iron Soil Pipe
7. Pipe Stands

PART 3 EXECUTION

3.1 ACCESSIBILITY & SAFETY
A. Accessibility:
1. All equipment which must be serviced or operated shall be located in fully accessible position. Minor changes from the drawings may be made to allow for better accessibility. All changes shall be approved prior to actual installation.
2. Access panels shall be provided if required for accessibility. Subcontractor shall furnish the required panels to the General Contractor and/or the required location for all access panels. Panels shall be installed by the General Contractor.
B. Safety:
1. Subcontractor shall provide guards for all belt drives and rotating machinery. No water piping shall run immediately over or within a 3-foot plan view clearance of any electrical panel or motor starter. Where piping must be located within these zones, install piping inside a conduit to prevent water access to electrical equipment.

3.2 COORDINATION
A. Coordinate all work with the various trades involved to provide a complete and satisfactory installation. The exact details of piping, ductwork, and equipment are not shown. No additional compensation will be made for offsets or relocation required in coordination with other trades.
B. Alterations required due to improper supervision by the subcontractor shall be made at no extra cost, to the satisfaction of the Architect/Engineer.

3.3 ELECTRICAL:
A. Electric motors required for equipment specified in this section shall be provided and installed by this subcontractor. Motor starters, disconnects, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor.
B. Starters, relays, controls, etc., which are factory assembled into packaged equipment shall be furnished by the Mechanical Contractor under this section of the specifications.
C. All motors shall be provided with adequate starting and protective equipment as specified or required. Motor capacity shall be sufficient to operate each device under all conditions of operation and load without overload. Minimum horsepower shall be as specified.

3.4 EXCAVATION & BACKFILL:
A. Excavate trenches required for underground piping to proper elevation and grade. Provide trenches with solid bottoms to allow support of piping along entire length with excavation at bells as required for jointing and inspection. Provide repairing of finished surfaces, and all required shoring, bracing, pumping, and protection for safety of persons and property. Observe all Local or State Safety Codes. Verify that elevations of existing utilities will allow for proper grading of piping connecting to existing utilities.
B. Excavation and Backfill shall be in accordance with the requirements of Division 2 - Sitework, of these specifications.

3.5 IDENTIFICATION AND CODING:
A. Painting:
1. All painting of mechanical equipment, accessories, ductwork, and piping shall be furnished and applied under the Architectural section of these specifications. All painting shall be completed before any identification markings are applied.
B. Equipment:
1. Identify all equipment with a black Formica label, with white reveal when engraved. Lettering to be 3/16 inch high minimum. In general, identify equipment as to area served in addition to title and code number of the equipment as taken from the plans.
C. Piping:
1. Identify all piping as to the service of the pipe and the direction of flow. The letters shall be 1/2 inch high on piping 1-1/4 inches or smaller, 3/4 inch high on piping 1-1/2 to two inches, 1-1/4 inches high on piping up to six inches, and 2-1/2 inches high on 8 inch piping or larger. Flow arrows shall be at least six inches long. The letters and flow arrows shall be made by precut stencils or oil base paint, one inch high and black, or factory fabricated plastic pipe markers. Piping shall be identified at 25 foot maximum intervals, on long continuous lines adjacent to each item of equipment; on each riser and junction, and on both sides of all wall and floor penetrations. Underground piping shall be identified with bright colored continuously printed plastic tape of not less than 6" wide by 4 mil thick, manufactured for direct burial service. Install directly above all buried pipe. 6 to 8 inches below finished grade. All piping shall be labeled per the Uniform Plumbing Code, latest edition.

3.6 TESTING:
A. Piping:
1. All plumbing piping (drainage, water, gas) shall be tested in accordance with the requirements of the Idaho State Plumbing Code, latest edition. Other piping systems shall be tested hydrostatically, to 1.5 times the operating pressure, but not less than 100 psi, for a minimum period of two hours. If the test pressure falls more than 5 percent during the test period, the leak shall be located, repaired, and the test repeated.
2. Piping shall be tested before insulation has been installed. Delicate control mechanisms shall be removed during tests to prevent shock damage. The use of chemicals or compounds to stop leaks shall not be permitted.
3. A test report shall be submitted for each piping system test. Test report forms are part of Specifications Section 15200, or are available from the Engineer.
4. Smoke Test: A smoke test shall be performed on the waste and vent system before building occupancy. After all fixtures are permanently connected and traps are filled with water, fill entire drainage and vent system with smoke under pressure of 1 3 kPa (1 inch of water) with a smoke machine. If leaks are detected, they shall be repaired and the smoke test shall be performed again until no leaks are found.
B. Systems:
1. All systems, including heating, ventilating, air conditioning, and plumbing systems, shall be tested at the completion of the building to establish that the systems operate as specified and required. Testing shall be performed after air and water balancing is completed.
2. All controls shall be calibrated accurately and all equipment shall be adjusted for satisfactory operation. Excessive vibration or noise from any system shall be corrected.
3. The air conditioning system shall be tested for satisfactory operation when the outside air temperature reaches 60°F or warmer. All other systems shall be tested during heating season. All tests shall be performed in the presence of the Architect/Engineer or his representative.

3.7 BALANCING:
A. Scope:
1. Prior to final acceptance by the Owners, all air systems shall be balanced to deliver the quantities as specified or directed. The air balance shall be performed by an independent agency specializing in testing, adjusting, and balancing, and is certified by the Testing, Adjusting, and Balancing Bureau (TABB), and the National Environmental Balancing Bureau (NEBB). Total system balance shall be in accordance with TABB.
2. Balance contractor's main office shall be located within 50 miles from the project site. Approved balance contractors are Evolve Engineering, NWESI, Building Systems Technologies, and Basic Commissioning. All other contractors must receive prior approval from the Engineer, in writing, before bidding the project.
B. Air Balancing
1. Balancing of the air system shall consist of
a Adjust all air volumes, including outside air, to the quantities shown, with allowable variation of plus 10, minus 10 percent.
b Record all system, outside air, zones, diffuser grille, and register C.F.M. Use volume control devices to regulate air quantities only to the extent that adjustments do not create objectionable air motion or sound levels. Balancing Engineer shall work with the Contractor to set the CFM quantities for zone dampers or zone damper/heaters.
c Test and record all system static pressures, inlet and discharge, on all packaged units, fans, and terminal units. Vary total system air quantities by adjustment of fan speeds. Provide drive changes as necessary. Vary branch air quantities by damper regulation.
d Test and record motor full load amps and nameplate amps.
e Test and record entering and leaving temperatures at all coils.
f Adjust all automatically operated dampers, in cooperation with the Mechanical Contractor, to the required settings. Adjust outside air automatic dampers, outside air, return air, and exhaust air dampers for design conditions within specified tolerances. Where modulating dampers or economizers are provided, test measurements at full return air, minimum outside air, and 100 percent outside air mode of operation.
g Adjust diffusers and grilles, throw, throw, and coverage. Eliminate crafts and excessive noise where possible .
h Mark final positions of all balance dampers with a red felt pen.
i Air systems shall be balanced in accordance with standard procedures and recognized practices of the Associated Air Balance Council, and the Testing, Adjusting, and Balancing Bureau.

3.8 CLEANING AND ADJUSTING:
A. Thoroughly clean all parts of the system at the completion of the work. Flush all water circulating systems with fresh water and then drain. Clean all strainers and refill system. Install new, clean air filters in all systems. Adjust all devices for proper operation and lubricate all equipment as required. Repaint any painted surface that has been damaged.
B. All potable water systems shall be flushed and disinfected after tests are completed. Disinfection shall be in accordance with local municipal and State Plumbing Inspector's criteria. In lieu of such criteria, the following procedure shall be followed for disinfection:
1. Completely flush system. Add alkali or acid (hydrochloric) to bring water ph level to between 7.4 and 7.6.
2. Inject chlorine (liquid, powder, tablet, or gas) throughout the system to obtain 50 to 80 mg/L residual.
3. Bleed water from outlets to ensure distribution, and test for residual at a minimum of 15 percent of the outlets.
4. Maintain disinfection in system for 24 hours.
5. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
6. Flush disinfectant from system until residual is equal to that of incoming water, or 1.0 mg/L.
7. Take samples no sooner than 24 hours after flushing, from 10 percent of the outlets and the incoming water.

3.9 PROJECT CLOSEOUT.
A. Operations & Maintenance Manual
The Contractor shall provide an operations and maintenance manual at least thirty days prior to completion of work. The manual shall be of the three ring binder type, entitled "Operations and Maintenance Manual", with the job name and year of completion also included. The manual shall include, as a minimum:
1. Maintenance instructions for all equipment, including lubrication requirements
2. Equipment suppliers names, addresses, and telephone numbers.
3. Equipment catalog cuts, ratings tables, model numbers, serial numbers, and accessories.
4. Parts numbers for all replaceable parts.
5. Air systems balance report as hereinbefore specified.
6. Control diagram or drawing and operation sequence.
7. Valve tagging chart as hereinbefore specified.
8. Filter chart listing unit callout, size of filters, and quantity of filters.
9. Guarantee letter as specified below.
10. Any additional information required to enable the Owner to properly maintain the building mechanical system.
11. After approval of the Operations and Maintenance Manual by the Architect/Engineer, the Contractor shall furnish two copies of the manual to the Owner.
B. Mechanical System Training Period:
1. After the mechanical system is completely installed and operational, the mechanical contractor shall provide a minimum of 1 hours training and instruction time for the building Owner or his representative. During this period, the contractor shall instruct the Owner in the operation and maintenance of all parts of the mechanical system, using the O & M manuals where applicable.
C. As-Built-Drawings:
1. Provide two sets of blue-line mechanical drawings showing the work as it was actually installed. The drawings shall indicate all departures from the contract drawings, and shall locate all underground utility lines with dimensions from established building lines. Make all notations neat and legible, with red indelible pencil. At the completion of the work, these as-built drawings shall be signed and dated by the Mechanical Contractor, and returned to the Architect/Engineer.
D. Guarantee:
1. All work furnished under this section shall be guaranteed in writing to be free from defective work or materials for a period of one year after acceptance of the contract. All repairs or replacements because of defective materials or workmanship or noncompliance with code shall be provided without additional cost to the Owner. Contractor shall furnish a letter indicating above guarantee with space for date of acceptance and expiration of guarantee. Letter shall be included in O & M Manual.

END OF SECTION 15100

SECTION 15200 – PLUMBING

PART 1 – GENERAL

1.1 SCOPE:
A. This section covers the work necessary for the plumbing system, complete. The Mechanical General Provisions, Section 15100 are to be included as a part of this section of the specifications.

1.2 CODES:
A. The plumbing system shall be installed in accordance with the Idaho State Plumbing Code, latest edition, International Fuel Gas Code, latest edition; and all local and State Codes.

1.3 FIXTURES & EQUIPMENT:
A. General:
1. Plumbing fixtures and equipment shall be as listed on the drawings. In addition to those specifically listed, the following manufacturers are approved for bidding only. All other manufacturers require prior approval. Final approval for installation is based on submittal data furnished
a Tank Type Water Closets: American Standard, Kohler, Eljer, Mansfield, Toto, Zum, Gerber, and Sloan.
b Flush Valve Water Closets: American Standard, Kohler, Eljer, Mansfield, Toto. Zurn, Briggs, Gerber, and Sloan.
c Urinals: American Standard, Kohler, Eljer, Mansfield, Toto. Zurn, Briggs, Sloan, and Gerber.
d Vitreous China Sinks: American Standard, Kohler, Eljer, Zurn, Mansfield, Crane, Gerber, and Sloan.
e Stainless Steel Sinks: Elkay, Just.
f Faucets: American Standard, Kohler, Chicago Faucets, Delta, Moen, Geberit, Gerber, CHG Encore Sanliguard, Zurn Aquasspec, Symmonds, Sloan, & AMTC.
g Valves and Trim: T&S Brass, Dearborn Brass, Brasscraft, Profio
h Flush Valves: Sloan, Delany, Delta and Zurn. Moen (sensor-operated only), & AMTC.
i Carriers and Drainage Products: Jay R. Smith, Josam (Bucher-Josam), Zurn, Wade, Watts, MIFAB, Sioux Chief, Neenah Foundry, Sun Drainage.
j Toilet Seats: Bemis, Church, Plumotech, Zurn, American Standard, & Kohler.
k Mixing Valves: Symmonds, Leonard, Powers, Watts, Wilkins. Lawler, Stingray, Acorn Controls.
l Fiberglass Acrylic Fixtures: Best Bath, Intersan, MAXX, Fiat, Aquatic, Aquaglass.
m Drinking Fountains/ Electric Water Coolers: Haws, Murdock, Oasis, Stern Williams, Halsey Taylor.
n Safety Fixtures and Safety Mixing Valves: Haws, Gaurdian, Acorn, Bradley, Fiat, Lawler, & Speakman.
o Security Fixtures: Acorn, Bradley, Willoughby.
p Terrazo/ Acrylic Washfountains: Bradley, Acorn, Intersan
q Service Sinks: Fiat, Acorn, Stern Williams, Mustee, and equal.
r Water Heaters: Rheem, A.O. Smith, PVI, State, Bradford-White, American, Heat Transfer-Phoenix, Rinnai, Bosh.
s Backflow Preventers: Watts, Conbraco, Apollo, Wilkins.
t Hose Bibbs: Josam, Zurn, JR Smith
u Trench Drains: J.R. Smith, ABT, Strongwell Polycast, ACO, Zurn, NDS, Wade, Josam, DuraTrench.
v Utility Sinks: Fiat, Profio, Mustee.
2. Plumbing Fixture Standards:
All plumbing fixtures shall meet or exceed the following standards:
a ANSI A112.6.1 - Supports for Off-the Floor Plumbing Fixtures for Public Use.
b ANSI A112.18.1 - Finished and Rough Brass Plumbing Fixtures.
c ANSI A112.19.1 - Enameled Cast Iron Plumbing Fixtures.
d ANSI A112.19.2 - Vitreous China Plumbing Fixtures.
e ANSI A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
f ANSI A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.
g ANSI A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.
h ANSI Z124.4 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Bathtub Units.
i ANSI Z124.2 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Shower Receptor and Shower Stall Units.
j ANSI Z358.1 - Emergency Eye Wash and Shower Equipment.
k ARI 1010 - Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Water Coolers.
l AWSI/ASSE 1001 - Atmospheric Vacuum Breaker
m ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.
n ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.
o ANSI/ASSE 1013 - Backflow Preventers. Reduced Pressure Principle.
p ANSI/ASSE 1015 - Backflow Preventers. Double Check Principle
q ANSI/ASSE 1019 - Wall Hydrants. Frost Proof Automatic Draining Anti-Backflow Type.
r AWSI/ASSE 1020 - Pressure Vacuum Breaker
s AWSI/ASSE - 1-52 - Hose Connection, Double Check
t ANSI/ AWWA C511 - Flood Prevention.
u ANSI A112.21.2 - Roof Drains.
v ANSI A112.26.1 - Water Hammer Arresters.
w PDI WH-201 - Water Hammer Arresters.
x ANSI/AWWA C606 - Grooved and Shouldered Joints

PART 2 - PRODUCTS

2.1 PLUMBING FIXTURES & TRIM:
A. All plumbing fixtures shall be provided complete with all required trim for a complete and operational system. All exposed trim shall be chrome plated. All piping penetrations through finished walls shall be provided with chrome escutcheons. All plumbing fixtures shall be caulked and sealed to surrounding surfaces. All sink traps shall be provided with a clean out plug in the bottom of the trap. Interior exposed pipe, valves, and fixture trim, including trim behind all casework doors, shall be chrome plated. Each fixture shall be provided with stop valves and the stop valves shall be quarter-turn brass ball type. All fixtures and trim must be lead free. All floor drains and floor sinks shall be provided with trap primers (PPP, or Zurn as needed for appropriate use. Provide ball valve type shut-off valve upstream of all trap primer valves).

2.2 PIPING AND FITTINGS:
A. General:
1. Underground sanitary sewer and storm drain lines shall be installed at 1/4" per foot slope, unless otherwise indicated. If such slope is not possible due to existing inverts, approval shall be obtained from the Architect/Engineer and the authority having jurisdiction before any piping is installed at a lesser slope.
2. Connections between piping of dissimilar materials shall be made with dielectric fittings. No direct connections.
3. Provide standard manufactured water hammer arresters at all flush valves. Size and locate per manufacturers recommendations. Provice access panels for access to all water hammer arresters.
B. Domestic Hot and Cold Water:
1. Piping inside building above slab or above grade in crawl space shall be ASTM B88, Type "L", hard drawn copper, with fittings to be ANSI/ASME B16.23 cast brass, or ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free.
2. Piping underground within 5 feet of the building line or below floor slab, smaller than 4 inches, shall be ASTM B88, Type "K", hard drawn or soft annealed copper. Fittings shall be ANSI/ASME B16.22 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free. No joints shall be installed beneath concrete floor slabs. Underground copper piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.
3. Trap Primer Piping (below floor or concealed only) - 1/2" type K hard drawn copper, wrapped as indicated above.
4. Piping underground beyond 5 feet from building line shall be Schedule 40 PVC, ASTM D1785 or D2241. Fittings shall be PVC, ANSI/ASTM D2466. Joints shall be solvent weld, ASTM D2855, or gasketed, ASTM F477. Piping shall be rated for not less than 150 psig pressure.
C. Sanitary Sewer and Vent:
1. Piping and fittings shall be Schedule 40 PVC-DWV (cellular core), per ASTM F1488 and ASTM F891, solvent welded per solvent manufacturer's instructions, or ABS Schedule 40 piping and fittings per either ASTM D2661 or ASTM F628 with solvent cement conforming to ASTM D2235. All sewer risers (2 story or more) shall be service weight cast iron, no-hub or single-hub, ASTM A74. All piping penetrations through fire rated walls, floors, or ceilings, and all piping located above ceilings used as return air plenums shall also be cast iron or galvanized steel, ASTM A53. Underground PVC-DWV piping shall be installed per ASTM D-2321.
2. Piping and fittings beyond 5 feet from the building line shall be PVC, ASTM D3033 or D3034, SDR 35. Joints shall be ASTM F477 with elastomeric gaskets. Underground piping shall be installed per ASTM D-2321.
3. All 90 degree waste line elbows shall be per the latest issue of the Idaho State Plumbing Code, latest edition.
4. All exposed vent piping located in occupied areas or rooms, is to be cast iron with cast iron fittings.
5. Cleanouts shall be provided at each horizontal drainage pipe at its upper terminal, and each run of piping which is more than 100 feet, and shall be provided for each 100 feet developed length, or fraction thereof of such piping. An additional clean out shall be provided for each aggregate horizontal change of direction exceeding one hundred thirty-five degrees. per applicable plumbing code. This shall be provided regardless of what is shown on the drawings.
6. All floor drains, floor sinks, and hub drains shall be installed with a trap primer. Reference the Plumbing Fixture Schedule, on the plans, for type.
7. All vents through roof (VTR's) shall be extended at least 1 foot above the roof surface, or to the top of the closest adjacent parapet wall, whichever is greatest.
D. Natural Gas:
1. Piping shall be Schedule 40 black steel pipe, ASTM A53. Exposed fittings 2 inches and smaller shall be ANSI/ASME B16.3, screwed, black malleable iron.
2. Fittings larger than 2 inches and all underground fittings shall be Schedule 40 steel butt-welded type. Underground piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrappec with double layer, half-lapped, 10 mil polyethylene tape.
3. All exterior piping exposed to the weather shall be coated with a rust inhibitor - Rustoleum #566 Pro-Guard Primer - red or gray color - or approved equal.
E. Condensate Drain Piping:
1. Exterior to building, or located in plenum: Piping shall be Type L hard drawn copper. ASTM B88 with solder joints. Copper piping shall not be used on 90% condensing type equipment.
2. Interior: Piping shall by Type L hard drawn copper. ASTM B88, with solder joints, grade 95TA, or shall be Schedule 40 PVC. Copper piping shall not be used on 90% condensing type equipment. Provide a neoprene or rubber gasket at all copper piping support hangers to inhibit corrosion.
F. Hanger and Supports:
1. Pipe hangers shall be provided to adequately support all piping systems. Hangers shall be vertically adjustable to provide for proper pitch and drainage. Hangers shall allow for expansion and contraction of the piping system. Reference "General Regulations" of the latest edition of the Idaho State Plumbing Code.
2. Hangers for pipe sizes 1/2'is 6 inches shall be adjustable clevis type, or unistrut saddles with all-threaed hanger rod.
3. Hangers for hot pipe, sizes 6 inches and over shall be adjustable steel yoke, cast iron roll, double hanger type.
4. Vertical pipes shall be supported with steel riser clamps. Spacing interval requirements per "General Regulations" of the latest edition of the Idaho State Plumbing Code.
5. All insulated piping shall be provided with minimum 18 gauge galvanized insulation shields, 12 inches long, and oversized hangers. Pipe sizes 2 inches and over shall also be provided with 12 inch long calcium silicate insulating blocks between the piping and the galvanized insulation shield.
6. Hanger rod sizing and spacing for pipe shall be as follows:

Pipe Size	Minimum Rod Diameter	Maximum Spacing
To 1-1/4 inches	3/8 inch	6.5 feet
To 2 inches	3/8 inch	10 feet To 3 inches
1/2 inch	10 feet	
To 6 inches	5/8 inch	10 feet
8 to 12 inches	7/8 inch	12 feet
PVC & ABS (all sizes)	3/8 inch	4 feet
Cast Iron No-Hub	5/8 inch	5 feet and at joints

7. Provide hangers within 12 inches of each horizontal elbow.
8. Provide hangers with minimum 1-1/2 inches vertical adjustment.

2.3 INSULATION:
A. General:
1. All insulation shall have composite fire and smoke hazard ratings, as tested by ASTM E-84, NFPA 255, and UL 723, not exceeding:
Flame Spread 25
Smoke Developed 50
B. Piping:
1. All domestic, potable & non-potable, hot and cold water lines and rain drains shall be insulated with preformed insulation as:
a Fiberglass insulation with a vapor barrier jacket. Insulation shall have a conductivity not exceeding 0.26 Btu-inch/hour-sq. ft.-°F. Laps and butt joints shall be sealed with pressure sensitive adhesive tape of the same finish as the insulation jacket to provide a continuous vapor seal. Fittings and valves shall be insulated with PVC fitting covers and fiberglass insulation inserts, or with hydraulic-setting insulating cement and four ounce canvas jacket with vapor barrier adhesive.
b Alternate material for Cross-Linked Polyethylene Tubing (PEX). One piece polyethylene flexible elastomeric closed cell foam with built-in vapor barrier. Seal laps and butt joints with moisture resistant adhesive to provide a continuous vapor barrier. Insulation shall have a conductivity rating not exceeding 0.27 Btu-inch/hour-sq. ft.-°F.
Insulation thickness shall be as follows:

System	Pipe Sizes ½" and above
Domestic Cold Water (pot. & non-pot.)	½"
Domestic Hot Water & Recirc. (pot. & non-pot.)	1"
Roof Drain Piping	½"
Overflow Drain Piping	½"

2. Roof and overflow drain sumps shall be insulated with 1/2" thick fiberglass with a vapor barrier, extending 2" onto adjacent insulation.
3. Insulation shall be continuous through penetrations.
4. All insulation shall be installed in a neat and workmanlike manner.

2.4 VALVES AND STRAINERS.
A. Ball Valves:
1. Valves 2-inches and smaller shall be cast brass body, chrome-plated brass ball, teflon seats, and lever handle, 600 psi CWP. Valves shall comply with MSS SP-110. Valves over 2-inches shall be ductile iron or cast steel body, chrome plated steel ball, teflon seats, and lever handle. Victaulic series 726, Anvil Gruvlok, Grinnell, or Shurjoint ball valves are acceptable if grooved piping is used.
B. Check Valves:
1. Valves 2-inches and smaller shall be bronze body Y-pattern, ASTM B-62, swing check, bronze disc, 200 psi WOG. Valves shall comply with MSS SP-80. Valves, over 2-inches shall be iron body, ASTM A-126, bronze trim, swing check, renewable disc and seat. Valves shall comply with MSS SP-71
2. Swing check valves with outside lever and spring (not center guided) is to be used on sewage ejector or storm-water sump pumps.
C. Pressure Reducing Valves:
1. Valves 2-inches and smaller shall be bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, and single union end.
D. Strainers:
1. Strainers shall be cast steel body, Y-pattern, 20-mesh stainless screen.

PART 3 - EXECUTION

3.1 WORKMANSHIP:
A. General:
1. Install all piping, fixtures, equipment, and accessories as shown, and in strict accordance with the plumbing laws, rules, and regulations of the State and/or City. All work shall be done in a neat and orderly fashion, and left in a condition satisfactory to the Architect/Engineer.
B. Piping:
1. All piping shall be run parallel or perpendicular to established building lines. Install piping so as to allow for expansion. Waste and vent piping occurring above floor slab shall be installed true and plumb. Extend vents at least 1 foot above roof, or to the top of the closest adjacent parapet wall, whichever is greater, and provide watertight flashing sleeves. Excavation and backfill shall be in accordance with Section 15100 of these specifications.
C. Fixtures:
1. Install fixtures true and plumb with building walls. Caulk all plumbing fixtures at joints along walls, countertops, and other intersecting surfaces. Locate fixtures as shown and per manufacturer's instructions. Furnish all required trim for fixtures to provide a complete and workable installation.

3.2 TESTS:
A. General:
1. All piping, fixtures, and equipment shall be inspected and approved before concealing or covering. All work shall be tested as required by Section 15100 of these specifications, and shall be leak proof before inspection is requested. All tests shall be repeated if required by those making the inspection.
2. All potable water systems shall be flushed and disinfected in accordance with Section 15100 of these specifications. Following disinfection, system shall be flushed and water sampled to show compliance with requirements of public health authority having jurisdiction. If tested water does not meet requirements, disinfecting shall be repeated until water quality meets requirements.
B. Fixtures and Equipment:
1. Fill all plumbing fixtures with water and check for leaks or retarded flow. Repair as required. Adjust each piece of plumbing equipment as required to insure proper functioning. Leave all fixtures and equipment in first class operating condition.
2. The Plumbing Contractor is responsible for all backflow devices to be inspected by a certified backflow technician before the use of the building potable water system.

END OF SECTION 15200

SECTION 15300 – HEATING, VENTILATING, AND AIR CONDITIONING

PART 1 – GENERAL

1.1 SCOPE:
A. This section covers the work necessary for the heating, ventilating, and air conditioning system, complete. The Mechanical General Provisions, Section 15100, is to be included as a part of this section of the specifications.

1.2 CODES & STANDARDS
A. The heating, ventilating, and air conditioning system shall be installed in accordance with the latest edition of the following codes and standards.
1. International Mechanical Code (IMC)
2. International Building Code (IBC)
3. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
4. National Fire Protection Association (NFPA)
5. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

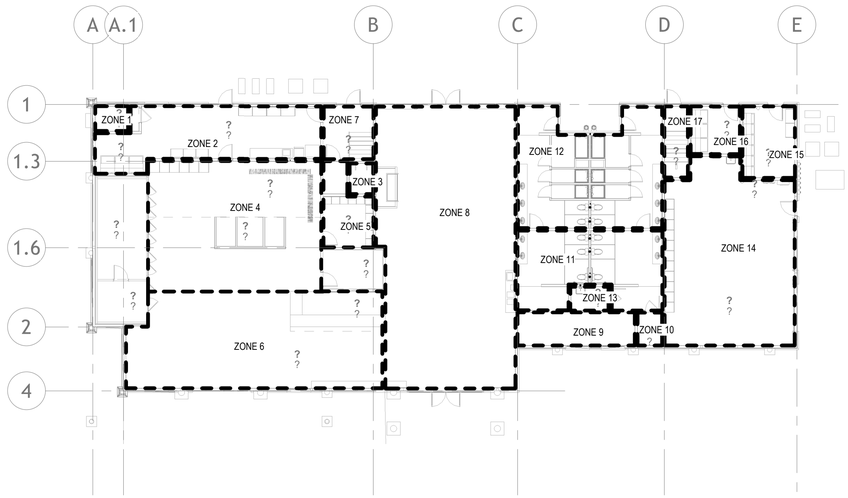
PART 2 – PRODUCTS

2.1 AIR HANDLING UNITS AND APPURENANCES:
A. See plans for requirements.

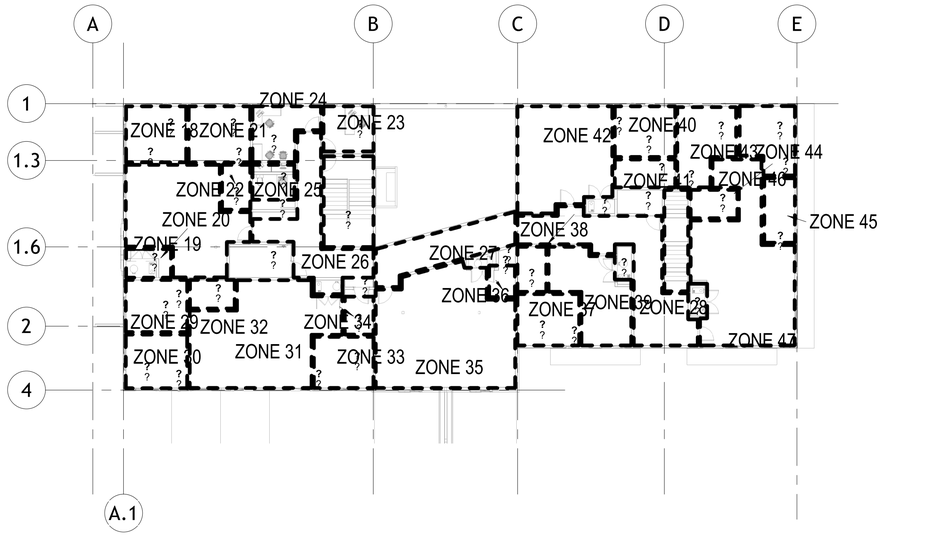
2.2 EXHAUST FANS
A. See plans for requirements.

2.3 AIR DISTRIBUTION
A. Ductwork:
1. Low pressure ductwork shall be fabricated from galvanized sheet metal, unless otherwise indicated. Construction requirements shall be in accordance with SMACNA HVAC Duct Construction Standards, metal and flexible, latest edition. All sheet metal ductwork shall be sealed with McGill United Sheet Duct Sealer or equal, in accordance with the International Energy Compliance Code, latest edition. Low pressure ductwork shall be constructed to the following SMACNA static pressure standards:
a Supply air ductwork = 2" W.G.
b Return, Exhaust, Outside Air Intake ductwork = 1" W.G
2. Low pressure ductwork located exposed in exposed ceiling areas. shall be spirial type ducts with a "paint-grip" finish, on both and accessible and concealed fittings that can be painted.
a Joints: 0' to 20' diameter, interior slip coupling beaded at center, fastened to cuch with sheet metal screws and sealed with a gasket of continuously around joint before assembling and after fastening. Sealing compound shall be applied in an evenly and professional manner.
b Joints 22" - 72" diameter, use 3-piece, gasketed, flanged joints consisting of 2 internal flanges (with integral mastic sealant) split to accommodate minor differences in duct diameter, and one external closure band designed to compress gasketing between internal flanges. Manufacturer shall be Ductmate, Spiramate or equal.
c All takeoff and connections shall be by means of factory-fabricated fittings. Field taps shall not be allowed.
3. Low pressure ductwork which is exposed or located in mechanical rooms shall be fabricated from galvanized sheet metal. Construction requirements shall be in accordance with SMACNA HVAC Duct Construction Standards, metal and flexible, latest edition.
4. Low or medium pressure, double wall acoustically insulated ductwork shall have a minimum 1" insulation, & perforated metal lining, & shall be McGill Acoustil-427. Metalsec, or equal.
5. Type - 1 Kitchen Hood exhaust ductwork shall be fabricated from minimum 16 gauge welded steel, and shall be constructed in strict accordance with the latest edition of the International Mechanical Code.
6. Type - 2 Kitchen Hood exhaust ductwork shall be fabricated from aluminum sheet metal, in accordance with SMACNA Standards
7. Ductwork penetrations of fire-rated construction walls, with no openings into corridor, shall be constructed of minimum 26 gauge galvanized steel.
8. Exterior exposed ductwork shall be fabricated from galvanized sheets. All joints and seams shall be standing-seam type with sealing mastic to provide weathertight construction. All ductwork shall be insulated as hereinafter specified. All exposed surfaces shall be primed and painted two coats of exterior enamel paint, color as selected by the Architect.
9. Shower and toilet room exhaust ductwork shall be constructed of galvanized sheet metal, in accordance with SMACNA standards.
10. Flexible ducts shall be listed per UL-181 standard as Class 1 flexible air duct and connector, UL-181, for 14"WG operation. Ducts shall be insulated with a minimum R-5 value, and shall have a maximum vapor transmission of .05 perms. Ducts shall be factory made with and composed of: a CPE liner duct permanently bonded to a coated spring steel wire helix. Duct shall be GREENGUARD tested and certified, carry a ten-year warranty that includes labor and materials, and be made in a factory defect. Low permeability outer vapor barrier of fiberglass bidirectional reinforced metalized laminate film shall complete the composite. Pressure rating shall be 6" w.g. and maximum length shall be 6 feet. Attach to duct take-off and terminal unit with nylon clamp or tie. Thermaflex M-KE(R-6), Flexmaster 8-M, or approved equal.
B. Duct Accessories:
1. Turning vanes shall be installed in all rectangular or square elbows. Vanes shall be installed in accordance with SMACNA standards. Vanes shall be single wall vanes, and be fabricated and installed per SMACNA standards.
2. Volume dampers shall be fabricated from galvanized steel in accordance with SMACNA standards. Dampers shall have a continuous galvanized steel shaft on ducts 13" diameter or larger, with damper regulators and end bearings. Dampers located above inaccessible ceilings (hard ceilings) shall be furnished with remote ceiling damper regulators. Dampers shall be pressure rated equal to the design duct pressure rating.
3. Flexible connections shall be provided at all rotating fan equipment. Connections shall be airtight, and weather resistant where exposed.
4. Fire dampers shall be UL-labeled with frame, locking assembly, accordion style folded blades, and fusible link. Dampers shall be Style B with blades stored outside the air stream. Dampers shall have a combination door at each fire damper. Minimum size shall be 6" x 8". Inspection door shall be provided with a door of the same construction, finish, and hinged panel.
5. Combination smoke and fire dampers are to be fusible link type with factory sleeve and electric operator located exterior to duct 120 V operator to be wired to 24 V circuit with 212 degrees F link and UL label. Provide duct inspection door at each damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a door of the same construction, finish, and a hinged panel.
6. A plastic flex elbow support by Flexible Technologies Inc., Titus FlexRight, or approved equal, is required at all flex duct elbows supplying ceiling diffusers and return grilles. Elbow support shall be fully adjustable, or be of universal design, to support flexible diameters 6"-16", sized to fit flex duct. Elbow supports shall be rated for use in return air plenum spaces. At the Contractor's option, a hard elbow may be used in lieu of a flexible elbow.
C. Diffusers, Registers, Louvers, Grilles, Weathercaps:
1. See plans for requirements.
D. Strainers:
1. Strainers shall be cast steel body, Y-pattern, 20-mesh stainless screen.

2.4 PIPING SYSTEMS
A. Refrigerant Piping:
1. Refrigerant piping shall be Type L hard drawn copper, ASTM B280, with wrought copper fittings and Silvaloy joints.
2. Refrigerant piping shall be manufacturer's standard line sets, in lengths as required for proper installation. Coiling of excess tubing will not be acceptable.
B. Condensate Drain Piping:
1. See Section 15200 for piping requirements.
C. Pipe Hangers and Supports:
1. See Section 15200 for hanger and support requirements for piping systems. See drawings for seismic support requirements for piping systems.



1 FIRST FLOOR ZONE PLAN
1/16" = 1'-0"



2 SECOND FLOOR ZONE PLAN
1/16" = 1'-0"

MUSGROVE ENGINEERING, PA
234 S. WHISPERWOOD WAY BOISE, IDAHO 83709

Zone Summary

PROJECT:	*Alpine Resort & Lodge*		Design Conditions		Winter	-15.2	Summer	84			
COMPUTED BY:	*BSA*		DATE:	1-May-25	CHK BY: JR						
			Heating Load		Sensible Cooling Load	Total Cooling Load					Unit Selection Size
	Zone Reference	FLOOR SQ. FT.	BTUH	kW	BTUH	BTUH	NOMINAL TON (12000=BTUH/TON)	SQ. FT PER NOMINAL TON	NUMBER OF PEOPLE	OSA	EXHAUST	TONS
1	ZONE 1 FIRE RISER	36.3	1,789	0.5	418	418	0.0	1042.4	0	5	0	
2	ZONE 2 LAUNDRY/STORAGE	522	22,077	6.5	8,235	8,235	0.7	760.7	0	78	0	
3	ZONE 3 STORAGE	32	545	0.2	232	232	0.0	1658.3	0	5	0	
4	ZONE 4 RENTALS	1008	30,414	8.9	13,047	17,336	1.5	589.8	16	301	0	
5	ZONE 5 OFFICE	150	2,448	0.7	1,793	2,074	0.2	868.0	1	18	0	
6	ZONE 6 SALES	1073	52,365	15.3	24,710	29,479	2.5	436.8	17	320	0	
7	ZONE 7 VESTIBULE	116	4,585	1.3	1,209	1,209	0.1	1151.8	0	9	0	
8	ZONE 8 LOBBY	1696	73,428	21.5	38,662	43,431	3.6	468.6	17	233	0	
9	ZONE 9 CIRC	173	7,876	2.3	6,553	6,553	0.5	316.8	0	13	0	
10	ZONE 10 MECH	36	1,438	0.4	582	582	0.0	742.8	0	5	0	
11	ZONE 11 RR	464	4,035	1.2	2,771	2,771	0.2	2009.7	0	0	560	
12	ZONE 12 SHOWER	670	13,870	4.1	4,591	4,591	0.4	1751.2	0	0	600	
13	ZONE 13 JANITOR	40	783	0.2	289	289	0.0	1658.3	0	6	0	
14	ZONE 14 SHOP	1012	32,480	9.5	10,851	10,851	0.9	1119.2	0	0	0	
15	ZONE 15 LAUNDRY	166	8,372	2.5	2,160	2,160	0.2	922.2	0	25	0	
16	ZONE 16 FACILITY	105	5,438	1.6	1,187	1,187	0.1	1061.8	0	16	0	
17	ZONE 17 CIRC	74	2,851	0.8	694	694	0.1	1279.5	0	6	0	
18	ZONE 18 BEDROOM	150	6,304	1.8	2,857	3,418	0.3	526.6	2	24	0	
19	ZONE 19 BATHROOM	57	2,118	0.6	777	777	0.1	880.7	0	0	0	
20	ZONE 20 LIVING ROOM	450	11,773	3.4	6,585	7,988	0.7	676.0	5	65	0	
21	ZONE 21 BEDROOM	155	5,032	1.5	2,512	3,073	0.3	605.2	2	24	0	
22	ZONE 22 BATHROOM	57	468	0.1	1,182	2,023	0.2	338.1	3	0	150	
23	ZONE 23 OFFICE	100	4,007	1.2	2,423	2,704	0.2	443.9	1	14	0	
24	ZONE 24 OFFICE	132	4,503	1.3	3,531	3,811	0.3	415.6	1	16	0	
25	ZONE 25 BATHROOM	65	428	0.1	388	388	0.0	2009.7	0	0	100	
26	ZONE 26 HALLWAY	292	3,511	1.0	1,928	1,928	0.2	1817.2	0	22	0	
27	ZONE 27 HALLWAY	211	2,537	0.7	1,393	1,393	0.1	1817.2	0	16	0	
28	ZONE 28 HALLWAY	403	4,845	1.4	2,661	2,661	0.2	1817.2	0	30	0	
29	ZONE 29 BEDROOM	143	4,873	1.4	3,068	3,629	0.3	472.8	2	23	150	
30	ZONE 30 BEDROOM	148	6,492	1.9	4,825	5,386	0.4	329.7	2	24	0	
31	ZONE 31 LIVING ROOM	574	15,839	4.6	9,873	11,556	1.0	596.1	6	81	0	
32	ZONE 32 BATH	57	375	0.1	340	340	0.0	2009.7	0	0	150	
33	ZONE 33 BEDROOM	135	4,703	1.4	3,322	3,883	0.3	417.2	2	23	0	
34	ZONE 34 BATHROOM	48	394	0.1	287	287	0.0	2009.7	0	0	150	
35	ZONE 35 LIVING ROOM	680	23,599	6.9	15,805	17,769	1.5	459.2	7	95	150	
36	ZONE 36 BATHROOM	36	296	0.1	215	215	0.0	2009.7	0	0	0	
37	ZONE 37 BEDROOM	140	5,332	1.6	3,581	4,142	0.3	405.6	2	23	0	
38	ZONE 38 BATHROOM	57	375	0.1	340	340	0.0	2009.7	0	0	150	
39	ZONE 39 LIVING ROOM	250	6,837	2.0	4,459	5,300	0.4	566.0	3	38	0	
40	ZONE 40 BEDROOM	136	4,962	1.5	2,464	3,025	0.3	539.5	2	23	0	
41	ZONE 41 BATHROOM	76	500	0.1	454	454	0.0	2009.7	0	0	150	
42	ZONE 42 LIVING ROOM	420	11,376	3.3	5,409	6,811	0.6	740.0	5	63	0	
43	ZONE 43 BEDROOM	176	5,809	1.7	2,728	3,289	0.3	642.2	2	26	0	
44	ZONE 44 BEDROOM	150	7,351	2.2	4,198	4,759	0.4	378.2	2	24	150	
45	ZONE 45 BATHROOM	90	3,811	1.1	2,680	2,680	0.2	403.0	0	0	150	
46	ZONE 46 BATHROOM	60	395	0.1	358	358	0.0	2009.7	0	0	150	
47	ZONE 47 LIVING ROOM	601	18,985	5.6	11,678	13,641	1.1	528.7	7	89	0	
48	ZONE 48 BEDROOM	176	5,931	1.7	2,756	3,317	0.3	636.8	2	26	0	
49	ZONE 49 LIVING ROOM	601	19,980	5.9	11,981	13,945	1.2	517.2	7	89	0	
50	ZONE 50 MECH	19	332	0.1	137	137	0.0	1658.3	0	3	0	
51	ZONE 51 BEDROOM	150	7,028	2.1	4,109	4,670	0.4	385.4	2	24	0	
52	ZONE 52 BATH	90	3,338	1.0	1,901	1,901	0.2	568.0	0	0	150	
53	ZONE 53 BATH	60	395	0.1	358	358	0.0	2009.7	0	0	150	
54	ZONE 54 MECH	17	325	0.1	123	123	0.0	1658.3	0	3	0	
55	ZONE 55 LIVING ROOM	420	16,399	4.8	6,905	8,308	0.7	606.7	5	63	0	
56	ZONE 56 BEDROOM	136	5,341	1.6	2,551	3,112	0.3	524.3	2	23	0	
57	ZONE 57 BATH	76	500	0.1	454	454	0.0	2009.7	0	0	150	
58	ZONE 58 MECH	50	873	0.3	362	362	0.0	1658.3	0	8	150	
	Total Loads =	15217.3	492,984	144.4	251,943	287,006	23.9	636.3	125	2017	3360	

Energy Compliance Calculations *(Not Equipment Schedule)*
Equipment is selected based on next available size
Load calculations based on ASHRAE CLTD/CLF - Cooling Load Temperature Difference/Cooling Load Factor Methods

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PRELIMINARY
NOT FOR CONSTRUCTION
5/1/2025

Project No. 25-077

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AFTON, WY, 83110
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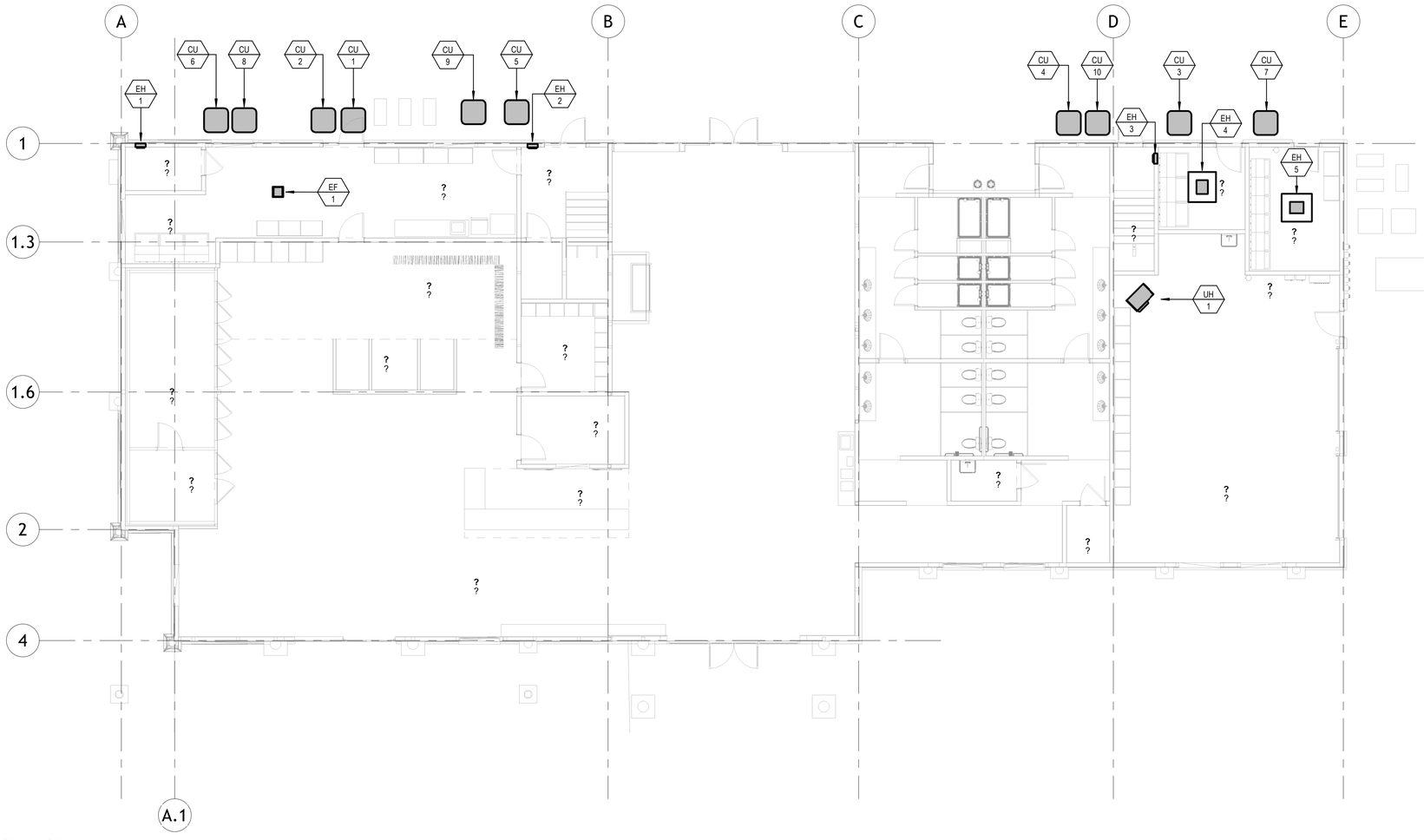
Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

MECHANICAL
ZONE PLAN

M-003



1 FIRST FLOOR HVAC PLAN
1/8" = 1'-0"

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PRELIMINARY

NOT FOR CONSTRUCTION
5/1/2025

Project No. 25-077

STRUCTURAL

KORE 4 STRUCTURAL ENGINEERING
2295 N YELLOWSTONE HWY, UNIT 6
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PHONE: (208) 840-5673

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BOISE, ID 83709
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PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

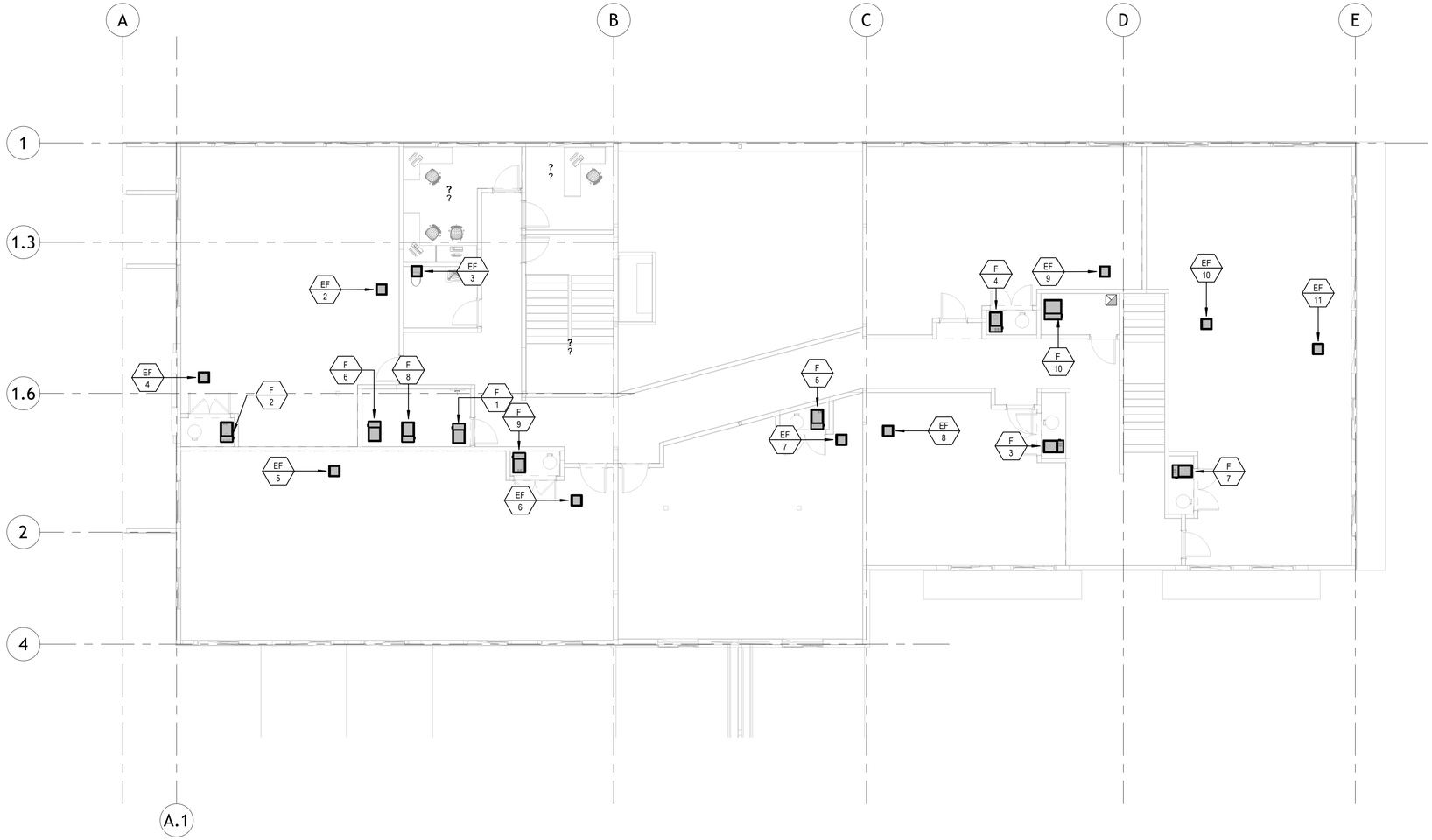
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HVAC FIRST FLOOR PLAN

M-100

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1 SECOND FLOOR HVAC PLAN
1/8" = 1'-0"

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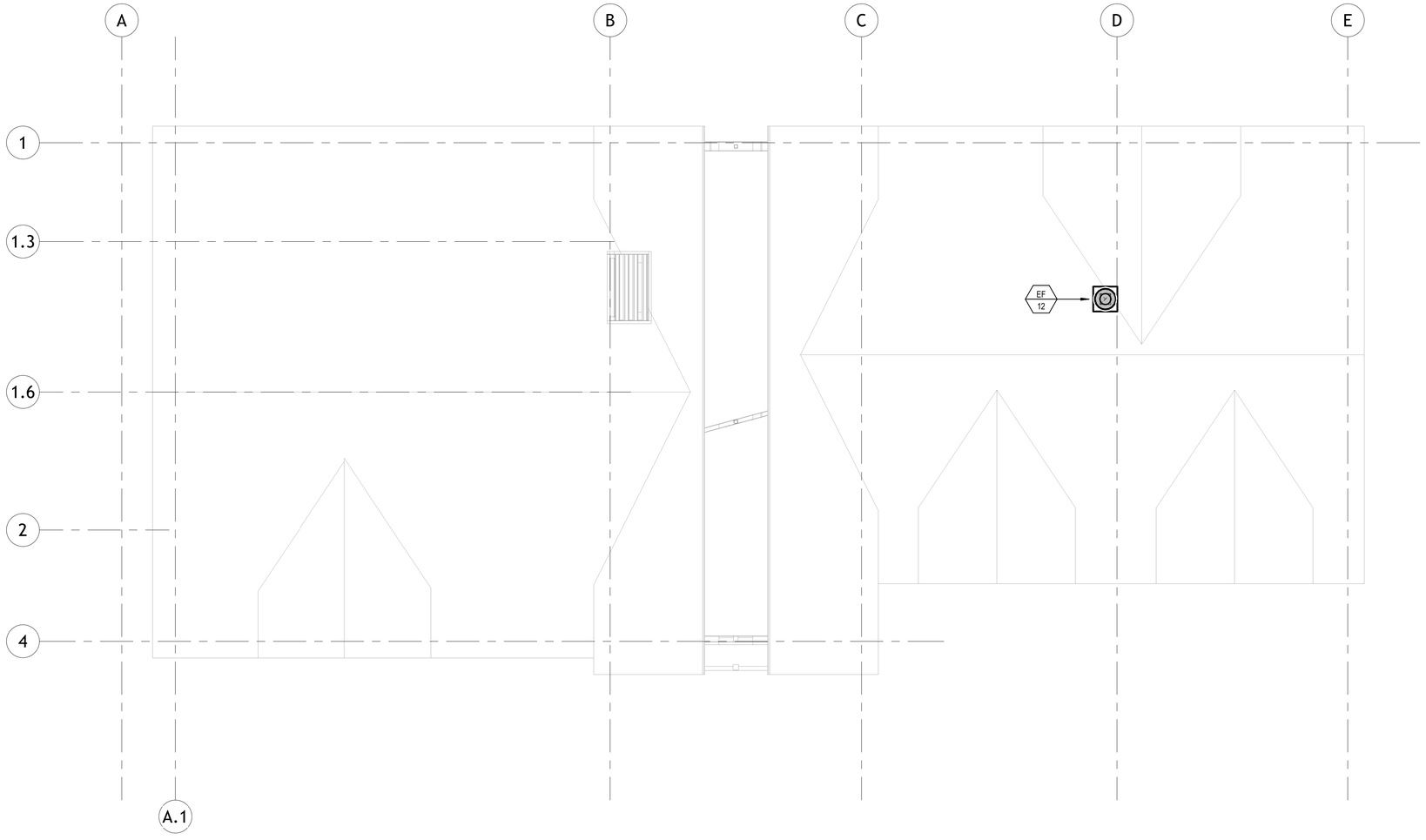
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HVAC SECOND FLOOR PLAN

M-101

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1 HVAC ROOF PLAN
1/8" = 1'-0"

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HVAC ROOF PLAN

M-102

NOTES:
1. FOR TAKE-OFFS LARGER THAN 12" DIAMETER, USE A FACTORY MANUFACTURED DAMPER. LOUVERS & DAMPERS, INC. MODEL CD-600 WITH A LOCKING HAND QUADRANT OR EQUAL.
2. ROD CONTINUOUS ON 2" W.G. CLASS AND ON ALL DAMPERS OVER 12" DIAMETER.
3. BLADE 22 GAGE MIN., BUT NOT LESS THAN TWO GAGES MORE THAN THE DUCT GAGE.
4. PROVIDE REMOTE CEILING OPERATOR WHERE DAMPER IS INACCESSIBLE.
5. FOR DUCTS OVER 12" HIGH USE MULTIPLE BLADE DAMPERS (SEE FIG. C).
6. ALTERNATE MANUFACTURERS INCLUDE: AMERICAN WARMING, SAFE-AIR/DOWCO, J&J, LOUVERS & DAMPERS, RUSKIN, NAILOR, ARROW UNITED, POTTORFF, & CESCO.
7. PROVIDE STAND-OFF FOR DAMPER ARMS LOCATED W/EXTERNAL INSULATION.

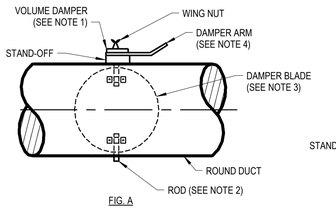


FIG. A

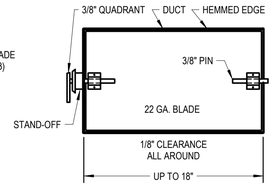


FIG. B

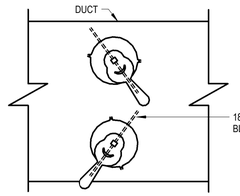


FIG. C
ELEVATION, TWO
BLADE ARRANGEMENT

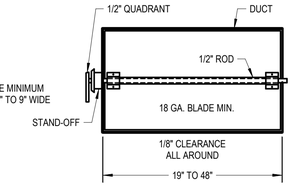
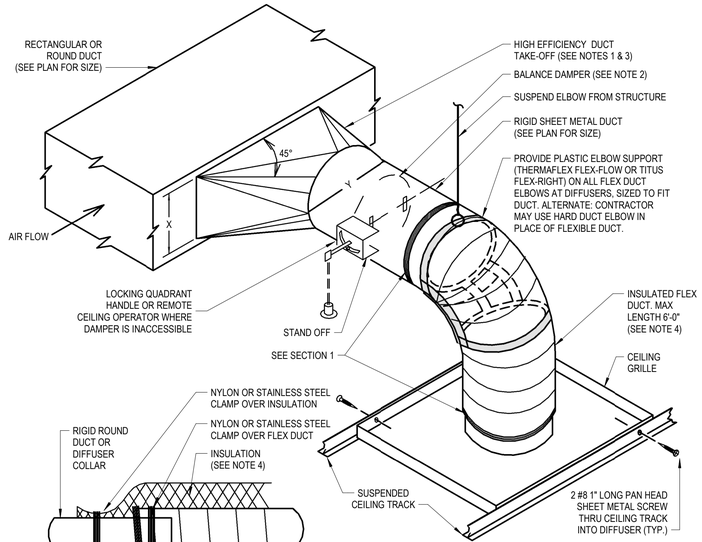


FIG. D

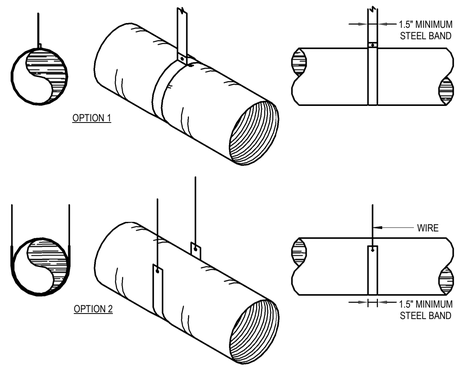
1 BALANCE DAMPER DETAIL
NTS



NOTES:
1. TAKE-OFFS SHOULD NOT BE INSTALLED CLOSER THAN TWO WIDTHS TO ELBOWS OR INTERSECTIONS.
2. SEE BALANCE DAMPER DETAIL.
3. X NOT LESS THAN Y.
4. FLEXIBLE DUCTWORK SHALL BE FLEXMASTER 8-M, THERMAFLEX M-KE OR AN APPROVED EQUAL. FLEXIBLE DUCTWORK SHALL BE INSULATED WITH A MINIMUM R VALUE OF 5.
5. RUN-OUT SHALL BE SAME SIZE AS COLLAR.
6. REFERENCE HVAC PLANS FOR REQUIRED BALANCE DAMPER LOCATIONS.

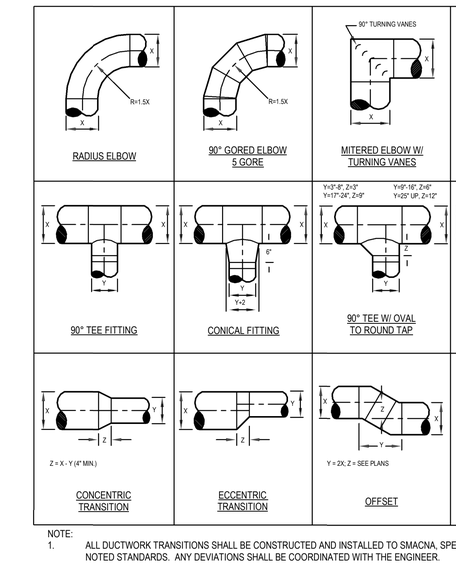
SECTION 1

2 DUCT TAKEOFF DETAIL - HIGH EFFICIENT
NTS



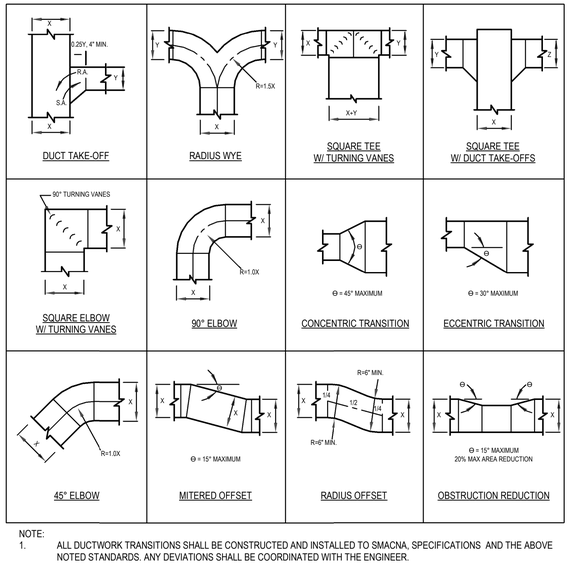
NOTES:
1. SUPPORT SYSTEM SHALL NOT DAMAGE, CRIMP, OR INHIBIT DUCT FREE AREA IN ANY WAY.
2. FLEXIBLE DUCT MUST NOT EXCEED 6'-0" FROM CONNECTION TO TERMINATION.
3. MAXIMUM LENGTH BETWEEN SUPPORTS MUST NOT EXCEED 3'-0" ON CENTER.
4. ATTACH BANDS OR WIRES TO SUPPORT STRUCTURE ABOVE.
5. FLEXIBLE DUCTWORK SHALL BE FLEXMASTER 1-M OR APPROVED EQUAL.
6. FLEXIBLE DUCTWORK SHALL BE INSULATED WITH A MINIMUM R-VALUE OF 6.0.
7. FLEXIBLE DUCTWORK IS FOR INDOOR USE ONLY. DO NOT INSTALL OR STORE PRODUCT WHERE EXPOSURE TO DIRECT SUNLIGHT CAN OCCUR. PROLONGED EXPOSURE TO SUNLIGHT MAY CAUSE DETERIORATION OF VAPOR BARRIER.
8. TERMINAL DEVICES SHALL BE SUPPORTED INDEPENDENTLY OF THE FLEXIBLE DUCTWORK.
9. REPAIR TURN OR DAMAGED VAPOR BARRIER/JACKET WITH DUCT TAPE LISTED AND LABELED TO UL 181B. IF INTERNAL CORE IS PENETRATED, REPLACE FLEXIBLE DUCTWORK.
10. AVOID BENDING DUCT ACROSS SHARP CORNERS OR INCIDENTAL CONTACT WITH METAL FIXTURES, PIPES, OR CONDUITS.
11. FLEXIBLE DUCTWORK SHALL NOT BE INSTALLED WITHIN 4 INCHES OF HOT EQUIPMENT (FURNACES, BOILERS, STEAM PIPES, ETC.) THAT IS ABOVE 250°F.
12. FLEXIBLE DUCTWORK SHALL NOT BE INSTALLED IN CONCRETE, BURIED BELOW GRADE, OR IN CONTACT WITH THE GROUND.
13. DO NOT INSTALL FLEXIBLE DUCTWORK IN EXPOSED CEILING AREA.

3 FLEXIBLE DUCT SUPPORT DETAIL
NTS



NOTE:
1. ALL DUCTWORK TRANSITIONS SHALL BE CONSTRUCTED AND INSTALLED TO SMACNA, SPECIFICATIONS, AND THE ABOVE NOTED STANDARDS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER.

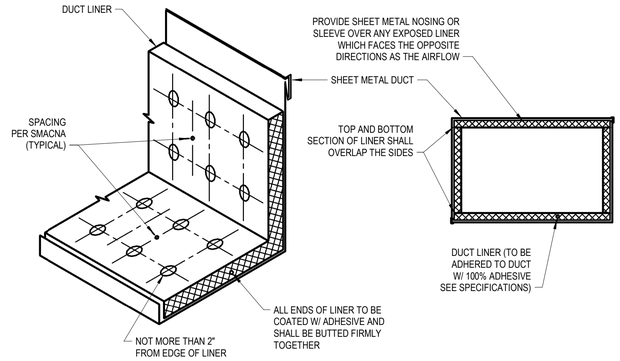
4 ROUND DUCT FITTING DETAILS
NTS



NOTE:
1. ALL DUCTWORK TRANSITIONS SHALL BE CONSTRUCTED AND INSTALLED TO SMACNA, SPECIFICATIONS AND THE ABOVE NOTED STANDARDS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER.

5 RECTANGULAR DUCT FITTING DETAILS
NTS

METAL FASTENERS:
OMARK INSUL-PINS, DURO DYNE FASTENERS OR GRIP NAILS
INSTALLED BY GRIP NAIL AIR HAMMER OR AUTO FASTENER EQUIP.



6 DUCT LINER DETAIL
NTS

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HVAC DETAILS

M-200

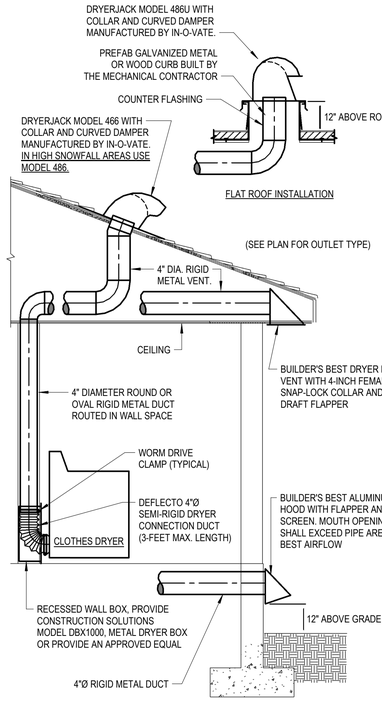
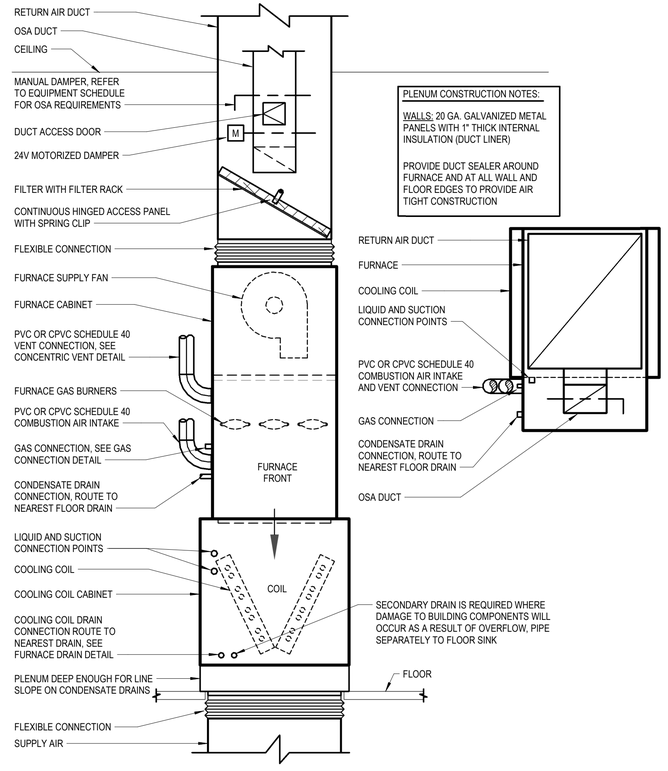


TABLE 504.6.4.1
DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH

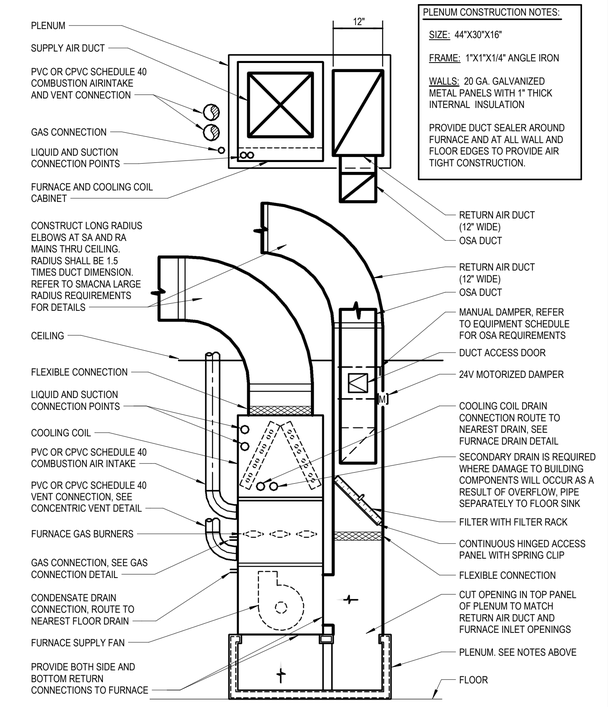
DRYER EXHAUST DUCT FITTING TYPE	EQUIVALENT LENGTH
4" RADIUS MITERED 45-DEGREE ELBOW	2 FEET 6 INCHES
4" RADIUS MITERED 90-DEGREE ELBOW	5 FEET
6" RADIUS SMOOTH 45-DEGREE ELBOW	1 FEET
6" RADIUS SMOOTH 90-DEGREE ELBOW	1 FEET 9 INCHES
8" RADIUS SMOOTH 45-DEGREE ELBOW	1 FEET
8" RADIUS SMOOTH 90-DEGREE ELBOW	1 FEET 7 INCHES
10" RADIUS SMOOTH 45-DEGREE ELBOW	9 INCHES
10" RADIUS SMOOTH 90-DEGREE ELBOW	1 FEET 6 INCHES

NOTES:
1. EACH VERTICAL RISER SHALL BE PROVIDED WITH A MEANS FOR CLEANOUT.
2. THE SPECIFIED MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. WHERE FITTINGS ARE USED, THE MAXIMUM LENGTH OF EXHAUST DUCT SHALL BE REDUCED IN ACCORDANCE WITH TABLE 504.6.4.1.
3. EXHAUST DUCTS SHALL HAVE A SMOOTH INTERIOR FINISH AND SHALL BE CONSTRUCTED OF METAL A MINIMUM 0.016 INCH (0.4 MM) THICK. THE EXHAUST DUCT SIZE SHALL BE 4-INCHES IN DIAMETER.
4. DRYER EXHAUST DUCTS FOR CLOTHES DRYERS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING AND SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. DUCTS SHALL NOT BE CONNECTED OR INSTALLED WITH SHEET METAL SCREWS OR OTHER FASTENERS THAT WILL OBSTRUCT THE EXHAUST FLOW. CLOTHES DRYER EXHAUST DUCTS SHALL NOT BE CONNECTED TO A VENT CONNECTOR, VENT OR CHIMNEY. CLOTHES DRYER EXHAUST DUCTS SHALL NOT EXTEND INTO OR THROUGH DUCTS OR PLENUMS.
5. INSTALL DRYER VENT TERMINATION PER THE MANUFACTURER'S RECOMMENDATIONS. THE EXHAUST DUCT LENGTH CAN EXCEED THE 35-FEET SPECIFIED LENGTH IF APPROVED BY THE DRYER MANUFACTURER. WHERE THE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FEET, THE EQUIVALENT LENGTH OF THE EXHAUST DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL OR TAG.
6. IF INSTALLED DRYER DUCT IS OVER MAXIMUM 35 FEET EQUIVALENT LENGTH WITHOUT APPROVAL FROM DRYER MANUFACTURER CONTRACTOR MUST INSTALL A BOOSTER FAN IN THE DRYER DUCT. BOOSTER FAN TO BE PROVIDED WITH SECONDARD LINT TRAP PRIOR TO BOOSTER FAN.
7. DRYER DUCTS LOCATED IN UNHEATED SPACES, SUCH AS ATTICS, CRAWL SPACES, UNHEATED BASEMENTS, AND UNHEATED GARAGES OR IN AREAS ABOVE UNHEATED OR EXTERIOR CONDITIONS, SHALL BE INSULATED. SEE SPECIFICATIONS FOR INSULATION R-VALUE REQUIREMENTS.

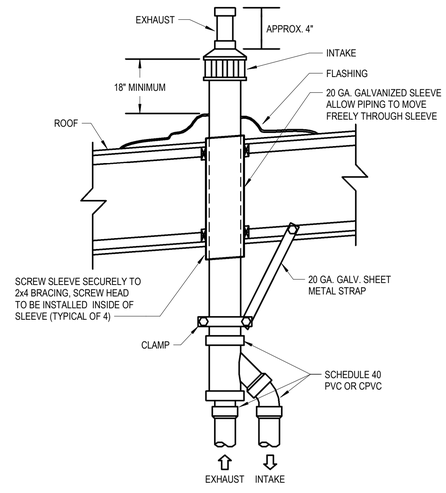
1 CLOTHES DRYER INSTALLATION DETAIL
NTS



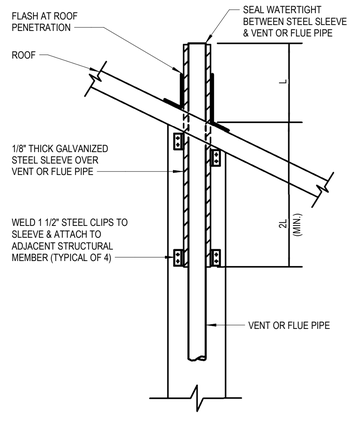
2 FURNACE INSTALLATION DETAIL (90% - DOWNFLOW)
NTS



3 FURNACE INSTALLATION DETAIL (90%)
NTS



4 GAS VENT DETAIL (CONCENTRIC - 90%)
NTS



NOTE:
1. LOCATE ALL VENT AND FLUE PIPES AS CLOSE TO THE ROOF RIDGE LINE AS POSSIBLE.

5 VENT & FLUE SNOW PROTECTION SLEEVE DETAIL
NTS

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HVAC DETAILS

M-201

SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE (95%+ GAS)

SYMBOL	AREA SERVED	NOMINAL TONS	SUPPLY FAN				COOLING CAPACITY AT 95° OSA, 80° EDB, 62° EWB		GAS HEATING CAPACITY		ELECTRICAL FOR CONDENSING UNIT			OSA CFM	MIN. SEER	FURNACE OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	HP	V/Ø	TOTAL MBH	SENSIBLE MBH	INPUT MBH	OUTPUT MBH	MCA	MOCP	V/Ø					
F-1 , CU-1	OFFICE	1.5	600	.50	1/2	115/1	16.5	14.7	40.0	36.6	10.9	15	208/1	—	14.0	225	CARRIER 59SC6A-040M14-10 FURNACE CARRIER 26SCA5-18 CONDENSING UNIT	1 , 2 , 3 , 4
F-2 , CU-2	APT 301	1.5	600	.50	1/2	115/1	16.5	14.7	40.0	36.6	10.9	15	208/1	—	14.0	225	CARRIER 59SC6A-040M14-10 FURNACE CARRIER 26SCA5-18 CONDENSING UNIT	1 , 2 , 3 , 4
F-3 , CU-3	APT 304	1.5	600	.50	1/2	115/1	16.5	14.7	40.0	36.6	10.9	15	208/1	—	14.0	225	CARRIER 59SC6A-040M14-10 FURNACE CARRIER 26SCA5-18 CONDENSING UNIT	1 , 2 , 3 , 4
F-4 , CU-4	APT 305	1.5	600	.50	1/2	115/1	16.5	14.7	40.0	36.6	10.9	15	208/1	—	14.0	225	CARRIER 59SC6A-040M14-10 FURNACE CARRIER 26SCA5-18 CONDENSING UNIT	1 , 2 , 3 , 4
F-5 , CU-5	APT 303	2.0	800	.50	1/2	115/1	20.7	18.2	40.0	36.6	13.6	20	208/1	—	14.0	225	CARRIER 59SC6A-040M14-10 FURNACE CARRIER 26SCA5-24 CONDENSING UNIT	1 , 2 , 3 , 4
F-6 , CU-6	RENTALS	2.5	1000	.50	1/2	115/1	27.4	25.6	60.0	54.5	16.5	25	208/1	—	14.0	250	CARRIER 59SC6A-060M14-12 FURNACE CARRIER 26SCA5-30 CONDENSING UNIT	1 , 2 , 3 , 4
F-7 , CU-7	APT 306	2.5	1000	.50	1/2	115/1	27.4	25.6	60.0	54.5	16.5	25	208/1	—	14.0	250	CARRIER 59SC6A-060M14-12 FURNACE CARRIER 26SCA5-30 CONDENSING UNIT	1 , 2 , 3 , 4
F-8 , CU-8	SALES	3.0	1200	.50	3/4	115/1	31.5	29.8	60.0	54.5	17.6	30	208/1	—	14.0	250	CARRIER 59SC6A-060M17-16 FURNACE CARRIER 26SCA5-36 CONDENSING UNIT	1 , 2 , 3 , 4
F-9 , CU-9	APT 302	3.0	1200	.50	3/4	115/1	31.5	29.8	60.0	54.5	17.6	30	208/1	—	14.0	250	CARRIER 59SC6A-060M17-16 FURNACE CARRIER 26SCA5-36 CONDENSING UNIT	1 , 2 , 3 , 4
F-10 , CU-10	LOBBY	5.0	1800	.50	1	115/1	52.3	49.1	120.0	110.0	31.1	50	208/1	—	14.0	295	CARRIER 59SC6A-120M24-22 FURNACE CARRIER 26SCA5-60 CONDENSING UNIT	1 , 2 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: BRYANT, TRANE, LENNOX, DAIKIN AND YORK.
2. PROVIDE UNIT WITH SEVEN-DAY PROGRAMMABLE AUTO-CHANGEOVER WITH 5 DEGREE DEADBAND, ADAPTIVE INTELLIGENT AUTOMATIC START CONTROL, 3 STAGE HEAT, 2 STAGE COOLING THERMOSTAT HONEYWELL VISIONPRO MODEL TH8321R100, THERMOSTAT SHALL BE POWERED BY A 24VAC WIRE CONNECTION.
3. PROVIDE UNIT WITH MATCHING MULTIPOISE COOLING COIL, FIELD INSTALLED HARD START FOR SINGLE PHASE UNITS, SHORT CYCLING DEVICE, CRANKCASE HEATER, EXPANSION VALVE, HIGH/LOW PRESSURE SWITCH, NEUTRALIZING KIT - 3/4" LINE SIZE, LOW AMBIENT CONTROLS (TO 0°F), CONDENSATE NEUTRALIZER KIT & CONCENTRIC VENT KIT. SET FAN MOTOR ON FURNACE TO MAINTAIN A CONSTANT SPEED. ELECTRICAL SHALL PROVIDE SEPARATE CIRCUIT AND DISCONNECT FOR CONDENSING UNIT
4. PROVIDE UNIT WITH MANUFACTURER'S LINE SET 0-50FT , SIZED BY MANUFACTURER, AND TAMPER PROOF PORT CAPS.
4. PROVIDE UNIT WITH MANUFACTURER'S LONG LINE SET AND ACCESSORIES 0-175FT , SIZED BY MANUFACTURER AND TAMPER PROOF PORT CAPS.

GAS-FIRED UNIT HEATER SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	FAN			ELECTRICAL		GAS HEATING		OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	RPM	HP	V/Ø	AMPS	INPUT (MBH)	OUTPUT (MBH)			
UH-1	SHOP	HORIZONTAL / SEPARATED COMBUSTION	629	1550	.03	115/1	2.4	45.0	37.3	71	REZNOR MODEL UDXC -45	1 , 2

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: HASTINGS, TRANE, MODINE, AND STERLING.
2. PROVIDE UNIT WITH MANUAL SUMMER/WINTER SWITCH, THERMOSTAT AND RELAY KIT, HORIZONTAL LOUVERS OR 65° DOWNTURN NOZZLE WITH HORIZONTAL LOUVERS OR 90° DOWNTURN NOZZLE WITH VERTICAL LOUVERS , AND 4-POINT SUSPENSION KIT.
3. PROVIDE UNIT WITH NEUTRALIZATION KIT, 3/4" LINE SIZE.

ELECTRIC HEATER SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	FAN			ELECTRICAL				MANUFACTURER AND MODEL	REMARKS
			CFM	RPM	HP	KW	STEPS	V/Ø	AMPS		
EH-1	FIRE RISER	SURFACE MOUNTED	245	1400	1/8	2	—	208/3	5.6	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-2	VESTIBULE	SURFACE MOUNTED	245	1400	1/8	2	—	208/3	5.6	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-3	CIRC	SURFACE MOUNTED	245	1400	1/8	2	—	208/3	5.6	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-4	FACILIT AREA	RECESSED CEILING MOUNTED	300	1400	1/8	2	–	208/3	9.6	QMARK CD-548	1 , 2 , 3
EH-5	LAUNDRY	RECESSED CEILING MOUNTED	300	1400	1/8	2	–	208/3	9.6	QMARK CD-548	1 , 2 , 3

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: BRASCH, QMARK, INDEECO, OUELLET, AND CHROMALOX.
2. MOUNT BOTTOM OF HEATER 24" ABOVE FINISH FLOOR.
3. PROVIDE UNIT WITH AN INTEGRAL THERMOSTAT. THERMOSTAT SHALL BE COVERED WITH A TAMPER-PROOF ACCESS COVER.
4. PROVIDE UNIT WITH A REMOTE WALL MOUNTED LINE-VOLTAGE THERMOSTAT.

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PRELIMINARY

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5/1/2025

Project No. 25-077

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

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HVAC SCHEDULES

M-300

EXHAUST FAN SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	BLOWER				ELECTRICAL		MAXIMUM SONES	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	MAXIMUM RPM	DRIVE	HP/W	V/Ø				
EF-1	LAUNDRY/STORAGE	CEILING CABINET	75	.375	900	DIRECT	36.2 W	115/1	1.5	15	COOK MODEL GC-146	1 , 2 , 3
EF-2	BATH 66	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-3	RR 305	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-4	BATH 63	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-5	BATH 59	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-6	BATH 56	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-7	BATH 58	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-8	BATH 36	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-9	BATH 39	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-10	BATH 46	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-11	BATH 45	CEILING CABINET	150	.1	684	DIRECT	12.9 W	120/1	0.3	12	PANASONIC MODEL FV-1115VK2	1 , 2 , 3
EF-12	RESTROOM & SHOWER ROOM	UPBLAST	1443	.506	1725	DIRECT	1/3 HP	115/1	16.7	35	COOK MODEL ACRU-D 120R17D	

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ACME, GREENHECK, PENNBARRY, TWIN CITY FAN COMPANY, SOLER & PALAU AND BARRY BLOWERBARRY BLOWER ARE INDUSTRIAL TYPE FANS
2. PROVIDE UNIT WITH MANUFACTURER'S STEEL ROOF JACK (SLOPED ROOF) EQUAL TO COOK MODEL RJ (W/ INTEGRAL BIRD SCREEN, FLASHING FLANGE AND BLACK EPOXY FINISH), MANUFACTURER'S WALL CAP EQUAL TO COOK MODEL WCG (W/ INTEGRAL BIRDSCREEN), BACKDRAFT DAMPER, OUTLET FLEX DUCT CONNECTION, STANDARD PLUG DISCONNECT, PRE-WIRED FAN SPEED CONTROLLER, THERMAL OVERLOAD PROTECTION, HANGING VIBRATION ISOLATORS, AND WHITE ALUMINUM GRILLE.
3. PROVIDE UNIT WITH MANUFACTURER'S ROOF CURB W/ DAMPER TRAY AND BACKDRAFT DAMPER, THERMAL OVERLOAD PROTECTION (120 VOLT ONLY), PRE-WIRED NEMA 3R ELECTRICAL DISCONNECT SWITCH, AND INTEGRAL BIRD SCREEN.
4. PROVIDE UNIT WITH MANUFACTURER'S ROOF CURB (VENTED ROOF CURB IF EXHAUST DUCT IS SHAFTED RATHER THAN WRAPPED), THERMAL OVERLOAD PROTECTION (120 VOLT ONLY), PRE-WIRED NEMA 3R ELECTRICAL DISCONNECT SWITCH, HINGED SUB BASE, GREASE TERMINATOR, AND U.L. 762 RATING.
5. CONTROL FAN WITH SEPARATE WALL SWITCH, INTERLOCK WITH LIGHT SWITCH, HEAT RISE T-STAT, PUSH BUTTON DIGITAL COUNTDOWN TIMER SWITCH WITH 5-15-30 MINUTE AND 1-2-4 HOUR PRESETS, 7-DAY PROGRAMMABLE TIMER SWITCH, LIGHTING CONTROL PANEL, 7-DAY PROGRAMMABLE T-STAT (BOP-#) AUXILIARY CONTACT FOR FAN OPERATION DURING OCCUPIED HOURS
6. CONTROL FAN WITH SEPARATE WALL SWITCH.

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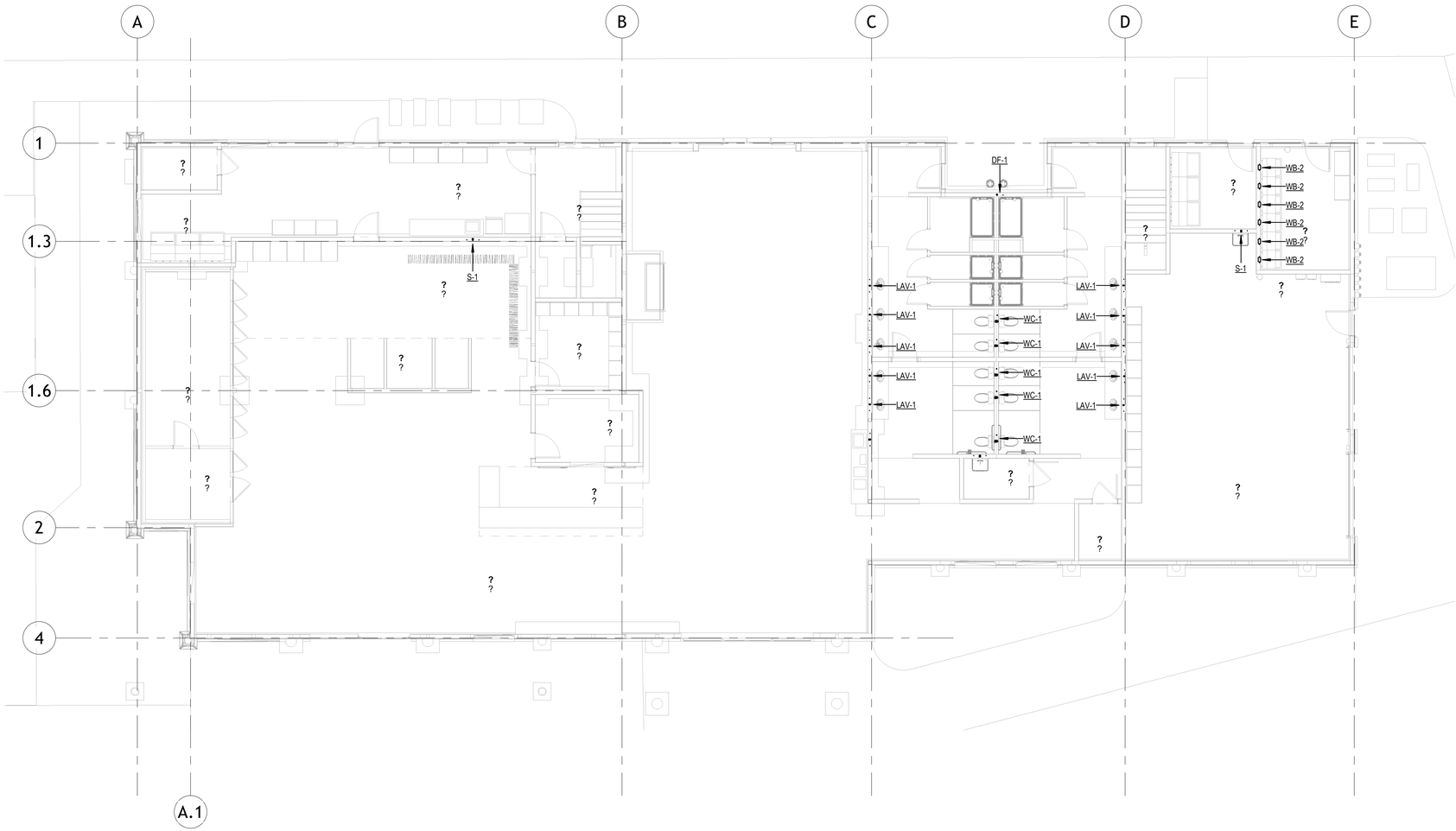
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HVAC SCHEDULES

M-301

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1 FOUNDATION PLAN
1/8" = 1'-0"

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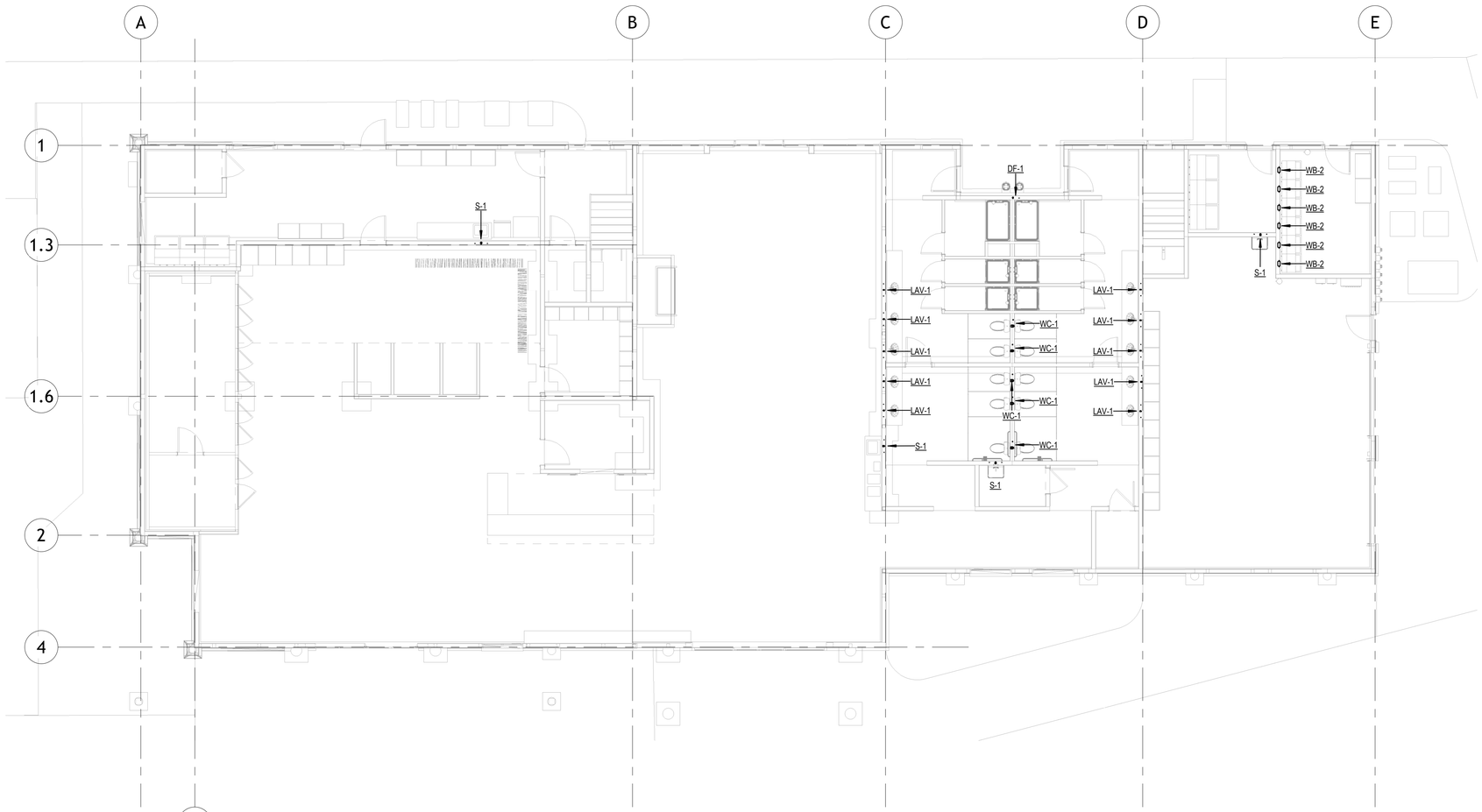
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PLUMBING FOUNDATION PLAN

P-100

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1 FIRST FLOOR PLUMBING PLAN
1/8" = 1'-0"

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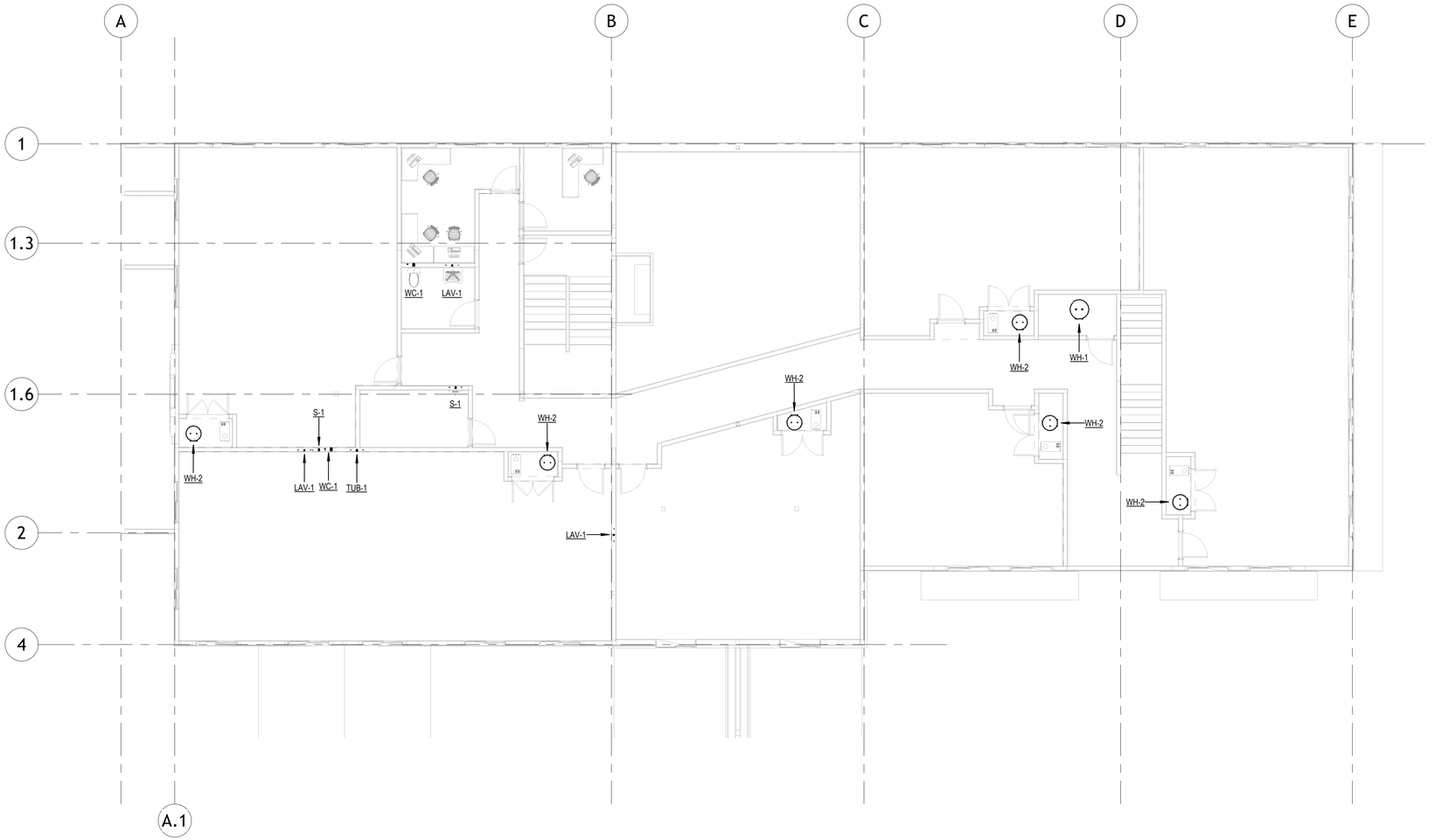
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PLUMBING FIRST FLOOR PLAN

P-101

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1 SECOND FLOOR PLUMBING PLAN
1/8" = 1'-0"

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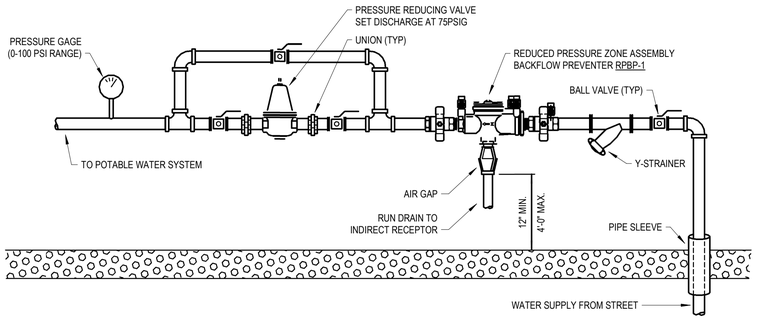
PLUMBING SECOND FLOOR PLAN

P-102

PRESSURE REDUCING STATION REQUIRED WHEN CITY
PRESSURE IS 80 PSI OR GREATER
WHEN USED REMOVE METER IN CALCULATIONS

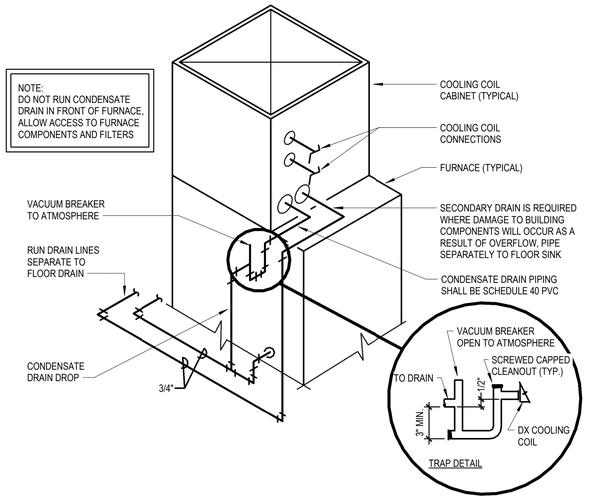
NOTE:

1. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL BACKFLOW DEVICES TO BE INSPECTED BY A CERTIFIED BACKFLOW TECHNICIAN BEFORE THE USE OF THE BUILDING POTABLE WATER SYSTEM.
2. THIS SYSTEM IS FOR INDOOR INSTALLATIONS ONLY. THIS VALVE SHALL BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING. DO NOT INSTALL IN A CONCEALED LOCATION.

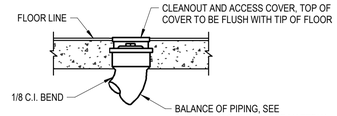


1 BUILDING WATER SERVICE DETAIL
NTS

NOTE:
DO NOT RUN CONDENSATE DRAIN IN FRONT OF FURNACE, ALLOW ACCESS TO FURNACE COMPONENTS AND FILTERS



2 CONDENSATE DRAIN DETAIL - 90% FURNACE
NTS



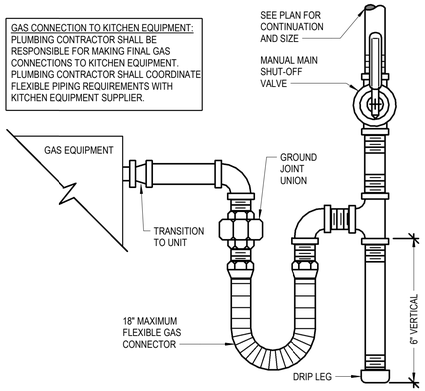
NOTE:
1. CLEANOUTS SHALL BE PROVIDED AT EACH HORIZONTAL DRAINAGE PIPE AT ITS UPPER TERMINAL, AND EACH RUN OF PIPING WHICH IS MORE THAN 100 FEET, AND SHALL BE PROVIDED FOR EACH 100 FEET DEVELOPED LENGTH, OR FRACTION THEREOF OF SUCH PIPING. AN ADDITIONAL CLEANOUT SHALL BE PROVIDED FOR EACH AGGREGATE HORIZONTAL CHANGE OF DIRECTION EXCEEDING ONE HUNDRED THIRTY-FIVE DEGREES, PER APPLICABLE PLUMBING CODE. THIS SHALL BE PROVIDED REGARDLESS OF WHAT IS SHOWN ON THE DRAWINGS.

3 FLOOR CLEANOUT (FCO) DETAIL
NTS

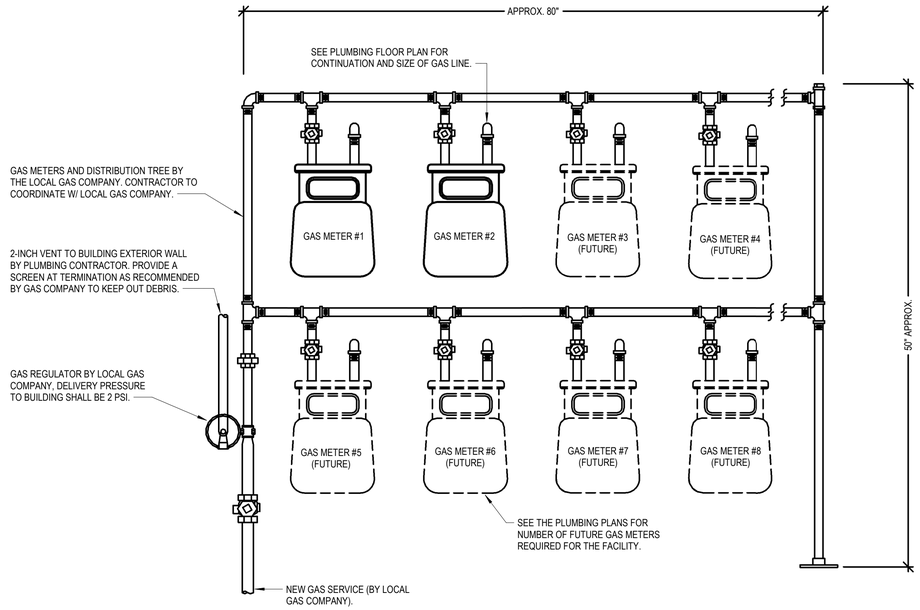
MINIMUM CLEARANCE DISTANCE TO GAS METER OR REGULATOR VENT:

1. 10-FEET TO WINDOW MOUNTED WALL FAN.
2. 10-FEET TO WINDOW OR WALL MOUNTED AIR CONDITIONER.
3. 10-FEET TO MECHANICAL SYSTEM INTAKE.
4. 3-FEET TO HEATING APPLIANCE AIR INTAKE OR EXHAUST OPENING.
5. 3-FEET TO CLOTHES DRYER INTAKE OR EXHAUST VENT OPENING.
6. 3-FEET TO BATHROOM FAN VENT OPENING.
7. 3-FEET CLEAR IN FRONT OF METER.
8. 3-FEET TO ELECTRICAL GENERATOR OR ELECTRICAL TRANSFORMER.
9. 3-FEET TO ELECTRICAL METERS, ELECTRICAL PANELS AND OTHER SOURCES OF IGNITION.
10. 3-FEET TO AIR CONDITIONER OR HEAT PUMP (PAD MOUNTED).
11. 3-FEET TO OPEN FLAME BARBEQUE OR OTHER OPEN FLAME DEVICE.
12. 2-FEET TO TELEPHONE, CABLE OR OTHER COMMUNICATIONS CONNECTION BOX OR TERMINAL.
13. 2-FEET TO WATER SPIGOT (HOSE BIBB).
14. 2-FEET ON EITHER SIDE OF METER TO LANDSCAPE FEATURES LIKE SHRUBS OR FENCES.
15. 12-INCHES TO ELECTRICAL GROUND ROD.
16. 12-INCHES TO ANY OUTSIDE BUILDING CORNER.

GAS CONNECTION TO KITCHEN EQUIPMENT:
PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FINAL GAS CONNECTIONS TO KITCHEN EQUIPMENT. PLUMBING CONTRACTOR SHALL COORDINATE FLEXIBLE PIPING REQUIREMENTS WITH KITCHEN EQUIPMENT SUPPLIER.



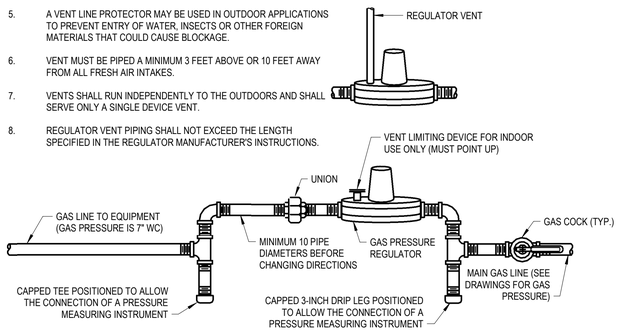
4 GAS EQUIPMENT CONNECTION DETAIL
NTS



5 GAS METER BANK PIPING DETAIL
NTS

VENTING NOTES:

1. VENT REGULATORS PER MANUFACTURER'S AND LOCAL GAS COMPANY'S REQUIREMENTS.
2. DO NOT REDUCE THE VENT PIPE SIZE FROM THE REGULATOR.
3. TO LIMIT THE CONSEQUENCES OF RAIN, SNOW OR DEBRIS GETTING INTO THE VENT, ALWAYS TURN THE OUTLET OF THE VENT DOWN AND ABOVE POTENTIAL WATER OR SNOW LINES.
4. PROVIDE A BUG SCREEN ON THE VENT OUTLET TO DETER INSECTS FROM NESTING IN THE LINE. NEVER PAINT OVER THE BUG SCREEN.
5. A VENT LINE PROTECTOR MAY BE USED IN OUTDOOR APPLICATIONS TO PREVENT ENTRY OF WATER, INSECTS OR OTHER FOREIGN MATERIALS THAT COULD CAUSE BLOCKAGE.
6. VENT MUST BE PIPED A MINIMUM 3 FEET ABOVE OR 10 FEET AWAY FROM ALL FRESH AIR INTAKES.
7. VENTS SHALL RUN INDEPENDENTLY TO THE OUTDOORS AND SHALL SERVE ONLY A SINGLE DEVICE VENT.
8. REGULATOR VENT PIPING SHALL NOT EXCEED THE LENGTH SPECIFIED IN THE REGULATOR MANUFACTURER'S INSTRUCTIONS.



6 GAS PRESSURE REGULATOR DETAIL
NTS

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PRELIMINARY
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5/1/2025

Project No. 25-077

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

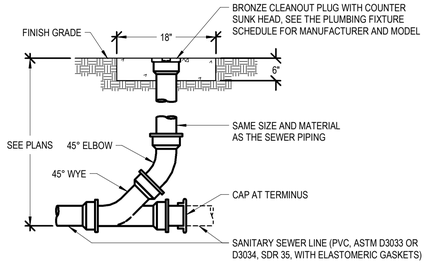
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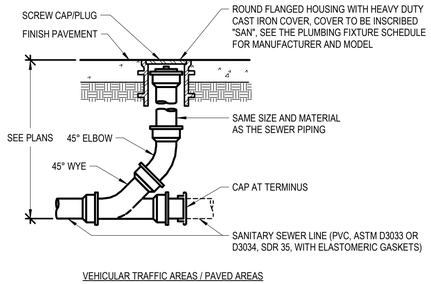
PLUMBING DETAILS

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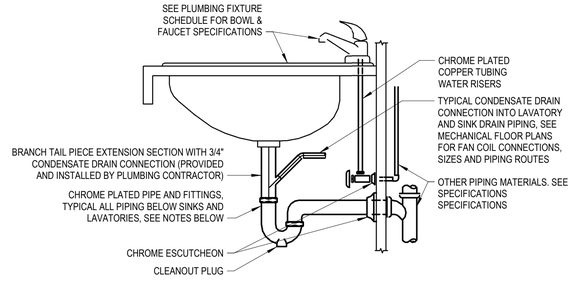


PEDESTRIAN TRAFFIC AREAS / NON-PAVED AREAS



VEHICULAR TRAFFIC AREAS / PAVED AREAS

1 GRADE CLEANOUT (GCO) DETAIL
NTS



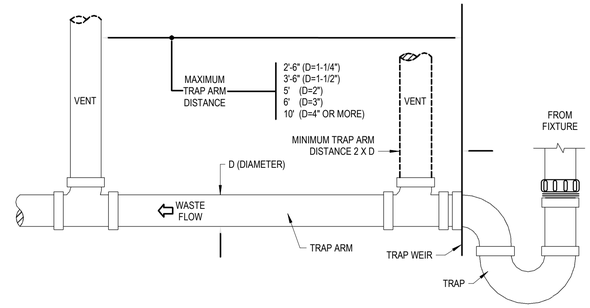
NOTES:

1. INTERIOR EXPOSED PIPE, VALVES AND FIXTURE TRIM, INCLUDING TRIM BEHIND CASEWORK DOORS, SHALL BE CHROME PLATED.
2. ALL PIPING PENETRATIONS THROUGH FINISHED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS.
3. ALL SINK AND LAVATORY TRAPS SHALL BE PROVIDED WITH A CLEANOUT PLUG IN THE BOTTOM OF THE TRAP.
4. ALL PLUMBING FIXTURES SHALL BE CAULKED AND SEALED TO SURROUNDING SURFACES.
5. PLUMBING CONTRACTOR SHALL VERIFY THE LOCATION OF ALL LAVATORIES AND SINKS THAT NEED TO BE INSTALLED WITH THE BRANCH TAIL PIECE SECTION WITH 3/4" DRAIN CONNECTION. THE PLUMBING CONTRACTOR WILL BE RESPONSIBLE TO VERIFY THE PLUMBING ROUGH-IN DIMENSIONS AND SHALL TAKE INTO ACCOUNT THE TAIL PIECE EXTENSION DIMENSIONS.

2 SINK/LAVATORY TAILPIECE & TRAP DETAIL (W/ CONDENSATE)
NTS

NOTES:

1. MAINTAIN ONE-FOURTH (1/4) INCH PER FOOT SLOPE.
2. THE DEVELOPED LENGTH BETWEEN THE TRAP OF A WATER CLOSET OR SIMILAR FIXTURE (MEASURED FROM THE TOP OF THE CLOSET FLANGE TO THE INNER EDGE OF THE VENT) AND IT'S VENT SHALL NOT EXCEED SIX (6) FEET.
3. ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL AND STATE CODES.



3 TRAP ARM DETAIL
NTS

FLUSH VALVE TRAP PRIMER NOTES:

1. THE FLUSH VALVE PRIMER IS DESIGNED TO PRIME ONE FLOOR DRAIN TRAP AT A DISTANCE NOT TO EXCEED 20 FEET FROM POINT OF INSTALLATION.
2. THE FLUSH VALVE PRIMER SHALL BE INSTALLED WITH A VACUUM BREAKER.
3. FLUSH VALVE PRIMER IS INTENDED FOR USE WITH WATER CLOSETS CONSUMING 3.5 TO 1.0 GAL/FLUSH.
4. TRAP PRIMER SHALL BE PRECISION PLUMBING PRODUCTS MODEL FVP-1VB WITH VACUUM BREAKER. APPROVED ALTERNATES: MIFAB, SIOUX CHIEF, AND ZURN.

PRESSSURE ACTIVATED TRAP PRIMER NOTES:

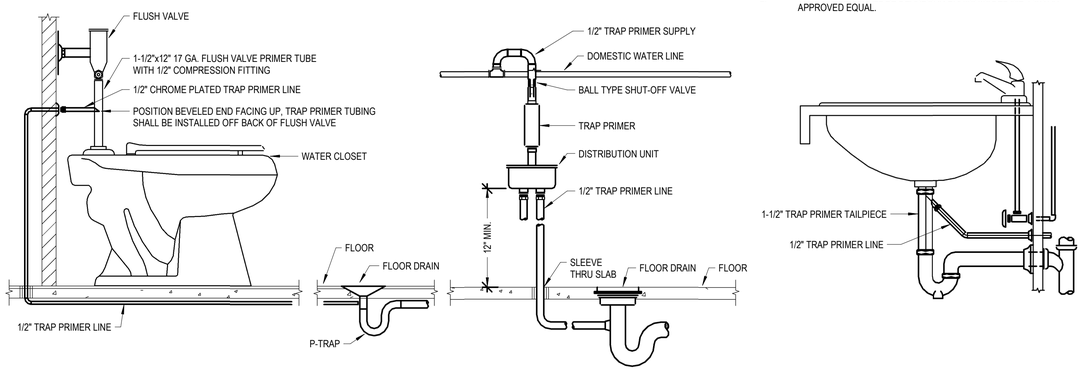
1. THE PRIMING VALVE MUST BE INSTALLED ON A FRESH COLD WATER LINE OF 1/2" TO 1-1/2" DIAMETER.
2. DISTRIBUTION UNIT MUST BE INSTALLED LEVEL WITH AN ACCESS DOOR FOR PERIODIC INSPECTION.
3. DO NOT SUBJECT TRAP PRIMER VALVE TO ROUGH-IN PRESSURE TEST.
4. DISTANCE FROM DISTRIBUTION UNIT TO FLOOR MUST BE 12" FOR EVERY 20' HORIZONTALLY.
5. TRAP PRIMER SHALL BE PRECISION PLUMBING PRODUCTS MODEL CPO-500 WITH DU DISTRIBUTION UNIT IF REQUIRED. APPROVED ALTERNATES: MIFAB, SIOUX CHIEF, AND ZURN.

TAILPIECE TRAP PRIMER NOTES:

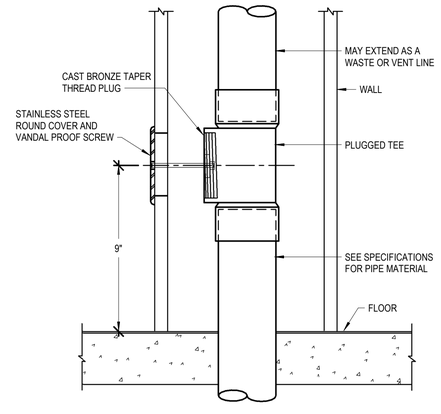
1. THE TAILPIECE PRIMER IS DESIGNED TO PRIME ONE FLOOR DRAIN TRAP AT A DISTANCE NOT TO EXCEED 20 FEET FROM POINT OF INSTALLATION.
2. TRAP PRIMER SHALL BE DEARBORN BRASS MODEL 832-1 OR AN APPROVED EQUAL.

ELECTRIC TRAP PRIMER NOTES:

1. THE ELECTRONIC TRAP PRIMER IS DESIGNED TO PRIME FOUR FLOOR DRAIN TRAPS.
2. UNIT MUST BE INSTALLED PLUMB AND MUST BE INSTALLED WITH ACCESS.
3. THE PRIMING ASSEMBLY MUST BE MOUNTED ABOVE THE FINISHED FLOOR. THE PRIMING VALVE MAKEUP LINE TO FLOOR DRAIN SHALL BE A MINIMUM OF 12" OFF THE FINISHED FLOOR BEFORE A 90° ELBOW CAN BE INSTALLED.
4. PROVIDE A 3/4" CW LINE TO THE INLET BALL VALVE.
5. CONNECT APPROPRIATELY SIZED (3/8" OR 1/2" ID) COPPER SUPPLY LINES TO THE MANIFOLD.
6. ALL WIRING MUST BE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODES.
7. TRAP PRIMER SHALL BE PRECISION PLUMBING PRODUCTS MODEL PTS-4 OR AN APPROVED EQUAL.



4 TRAP PRIMER CONNECTION DETAIL
NTS



5 WALL CLEANOUT (WCO) DETAIL
NTS

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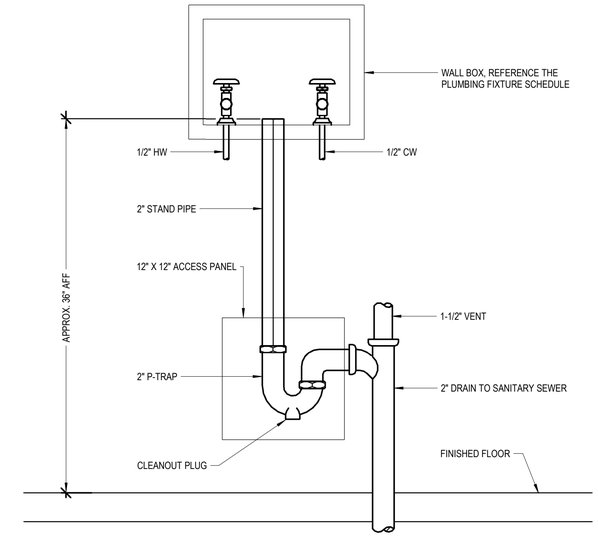
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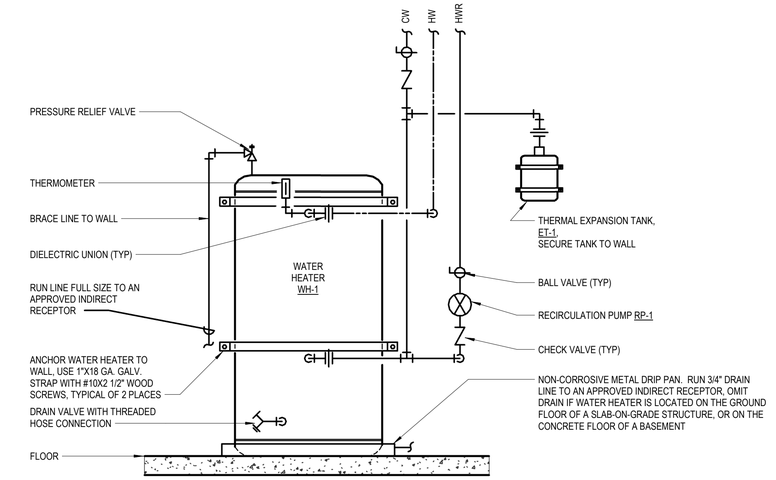
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PLUMBING DETAILS

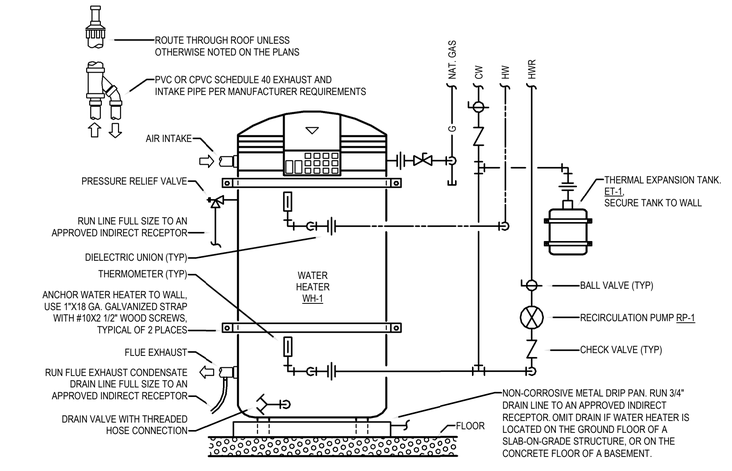
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1 WASHING MACHINE HOOK-UP DETAIL
NTS



2 ELECTRIC WATER HEATER DETAIL
NTS



3 WATER HEATER DETAIL (GAS - HIGH EFFICIENT)
NTS

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PLUMBING DETAILS

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PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZE					MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS
		WASTE	VENT	TRAP	CW	HW	
BP-1	BACKFLOW PREVENTER (USED WITH COFFEE MAKERS AND BEVERAGE DISPENSERS)	--	--	--	SEE PLANS	--	WATTS MODEL SD3 LEAD FREE, ASSE 1022 COMPLIANT, VENTED DUAL CHECK VALVE ASSEMBLY WITH BALL CHECK VALVE, STAINLESS STEEL BODY. - 1/4" THRU 3/8".
CP-1	CONDENSATE PUMP (5 TONS OR LESS - SINGLE UNIT) (ABOVE CEILING APPLICATION)	1/2 TUBE	--	--	--	--	LITTLE GIANT MODEL EC-1-DV, 2.5 GPH @ 1' HEAD, 3 FT. SUCTION LIFT, SELF PRIMING AND FLOAT CONTRCL, 0.18 AMPS, 115/1, 60 HZ.
D-1	DISPOSER	2	1 1/2	1 1/2	--	--	INSINK ERATOR MODEL BADGER 1: 1/3 HORSEPOWER, 120 VOLTS, 5.6 AMPS, CONTROLLED BY WALL SWITCH. PROVIDE WITH PRE-WIRED POWER CORD.
DCBP-1	DOUBLE CHECK BACKFLOW PREVENTER	--	--	--	SEE PLANS	--	WATTS SERIES LF007 LEAD FREE, DOUBLE CHECK VALVE ASSEMBLY WITH REPLACEABLE SEATS AND SEAT DISCS, CAST BRONZE BODY CONSTRUCTION - 1/2" THRU 2". FOR SIZES 2-1/2" THRU 10" - PROVIDE WATTS SERIES 757 STAINLESS STEEL DOUBLE CHECK VALVE ASSEMBLY. PROVIDE WITH STRAINER.
DF-1	DRINKING FOUNTAIN WITH BOTTLE FILLING STATION (INTERIOR DUAL BUBBLERS) (ELECTRIC WATER COOLER) (ADA COMPLIANT) (HIGH/LOW)	1 1/2	1 1/2	1 1/2	1/2	--	ELKAY MODEL LZSTL8WSLP (FILTERED) MODEL EZSTL8WSVRSK (NON-FILTERED) BI-LEVEL ADA COOLER WITH BOTTLE FILLING STATION FURNISHED WITH FLEXI-GUARD SAFETY BUBBLER. BUBBLER ACTIVATED BY PUSHBAR. BOTTLE FILLER ACTIVATED BY ELECTRONIC SENSOR WITH AUTOMATIC 30-SECOND SHUT-OFF TIMER. 115 VOLT, 5.0 AMPS, 60 HERTZ. PROVIDE WITH JAY R. SMITH 0834 FLOOR MOUNTED SUPPORT CARRIER. OPTION - CANE APRON TO BE INSTALLED ON HIGH COOLER.
DN-1	DOWN SPOUT NOZZLE (CAST IRON)	SEE PLANS	--	--	--	--	JAY R. SMITH FIGURE NUMBER 1770-NB CAST IRON NOZZLE WITH WALL FLANGE, NICKEL-BRONZE FINISH.
DW-1	DISHWASHER	--	--	--	--	1/2	PROVIDED BY OTHERS, CONNECT WASTE TO SINK TAILPIECE OR DISPOSAL . SEE DISHWASHER CONNECTION DETAIL.
ET-1	EXPANSION TANK	--	--	--	3/4	--	AMTROL THERM-X-TROL ST- 12, OR APPROVED EQUAL, NON-ASME SERIES THERMAL EXPANSION ABSORBER, ANTI-MICROBIAL LINER, AND 5 YEAR WARRANTY.
FCO	FLOOR CLEANOUT	SEE PLANS	--	--	--	--	JAY R. SMITH 4020 SERIES WITH ADJUSTABLE, ROUND NICKEL BRONZE TOP AND ABS PLUG.
FD-1	FLOOR DRAIN (PVC BODY) (CONCRETE FLOOR)	2	2	2	--	--	SIOUX CHIEF SERIES NUMBER 832-2PNR, POST- CONSTRUCTION LEVELING FLOOR DRAIN, NO-HUB OUTLET, 6-1/2" ROUND, ADJUSTABLE NICKEL BRONZE STRAINER AND TRAP PRIMER PORT. INSTALL TOP OF DRAIN 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FD-5	FLOOR DRAIN (PVC BODY) (CONCRETE FLOOR)	4	2	4	--	--	SIOUX CHIEF SERIES NUMBER 832-4PNR, POST- CONSTRUCTION LEVELING FLOOR DRAIN, NO-HUB OUTLET, 6-1/2" ROUND, ADJUSTABLE NICKEL BRONZE STRAINER AND TRAP PRIMER PORT. INSTALL TOP OF DRAIN 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FS-1	FLOOR SINK (6" DEEP) (HALF GRATE, FOOT TRAFFIC RATED)	2	2	2	--	--	JAY R. SMITH FIGURE NUMBER 3100Y-12, CAST IRON RECEPTOR, ALUMINUM DOME STRAINER, NICKEL BRONZE GRATE, AND TRAP PRIMER. INSTALL TOP OF SINK 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FS-2	FLOOR SINK (10" DEEP) (HALF GRATE, FOOT TRAFFIC RATED)	4	2	4	--	--	JAY R. SMITH FIGURE NUMBER 3160Y-12, CAST IRON RECEPTOR, ALUMINUM DOME STRAINER, NICKEL BRONZE GRATE, AND TRAP PRIMER. INSTALL TOP OF SINK 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
GCO-1	GRADE CLEANOUT (NON-PAVED AREAS)	SEE PLANS	--	--	--	--	JAY R. SMITH 4220 SERIES, ROUND EXTRA HEAVY DUTY CAST IRON TOP. FURNISH WITH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".
GCO-2	GRADE CLEANOUT (PAVED AREAS) (VEHICULAR TRAFFIC)	SEE PLANS	--	--	--	--	JAY R. SMITH 4250 SERIES, ROUND FLANGED HOUSING WITH HEAVY DUTY CAST IRON COVER. FURNISH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".
HB-1	HOSE BIBB (EXTERIOR) (NON-FREEZE)	--	--	--	3/4	--	WOODFORD MODEL 67 - EXPOSED STYLE WITH MODEL 50HA BACKFLOW PREVENTER, 3/4" INLET , AND CHROME PLATED. PROVIDE WITH TEE KEY AND INSTALL AT 18" ABOVE FINISH GRADE.
LAV-1	LAVATORY (COUNTERTOP / CABINET MOUNTED) (ADA COMPLIANT)	1 1/2	1 1/2	1 1/4	1/2	1/2	KOHLER PENNINGTON MODEL K-2196-4 VITREOUS CHINA, COUNTERTOP-MOUNTED SINK WITH HOLES ON 4" CENTERS, AND GRID STRAINER. KOHLER CORALAIS MODEL K-15198-4RA. 4-1/2" LONG, SINGLE LEVER FAUCET WITH 0.5 GPM AERATOR. PROVIDE WITH JAY R. SMITH FIGURE NUMBER 0700-Z SUPPORT WITH CONCEALED ARMS AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F . PROVIDE WITH PIPING INSULATION, TRUEBRO LAV GUARD, PLUMBEREX HANDI-SHIELD, OR EQUAL.
LAV-2	LAVATORY (WALL MOUNTED) (ADA COMPLIANT)	1 1/2	1 1/2	1 1/4	1/2	1/2	KOHLER KINGSTON MODEL K-2005: VITREOUS CHINA, WALL MOUNTED, HOLES ON 4" CENTERS, AND GRID STRAINER. KOHLER CORALAIS MODEL K-15198-4RA: 4-1/2" LONG, SINGLE LEVER FAUCET WITH 0.5 GPM AERATOR. PROVIDE WITH JAY R. SMITH FIGURE NUMBER 0700-Z SUPPORT WITH CONCEALED ARMS AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F. PROVIDE WITH LS-1 LAV SHIELD.
LAV-8	LAVATORY (UNDERCOUNTER MOUNT) (ADA COMPLIANT)	1 1/2	1 1/2	1 1/4	1/2	1/2	KOHLER CAXTON MODEL K-2210: VITREOUS CHINA, UNDER-COUNTER MOUNT LAV WITH KOHLER CORALAIS MODEL K-15198, 4 1/2" LONG, SINGLE LEVER FAUCET AND GRID STRAINER WITH .5 GPM AERATOR. PROVIDE WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.
LS-1	LAVATORY SHIELD (WALL MOUNTED SHIELD FOR CONCEALING PIPING, VALVES, AND INSTANTANEOUS WATER HEATERS)	--	--	--	--	--	TRUEBRO "LAV SHIELD", ADA COMPLIANT, TOTAL ENCLOSURE. SINGLE-PIECE CONSTRUCTION AND PRE-CUT TO MATCH LAVATORY FURNISHED BY CONTRACTOR.
RP-1	RECIRCULATION PUMP (HOT WATER RETURN SYSTEM) (VARIABLE SPEED PUMP)	--	--	--	--	3/4	BELL AND GOSSETT STAINLESS STEEL ECOCIRC XLN 20-35, 115 VOLT HARD WIRED, 1/12 HP, 85 WATTS. PUMP IS RATED FOR 20 GPM AT 10FT HEAD. PUMP SHALL BE PROVIDED WITH AUTOMATIC NIGHT MODE, TEMPERATURE CONTROL MODE, CONTROL AND DISPLAY PANEL, INPUT/OUTPUT POINTS. CONTROL PUMP TO CONSTANT TEMPERATURE MODEL. APPROVED ALTERNATE: ARMSTRONG, TACO, GRUNDFOS.
RPBP-1	REDUCED PRESSURE BACKFLOW PREVENTER	INDIRECT			--	--	WATTS SERIES LF009 LEAD-FREE REDUCED PRESSURE ZONE ASSEMBLY WITH QUARTER-TURN BALL VALVES, STRAINER, AND AIR GAP. CAST COPPER BODY CONSTRUCTION - 1/2" THRU 2". PROVIDE SERIES 957 FOR SIZES 2 1/2" THRU 10". SEE NOTE __.
S-1	SINK - SINGLE COMPARTMENT (17" X 20" X 6 1/2") (ADA COMPLIANT)	2	1 1/2	1 1/2	1/2	1/2	ELKAY LUSTERTONE MODEL LRAD172065: 6-1/2" DEEP, STAINLESS STEEL SINK. PROVIDE AND INSTALL ELKAY MODEL LK3001CR SINGLE LEVER CHROME FAUCET WITH SWING SPOUT AND HOSE SPRAY, ELKAY MODEL LK35 STAINLESS STEEL STRAINER BASKET AND TAILPIECE, AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES. AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.
S-2	SINK - DOUBLE COMPARTMENT (14" X 14" X 6 1/2" - EACH) (ADA COMPLIANT)	2	1 1/2	1 1/2	1/2	1/2	ELKAY LUSTERTONE MODEL LRAD331965: 6-1/2" DEEP, STAINLESS STEEL SINK. PROVIDE AND INSTALL ELKAY MODEL LK3001CR SINGLE LEVER CHROME FAUCET WITH SWING SPOUT AND HOSE SPRAY, ELKAY MODEL LK35 STAINLESS STEEL STRAINER BASKET AND TAILPIECE, AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES. AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.
S-3	SINK - HOSPITALITY (9" X 12" X 7")	2	1 1/2	1 1/2	1/2	1/2	ELKAY LUSTERTONE MODEL BLR15: 7" DEEP, STAINLESS STEEL SINK. PROVIDE AND INSTALL WITH ELKAY MODEL LKD2223C SINGLE-HOLE, DECK MOUNT, CHROME FAUCET WITH GOOSENECK SPOUT AND TWIN LEVER HANDLES, ELKAY MODEL LK58 STAINLESS STEEL STRAINER BASKET AND TAILPIECE, AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F. (GRID STRAINER OPTION_LK-9)
S-4	SINK - KITCHEN HANDWASH (19" X 12" X 6") (WALL MOUNTED)	2	1 1/2	1 1/2	1/2	1/2	ELKAY HANDWASH SINK MODEL CHS1716C: 6" DEEP, WALL MOUNTED, STAINLESS STEEL SINK. PROVIDE AND INSTALL ELKAY MODEL LK940GN04L2H HIGH GOOSENECK SPOUT FAUCET WITH 8" CENTERS AND LEVER HANDLES, ELKAY MODEL LK8 GRID STRAINER AND TAILPIECE, ELKAY MODEL LK500 P-TRAP WITH CLEANOUT PLUG, AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F. PROVIDE WITH FAUCET-MOUNTED EYEWASH EYE-1.
S-5	SINK - SINGLE COMPARTMENT (17" X 20" X 10") (COUNTERTOP MOUNTED)	2	1 1/2	1 1/2	1/2	1/2	ELKAY LUSTERTONE MODEL DLR172010: 10" DEEP, STAINLESS STEEL SINK. PROVIDE AND INSTALL ELKAY MODEL LK3001CR SINGLE LEVER CHROME FAUCET WITH SWING SPOUT AND HOSE SPRAY, ELKAY MODEL LK35 STAINLESS STEEL STRAINER BASKET AND TAILPIECE, AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES. AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.
S-6	SINK - THREE COMPARTMENT	INDIRECT			1/2	1/2	

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZE					MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS
		WASTE	VENT	TRAP	CW	HW	
SA-1	SHOCK ABSORBER (WATER HAMMER ARRESTOR)	--	--	--	--	--	JAY R. SMITH FIGURE NUMBER 5005 TO 5050, SIZED PER FIXTURES SERVED. PROVIDE AN ACCESS PANEL AND A BALL TYPE SHUT-OFF VALVE UPSTREAM OF SHOCK ABSORBER.
SHR-1	SHOWER (36" X 37" X 80") (INSERT STYLE) (PUBLIC STANDARD)	2	1 1/2	2	1/2	1/2	BEST BATH SYSTEMS MODEL LCS3636CP, ONE PIECE, FIBERGLASS SHOWER WITH 5" THRESHOLD (CLASSIC TILE FINISH). MODULE SHALL BE CONSTRUCTED OF GELCOAT/FIBERGLASS WITH FULL INTEGRAL PLYWOOD BACKING IN THE WALLS AND FLOOR FOR STRENGTH AND CUSTOMIZED INSTALLATION OF ACCESSORIES. PROVIDE AND INSTALL SIOUX CHIEF MODEL 827-2B CAULKLESS BRASS DRAIN WITH STAINLESS STEEL STRAINER, MOEN MODEL 8375 PRESSURE BALANCING VALVE WITH 1/4" TURN STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP, VANDAL RESISTANT HEAD, ARM AND FLANGE. POLISHED CHROME FINISH. PROVIDE STAINLESS STEEL CURTAIN ROD AND WEIGHTED SHOWER CURTAIN.
SHR-2	SHOWER (36" X 36" X 77") (INSERT STYLE - TRANSFER) (ADA / ANSI 117.1 COMPLIANT)	2	1 1/2	2	1/2	1/2	AQUATIC BATH MODEL 133636FHARRF, ADA / FHA APPROVED, ONE PIECE MODULE WITH SMOOTH WALL FINISH AND INTEGRAL REINFORCEMENT BACKING, FOLD-UP SEAT, SAFETY GRAB BARS, MOLDED SOAP DISH, 3 1/2" SKIRT, CENTER DRAIN, MOEN 8346 HANDHELD SHOWER SYSTEM WITH 2.5 GPM FLOW RESTRICTOR, POSI-TEMP WITHOUT VOLUME CONTROL, ADJUSTABLE TEMPERATURE LIMIT STOP, 1/4" TURN STOPS, 4 PORT CYCLING VALVE, HANDHELD SHOWER, 69" DOUBLE SWIVEL HOSE ASSEMBLY, 30" SLIDE BAR, VACUUM BREAKER, DROP ELL, STAINLESS STEEL CURTAIN ROD WITH ESCUTCHEONS. PROVIDE AND INSTALL SIOUX CHIEF MODEL 827-2B CAULKLESS BRASS DRAIN WITH STAINLESS STEEL STRAINER. PLUMBING CONTRACTOR SHALL SPECIFY WHETHER RIGHT OR LEFT FIXTURE WALL. SEE NOTES 6 AND 7. (36"X36"X77" INTERIOR DIMENSIONS, 41.5"X39.5"79" EXTERIOR DIMENSIONS).
SS-2	SERVICE SINK (24" X 24" X 10") (FLOOR MOUNTED)	3	2	3	1/2	1/2	FIAT MOLDED STONE MODEL MSB-2424: PROVIDE AND INSTALL WITH MODEL 830AA CHROME FAUCET, GRID STRAINER, STAINLESS STEEL BUMPER GUARD, DRAIN GASKET, 30" HOSE AND BRACKET, MOP HANGER, AND (2) STAINLESS STEEL WALL GUARDS. MOUNT FAUCET 36" AFF.
TP-1	TRAP PRIMER (PRESSURE ACTIVATED) (1 TO 4 TRAPS)	--	--	--	1/2"	--	PRECISION PLUMBING PRODUCTS MODEL CPO-500 WITH DU DISTRIBUTION UNIT IF REQUIRED FOR SERVING MORE THAN ONE TRAP.
TP-2	TRAP PRIMER (FLUSH VALVE PRIMER) (1 TRAP)	--	--	--	1/2"	--	PRECISION PLUMBING PRODUCTS MODEL FVP-1VB WITH VACUUM BREAKER. TRAP PRIMER TUBING SHALL BE INSTALLED OFF BACK OF FLUSH VALVE.
TP-3	TRAP PRIMER (LAVATORY TAILPIECE PRIMER) (1 TRAP)	--	--	--	1/2"	--	DEARBORN BRASS 1-1/2" TRAP PRIMER TAILPIECE WITH COMPRESSION CONNECTION.
TP-4	TRAP PRIMER (ELECTRONIC OPERATED)	--	--	--	3/4"	--	PRECISION PLUMBING PRODUCTS MODEL PT-SERIES (RECESSED MTD.) AND PTS-SERIES (SURFACE MTD.) ELECTRONIC TRAP PRIMING ASSEMBLY WITH ATMOSPHERIC VACUUM BREAKER, 24-HR ADJUSTABLE TIMER, MANUAL OVERRIDE SWITCH AND 120V SOLENOID VALVE. CONTRACTOR SHALL DETERMINE SUPPLY OPENINGS REQUIRED. SEE DETAIL FOR FURTHER INFORMATION AND PLANS FOR MOUNTING TYPE.
TBV-1	THERMAL BALANCING VALVE	--	--	--	--	SEE PLANS	CALEFFI THERMOSETTER RECIRCULATION THERMAL BALANCING VALVE MODEL 1161. VALVE SHALL AUTOMATICALLY MODULATE FLOW TO ENSURE CONSTANT TEMPERATURE. ADJUST TEMPERATURE SETTING TO 120°F. SEE PLANS FOR LOCATION AND SIZES.
TUB/ SHR-1	BATHTUB/SHOWER COMBINATION (60"X32X76") INSERT STYLE)	2	1 1/2	2	1/2	1/2	AQUATIC MODEL 2603MT; ONE PIECE SHOWER MODULE WITH SMOOTH WALL FINISH . PROVIDE WITH PROFLO PF7611SCP 1 HANDLE PRESSURE BALANCING, 1/2" TURN STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP - 1.75 GPM, DIVERTER TUB SPOUT DRAIN ASSEMBLY, POLISHED CHROME FINISH. (60-1/8"X33-1/4"X77-1/4" FRAMING DIMENSIONS).
TUB/ SHR-2	BATHTUB/SHOWER COMBINATION (56"X30"X78 1/2") (INSERT STYLE) (ADA / ICC-ANSI TYPE A COMPLIANT)	2	1 1/2	2	1/2	1/2	AQUATIC MODEL F6032STT; ADA / FHA APPROVED, ONE PIECE MODULE WITH ACRYLX APPLIED ACRYLIC SURFACE, INTEGRAL REINFORCEMENT BACKING, GRAB BARS, AND REMOVABLE SEAT. PROVIDE WITH MOEN T8343EP15 SINGLE HANDLE PRESSURE BALANCING HAND HELD TUB SHOWER SYSTEM WITH NON-POSITIVE SHUT-OFF, MOEN MODEL 8371HD POSI-TEMP 4 PORT CYCLING VALVE W/OUT VOLUME CONTROL, 1/4 " TURN STOPS - 1.5 GPM, MODEL 3360 THREE-FUNCTION 1/2" TRANSFER VALVE, HANDHELD SHOWER, 69" DOUBLE SWIVEL HOSE ASSEMBLY, 30" SLIDE BAR (SLIDE BAR SHALL NOT OBSTRUCT THE USE OF GRAB BARS), VACUUM BREAKER, DROP ELL, DIVERTER TUB SPOUT, DRAIN ASSEMBLY, AND POLISHED CHROME FINISH. SEE NOTES 6 AND 7. (56"X30"X78-1/2" INTERIOR DIMENSIONS, 60"X33-1/4"X81-1/4" EXTERIOR DIMENSIONS).
U-1	URINAL (FLUSH VALVE) (SEE ARCH. FOR MOUNTING HEIGHT)	2	1 1/2	INT.	3/4	--	KOHLER BARDON MODEL K-4991-ET WALL MOUNTED URINAL WITH 3/4" TOP SPUD. SLOAN REGAL MODEL 186-0.5 FLUSHOMETER, 0.5 GPF. INCLUDE BEEHIVE STRAINER AND JAY R. SMITH FIGURE NUMBER 0637 ADJUSTABLE FIXTURE SUPPORT.
US-1	UTILITY SINK (23" X 21" X 13") (FLOOR MOUNTED)	2	1 1/2	1 1/2	1/2	1/2	FIAT MOLDED STONE MODEL FL-1 FLOOR MOUNTED SINK WITH EASY LEVELING LEGS, DRAIN ASSEMBLY AND STOPPER WITH FIAT A1 CHROME FAUCET, DECK MOUNTED, 4" O.C. WITH 4" WRISTBLADES, 6-3/4" SWING SPOUT, AND WATTS SERIES LFUSG-B LF, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.
WB-1	WALL BOX (WATER SUPPLY TO ICE MAKER)	--	--	--	1/2	--	OATEY FIREMASTER MODEL 39121 WITH FACEPLATE AND ADJUSTABLE METAL SUPPORT BRACKETS. FIRE-RATED, LOW LEAD, OR APPROVED EQUAL.
WB-2	WALL BOX (SUPPLY/DRAIN FOR WASHING MACHINE)	2	1 1/2	2	1/2	1/2	OATEY FIREMASTER MODEL 38478 WITH FACEPLATE, ADJUSTABLE METAL SUPPORT BRACKETS, AND WATER HAMMER ARRESTORS. FIRE RATED, OR APPROVED EQUAL.
WC-1	WATER CLOSET (17-1/2" SEAT HEIGHT) (FLUSH TANK) (FLOOR MOUNTED) (COMFORT HEIGHT / ADA)	4	2	INT.	1/2	--	KOHLER CIMARRON MODEL K-5310 (LEFT LEVER) / K-5310-RA (RIGHT LEVER), FLOOR MOUNTED, GRAVITY FLUSH TANK WITH ELONGATED BOWL, 1.28 GPF. KOHLER LUSTRA MODEL K-4650 ELONGATED, OPEN FRONT SEAT WITH CHECK HINGE AND NO COVER.
WC-4	WATER CLOSET (17-1/2" SEAT HEIGHT) (FLUSH VALVE) (FLOOR MOUNTED) (COMFORT HEIGHT / ADA COMPLIANT)	4	2	INT.	1	--	KOHLER HIGHCLIFF ULTRA MODEL K-96057 FLOOR MOUNTED WITH ELONGATED BOWL. KOHLER LUSTRA MODEL K-4666-C ELONGATED OPEN FRONT SEAT WITH HINGE. SLOAN REGAL MODEL 111-1.6 FLUSHOMETER, 1.6 GPF.
WCO	WALL CLEANOUT	SEE PLANS	--	--	--	--	JAY R. SMITH 4472T SERIES WITH CAST BRONZE TAPER THREAD PLUG, STAINLESS STEEL ROUND COVER, AND A STAINLESS STEEL VANDAL PROOF SCREW.
WH-4	RESIDENTIAL WATER HEATER (50 GALLON UPRIGHT MODEL) (240V-1Ø ELECTRIC)	--	--	--	SEE PLANS	SEE PLANS	BRADFORD WHITE MODEL RE250T6, NON-SIMULTANEOUS DUAL ELEMENTS, 64 GAL. FIRST HOUR RATING, (2) 4.5 KW, 240V/1Ø , 48" TALL, WITH TOP CONNECTIONS. PROVIDE WITH SEISMIC STRAP. PROVIDE WATER HEATER WITH HEAT TRAP.
WH-9	WATER HEATER (NOMINAL 100 GALLON) (NATURAL GAS - HIGH EFFICIENCY)	--	--	--	SEE PLANS	SEE PLANS	BRADFORD WHITE MODEL EF-100T-199E-3N. 199 MBH INPUT, 110V/1Ø, 1.8 AMPS , 28" DIAMETER, 78" TALL WITH SIDE CONNECTIONS. PROVIDE WITH PVC CONCENTRIC INTAKE/VENT KIT AND SEISMIC STRAP. PROVIDE WATER HEATER WITH HEAT TRAP.

NOTES:

1. ALL ADA COMPLIANT FIXTURES MUST COMPLY WITH ICC/ANSI A117.1. SEE ARCHITECTURAL PLANS FOR HANDICAPPED FIXTURE DESIGNATIONS, LOCATIONS, CLEARANCES, AND MOUNTING HEIGHTS.
2. ALL EXPOSED HW PIPING, CW PIPING, AND DRAIN LINES BENEATH ALL LAVATORIES AND ALL ADA COMPLIANT SINKS MUST BE INSULATED TO PREVENT INJURY. REFER TO ARCHITECTURAL PLANS. INSULATE WITH MOLDED CLOSED CELL VINYL INSULATION - TRUEBRO, PLUMBEREX, OR EQUAL.
3. PROVIDE P-TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS (NOT ALL TRAP PRIMERS ARE INDICATED ON PLANS - REFERENCE DETAILS FOR ADDITIONAL INFORMATION). PROVIDE A BALL TYPE SHUT-OFF VALVE UPSTREAM OF PRIMER VALVE. SEE SPECIFICATIONS.
4. SEE SPECIFICATIONS FOR ALTERNATE APPROVED MANUFACTURERS.
5. HIGH EFFICIENCY WATER HEATERS: PROVIDE WITH CONDENSATE NEUTRALIZATION KIT BY JJM BOILER WORKS MODEL JM (OR EQUAL), SIZED PER EQUIPMENT CAPACITY.
6. LOCATE CONTROLS PER ADA STANDARDS; REFERENCE ARCHITECTURAL DRAWINGS FOR TUB/SHOWER ELEVATIONS.
7. PROVIDE INTEGRAL BLOCKING WITHIN FIXTURE FOR FUTURE GRAB BAR INSTALATION. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR GRAB BAR SIZES AND LOCATIONS. INTEGRAL BLOCKING SHALL BE RATED FOR A VERTICAL OR HORIZONTAL FORCE OF 250 POUNDS WHEN APPLIED AT ANY POINT ON A GRAB BAR, FASTENER MOUNTING DEVICE, OR SUPPORTING STRUCTURE. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL NOTES FOR BLOCKING REQUIREMENTS. PLUMBING CONTRACTOR TO COORDINATE BLOCKING REQUIREMENTS WITH THE GENERAL CONTRACTOR.
8. BACKFLOW PREVENTION: THIS BUILDING IS PROVIDED WITH A BACKFLOW PREVENTION DEVICE ON THE MAIN WATER SERVICE AND REDUCED PRESSURE BACKFLOW PREVENTION ON THE FOLLOWING PIECES OF EQUIPMENT:
   --
   --
   --

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PRELIMINARY

NOT FOR CONSTRUCTION
5/1/2025

Project No. 25-077

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

PLUMBING SCHEDULE

P-300

ELECTRICAL LEGEND - LIGHTING

REFERENCE FIXTURE SCHEDULE FOR MOUNTING TYPE, MOUNTING HEIGHT, AND FIXTURE TYPE.

- DOUBLE FACE EXIT SIGN, CEILING MOUNTED, PROVIDE UNSWITCHED CONDUCTOR.
- WALL MOUNTED DOUBLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
- SINGLE FACE EXIT SIGN, CEILING MOUNTED PROVIDE UNSWITCHED CONDUCTOR.
- WALL MOUNTED SINGLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
- ARROW INDICATES DIRECTION TO BE SHOWN ON SIGN.
- 1'X1' LIGHT FIXTURE.
- 1'X1' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- TRACK LIGHT
- 1'X4' LIGHT FIXTURE.
- 1'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- 2'X4' LIGHT FIXTURE.
- 2'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- 2'X2' LIGHT FIXTURE.
- 2'X2' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- DIRECT/INDIRECT LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
- DIRECT/INDIRECT LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR
- STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
- STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR
- WALL MOUNTED LIGHT FIXTURE.
- WALL MOUNTED LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- RECESSED LIGHT FIXTURE
- RECESSED LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- ROUND LIGHT FIXTURE
- ROUND EMERGENCY LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- WALL MOUNTED LIGHT FIXTURE.
- WALL MOUNTED EMERGENCY LIGHT FIXTURE. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
- POLE LIGHT 1 HEAD WITH POLE
- TIME CLOCK
- PHOTO CONTROL CELL LOCATED 12' ABOVE ROOF FACING NORTH.
- OCCUPANCY SENSOR. PROVIDE RELAYS AND POWER PACKS AS REQUIRED.
- LED DRIVER
- EMERGENCY EGRESS LIGHTING WITH OUT FIXTURE HEADS. CONNECT TO AN UNSWITCHED CONDUCTOR.
- EMERGENCY EGRESS LIGHTING. CONNECT TO AN UNSWITCHED CONDUCTOR.
- WALL MOUNTED SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
- CEILING MOUNTED. SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR.
- CEILING MOUNTED. DOUBLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR.
- XXX INDICATES FIXTURE TYPE. REFER TO FIXTURE SCHEDULE.
- EXTERIOR WALL PACK
- EMERGENCY EXTERIOR WALL PACK. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR

DEVICES

- S SWITCH, TYPE AS INDICATED. +46"AFF
  - 2 DOUBLE POLE
  - 3 3-WAY
  - 4 4-WAY
  - K KEYED
  - P PILOT LIGHT
  - D DIMMER
  - HP HORSEPOWER RATED
  - TO THERMAL OVERLOAD
  - LV LOW VOLTAGE
  - OS OCCUPANCY SENSOR
  - OR LOW VOLTAGE, MOMENTARY OVERRIDE
  - VS VACANCY SENSOR
  - a SUPERSCRIPT INDICATES LIGHTS TO BE SWITCHED TOGETHER
- S^{S} DUAL LEVEL SWITCHING, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
- S^{DS} DUAL LEVEL SWITCHING WITH OCCUPANCY SENSOR, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
- S^{OS} OCCUPANCY SENSOR WITH MANUAL DIMMING, SET FOR 50% AUTOMATIC ON, AUTOMATIC OFF, WITH MANUAL DIMMING.
- SINGLE CONVENIENCE OUTLET, +18" AFF UNO
- FLOOR MOUNT SINGLE CONVENIENCE OUTLET
- DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- FLOOR MOUNT DUPLEX CONVENIENCE OUTLET
- EMERGENCY DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- SWITCHED DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- FLOOR MOUNTED SWITCHED DUPLEX CONVENIENCE OUTLET
- USB DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
- USB FOURPLEX CONVENIENCE OUTLET, +18" AFF UNO
- FOURPLEX CONVENIENCE OUTLET. +18"AFF UNO
- FLOOR MOUNT FOURPLEX CONVENIENCE OUTLET
- CONNECTION POINT TO EQUIPMENT SPECIFIED. ELECTRICAL CONTRACTOR TO SUPPLY RACEWAY AND CONDUCTORS AND MAKE FINAL CONNECTION TO EQUIPMENT UNDER THIS SECTION. UNO
- FLOOR MOUNTED CONNECTION POINT, SEE NOTE ABOVE FOR REQUIREMENTS
- FLOOR MOUNTED JUNCTION BOX
- JUNCTION BOX
- WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO
- HC WALL MOUNTED PUSH BUTTON, HANDICAPPED MOUNT AT SWITCH HEIGHT UNO
- WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO
- MOTOR STARTER/CONTACTOR, SIZE/POLES NEMA 1 UNO AS INDICATED
- COMBINATION STARTER AND DISCONNECT, SIZE/POLES, STARTER SIZE AS INDICATED, NEMA 1 UNO
- FUSED DISCONNECT SWITCH, SIZE/POLES, FUSE SIZES AS INDICATED, NEMA 1 UNO
- NON-FUSED DISCONNECT SIZE/ POLES AS INDICATED, NEMA 1 UNO
- (wall #) THERMOSTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS. UNO COORDINATE WITH DIVISION 15.
- (wall #) HUMIDISTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS.
- POWER POLE - DUAL CHANNEL
- REB RECESSED ENTERTAINMENT BOX
- T TRANSFORMER
- PANELBOARD. SEE SCHEDULE FOR TYPE.
- EQUIPMENT CABINET, SURFACE MOUNTED
- EQUIPMENT CABINET FLUSH MOUNTED
- SURFACE MULTI-OUTLET RACEWAY
- #/# MECHANICAL EQUIPMENT CALL OUT
- # KITCHEN EQUIPMENT CALLOUT

ONE LINE

- DELTA WYE TRANSFORMER UNO
- #PANEL NAME VOLTAGE/PHASE PANEL BOARD, SEE SCHEDULE FOR TYPE AND SIZE
- ##A #P CIRCUIT BREAKER, SIZE AND POLES INDICATED
- ##A FUSE, SIZE AND TYPE INDICATED, PROVIDE FUSE FOR EACH POLE
- ##A #P INTERRUPTER SWITCH, SIZE AND POLES INDICATED
- ##A #P FUSED SWITCH, SIZE/POLES AND FUSE SIZE INDICATED
- ##A #P DRAW OUT CIRCUIT BREAKER, SIZE AND POLES INDICATED
- S INDIVIDUAL BREAKER WITH SHUNT TRIP, SIZE AND POLES INDICATED. NEMA 1 UNO
- INDIVIDUAL BREAKER, SIZE AND POLES INDICATED. NEMA 1 UNO
- GFP GROUND FAULT PROTECTION
- SPD SURGE SUPPRESSION DEVICE
- LSIGR ADJUSTABLE BREAKER SETTINGS (PER SPECIFICATIONS):
  - 'L' LONG TIME
  - 'S' SHORT TIME
  - 'I' INSTANTANEOUS
  - 'G' GROUND FAULT
  - 'R' ENERGY REDUCING MAINTENANCE SWITCH W/STATUS INDICATOR
- GROUND
- ST SHUNT TRIP COIL
- M MOTOR
- 100A 3P DISCONNECT SWITCH, SIZE AND POLES INDICATED. NEMA 1 UNO
- OVERHEAD SERVICE DROP
- GENERATOR SET, MAIN BREAKER SIZE INDICATED
- AUTOMATIC TRANSFER SWITCH (ATS)
- METER AND BASE
- N NEUTRAL
- T DRY TYPE TRANSFORMER
- PAD MOUNT TRANSFORMER

COMMUNICATIONS

- JUNCTION BOX FOR FUTURE TELEPHONE/DATA OUTLET. MOUNT AT 18" A.F.F. UNO. PROVIDE SINGLE-GANG MUD RING WITH BLANK COVER PLATE. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE.
- #D,#T TELEPHONE/DATA OUTLET. MOUNT AT 18" A.F.F. UNO. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING. INSTALL QUANTITY OF DATA (#D) AND TELEPHONE (#T) CABLES INDICATED TO THE NEAREST DATA RACK. PROVIDE (2) DATA CABLES IF A CABLE QUANTITY IS NOT INDICATED.
- FLOOR MOUNTED BOX FOR FUTURE TELEPHONE/DATA OUTLET. JUNCTION BOX WITH SINGLE-GANG MUD RING. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE BLANK COVER PLATE.
- #D,#T FLOOR MOUNTED TELEPHONE/DATA OUTLET. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING. INSTALL QUANTITY OF DATA (#D) AND TELEPHONE (#T) CABLES INDICATED TO THE NEAREST DATA RACK. PROVIDE (2) DATA CABLES IF A CABLE QUANTITY IS NOT INDICATED.
- IC INTERCOM SYSTEM CALL BUTTON. +46" UNO.
- SP CEILING MOUNTED SPEAKER WITH BACKBOX
- SP WALL MOUNTED SPEAKER, WITH BACKBOX +80" UNO
- V VOLUME CONTROL, +46" UNO
- TV TELEVISION OUTLET, +18" AFF UNO. PROVIDE 1-1/4" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE
- TV CEILING MOUNTED TELEVISION OUTLET
- TTB TELEPHONE TERMINAL BOARD
- CT-XX CABLE TRAY, 4" DEEP, WIRE BASKET STYLE, 'XX' INDICATES WIDTH PROVIDE ALL FITTINGS AND SUPPORT HARDWARE REQUIRED

SECURITY

- CCTV CAMERA POWER SUPPLY
- CCTV SYSTEM POWER SUPPLY
- ADJUSTABLE CAMERA (PAN/TILT/ZOOM)
- FIXED CAMERA
- CAMERA IN OUTDOOR HOUSING
- ADJUSTABLE CAMERA (PAN/TILT/ZOOM) IN OUTDOOR HOUSING
- C CCTV OUTLET, +18" UNO
- C CEILING MOUNTED CCTV OUTLET
- K SECURITY SYSTEM KEYPAD CONTROLLER COORDINATE BOX SIZE AND MUDRING WITH VENDOR
- CR CARD READER
- M CEILING MOUNTED MOTION SENSOR
- +80" M WALL MOUNTED MOTION SENSOR, MOUNTING HEIGHT INDICATED
- PANIC BUTTON - MOUNTED UNDER COUNTER

ELECTRICAL ABBREVIATIONS

A	AMPERES
A/C	5" ABOVE BACKSPLASH
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AF	AMP FRAME
AIC	AMPS INTERRUPTING CAPACITY
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BD	BOTTOM OF DECK
BS	BOTTOM OF STRUCTURE
C	CEILING MOUNTED
C	CONDUIT
CB	CIRCUIT BREAKER
CF	COMPACT FLUORESCENT
CKT	CIRCUIT
CO	CONDUIT ONLY, PROVIDE PULL-LINE
CT	CURRENT TRANSFORMER
CTL	CONTROL
DC	DIRECT CURRENT
(D)	DEMOLITION
DEMO	DEMOLITION
DT	DETAIL
DTT	DOUBLE TWIN TUBE
E	EMERGENCY
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
EL	EMERGENCY LIGHT
F	FUSE
(F)	FUTURE
FACP	FIRE ALARM CONTROL PANEL
G/GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATION, & AIR CONDITIONING
IG	ISOLATED GROUND
IPCO	IDAHO POWER COMPANY
J-BOX	JUNCTION BOX
KA	KILOAMP
KVA	KILO VOLT-AMP
KW	KILOWATT
KWH	KILOWATT HOUR
LCP	LIGHTING CONTROL PANEL
MB	MAIN BREAKER
MBR	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MMC	MODULAR METERING CENTER
MH	METAL HALIDE
MSB	MAIN SWITCH BOARD
MTG	MOUNTING
N	NEUTRAL
(N)	NEW
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OS	OCCUPANCY SENSOR
P	POLES
PC	PHOTO-CONTROL
PVC	POLYVINYL CHLORIDE
PWR	POWER
RE:	REFERENCE
REC	RECEPTACLE
(R)	RELOCATED
SF	SQUARE FEET
TBD	TO BE DETERMINED
TDR	TIME DELAY RELAY
TK	TOE KICK
TR	TAMPER RESISTANT
TSP	TWISTED SHIELDED PAIR
TRT	TRIPLE TUBE
TTB	TELEPHONE TERMINAL BOARD
(TYP.)	TYPICAL
UC	UNDERCABINET
UG	UNDERGROUND
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT AMPERE
W	WATT
WG	WIRE GUARD
WP	WEATHER PROOF/NEMA 3R

PROVIDED/ PROVIDE BY INSTALLED/ INSTALL	PROVIDE AND INSTALL / PROVIDED AND INSTALLED BY / PROVIDE AND INSTALL
NOTE:	THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

ELECTRICAL GENERAL NOTES

A. THESE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE; THEREFORE, THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL EQUIPMENT AND DEVICE LOCATIONS WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DIVISIONS PRIOR TO ROUGH-IN. REFER TO AND COORDINATE WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL WORK THAT IS REQUIRED BY THE ELECTRICAL CONTRACTOR.

B. ALL CONDUIT AND JUNCTION BOXES ARE TO BE CONCEALED UNLESS LOCATED WITHIN DESIGNATED ELECTRICAL OR MECHANICAL ROOMS. USE OF SURFACE MOUNTED RACEWAYS IN ALL OTHER SPACES MUST BE APPROVED BY THE ARCHITECT FOR EACH LOCATION. WHERE SURFACE RACEWAYS ARE APPROVED, UTILIZE WIREMOLD, OR APPROVED EQUAL. SURFACE MOUNTED RACEWAYS PAINTED TO MATCH SURROUNDING WALLS.

C. REFER TO ARCHITECTURAL ELEVATIONS FOR OUTLET HEIGHTS WHERE THE SPECIFIC OUTLET HEIGHT IS NOT INDICATED. REFER TO THE ELECTRICAL LEGEND FOR THE DEFAULT OUTLET HEIGHT WHEN NOT INDICATED ON ELEVATIONS OR ON AT THE DEVICES.

D. PROVIDE PULL-LINE IN ALL EMPTY CONDUITS.

E. TERMINATE ALL LOW-VOLTAGE CONDUITS WITH INSULATED THROAT BUSHING.

F. MECHANICAL EQUIPMENT INDICATED IS SHOWN IN AN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

G. ALL NON-LOCKING, 120 V, 15 AND 20-AMP RECEPTACLES SHALL BE LISTED TAMPER-RESISTENT RECEPTACLES PER NEC 406.12

H. INSTALL PLENUM RATED FIRE ALARM CONDUCTORS FROM ALL FIRE ALARM DEVICES INDICATED TO THE FIRE ALARM CONTROL PANEL OR NAC EXTENDER PANEL(S) AS REQUIRED. STUB 3/4" CONDUIT FROM DEVICE TO VOID ABOVE CEILING. PROVIDE NAC EXTENDER PANELS (QUANTITY AS REQUIRED) IN LOCATIONS INDICATED AND CIRCUITING AS REQUIRED FOR A COMPLETE INSTALLATION. CIRCUIT THE FIRE ALARM NOTIFICATION AND INITIATION DEVICES PER THE ELECTRICAL SPECIFICATIONS. FURNISH AND INSTALL ALL APPURTENANCES AND PROGRAMMING REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. REFER TO ELECTRICAL FIRE ALARM SPECIFICATIONS FOR SYSTEM REQUIREMENTS AND SUBMITTAL PROCEDURES.

I. CONTRACTOR SHALL COORDINATE WITH AN UNDERGROUND LOCATING SERVICE PRIOR TO COMMENCING WORK. SEE CIVIL DRAWINGS FOR ADDITIONAL SITE INFORMATION. COORDINATE WITH OTHER SITE DISCIPLINES.

J. SITE LIGHTING AND UTILITY EQUIPMENT SHOWN IN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS, PROPERTY LINES, AND UTILITY COMPANIES PRIOR TO ROUGH-IN.

K. REFER TO POLE BASE DETAIL FOR SITE LIGHTING POLE BASE REQUIREMENTS.

L. ROUTE CONDUITS IN COMMON TRENCH WHERE POSSIBLE REFER TO TRENCHING DETAIL.

M. THE ELECTRICAL DEMOLITION DRAWING(S) PROVIDED ARE INTENDED TO ASSIST THE ELECTRICAL CONTRACTOR IN ESTABLISHING AREAS REQUIRING DISCONNECTION, REMOVAL, OR RELOCATION OF ELECTRICAL EQUIPMENT, OUTLETS, WIRING, DEVICES, FIXTURES, ETC. AND MAY NOT INDICATE ALL DEVICES OR THE FULL EXTENT OF DEMOLITION AND RECONNECTION WHICH MAY BE REQUIRED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS THAT WILL BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID.

N. ALL ELECTRICAL DEVICES AND WALLS INDICATED ON THE ELECTRICAL DEMOLITION DRAWING(S) ARE TO REMAIN UNLESS OTHERWISE NOTED.

WYOMING BUILDING CODES

IN THE STATE OF WYOMING ON SEPTEMBER 22, 2021 ADOPTED THE 2021 INTERNATIONAL CODES.

THE FOLLOWING CODES APPLY:

2021 INTERNATIONAL FIRE CODE

2021 INTERNATIONAL BUILDING CODE

2021 INTERNATIONAL FUEL & GAS CODE

2021 INTERNATIONAL MECHANICAL CODE

2021 INTERNATIONAL EXISTING BUILDING CODE

2023 EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70, 2020)

EFFECTIVE JULY 1, 2023 THE 2023 EDITION OF THE NATIONAL ELECTRICAL CODE WILL BE IN EFFECT.

NOTE:	THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL SYMBOLS. SOME OF THE SYMBOLS SHOWN MAY NOT HAVE BEEN USED IN THIS DRAWING PACKAGE.

FIRE ALARM - DESIGN BUILD NOTES

A. THE FIRE ALARM SYSTEM WILL BE DESIGN BUILD BY THE CONTRACTOR. THE FIRE ALARM CONTRACTOR SHALL PRODUCE A FIRE ALARM SUBMITTAL THAT INCLUDES ALL DRAWINGS, CALCULATIONS AND CUT SHEETS REQUIRED TO OBTAIN COMPLETE APPROVAL FROM ALL APPROVING AGENCIES.

B. THE FIRE ALARM CONTRACTOR SHALL PROVIDE FIRE ALARM SUBMITTALS TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO SUBMITTING TO THE AUTHORITY HAVING JURISDICTION AND AND SHALL NOT PROCEED UNTIL THESE SUBMITTALS HAVE BEEN REVIEWED, APPROVED AND RETURNED.

C. REFER TO THE ARCHITECTURAL CODE PLAN(S) FOR THE OCCUPANCY TYPES AND OCCUPANCY LOADS FOR EACH AREA.

D. UTILIZE CURRENTLY ADOPTED CODES AND AMENDMENTS FOR FIRE ALARM REQUIREMENTS.

E. THE BUILDING IS FULLY SPRINKLED WITH BOTH WET AND DRY SPRINKLER SYSTEMS.

F. THE FIRE ALARM CONTRACTOR SHALL PROVIDE AND INSTALL ALL FIRE ALARM INITIATING, MONITORING (SMOKE/ FIRE/ CARBON MONOXIDE), INTERFACE AND RELATED DEVICES AND EQUIPMENT AS REQUIRED FOR A COMPLETE AND FUNCTIONING CODE COMPLIANT SYSTEM.

G. THE FIRE ALARM SYSTEM SHALL PROVIDE ALL REQUIRED NOTIFICATION THROUGH OUT THE FACILITY. COORDINATE THE MOUNTING HEIGHTS OF THE NOTIFICATION DEVICES WITH THE CEILING AND STRUCTURE HEIGHTS IN THE BUILDING. REFER TO ARCHITECTURAL PLANS FOR CEILING/STRUCTURE INFORMATION.

H. PROVIDE ALL IN-DUCT AND/OR DUCT SMOKE DUCT DETECTORS AS REQUIRED. COORDINATE THE FINAL QUANTITY AND LOCATIONS WITH MECHANICAL CONTRACTOR.

I. THE FIRE ALARM CONTROL PANEL SHALL BE LOCATED IN THE FIRE RISER ROOM. THE NOTIFICATION APPLIANCE CIRCUIT POWER SUPPLIES SHALL BE LOCATED IN ELECTRICAL ROOMS, STORAGE AND SIMILAR ROOMS ADJACENT TO ELECTRICAL PANELS.

J. PROVIDE 120V POWER, CONTROL RELAYS AND IN-DUCT DETECTORS FOR ALL SMOKE AND SMOKE/FIRE DAMPERS. COORDINATE WITH MECHANICAL PLANS.

K. PROVIDE SMOKE DETECTORS, RELAYS AND RELATED CONNECTIONS FOR ALL DOOR HOLD OPENS AS REQUIRED.

L. PROVIDE ALL 120V CIRCUITS AS REQUIRED TO ACCOMMODATE FIRE ALARM CONTROL PANEL, DRY SYSTEM AIR COMPRESSOR(S), NITROGEN GENERATOR(S), FIRE BELLS, NAC EXTENDER PANELS, AMPLIFIER PANELS AND RELATED ITEMS.

M. ALL FIRE ALARM CIRCUIT BREAKERS SHALL HAVE A RED HANDLE AND BE LOCKABLE TYPE.

N. THE FIRE ALARM SYSTEM SHALL INCLUDE A FLUSH MOUNTED REMOTE ANNUNCIATOR LOCATED IN AN OCCUPIED AREA IN THE LOBBY, RECEPTION OR SIMILAR AREA(S). THE LOCATION(S) SHALL BE COORDINATED WITH THE ARCHITECT AND OWNER PRIOR TO PREPARING THE REQUIRED SUBMITTALS.

O. FIRE ALARM CABLING SHALL BE CONCEALED. AREAS IN WALLS, ABOVE HARD CEILINGS AND SIMILAR (NON ACCESSIBLE AREAS) SHALL BE IN CONDUIT. EXPOSED CABLING IS NOT ALLOWED.

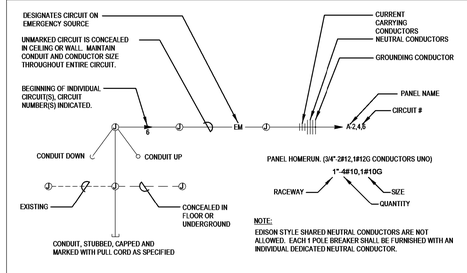
P. PROVIDE ALL DETECTION, MONITOR AND CONTROL DEVICES AS REQUIRED FOR THE ELEVATOR(S).

Q. THE FIRE ALARM CONTRACTOR SHALL PRODUCE RECORD DOCUMENTS OF THE ACTUAL SYSTEM AS INSTALLED. THE RECORD DOCUMENTS SHALL BE PRODUCED TO THE ACCEPTANCE OF THE ARCHITECT AND ENGINEER. ONE COMPLETE SET OF PRINTED DOCUMENTS AND A PDF VERSION SHALL BE DELIVERED TO THE ARCHITECT.

R. INSTALL PLENUM RATED FIRE ALARM CONDUCTORS FROM ALL FIRE ALARM DEVICES INDICATED TO THE FIRE ALARM CONTROL PANEL OR NAC EXTENDER PANEL(S) AS REQUIRED. STUB 3/4" CONDUIT FROM DEVICE TO VOID ABOVE CEILING. PROVIDE NAC EXTENDER PANELS (QUANTITY AS REQUIRED) IN LOCATIONS INDICATED AND CIRCUITING AS REQUIRED FOR A COMPLETE INSTALLATION. CIRCUIT THE FIRE ALARM NOTIFICATION AND INITIATION DEVICES PER THE ELECTRICAL SPECIFICATIONS. FURNISH AND INSTALL ALL APPURTENANCES AND PROGRAMMING REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. REFER TO ELECTRICAL FIRE ALARM SPECIFICATIONS FOR SYSTEM REQUIREMENTS AND SUBMITTAL PROCEDURES.

S. REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

CIRCUITING SYMBOLS



ENERGY CODE COMMISSIONING COMPLIANCE NOTES

SECTION 408 SYSTEM COMMISSIONING

IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL BELOW NOTED DOCUMENTS WITHIN 90 DAYS OF CERTIFICATE OF OCCUPANCY:

A. AS-BUILT DRAWINGS - DRAWINGS SHALL INCLUDE THE LOCATION AND PERFORMANCE DATA OF ALL PIECES OF MECHANICAL EQUIPMENT.

B. OPERATING AND MAINTENANCE MANUALS - MANUALS SHALL INCLUDE THE FOLLOWING:

1. SUBMITTAL DATA ON ALL PIECES OF EQUIPMENT REQUIRING MAINTENANCE.
2. MANUFACTURER'S OPERATIONS AND MAINTENANCE DATA ON ALL PIECES OF EQUIPMENT. ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
3. NAME AND ADDRESS AND PHONE NUMBER OF OF AT LEAST ONE (1) SERVICE PROVIDED.
4. LIGHTING CONTROL SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, EQUIPMENT AND SYSTEM SCHEMATICS, AND CONTROL SEQUENCES OF OPERATIONS. DESIRED OR FIELD DETERMINED SETPOINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT ALL CONTROL DEVICES, OR FOR DIGITAL CONTROL SYSTEMS, IN THE SYSTEM PROGRAMMING INSTRUCTIONS.
5. A NARRATIVE ON HOW EACH LIGHTING SYSTEM IN INTENDED TO OPERATE, INCLUDING RECOMMENDED SETPOINTS.

C. LIGHTING SYSTEM FUNCTIONAL TESTING REQUIREMENTS

FUNCTIONAL TESTING - ALL AUTOMATIC LIGHTING CONTROL SYSTEM SHALL BE FULLY TESTED TO ENSURE THE CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED, AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PREFORMED:

1. CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE.
2. CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF.
3. CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED.

D. FINAL LIGHTING SYSTEM FUNCTIONAL REPORT - A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS THE "FINAL LIGHTING CONTROL REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER. THE REPORT SHALL INCLUDE THE FOLLOWING:

1. LIST OF FUNCTIONAL TESTS USED DURING THE COMMISSIONING PROCESS ON EACH PIECE OF EQUIPMENT.
2. RESULTS OF ALL FUNCTIONAL TESTS ON ALL PIECES OF EQUIPMENT.
3. LIST OF DEFICIENCIES FOUND AND CORRESPONDING CORRECTIVE MEASURES EITHER IMPLEMENTED OR PROPOSED ON EACH PIECE OF EQUIPMENT.
4. LIST OF EQUIPMENT NOT ABLE TO BE FUNCTIONALLY TESTED DUE TO CURRENT CLIMATE CONDITIONS. THESE PIECES OF EQUIPMENT WILL FUNCTIONALLY TESTED ONCE CLIMATE CHANGES ALLOW.

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Professional Engineer
THAD MASON
14385
Date 5/2/2025
WYOMING

Project No. 25-077

STRUCTURAL

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2295 N YELLOWSTONE HWY, UNIT 6
IDAHO FALLS, ID 83401
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MECHANICAL / PLUMBING

MUSGROVE ENGINEERING
234 S. WHISPERWOOD WAY
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CIVIL

SUNRISE ENGINEERING
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AFTON, WY, 83110
PHONE: (307) 885-8500

Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

ELECTRCAL COVER

E-001

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SECTION 260500 - ELECTRICAL GENERAL PROVISIONS
PART 1 - GENERAL
1.1 CONDITIONS AND REQUIREMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
B. Provisions of this Section shall apply to all Sections of Division 26, 27, and 28.
1.2 SCOPE OF WORK
A. Furnish and install all materials and equipment and provide all labor required and necessary to complete the work shown on the drawings and/or specified in these Divisions of Division 26 and all other work and miscellaneous items, not specifically mentioned, but reasonably inferred for a complete installation, including all accessories required for testing the system. It is the intent of the drawings and specifications that all systems be complete and ready for operation.
1.3 CODE COMPLIANCE
A. All work and materials shall comply with the latest rules, codes and regulations, including, but not limited to, the following:
1. Occupational Safety and Health Act Standards (OSHA)
2. NFPA #70 – National Electric Code (NEC)
3. Americans with Disabilities Act Guidelines Act
4. ANSI/IEEE C-2 – National Electrical Safety Code
5. NECA – Standard of installation
6. International Building Code
7. International Fire Code
8. International Energy Conservation Code
9. NFPA #72 – Fire Code
10. NFPA #101 – Life Safety Code
11. All other applicable Federal, State and local laws and regulations.
B. Work to be executed and inspected in accordance with local codes and ordinances. Permits, fees or charges for inspection or other services shall be paid for by the contractor. Local codes and ordinances are to be considered as minimum requirements and must be properly executed without expense to the owner, but do not relieve the contractor from work shown that exceeds minimum requirements.
1.4 CONDITIONS AT SITE
A. Visit to site is recommended of all bidders prior to submission of bid. All will be held to have familiarized themselves with all discernible conditions and no subsequent claims will be allowed for work required because of these conditions, whether specifically mentioned or not.
B. Loss of other service that are damaged as a result of this work shall be promptly repaired at no expense to the owner to the complete satisfaction of the owner.
1.5 DRAWINGS AND SPECIFICATIONS
A. All drawings and all specifications shall be considered as a whole and work of this Division shown anywhere therein shall be furnished under this Division.
B. Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduits and wiring is not assured. Exact requirements shall be governed by architectural, structural and mechanical conditions of the job. Consult all other drawings in preparation of the bid. Extra length of conduit and wiring shall be installed to avoid interference with other systems, etc., necessitated by such conditions shall be included in the bid. Check all information and report any errors or discrepancies before submitting bid.
C. Change to location, type, function, brand name, finish, etc., shall not be made without permission of engineer.
D. Some equipment is specifically designated on the drawings. It is not the intent to sole source any item unless explicitly stated. Items have been specified based upon design requirements. All bidders are encouraged to submit products for approval. Prior approval must be obtained as required by these contract documents. Bids submitted with non-approved items will be considered invalid and bidders will be held to provide approved materials at no additional cost to the owner. Submittals received by the engineer after award of contract on non-approved equipment will not be reviewed nor will they be returned.
E. Notify contracting direction is given within the specifications and drawings, the contractor shall include the most expensive option in the bid.
1.6 SAFETY AND INDEMNITY
A. Safety: The contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
B. No act, service, drawing review or construction review by the owner is intended to include review of the adequacy of the contractor's safety measures in, on, or near the construction site.
1.7 CONSTRUCTION OBSERVATION BY THE ENGINEER
A. Prior to covering any major portion of the materials installed under this section, notify the engineer so that an observation can be made. Notification shall be given to the engineer at least 48 hours in advance of the date he items will be covered.
1.8 INSTRUCTION OF OWNER'S PERSONNEL
A. The contractor shall conduct an on-site instructional tour of the entire project. The personnel designated by the owner shall be instructed in: operation of all electrical systems, trouble-shooting procedures, preventative maintenance procedures, uses of Operation and Maintenance manuals, maintenance and cleaning of lighting fixtures and operation of all special systems.
B. Contractor will include in his bid 8 hours of instruction time to be held at the project location after substantial completion for instruction of owner's personnel. Coordinate time and number of owner personnel to be present and provide schedule to engineer.
1.9 PROJECT CLOSEOUT
A. Upon completion of all work and operational checks on all systems, the contractor shall request a final construction observation be performed.
B. The engineer shall compile a punch list of items to be completed or corrected. The contractor shall notify the engineer upon completion of the items.
1.10 GUARANTEE
A. All work under this section shall be guaranteed in writing to be free of defective work, materials, or parts for a period of one (1) year after final acceptance of the work under this contract or the period indicated under the Division 1 specifications whichever is longer.
B. Repair, revision or replacement of any and all defects, failure or inoperativeness shall be done by the contractor at no cost to the owner.
END OF SECTION 260500

SECTION 260503 - GROUNDING
PART 2 - GENERAL
2.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and Division 1 Specification Sections, apply to this Section.
7.2 SUMMARY
A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.
7.3 SYSTEM DESCRIPTION
A. Ground the electrical service system neutral at service entrance equipment to concrete encased electrode, metal underground water pipe, and effectively grounded metal frame of building.
B. Ground each separately-derived system neutral to nearest effectively grounded metal structural frame of building or point of service entrance ground.
C. Provide common ground conductor bringing conductor to point of service entrance ground.
D. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductors in raceways and cables, receptacle ground connectors, and plumbing systems.
PART 8 - PRODUCTS
8.1 GROUNDING CONDUCTORS
A. Four insulated conductors, comply with Section 260519 - Conductors and Cables.
B. Material: Copper.
C. Equipment Grounding Conductors: Insulated with green-colored insulation. Where green insulation is not available, on larger sizes, black insulation shall be used and suitably identified with green tape at each junction box or device enclosure.
D. Isolated Ground Conductors: Insulated with green-colored insulation with yellow tracer. Where not available, green and yellow tape at each junction box or device enclosure.
E. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
F. Bare Copper Conductors: Medium hard drawn copper conductor, stranded, sized as shown on the drawings.
G. Tinned Conductors: ASTM B33, annealed copper, stranded, soft temper, 98 percent conductivity, some non-corrosive material, approved for the purpose.
H. Grounding Bus: Bars, annealed copper bars of rectangular cross section, with insulators.
8.2 CONNECTOR PRODUCTS
A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.
B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.
C. Welded Connectors: Exothermic-welded type, in kit form, and labeled per manufacturer's written instructions.
D. Below grade compression fittings: Thomas & Betts, Series 53000, 53000, and 54000 or equivalent.
E. Conductive pipeline joint compound: Compound approved for use on all below grade clamp or compression type connections.
8.3 GROUNDING ELECTRODES
A. Ground Rods: Copper-clad steel, 5/8 inch diameter, minimum length 8 feet.
PART 9 - EXECUTION
9.1 APPLICATION
A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
B. Underground, use insulated equipment grounding conductors
C. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections.
D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.
E. Grounding Bus: Install in electrical and telephone equipment rooms, in communications housing service equipment, and elsewhere as indicated.
1. Use insulated spacer: space 1 inch from wall and support from wall 6 inches above finished floor, unless otherwise indicated.
F. Underground Grounding Conductors: Use copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches below grade.
9.2 EQUIPMENT GROUNDING CONDUCTORS
A. Install insulated, copper, sized as indicated, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NEC are indicated.
B. Install equipment grounding conductors in all feeders and circuits.
C. Install insulated equipment grounding conductor with circuit conductors for the following items, in addition to those required by NEC:
1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
D. Computer Outlet Circuits: Install insulated equipment grounding conductor in branch-circuit runs from computer-area power panels or power-distribution units.
E. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
F. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways bonded to outlet or equipment, sized per Section 250 of the NEC.
G. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on grounding bar.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
H. Provide green insulated ground conductor to exterior post light standards.
I. Provide grounding and bonding at pad-mounted transformer in accordance with Section 26120.
9.3 INSTALLATION
A. Ground Rods: Where indicated, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes.
1. Drive ground rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.
2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds, unless otherwise indicated. Make connections without exposing copper or damaging copper coating.
B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
C. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a discovered-type connection is required, then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.
D. Grounding Bus: Install where indicated, minimum dimensions 1/4 inch thick by 2 inches wide and length indicated, with insulated supports. Where a single bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by grounding clamp connectors. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
E. UFER Ground (Concrete-Encased Grounding Electrode): Fabricate according to NEC 250, using a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building grounding grid or to a grounding electrode external to concrete.
9.4 CONNECTIONS
A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
1. Use electrolytic or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
5. Use listed kits of pressure wire connectors with insulation shaped after wire installation for complete range of wire sizes or for smaller sizes by means of split bushings.
B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are pulled out or that show cracks or voids on surfaces indicating improper cleaning are not acceptable.
C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
D. Nonconstant Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing.
E. Connections to Ground Rods at Test Wells: Bolted clamp connectors, attached to ground rod by means of a copper-faced steel or stainless-steel bolt.
F. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those listed in UL 486A and UL 486B.
G. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.
G. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.
9.5 EQUIPMENT GROUNDING
A. Ground non-current carrying metal parts of electrical equipment enclosures, frames, conductor raceways or cable trays to provide a low impedance path for line-to-ground fault current and to bond all non-current carrying metal parts together. Install a grounding conductor in each raceway system. Equipment grounding conductor shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded.
B. Install metal raceway couplings, fittings, and terminations secure and tight to ensure good grounding continuity. Provide grounding conductor sized per NEC 250 and connect to metal raceway and conduit systems.
C. Lighting fixtures shall be securely connected to equipment grounding conductors. Outdoor lighting standards shall have a factory installed ground lug for connection to the grounding conductor.
D. Motors shall be connected to equipment ground conductors with a bolted solderless lug connection on the metal frame.
9.6 FIELD QUALITY CONTROL
A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
END OF SECTION 260526

SECTION 260529 - SUPPORTING DEVICES
PART 10 - GENERAL
10.1 RELATED DOCUMENTS
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this Section.
10.2 WORK INCLUDED
A. Conduit and equipment supports.
B. Fastening hardware.
10.3 RELATED WORK
A. Division 3 - Concrete Work: Concrete equipment pads.
10.4 COORDINATION
A. Coordinate sizes, shape and location of concrete pads with Division 3.
10.5 QUALITY ASSURANCE
A. Support systems shall be adequate for weight of equipment and conduit included, including wiring, which they carry.
PART 11 - PRODUCTS
11.1 MATERIALS
A. Support Channel: Galvanized or painted steel.
B. Hardware: Corrosion resistant.
PART 12 - EXECUTION
12.1 INSTALLATION
A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors or beam clamps. Do not use spring steel clips and clamps.
B. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.
C. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.
D. Do not cut structural members.
E. Do not drill structural steel members.
F. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.
G. In wet locations install free-standing electrical equipment on concrete pads.
H. Install surface-mounted cabinets and panelboards with minimum of four anchors.
I. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.
J. All supports and attachments shall meet project seismic zone requirements.
END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES
PART 13 - GENERAL
13.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
13.2 SUMMARY
A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
13.3 DEFINITIONS
A. EMT: Electrical metallic tubing.
B. FMC: Flexible metal conduit.
C. IMC: Intermediate metal conduit.
D. LFMC: Liquidtight flexible metal conduit.
E. RMC: Rigid metal conduit.
F. RNC: Rigid Polyvinyl Chloride conduit.
G. PVC: Rigid Polyvinyl Chloride conduit
H. HDPE: High Density Polyethylene Conduit
13.4 SUBMITTALS
A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
13.5 COORDINATION
A. Coordinate layout and installation of raceways and boxes with other construction elements to ensure adequate headroom, working clearance, and access.
PART 14 - PRODUCTS
14.1 METAL CONDUIT AND TUBING
A. Rigid Steel Conduit: ANSI C80.1.
B. IMC: ANSI C80.6.
C. PVC-coated Steel Conduit and Fittings: NEMA RN 1; rigid steel conduit with external 40 mil PVC coating and internal two mil urethane coating.
D. EMT and Fittings: ANSI C80.3. Fittings: Set-screw type.
E. FMC: Zinc-coated steel.
F. LFMC: Flexible steel conduit with PVC jacket. Fittings: NEMA FB 1; compatible with conduit/tubing materials.
14.2 NONMETALLIC CONDUIT AND TUBING
A. ENT: NEMA TC 2; Schedule 40 PVC. Fittings: NEMA TC 3; match to conduit and material.
14.3 METAL RACEWAYS
A. Material: Sheet metal sized and shaped as indicated.
B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with raceways as required for complete system.
C. Finish: Manufacturer's standard enamel finish.
14.4 OUTLET AND DEVICE BOXES
A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
B. Cast-Metal Boxes: NEMA FB 1, Type FD, cast box with gasketed cover.
14.5 FLOOR BOXES
A. Floor Boxes: Cast metal, fully adjustable, rectangular, unless otherwise specified.
14.6 PULL AND JUNCTION BOXES
A. Small Sheet Metal Boxes: NEMA OS 1, galvanized steel.
B. Cast-Metal Boxes: NEMA FB 1, cast aluminum with gasketed cover
14.7 CABINETS AND ENCLOSURES
A. Hinged-Cover Enclosures: NEMA 250, Type 1, 3R, or 4, with continuous hinge cover and flush latch, key operable.
1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
B. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage, and include accessory feet where required for freestanding equipment.
14.8 J-HOOKS
A. J-hooks: Steel, rated for indoor use in non-corrosive environments. J-hooks shall be rated to support Category 5e cable.
B. Fittings and Support Bodies: Manufacturer's recommended fittings including cushioning clips, bottom mount flange clips, bottom mount flange clips, beam clamp, rod and flange clip, C & Z purlin clip, and all other components and assemblies to make the system work.
C. Acceptable Product: Caddy CableCat Hanging System, 1-5/16" and 2" hooks, or approved equal
D. Acceptable Manufacturer: Erico Fastening Products or approved equal.
E. J-hook Supports: Manufacturer's recommended fastening devices.
14.9 INNERDUCT
A. Innerduct: NEMA TC 5. UL Listed, corrugated, specifically designed for optical fiber cable pathways.
B. Acceptable Manufacturers: Arrco, Carlon, Dura-line, and Pyramid.
C. Composition:
1. Non-plenum rated: Polyethylene (PE), or High Density Polyethylene (HDPE).
2. Plenum rated: per manufacturer.
D. Nominal Size: 1" (inside diameter), minimum.
E. Pulling Strength: minimum of 600 pounds.
F. Color: Orange, solid.
G. Fittings and Innerduct Bodies: Manufacturer's recommended fittings including couplings, adapters, end caps, end bells, expansion couplings, plugs, and transitions, a full compliment of connective devices, and all other components to make the system work.
PART 15 - EXECUTION
15.1 EXAMINATION
A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation. Do not proceed with installation until unsatisfactory conditions have been corrected.
15.2 WIRING METHODS
A. Outdoors: Use the following wiring methods:
1. Concealed: Rigid steel conduit.
2. Concealed: Rigid steel or IMC.
3. Underground, Single Run: RNC or PVC Externally Coated Rigid Steel Conduit where required by NEC 517.13.
4. Underground, Grouped: RNC or PVC Externally Coated Rigid Steel Conduit where required by NEC 517.13.
5. Connection to Vibrating Equipment (including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4.
B. Indoors: Use the following wiring methods:
1. Exposed: EMT or IMC.
2. Exposed in public areas: "Wiremold" metallic raceways or equal. Use of exposed raceways in public areas must be approved by the architect prior to installation for each location. Use of exposed EMT in areas visible to the public is not allowed unless specifically approved by the architect prior to installation. Replacement of unapproved installations of exposed raceways will be at the expense of the contractor if deemed necessary by the architect or engineer.
3. Concealed: EMT or MC-Cable. Note: MC-Cable is not approved for "homeruns"
4. Concealed in Dwelling Units: Type NM Cable and corresponding boxes.
5. Connection to Vibrating Equipment (including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except in wet or damp locations, use LFMC.
6. Damp or Wet Locations: Rigid steel conduit.
7. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
a. Damp or Wet Locations: NEMA 250, Type 4, stainless steel.
15.3 INSTALLATION
A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
B. Minimum Raceway Size: 1/2-inch trade-size. 3/4-inch minimum for "homerun"
C. Conceal conduit and EMT, unless otherwise indicated, within finished walls, ceilings, and floors.
D. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
E. Install raceways level and square and at proper elevations. Provide adequate headroom.
F. Complete raceway installation before starting conductor installation.
G. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.
H. Support conduit within 12 inches of enclosures to which attached.
I. Protect stub-ups from damage where rising into new through-floor slabs. Arrange so curved portion of bends is not visible above the finished slab.
J. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.
K. Use raceway fittings compatible with raceways and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, unless otherwise indicated.
L. Run concealed raceways, with a minimum of bends, in the shortest practical distance considering the type of building construction and obstructions, unless otherwise indicated.
M. Raceways Embedded in Slabs: Not Allowed
N. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.
1. Make parallel or banked raceways together, on common supports where practical.
2. Make bends in parallel or banked runs from same centerline to make bends parallel. Use factory-elbows only where elbows can be installed parallel, otherwise, provide field bends for parallel raceways.
O. Join raceways with fittings designed and approved for the purpose and make joints tight.
1. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
2. Use insulating bushings to protect conductors.
P. Tighten set screws of threadless fittings with suitable tools.
Q. Terminations: Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against the box. Where terminations are not secure with 1 locknut, use 2 locknuts: 1 inside and 1 outside the box.
R. Where raceways are terminated with threaded hubs, screw raceways or fittings into the hub so the end bears against the wire protection shoulder. Where sheave nipples are used, align raceways so the coupling is square to the box and tighten the chase nipple so no threads are exposed.
S. Install pull wires in empty raceways. Utilize polyester line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of the pull wire.
T. Telephone and Signal System Raceways: In addition to the above requirements, install raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.
U. Install raceway sealing fittings according to manufacturer's written instructions. Locate fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
1. Where conduits pass from warm to cold locations, such as the boundaries of refrigerated spaces.
2. Where conduit pass from the interior to the exterior of a building.
3. Where otherwise required by NEC.
V. Apply firestopping to cable and raceway penetrations of fire-rated floor, ceiling, and wall assemblies to achieve fire-resistance rating of the assembly. Boxes installed in fire-rated floor, ceiling, and wall assemblies shall result in no larger than a 16 square-inch penetration in the fire-rated wall surface and the quantity of penetrations shall not be greater than 100 square inches for every 100 square feet of fire-rated wall area. Where boxes are located on both sides of a fire-rated wall, the boxes shall have a minimum of a 24" horizontal spacing, where a 24" horizontal spacing cannot be achieved, furnish and install listed fire-rated putty on the boxes as required by the IBC.
W. Route conduit through roof openings for piping and ductwork where possible; otherwise, install roof penetrations in accordance with roofing system manufacturer's written instructions.
X. Sub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with the finished floor. Extend conductors to equipment with rigid steel conduit, FMC may be used 6 inches above the floor. Install screwdriver-operated, threaded flush plugs flush with floor for future equipment connections.
Y. Flexible Connections: Use maximum of 6 feet of flexible conduit for recessed and semi-recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.
Z. PVC Externally Coated, Rigid Steel Conduits: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.
AA. Underfloor Raceways: Install a separate, green, ground conductor in raceways from junction box supplying the raceways to receptacle or fixture ground terminals.
BB. Conduits shall not be routed on or above the roof without prior approval from the Engineer. Instead, the branch circuits shall be routed at the structure level below the roof to feed roof-top equipment. When approval is granted to route conduits on or above the roof, the conduits shall be strapped to COOPER industries DB series support blocks at intervals not exceeding NEC requirements. The conduits shall not be nested directly on the roof. It shall be permissible to penetrate the roof adjacent mechanical or electrical equipment to power that respective equipment.
15.4 SUPPORT INSTALLATION
A. Use hangers and devices to securely and permanently fasten and support electrical components.
B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.
C. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers, at least every 8 feet.
D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.
E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.
F. Install 1/4-inch diameter or larger threaded steel hanger rods, unless otherwise indicated.
G. Support conductors in vertical raceways so that weight of conductors does not rest on fittings. Design multiple-conductor cable supports so they may be used instead of malleable-iron hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted channel and angle supports.
H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.
I. Simultaneously install vertical conductor supports with conductors.
J. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches from the box.
K. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.
L. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.
M. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit. Perform fastening according to the following unless other fastening methods are indicated:
1. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
2. New Concrete: Concrete inserts with machine screws and bolts.
3. Existing Concrete: Expansion bolts.
4. Steel: Spring-tension clamps on steel.
5. Sheet Metal: Sheet metal screws.
6. Fasteners: Select so the load applied to each fastener does not exceed 25 *percent of its proof-test* load.
N. Do not drill structural steel members.
O. All supports and attachments shall meet project seismic zone requirements.
15.5 BOX INSTALLATION
A. Do not install boxes back-to-back in walls.
B. Locate boxes in masonry walls to require cutting of masonry unit edge only. Coordinate masonry cutting to achieve neat openings for boxes.
C. Install boxes in walls without backing.
D. Support boxes independently of conduit except for cast boxes that are connected to two rigid metal conduits, both supported within 12 inches of box.
E. Use 4" boxes with multiple-gang mounting where more than one device are mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
F. Install boxes in walls without damaging wall insulation.
G. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
H. Position outlets to locate lighting fixtures as shown on reflected ceiling plans.
I. Provide recessed outlet boxes for flush outlets in finished areas; provide boxes for installation of recessed luminaire, to be accessible from suspended ceiling opening.
J. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness.
K. Use stamped steel stud bridges for flush outlets in hollow stud walls, and adjustable steel channel fasteners for flush ceiling outlet boxes.
K. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
L. For boxes installed in metal construction, use rigid support metal bar hangers or metal bar fastened to two studs or with metal screws to metal studs.
M. Set floor boxes level and adjust to finished floor surface.
N. Set floor boxes level and trim after installation to fit flush to finished floor surface.
O. Install hinged-cover enclosures and cabinets plumb. Support at each corner.
P. Locate pull and junction boxes above accessible ceilings or in unfinished areas. Support pull and junction boxes independent of conduit.
Q. Unless otherwise indicated, install box size to be 4" square by 2 1/8" deep.
15.6 LABELING
A. Label coverplate of all pull and junction boxes by system served. Indicate panel circuits for power and lighting boxes.
15.7 CLEANING
A. On completion of installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.
END OF SECTION 260533

SECTION 260543 - UNDER SLAB AND UNDERGROUND ELECTRICAL WORK
PART 16 - GENERAL
16.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
16.2 SUMMARY
A. This Section includes under slab conduits and related electrical work.
PART 17 - PRODUCTS
17.1 CONDUIT
A. All shall be provided with fittings and accessories approved for the purpose. Refer to Section 260533.
17.2 PRECAST CONCRETE MANHOLE
A. Structural reinforced, size as indicated, with inserts for cable racks and pully eyes.
17.3 BARE COPPER CONDUCTOR
A. Medium hard drawn copper conductor, # 4/0 AWG stranded (unless otherwise noted).
PART 18 - EXECUTION
18.1 GENERAL
A. Electrical system layouts indicated on the drawings are generally diagrammatic, but shall be followed as closely as actual construction and work of other trades will permit.
18.2 CONDUIT INSTALLATION
A. Plastic conduit shall be installed on 2 inch sand base and covered by 2 inch sand back fill. Multiple-runs shall maintain 3 inch minimum separation between runs. Plastic conduit shall not be installed in rock base.
B. Install 1/8 inch drawstring pull line in each empty conduit.
C. Bend conduit to maintain conduit shape and to prevent damage to conduit (minimum).
D. Provide underground type plastic line markers; permanent, brightly colored, continuously printed plastic tape, intended for direct burial service, not less than 6 inches wide, reading "Caution Buried Electrical Line." Install continuous line markers located directly over buried line at 6 inches above top of conduit, during back filling operation.
18.3 CONCRETE DUCT BANK CONSTRUCTION
A. Provide plastic spacers at maximum 5'-0" centers to maintain 3 inch spacing between conduits.
B. Drive two reinforcing bars to anchor the conduits at 10'-0" on centers to prevent floating during concrete pour.
C. Provide one warning tape (see 3.2 H. above) for each 12 inch width of concrete duct bank.
D. Provide waterproof expansion joint seal where conduits pass through the wall of rigid steel conduit at point of penetration of foundation, footing or basement wall, with approximately equal lengths inside and outside building line. Ream the smaller inside diameter conduit smooth to prevent conductor damage.
E. Stagger conduit couplings by a minimum of 12 inches. All risers to grade shall be rigid steel.
F. All rigid steel conduits shall be encased in 3 inch minimum concrete envelope.
G. After completion of concrete encased duct bank, a 12 inch mandrel, ¼ inch less in diameter than a conduit, shall be pulled through each conduit.
END OF SECTION 260543

SECTION 260800 – LIGHTING SYSTEMS COMMISSIONING
PART 19 - GENERAL
19.1 RELATED DOCUMENTS:
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.
19.2 SUMMARY:
A. This Section includes requirements for commissioning the lighting system and its controls.
B. The registered design professional is responsible to provide evidence of lighting systems commissioning and completion in accordance to the provisions of this section.
19.3 DEFINITIONS:
A. Architect: Includes Architect identified in the Contract for Construction between Owner and Contractor, plus consultant/design professionals responsible for design of HVAC, electrical, communications, controls for HVAC systems, and other related systems.
B. RDP: Registered Design Professional
C. Systems, Subsystems, and Equipment: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, and equipment.
19.4 COMMISSIONING DOCUMENTATION
A. Commissioning Plan: A commissioning plan will be developed by a registered design professional or approved agency and shall include the following items:
1. a narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each activity.
2. a listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.
3. Functions to be tested.
4. Conditions under which the test will be performed.
5. Measurable criteria for performance
B. Test Checklists: RDP, with assistance of Architect/Engineer, shall develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. Prepare separate checklists for each mode of operation and for each piece of equipment to indicate whether the mode under test responded as required. Provide space for testing personnel to sign off on each checklist.
1. Name and identification of tested item.
2. Test number.
3. Time and date of test.
4. Indication of whether the record is for a first test or retest following correction of a problem or issue.
5. Date of the test and name of parties involves as applicable.
6. Individuals present for test.
7. Results of satisfactory tests.
8. Note if re-test is necessary.
C. Test and Inspection Reports: RDP shall record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate to the specific test shall be included with data. RDP shall compile test and inspection reports and tests and inspection certificates and include them in systems manual and commissioning report.
D. Corrective Action Documents: RDP shall document corrective action taken for systems and equipment that fail tests. Include required modifications to systems and equipment and revisions to test procedures, if any. Retest systems and equipment requiring corrective action and document retest results. Issues Log: RDP shall prepare and maintain an issues log that describes design, installation, and performance issues that are in variance with the Contract Documents. Identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.
1. Creating an Issues Log Entry:
a. Identify the issue with unique numeric or alphanumeric identifier by which the issue may be tracked.
b.

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	Timed Inputs	Switch input timers 1-999 minutes
	Timed Overrides	Timed override 1-999 minutes, resumes to normal schedule
	Local Control	From alpha-numeric keypad & local switch
	Astronomical	Longitude and latitude input with sunset-sunrise offsets to customize outdoor lighting Clock
	Auto Daylight	Automatically adjusts the clock at the appropriate dates, selectable Savings Adjust.
	Priorities	Establishes a hierarchy for inputs and network control commands
	Masking	Provides permission orientation to switch inputs and network commands thereby ensuring building lighting control integrity.
	Soft-Linking	Group linking for rapid programming

4. Relays may be designated as either normally open or normally closed from software. Relay status shall not only disclose commanded relay status but next scheduled state to occur.
5. Each control panel shall provide a Warn Off (flash the lights) to inform the occupants of an impending Off command. The Warn Off command shall provide an adjustable time duration of 1 second to 99 extra minutes. The occupants may exit the premises with adequate lighting or cancel the Warn Off by overriding the lighting zone. This option occurs with all Off commands except local overrides.
6. Each control panel shall provide a Night Override to override the Off mode for 1 to 240 minutes. Shall provide optional switch timer assignments or timed overrides. The override choices for various relays shall provide special event occurrences and the controller shall return to the programmed state. Also, the controller shall provide priority and masking choices to customize the functions of switch inputs, thereby enabling switches to function differently at different times of the day to meet special facility operational requirements. These overrides shall be hard-wired inputs.
7. Programming the controller shall be through the local integral keypad. Descriptive information shall assist the user to employ the system without a programming manual.
8. Switch inputs and relays shall be assigned to inputs, telephone override, and global commands to insure building integrity. Priorities enable or disable the inputs based on Time-Of-Day scheduling in the controller. Masks shall permit: On only, Off only and On & Off control for intelligent after hours utilization of the controlled facility
9. The lighting control system may be fully programmed through PC programming software. Programming shall be permitted through a direct RS-232 or RS-485 connection, and modem.

C. HARDWARE FEATURES

1. Operator Interface: The control panel programming interface resides in firmware in the control panel. The programming interface shall consist of a circuit board mounted keypad capable of linking switch inputs to relay outputs and schedule assignments. Systems that utilize blocking diode technology for relay assignments shall not be acceptable.
2.
3. The integral keypad shall provide access to the main programming features. The keypad shall permit the user to manually command any or all relays individually. Each panel shall control its own loads from internal memory. A control system that relies on a central control computer/processor or external time clocks shall not be permitted.
4. Contact inputs: The control system shall permit 32 dry contacts (Digital/Switch Inputs) for override purposes. Momentary 3 wire or 2 wire (toggle) inputs shall be supported. Maintained contacts shall be supported as 2 wire (SPST) inputs. Inputs shall be dry contacts (24 VDC @ 12 ma. internally supplied to the inputs). An input shall be software linked to any number of relays for override control.
5. Time Clock Operation: The time clock shall be integral. Each switch input timer shall be capable of 0-999 minutes. Software shall enable or disable switch inputs based on Time Of Day scheduling.
6. Relay Type: The system shall utilize control relays which are rated to 20 amps at 277 VAC. The relays shall be magnetically held and are provided in groups of eight. Relays that are latched or mechanically held are not acceptable. The relays shall be rated for 10 million mechanical operations. A limited 10 year warranty shall be provided on the individual relays.
7. Photocell Control: The controller shall accept user adjustable ambient light sensors. The controller shall provide power for the sensor thereby eliminating any external power supply. Sensors shall provide for both outdoor and indoor applications and provide a dry contact to the controller when the ambient light falls to 5 FC. Sensor shall be capable of mounting remotely from controller.
8. Modular Design: The control system shall employ all modular connectors to avoid repeat wiring in case of component failure. The system CPU board shall be mounted on quick release hinge pins that shall permit an entire change out of the processor and input board in less than 1 minute. All connections for the switch inputs shall incorporate modular connectors. The relay board shall be modular and designed for rapid field replacement or upgrading. Systems that do not employ modular connectors shall not be acceptable.
9.
10. Hardware Output Options

a. Latching Relay Card (LRC): The controller shall provide an option for remote placement of the control relays. A modular card shall connect into the relay compartment. Twisted (3) conductor cable shall power and control the remote mounted relays. Maximum distance is 500 feet employing 18 AWG conductor.

b. Modular Relay Card (MRC): The controller shall provide an option for modular relay control. The Modular Relay Card (MRC) shall offer the feature of controlling two pole voltages such as 208, 240, and 480VAC in a Normally Open or Normally Closed configuration. Single pole is offered for 120 and 277VAC in a Normally Open and Absolute Zero Configuration. This relay card shall also provide visual indication of relay status. Relays shall be individually exchangeable with plug in low voltage connectors. Combinations of relays shall be permitted since relay modules shall snap into and lock in location. Two pole modules require two relay locations for a maximum of four per card. All Modular Relay Cards that includes use 1 relay location for a maximum of eight per card. All Modular Relay Card components shall be warranted for 10 years.

c. Two Pole Relay Card (TPRC): The controller shall provide an option for two pole relay control. The Two Pole Relay Card TPRC shall offer the feature of controlling two pole voltages such as 208, 240, and 480 VAC lighting loads at 20 amps. The relays shall be modular in design and offer manual hand override control. This optional relay card shall also provide a visual indication of relay status. The 208, 240 VAC version shall provide 8 relays per card whereas the 480 VAC version shall provide 4 relays per card. Combinations of relays shall be permitted since relays shall snap into location.

d. Automatic Relay Card (ARC): The system shall utilize hybrid control relays that are rated to 20 amps at 277 VAC. The hybrid relay shall combine a high speed electronic switch with a mechanical relay to create a unique switching device. The hybrid design shall look at each AC phase and shall close the electronic switch precisely at the absolute zero crossing. The mechanical relay in parallel shall follow and close after the in-rush current condition. The relay shall provide an integral switch for both manual hand operation and visual indication of relay status. The relays shall be rated for 10 million mechanical operations. A limited 2 year warranty shall be provided on the individual relays.

e. Lighted Switch Card (LSC): The controller shall provide an option for pilot light wall switch annunciation. A modular card shall connect into the controller board and shall provide power to illuminate pilot light switches. This option shall confirm relay operation. When a relay is in the "ON" position the pilot light switch shall be illuminated.

11. Diagnostic Aids: Each control panel shall incorporate diagnostic aids for confirmation of proper operation, or in case of failure these aids shall guide the individual in rapid troubleshooting of the system.
12.
13. The control panels shall employ both a backlit supertwist LCD and LED's that indicates:

a. POWER (LED)

b. SYSTEM OK (LED)

c. NETWORK COMMUNICATIONS (LED)

d. ON/OFF STATUS of EACH RELAY (LED & LCD)

e. SYSTEM CLOCK and DATE (LCD)

f. PROGRAMMING CONFIRMATION (LCD)

g. (TOD, HOLIDAY, ON/OFF, & PRESET)

13. Control systems that do not provide visual self help diagnostics shall not be acceptable.
14. Memory Back-up: The system shall utilize a memory back-up device that is system integrated and shall be non-serviceable. The data in RAM shall be protected against power interruptions lasting as long as 7 days. The power interrupt protection circuit shall be entirely maintenance-free.
15. Multi-tapped Transformer: The control panel shall incorporate the use of a multi-tapped transformer. The panel shall not require specification of voltage for each control location. The voltages of 120 & 277 VAC shall be available with each control panel.
16. Status Indication of Relays: The system shall provide visible status indication of all relays through the window of each control panel. The visual indication shall disclose On/Off status and relay number.
17. Service Override & Priority Override: The control panel shall provide a three position master-service override for the control unit. The service override shall not be accessible from the exterior.

    The master service override provides a single three position switch with the option of All Off, Auto, and All On, respectively. This master switch shall operate all of the relays in the controller. This switch shall override and supersede all commands from the logic board when the switch is in the All On or All Off position. The master switch shall function to override all the relays should the logic board programming differ from the space function.

    The system shall remember the last command to the individual relays. Upon returning the master override switch to the Auto position, the relays shall return to the most recent command state. This will occur even if the last command happened during the master override condition.

    Additionally, the system shall provide external priority override for the entire panel. Through an externally maintained contact the override card shall place the panel in a priority state. This external contact will supersede any other programmed state and will command all the relays ON or OFF depending on operational choice. This priority state will continue until the external contact is removed. Once the external override is removed the control panel will return the relays to the appropriate programmed state.

18. Lockable Enclosure: Each control panel shall be enclosed in a lockable NEMA class 1 enclosure. The enclosure shall be manufactured out of 1/16" steel and shall provide pre-punched knockouts for efficient installation.
19. Panels: The low voltage controller shall exist in two sizes of relay enclosures. The enclosure maximum sizes shall be 32 relays per cabinet. The 16 size will employ two relays cards and the 32 will utilize 4 relay cards. Relays shall be provided in groups of eight relays per card.
20. High Voltage Barriers: The low voltage controller shall provide as an option the ability to provide a barrier for either voltage separation or emergency circuit separation. The 16-size enclosure shall permit one barrier and the 32-size enclosure shall permit up to three locations where the barrier(s) may be installed. The barrier shall be painted red to denote the difference.
21. Modem: The control system shall be capable of modem communications. Each control panel shall provide a serial communications port for communications with a modem. The modem shall utilize the Hayes compatibility standard and enable modem access as defined by the Bell 212A and CCITT V.22 protocol standards.
22. Telephone Overrides (TIM): The control system shall provide intelligent software for the Telephone Interface Module (TIM) option. The optional TIM unit shall allow modem communications and touch tone overrides from any touch tone phone. The control system shall be multi-tasking and permit up to one TIM for each control panel.
23. Override Operation: Touch-tone interface shall permit the control panel to command pre-assigned control points Ont Off. All user interfaces shall be through the twelve Touch-tone keys on the telephone. All entries into the override system shall be prompted by a digitized voice. Systems not employing digitized voice prompting shall not be acceptable.
24. The TIM shall provide individual control passwords. Each password shall allow a preset group designation (number of relays) and the duration of the telephone override. TIM shall also provide a password to prevent entry into the override control system.
25. Software: System provided shall include the manufactures PC based interface software package. The PC based interface software shall provide access to lighting control system files within a Microsoft Windows environment. The software package shall allow individual panel programming to be executed locally, direct connection, Ethernet connection or remotely through a modem. The central programming software shall permit the user to modify the control panel programming or configuration in an "OFF-LINE" mode. This software package shall store all programmed data and archive for future use. Systems using third party software are not acceptable.
26. The following features shall be standard in the PC based software:

a. Standard Software Features:
   1) Real Time Relay Status Monitoring
   2) Alpha-Numeric Descriptors
   3) Communications: Direct, Network, Ethernet and Modem
   4) Network Status Indication
   5) Global Software Modifications
   6) Manual Relay Commands
   7) Remote Pattern Commands
   8) Preset Options

b. File Maintenance
   1) Archive Programs
   2) Data Base Restoration
   3) Uploading and Downloading of Programs

27. Software package shall permit the PC to be utilized for other functions (i.e. word processing, data-base, & etc.,) besides lighting control. Systems that require an "on-line" dedicated computer for control system operation shall not be acceptable.
28. PC Interface (RS-232 port): The controller shall permit PC programming through software. The controller shall provide a RJ-12 connection for RS-232 programming. Programming shall be permitted through either a local connection or remotely through a modem. PC software shall permit downloading and storage for data archival and for seasonal facility requirements. Operator commands may be issued directly from the PC keyboard.

D. MANUFACTURERS
1. Acuity
2. Cooper Controls, Greengate
3. Lutron
4. Schneider

E. PRODUCT SUPPORT AND SERVICE
1. Factory Support: Factory telephone support shall be available at no cost to the owner. Factory assistance shall consist of solving programming or application questions concerning the control equipment.

F. WARRANTY
1. Manufacturer shall supply a 2 year warranty on all hardware and software. A limited 10 year warranty shall be provided on the standard relay card.

23.4 PHOTOELECTRIC RELAYS
A. Description: Solid state, with single-pole, double-throw dry contacts rated to operate connected relay or contactor coils or microprocessor input, and complying with UL 773A.
B. Sensitivity Range: 0 to 3500 fc, with an adjustment for turn-on/turn-off levels.
C. Time Delay: Prevents false operation.
D. Outdoor Sealed Units: Weather tight housing, resistant to high temperatures and equipped with sun-glare shield and ice preventer.

23.5 OCCUPANCY SENSORS
A. Occupancy sensors indicated on the plans are to establish room controls and sensor quantities. The contractor is to verify sensor placement with the local manufacturer's representative or the manufacturer to ensure proper coverage and functionality of the specific sensor(s) installed. The contractor is to return and make any adjustments necessary to the occupancy sensor settings and/or placement needed to maintain proper functionality within 30 days after the substantial completion of the project.
B. Lighting control system shall include all occupancy sensors, power packs, and control wiring required to form a complete system.
C. All occupancy sensors shall be dual/multi technology, manufactured by Unenco, Wattstopper, Lightolier Controls, Sensor Switch, or pre-approved equal unless otherwise noted.
D. Ceiling and Wall Mount Units: Shall utilize dual/multi technology detection methods. Unit receives control power from a separately mounted auxiliary power and control unit, and operates power switching contacts in that unit.
E. Switch-Box-Mounting Units: Shall utilize dual/multi technology detection methods. Unit receives power directly from switch leg of the 120- or 277-V ac circuit it controls and operates integral power switching contacts. Unit is to have integral manual controls and is to be mounted at standard switch height.
F. Operation: Turns lights on when room or covered area is occupied and off when unoccupied, unless otherwise indicated.
1. Time Delay for Turning Lights *Off*: Adjustable over a range from ' to 20 minutes, minimum. Time delay to be set at 20 minutes unless otherwise directed. Contractor shall verify time delay with the owner/tenant prior to final occupancy.
2. Manual Override Switch: Where indicated on drawings, turns lights off manually regardless of elapsed time delay.
3. Sensor shall be located and/or adjusted to detect occupancy within 1-foot of entry into room or area controlled by the occupancy sensor.

G. Auxiliary Power and Control Units: As follows:
1. Relays rated for a minimum of 20-A normal ballast load.
2. Relays shall have an auxiliary contacts for integration with unpowered sensors.
3. Relays shall have an auxiliary contacts for integration with HVAC or other building control systems.

H. Passive-Infrared Type: Detects occupancy by a combination of heat and movement in zone of coverage.
I. Ultrasonic Type: Emits a beam of ultrasonic energy and detects occupancy through use of Doppler's principle in discerning movement in zone of coverage by sensing a change in pattern of reflected ultrasonic energy. Ultrasonic frequency shall be 25 Khz or greater and sensor shall be temperature and humidity resistant.
J. Dual-Technology Type: Uses a combination of passive-infrared and ultrasonic or microphonic detection methods to distinguish between occupied and unoccupied conditions for area covered. Particular technology or combination of technologies that controls each function (ON or OFF) is selectable in the field by operating controls on unit.
K. Power Pack: Self-contained, operating normally with electronic ballast and compact fluorescent systems.
L. Coverage of sensors shall remain constant after sensitivity control has been set. No automatic reduction shall occur in coverage due to the cycling of air conditioner or heating fans.
M. All sensors shall have readily accessible, user adjustable controls for time delay and sensitivity. Controls shall be recessed to limit tampering.
N. In the event of failure, a bypass manual "override on" feature shall be provided on each sensor. When bypass is utilized, lighting shall remain on constantly. The override feature shall be designed for use by building maintenance personnel and shall not be readily accessible by building occupants.
O. All sensors shall provide an LED indication light to verify that motion is being detected and that the unit is working.
P. Power Pack: Consume not more than 0.5 watt current in OFF mode and shall have voltage drop protection.

23.6 MULTIPLE CONTACTORS AND RELAYS
A. Description: Electrically operated and mechanically held, and complying with UL 508 and NEMA ICS 2.
1. Current Rating for Switching: UL listing or rating consistent with type of load served.
2. Control Coil Voltage: Match control power source.

PART 24 - EXECUTION
24.1 INSTALLATION
A. Install equipment level and plumb and according to manufacturer's written instructions.

24.2 CONTROL WIRING INSTALLATION
A. Install wiring between sensing and control devices according to manufacturer's written instructions.
B. Wiring Method: Install all wiring in raceways.
C. Bundle, train, and support wiring in enclosures.
D. Ground equipment.
E. Connections: Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

24.3 IDENTIFICATION
A. Provide Brady wire markers or equivalent on all conductors.

24.4 FIELD QUALITY CONTROL
A. Inspect control components for defects and physical damage.
B. Verify settings of photoelectric devices with photometer.
C. Electrical Tests: Use particular caution when testing devices containing solid-state components. Perform the following according to manufacturer's written instructions:
1. Continuity tests of circuits.
2. Operational Tests: Set and operate devices to demonstrate their functions and capabilities in a methodical sequence that cues and reproduces actual operating functions.
D. Correct deficiencies, make necessary adjustments, and retest. Verify that specified requirements are met.
E. The Lighting Control Panel shall be tested and listed under the UL 916 Energy Management Equipment Standards.

24.5 CLEANING
A. Cleaning: Clean equipment and devices internally and externally using methods and materials recommended by manufacturers, and repair damaged finishes.

END OF SECTION 260923

SECTION 262413 - MAIN SWITCHBOARDS
PART 25 - GENERAL
25.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

25.2 SUMMARY
A. This section includes main switchboards.
B. Related sections:
1. Section 260501 - Field Test and Operational Check.
2. Section 260526 - Grounding

25.3 REFERENCES
A. FS W-C-375 - Circuit Breakers, Molded Case, Branch Circuit and Service.
B. NEMA AB 1 - Molded Case Circuit Breakers.
C. NEMA PB 2 - Dead Front Distribution Switchboards.
D. NEMA PB 2.1 - Instructions for Safe Handling, Installation, Operation and Maintenance of Deadfront Switchboards Rated 600 Volts or Less.

25.4 SUBMITTALS
A. Product Data: For each type of switchboard, overcurrent protective device, ground-fault protector, accessory, and component indicated. Include dimensions and manufacturer's technical data on features, performance, electrical characteristics, ratings, and finishes.
B. Include front and side views of enclosures with overall dimensions shown; conduit entrance locations and requirements; nameplate legends; size and number of bus bars per phase, neutral, and ground; switchboard instrument details; instructions for handling and installation of switchboard; and electrical characteristics including voltage, frame size and trip ratings, withstand ratings, one line and wiring diagrams, and time-current curves of all equipment and components.
C. Field test reports - See Section 260501.

25.5 OPERATION AND MAINTENANCE DATA
A. Submit operation and maintenance data. Include the following:
1. Routine maintenance requirements for switchboards and all installed components.
2. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
3. Time-current curves, including selectable ranges for each type of overcurrent protective device.

25.6 DELIVERY, STORAGE, AND HANDLING
A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
B. Handle in accordance with NEMA PB2.1 and manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to switchboard internal components, enclosure, and finish.

25.7 COORDINATION
A. Coordinate layout and installation of switchboards and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
B. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

25.8 SPARE PARTS
A. Keys: Furnish 3 each to owner.
B. Fuses: Furnish to owner 3 spare fuses of each type and rating installed.
C. Fuse Pullers: Furnish one fuse puller to owner.

PART 26 - PRODUCTS
26.1 MANUFACTURERS
1. Approved Manufacturers:
   a. Cutler-Hammer; Eaton Corporation.
   b. ABB / General Electric Company; Electrical Distribution & Control Div.
   c. Siemens Energy & Automation, Inc.
   d. Square D; Schneider Electric.
   e. Or Equal

26.2 SWITCHBOARD CONSTRUCTION AND RATINGS:
A. Factory-assembled, dead front, metal-enclosed, and self-supporting switchboard assembly conforming to NEMA PB 2, and complete from incoming line terminals to load-side terminations. Provide lugs appropriate for conductors used.
B. Switchboard electrical ratings and configurations as shown on Drawings.
C. Series rating is not acceptable unless specifically indicated on the plans.
D. Line and Load Terminations: Accessible from the front of the switchboard, suitable for the conductor materials used.
E. Bus Material: Copper sized in accordance with NEMA PB 2.
F. Bus Arrangement: Use A-B-C sequence in left-to-right, top-to-bottom, and front-to-rear arrangement throughout.
G. Bus Connections: Bolted, accessible from front or rear for maintenance.
H. Enclosure shall be NEMA PB 2 Type 1 - General Purpose. Sections shall align at front and rear. Provide NEMA 3R Enclosure when indicated on plans.
I. Switchboard Height (NEMA 1) : 90 inches, excluding floor sills, lifting members and pull boxes.
J. Finish: Manufacturer's standard light gray enamel over external surfaces. Coat internal surfaces with minimum one coat corrosion resisting paint, or plate with cadmium or zinc.
K. Future Provisions: Fully equip spaces for future devices with bussing and bus connections, suitably insulated and braced for short circuit currents. Continuous current rating as indicated on Drawings.

26.3 SWITCHING AND OVERCURRENT PROTECTIVE DEVICES-
A. Main Circuit Breaker Assemblies:
1. Main Circuit breakers (unless otherwise indicated on plans) shall be insulated case type as indicated on plans with temperature insensitive, solid state trips, current sensors and solid state logic circuit integral with the frame. All circuit breakers shall be of same design for over-current and ground fault trip coordination.
2. All Main Circuit Breakers rated for 1200 Amp or higher shall have the following features:
   a. UL listed for 80 percent load application unless otherwise indicated on plans as 100% rated.
   b. Adjustable [L] Long time time-delay and ampere setting.
   c. Adjustable [S] Short time-delay and pick-up.
   d. Adjustable [I] Instantaneous trip.
   e. Adjustable [R] Reduced Energy Let-Through (RELT) Instantaneous trip. This feature shall be provided on breakers to provide a temporary setting for the instantaneous trip setting of the breaker. Setting shall be adjustable down to 1.5X of the rating plug and shall be enabled through a switch mounted on front of the switchboard. The switch shall be combined with an indicating light that positively indicates that the RELT is enabled or disabled.
   f. For 277/480Y systems rated 1000 Amp or higher - Adjustable [G] Ground fault pick-up and delay is required.
   g. Where Indicated special zone control interlocking for main breaker and future main and tie breaker of double-ended substation switchboard.
   h. Short circuit, overload and ground fault trip indicators.
   i. Trip device of circuit breakers shall be of the same type for tripping coordination and shall allow for the UL listed field installation of internal accessories (Auxiliary Switch, Shunt Trip, Undervoltage release, Bell Alarm Switch) without removal of cover to install. Breaker shall include Accessories as indicated on plans.
   j. Circuit breaker handle accessories shall provide provisions for locking handle in the 'ON ' or ' OFF' position.

B. ALL Feeder Breaker Assemblies 1200 Amp and above:
1. Feeder Circuit breakers 1200 Amp may be Molded Case or Individually Mounted, 1600 Amp and above shall be Insulated Case with temperature insensitive, solid state trips, current sensors and solid state logic circuit integral with the frame. All circuit breakers shall be of same design for over-current and ground fault trip coordination. The Circuit breakers shall have the following features:
   a. UL listed for 80 percent load application unless otherwise indicated on plans as 100% rated.
   b. Adjustable [L] Long time time-delay and ampere setting.
   c. Adjustable [S] Short time-delay and pick-up.
   d. Adjustable [I] Instantaneous trip.
   e. Adjustable [G] Ground fault pick-up and delay where indicated or required be NEC.
   f. Adjustable [R] Reduced Energy Let-Through (RELT) Instantaneous trip. This feature shall be provided on breakers to provide a temporary setting for the instantaneous trip setting of the breaker. Setting shall be adjustable down to 1.5X of the rating plug and shall be enabled through a switch mounted on front of the switchboard. The switch shall be combined with an indicating light that positively indicates that the RELT is enabled or disabled.
   g. Where Indicated special zone control interlocking for main breaker and future main and tie breaker of double-ended substation switchboard.
   h. Short circuit, overload and ground fault trip indicators.

D. Feeder Circuit Breaker Assemblies below 1200 Amp:
1. Feeder Circuit breakers below 1200 Amp shall be digital solid state true RMS sensing Molded Case Circuit Breakers with temperature insensitive, solid state trips, current sensors and solid state logic circuit integral with the frame. All circuit breakers shall be of same design for over-current and ground fault trip coordination. The Circuit Breakers shall have the following minimum features:
   a. UL listed for 80 percent load application unless otherwise indicated on plans.
   b. Long time pickup (ampere setting) determined by interchangeable rating plug .
   c. Adjustable instantaneous with short time tracking function.
   d. Circuit Breaker shall allow the UL listed field installation internal accessories (Auxiliary Switch, Shunt Trip, Undervoltage release, Bell Alarm Switch) without removal of cover to install. Circuit Breaker shall include Accessories as indicated on plans.
   e. Circuit breaker handle accessories shall provide provisions for locking handle in the 'ON' or 'OFF' position
2. Where specifically indicated or required by NEC
   a. Adjustable [L] Long time time-delay and ampere setting.
   b. Adjustable [S] Short time-delay and pick-up.
   c. Adjustable [I] Instantaneous trip.
   d. Adjustable [G] Ground fault pick-up and delay where indicated or required be NEC.
   e. Where Indicated special zone control interlocking for main breaker and future main and tie breaker of double-ended substation switchboard
   f. Short circuit, overload and ground fault trip indicators.
   h. Trip device of circuit breakers shall be of same type for tripping coordination.

E. Feeder Circuit Breaker Assemblies 150 Amp and below:
1. Feeder Circuit breakers 150 Amp and below shall be thermal Magnetic Circuit breaker: Inverse time current element for low level overloads, and instantaneous magnetic trip element for short circuits, unless otherwise indicated or required to meet Section 2.4 C above. Minimum features below:
   a. UL listed for 80 percent load application unless otherwise indicated on plans.
   b. Circuit Breaker shall allow the UL listed field installation internal accessories (Auxiliary Switch, Shunt Trip, Undervoltage release, Bell Alarm Switch) without removal of cover to install. Circuit Breaker shall include Accessories as indicated on plans.
   c. Circuit breaker handle accessories shall provide provisions for locking handle in the 'ON' or 'OFF' position
2. Where specifically indicated or required by NEC
   a. Adjustable [L] Long time time-delay and ampere setting with Long time pickup (ampere setting) determined by interchangeable rating plug.
   b. Adjustable [S] Short time-delay and pick-up.
   c. Adjustable [I] Instantaneous trip.
   d. Adjustable [G] Ground fault pick-up and delay where indicated or required be NEC.
   e. Where Indicated special zone control interlocking for main breaker and future main and tie breaker of double-ended substation switchboard
   f. Short circuit, overload and ground fault trip indicators.
   h. Trip device of circuit breakers shall be of same type for tripping coordination.

26.4 OPTIONAL FEATURES
A. When indicated on drawings, provide single phasing protection with UL listed phase monitor, relays, shunt trip coils and all necessary accessories and wiring to trip designated circuit breakers (with motor loads) when voltage of any phase drops below 88 percent of rated voltage. Taylor "Phase Guard" Model PND with a two second delay.

26.5 LUGS AND HARDWARE
A. Cable connectors shall be mechanical type lugs, suitable for copper or aluminum cables. All hardware used on conductors shall have high tensile strength and a suitable protective finish. All connections shall be made with Belville washers.

26.6 PROVISIONS FOR HANDLING
A. Provide adequate lifting means.
B. Switchboard shall be capable of being rolled or moved into installation position and bolted directly to the floor without use of floor sills.

26.7 WIRING
A. Provide all necessary control and instrumentation wiring.
B. Provide fuses, fuse blocks, control transformers, terminal blocks with suitable numbering strips, relays, auxiliary contact switches on circuit breakers as required.
C. Locate terminal blocks for remote load monitoring transducers in CT compartment for future extension by Owner.
D. All low voltage and control wiring shall be physically isolated from live busses so that safe access can be obtained without de-energizing the switchboard.

PART 27 - EXECUTION
27.1 INSTALLATION
A. Install switchboard in locations shown on Drawings, in accordance with manufacturer's written instructions and NEMA PB 2.1.
B. Tighten accessible bus connections and mechanical fasteners after placing switchboard.
C. Provide 2" high concrete leveling pad under switchboard. Dimension 8" larger than footprint of equipment. Anchor to pad with ½" anchor bolts.

27.2 FIELD QUALITY CONTROL
A. Testing: Refer to Section 260501 – Field Test and Operational Check.

27.3 IDENTIFICATION
A. Provide engraved lamacoid nameplate for the switchboard and each component.
B. Provide warning signs.

27.4 ADJUSTING AND CLEANING
A. Set field-adjustable switches and circuit breaker trip ranges.
B. Adjust all operating mechanisms for free mechanical movement.
C. On completion of installation, inspect interior and exterior of switchboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION 262413

SECTION 262413 - PANELBOARDS

PART 28 - GENERAL

28.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

28.2 SUMMARY
A. This Section includes load centers and panelboards, overcurrent protective devices, and associated auxiliary equipment rated 600 V and less for the following types:
1. Lighting and appliance branch-circuit panelboards.
2. Distribution panelboards.
B. Related sections:
1. Section 260501 - Field Test and Operational Check.
2. Section 260526 - Grounding

28.3 SUBMITTALS
A. Product Data: For each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
B. Shop Drawings: For each panelboard and related equipment.
1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:
   a. Enclosure types and details for types other than NEMA 250, Type 1.
   b. Bus configuration, current, and voltage ratings.
   c. Short-circuit current rating of panelboards and overcurrent protective devices.
   d. UL listing for series rating of installed devices.
   e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
C. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.
D. Maintenance Data: For panelboards and components, include the following:
1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Time-current curves, including selectable ranges for each type of overcurrent protective device.

28.4 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the NEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Comply with NEMA PB 1.
C. Comply with the NEC.

28.5 COORDINATION
A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.

PART 29 - PRODUCTS

29.1 MANUFACTURERS
A. Manufacturers:
1. Panelboards, Overcurrent Protective Devices and Accessories:
   a. Cutler-Hammer; Eaton Corporation.
   b. ABB / General Electric Company; Electrical Distribution & Control Div.
   c. Siemens Energy & Automation, Inc.
   d. Square D; Schneider Electric.
   e. Or Equal

29.2 FABRICATION AND FEATURES
A. Enclosures: Flush or surface mounted cabinets (as indicated on drawings). Construct cabinets with code gauge galvanized steel. Provide minimum 20" wide cabinets and extra wiring space where incoming feed-through or parallel lines are shown. NEMA PB 1, Type 1, to meet environmental conditions at installed location.
1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
4. Hazardous Areas indicated on Drawings: NEMA 250, Type 7C.
B. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
C. Doors: Provide door-in-door construction, made of cold-rolled steel. Inner door shall provide access to breaker handles and outer door shall provide access to wiring space as well. Inner door shall be completely flush with no visible bolts, screw-heads or hinges and with flush catch and lock. Outer door shall have concealed hinges, flush catch and lock to match inner door, located in line with inner door catch. (Two bar handles are not acceptable)
D. Finish: Manufacturer's standard gray finish over corrosion-resistant treatment or primer coat.
E. Directory Card: With transparent protective cover, mounted inside metal frame, inside panelboard door.
F. Bus: Hard-drawn copper, 98 percent conductivity. Attach circuit breakers to bus so that circuits 1, 3, and 5; 2, 4, and 6, or any three similarly numbered circuits form one three-phase, four-wire circuit.
G. Main and Neutral Lugs: Compression or mechanical type suitable for use with conductor material.
H. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors bonded to box.
I. Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.
J. Isolated Equipment Ground Bus: Where indicated on drawings - Adequate for branch-circuit equipment ground conductors; insulated from box.
K. Extra-Capacity Neutral Bus: Where indicated on drawings, neutral bus rated 200 percent of phase bus and UL listed as suitable for nonlinear loads. Where indicated on plans, On 120/208Y Panels fed by K factor Type Transformer.
L. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor. Where indicated on plans.
M. Gutter Barrier: Arrange to isolate individual panel sections.
N. Feed-through Lugs: Compression or mechanical type suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device. For two-section panels.
O. Panels located adjacent to each other shall have identically sized enclosures and trims.

29.3 PANELBOARD SHORT-CIRCUIT RATING
A. UL label indicating series-connected rating with integral or remote upstream devices. Include size and type of upstream device allowable, branch devices allowable, and UL series-connected short-circuit rating. If not series rated: Fully rated to interrupt symmetrical short-circuit current available at terminals or the rating indicated on the plans, whichever is higher.

29.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS
A. Branch Overcurrent Protective Devices:
1. 120/208Y volt branch circuit panelboards: Quick-make, quick-break, molded case plug-in type designed for 120/208Y volt, three-phase, four-wire service with minimum 10,000 amperes rms short circuit rating.
2. 277/480Y volt branch circuit panelboards: Molded case bolt-on type designed for 277/480Y volt, three-phase, four-wire service with minimum 14,000 amperes rms short circuit rating.
3. Provide multi-pole units where indicated on trip elements.
4. Breaker shall have center-tripped position in addition to the ON and OFF positions.
5. Provide lockouts for all circuits that should not be inadvertently tripped (as indicated on the drawings).

29.5 DISTRIBUTION PANELBOARDS
A. Dead-front, dead-rear, Nema 1 or 3R enclosure as indicated, designed for use on a three-phase, four-wire, 120/208Y or 277/480Y volt system. See drawings for additional details.
B. Construction: Code gauge galvanized steel fully flanged for strength and rigidity. Door and trim shall be cold-rolled steel, code gauge. Provide concealed butt hinges and 3-point catch and lock. Provide separately hinged or bolted vertical access doors over lug and wiring spaces.
C. Bus Bars: Panel shall be fully fusized. Shall be used throughout and shall be hard-rolled, electrolytic copper of 98% conductivity designed for a maximum 1000 amperes per square inch. Bars shall be factory pre-drilled to accept future field installation of 2' or 3 pole circuit breakers in any combination. Brace all bus bars for required short circuit rating of the panel, but in no case less than 35,000 amperes rms. Refer to Short Circuit information above for additional requirements.
D. Main Overcurrent Protective Devices: Circuit breaker unless otherwise noted.
E. Provide handle locking devices for all circuit breakers.
F. Provide engraved nameplates with minimum ½" high letters secured to panel front and for each circuit protective device in panel.

29.6 OVERCURRENT PROTECTIVE DEVICES
A. Main Breaker (or Feeder) Assemblies rated for 1200 Amps:
1. Main (or feeder) breakers rated for 1200 Amp may be Molded Case with temperature insensitive, solid state trips, current sensors and solid state logic circuit integral with the frame. All circuit breakers shall be of same design for over-current and ground fault trip coordination. The Circuit breakers shall have the following features:
   a. UL listed for 80 percent load application unless otherwise indicated on plans as 100% rated.
   b. Adjustable [L] Long time time-delay and ampere setting.
   c. Adjustable [S] Short time-delay and pick-up.
   d. Adjustable [I] Instantaneous trip.
   e. For 277/480Y systems rated 1000 Amp or higher - Adjustable [G] Ground fault pick-up and delay is required.
   f. Adjustable [G] Ground fault pick-up and delay where indicated or required be NEC.
   g. Adjustable [R] Reduced Energy Let-Through (RELT) Instantaneous trip. This feature shall be provided on breakers to provide a temporary setting for the instantaneous trip setting of the breaker. Setting shall be adjustable down to 1.5X of the rating plug and shall be enabled through a switch mounted on front of the switchboard. The switch shall be combined with an indicating light that positively indicates that the RELT is enabled or disabled.
   h.

C. Feeder Circuit Breaker Assemblies 400 Amps or larger:
1. Feeder Circuit breakers 400 Amps or larger shall be digital solid state true RMS sensing Molded Case Circuit Breakers with temperature insensitive, solid state trips, current sensors and solid state logic circuit integral with the frame. All circuit breakers shall be of same design for over-current and ground fault trip coordination. The Circuit Breakers shall have the following minimum features:
a. UL listed for 80 percent load application unless otherwise indicated on plans.
b. Long time pickup (ampere setting) determined by interchangeable rating plug .
c. Adjustable instantaneous with short time tracking function.
d. Circuit Breaker shall allow the UL listed field installation internal accessories (Auxiliary Switch, Shunt Trip, Undervoltage release, Bell Alarm Switch) without removal of cover to install. Circuit Breaker shall include Accessories as indicated on plans.
e. Circuit breaker handle accessories shall provide provisions for locking handle in the 'ON' or 'OFF' position
2. Where specifically indicated or required by NEC
a. Adjustable [L] Long time time-delay and ampere setting.
b. Adjustable [S] Short time-delay and pick-up.
c. Adjustable [I] Instantaneous trip.
d. Adjustable [G] Ground fault pick-up and delay where indicated or required be NEC.
e. Where Indicated special zone control interlocking for main breaker and future main and tie breaker of double-ended substation switchboard
f. Short circuit, overload and ground fault trip indicators.
h. Trip device of circuit breakers shall be of same type for tripping coordination.

D. Feeder Circuit Breaker Assemblies 150 Amp and below:
1. Feeder Circuit breakers 150 Amp and below shall be thermal Magnetic Circuit breaker: Inverse time current element for low level overloads, and instantaneous magnetic trip element for short circuits, unless otherwise indicated or required to meet Section 2.4 C above. Minimum features below:
a. UL listed for 80 percent load application unless otherwise indicated on plans.
b. Circuit Breaker shall allow the UL listed field installation internal accessories (Auxiliary Switch, Shunt Trip, Undervoltage release, Bell Alarm Switch) without removal of cover to install. Circuit Breaker shall include Accessories as indicated on plans.
c. Circuit breaker handle accessories shall provide provisions for locking handle in the 'ON' or 'OFF' position
2. Where specifically indicated or required by NEC
a. Adjustable [L] Long time time-delay and ampere setting with Long time pickup (ampere setting) determined by interchangeable rating plug .
b. Adjustable [S] Short time-delay and pick-up.
c. Adjustable [I] Instantaneous trip.
d. Adjustable [G] Ground fault pick-up and delay where indicated or required be NEC.
e. Where Indicated special zone control interlocking for main breaker and future main and tie breaker of double-ended substation switchboard
f. Short circuit, overload and ground fault trip indicators.
h. Trip device of circuit breakers shall be of same type for tripping coordination.

E. General Breaker Requirements:
1. Minimum interrupting capacity shall match the minimum required interrupt rating of the panel.
2. Standard frame sizes, trip ratings, and number of poles.
3. Lugs: Mechanical or compression style, suitable for number, size, trip ratings, and material of conductors.
4. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
5. GFCI Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.
6. Shunt Trip: 120-V trip coil energized from separate circuit.

PART 30 - EXECUTION

30.1 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Clearances: Minimum code required clearances around panelboards must be maintained.

C. Mounting Heights: Top of trim 78 inches above finished floor, unless otherwise indicated.

D. Mounting: Plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

E. Mounting Hardware: Provide all necessary blocking, channels and other hardware for securing panelboards to wall, column or other parts of building structure.

F. Circuit Directory: Create a directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

G. Install filler plates in unused spaces.

H. Wiring in Panelboard Gutters: Arrange conductors into groups and bundle and wrap with wire ties after completing load balancing.

30.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components.

B. Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws. Label shall include panel designation, voltage and phase in minimum ¼" high letters.

30.3 CONNECTIONS

A. Install equipment grounding connections for panelboards with ground continuity to main electrical ground bus.

B. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

30.4 FIELD QUALITY CONTROL

A. Testing: Refer to Section 260501 – Field Test and Operational Check

B. After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements
1. Procedures: Perform each visual and mechanical inspection and electrical test indicated in NETA ATS, Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

C. Balancing Loads: After Substantial Completion, measure load balancing and make circuit changes as follows:
1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

30.5 ADJUSTING

A. Set field-adjustable switches and circuit breaker trip ranges.

B. Adjust all operating mechanisms for free mechanical movement.

30.6 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION 262416

SECTION 262418 – MOTOR STARTERS

PART 31 - GENERAL

31.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

31.2 SUMMARY
A. This Section includes as general-purpose starters rated 600 V and less.

31.3 SUBMITTALS
A. Product Data: For each type of enclosed starter. Include dimensions and manufacturer's technical data on features, performance, electrical characteristics, ratings, and finishes.
B. Shop Drawings: For each enclosed starter:
1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:
a. Enclosure types and details.
b. Nameplate legends.
c. Short-circuit current rating of integrated unit.
d. UL listing for series rating of overcurrent protective devices in combination starters.
e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices in combination starters.
2. Wiring Diagrams: Power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.
C. Coordination Drawings: Floor plans showing dimensioned layout, required working clearances, and required area above and around enclosed starters where piping and ducts are prohibited. Show enclosed starter layout and relationships between electrical components and adjacent structural and mechanical elements. Show support locations, type of support, and weight on each support. Indicate field measurements.
D. Maintenance Data: For enclosed starters and components, include the following:
1. Routine maintenance requirements for enclosed starters and all installed components.
2. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
E. Load-Current and Overload-Relay Heater List: Compile after motors have been installed and arrange to demonstrate that selection of heaters suits actual motor nameplate full-load currents.

31.4 QUALITY ASSURANCE
A. Manufacturer Qualifications: Maintain, within 100 miles of project site, a service center capable of providing training, parts, and emergency maintenance and repairs.
B. Source Limitations: Obtain enclosed starters of a single type through one source from a single manufacturer.
C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the NEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
D. Comply with the NEC.

31.5 DELIVERY, STORAGE, AND HANDLING
A. Store enclosed starters indoors in clean, dry space with uniform temperature to prevent condensation. Protect enclosed starters from exposure to dirt, fumes, water, corrosive substances, and physical damage.

31.6 COORDINATION
A. Coordinate layout and installation of enclosed starters with other construction including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
B. Coordinate features of enclosed starters and accessory devices with pilot devices and control circuits to which they connect.
C. Coordinate features, accessories, and functions of each enclosed starter with ratings and characteristics of supply circuit, motor, required control sequence, and duty cycle of motor and load.

31.7 EXTRA MATERIALS
A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Spare Fuses: Furnish one set of three of each type and rating.
2. Indicating Lights: Two of each type installed.

PART 32 - PRODUCTS

32.1 MANUFACTURERS
A. Manufacturers:
1. Manual and Magnetic Enclosed Starters:
a. Cutler-Hammer; Eaton Corporation.
b. ABB / General Electric Company; Electrical Distribution & Control Div.
c. Siemens Energy & Automation, Inc.
d. Square D; Schneider Electric.
e. Or Equal

32.2 MANUAL ENCLOSED STARTERS
A. Description: NEMA ICS 2; general purpose, Class A, with toggle action and overload element.

32.3 MAGNETIC ACROSS-THE-LINE STARTERS
A. Description: NEMA ICS 2, Class A, full voltage, non-reversing, across the line, unless otherwise indicated.
B. Control Circuit: 120 V; obtained from integral control power transformer of sufficient capacity to operate connected pilot, indicating and control devices, plus 100 percent spare capacity.
C. Combination Starter: Factory-assembled combination starter and disconnect switch.
1. Fusible Disconnecting Means: NEMA KS 1, heavy-duty, fusible switch with injection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 947-4-1, as certified by a nationally recognized testing laboratory.
2. Nonfusible Disconnecting Means: NEMA KS 1, heavy-duty, nonfusible switch.
3. Circuit-Breaker Disconnecting Means: NEMA AB 1, molded-case circuit breaker with field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
D. Overload Relay: Ambient-compensated type with inverse-time-current characteristic and NEMA ICS 2 tripping characteristic. Provide with heaters or sensing devices in each phase matched to nameplate full-load current of specific motor to which they connect and with appropriate adjustment for duty cycle.

32.4 ENCLOSURES
A. Description: Flush- or surface-mounted cabinets as indicated. NEMA 250, Type 1, unless otherwise indicated to comply with environmental conditions at installed location.
1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
4. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.
5. A minimum wiring space of 2" clear on both sides and 4" clear top and bottom. Open and accessible through the door.

32.5 ACCESSORIES
A. Devices shall be factory installed in starter enclosure, unless otherwise indicated.
B. Push-Button Stations, Pilot Lights, and Selector Switches: NEMA ICS 2; heavy-duty type.
C. Stop and Lockout Push-Button Station: Momentary-break, push-button station with a factory-applied hasp arranged so padlock can be used to lock push button in depressed position with control circuit open.
D. Control Relays: Auxiliary and adjustable time-delay relays.
E. All starters shall include a terminal strip for all control connections and be accessible through front door.
F. All starters to be furnished with 4 sets of normally open / normally closed auxiliary contacts.

32.6 FACTORY FINISHES
A. Finish: Manufacturer's standard paint applied to factory-assembled and -tested enclosed starters before shipping.

PART 33 - EXECUTION

33.1 EXAMINATION
A. Examine areas to receive enclosed starters for compliance with requirements, installation tolerances, and other conditions affecting performance.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

33.2 APPLICATIONS
A. Select features of enclosed starter to coordinate with ratings and characteristics of supply circuit and motor; required control sequence; duty cycle of motor, drive, and load; and configuration of pilot device and control circuit affecting starter functions.
B. Select horsepower rating of starters to suit motor controlled.

33.3 INSTALLATION
A. For control equipment at walls, bolt units to wall or mount on lightweight structural-steel channels bolted to wall. For starters not at walls, provide freestanding uni-strut racks.
B. Install Starter Fuses. Install fuses in each fusible switch.

33.4 IDENTIFICATION
A. Provide engraved lamacoid nameplate for each starter indicating equipment served.

33.5 CONTROL WIRING INSTALLATION
A. Install wiring between enclosed starters according to Section 260519 - Conductors and Cables.
B. Bundle, train, and support wiring in enclosures.
C. Connect hand-off-automatic switch and other automatic-control devices where applicable.
1. Connect selector switches to bypass only manual and automatic control devices that have no safety functions when switch is in hand position.
2. Connect selector switches with enclosed key to circuit in both hand and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

33.6 CONNECTIONS
A. Conduit installation requirements are specified in other Sections 260533 – Raceways an Boxes. Drawings indicate general arrangement of conduit, fittings, and specialties.
B. Ground equipment.
C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

33.7 FIELD QUALITY CONTROL
A. Verify that enclosed starters are installed and connected according to the contract documents.
B. Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements.
C. Complete installation and startup checks according to manufacturer's written instructions.

33.8 ADJUSTING
A. Set field-adjustable switches and circuit-breaker trip ranges.

33.9 CLEANING
A. Clean enclosed starters internally, on completion of installation, according to manufacturer's written instructions. Vacuum dirt and debris; do not use compressed air to assist in cleaning.

END OF SECTION 262418

SECTION 262726 – WIRING DEVICES

PART 34 - GENERAL

34.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

34.2 SUMMARY
A. This Section includes receptacles, switches, and finish plates.

34.3 DEFINITIONS
A. GFCI: Ground-fault circuit interrupter.
B. TVSS: Transient voltage surge suppressor.

34.4 SUBMITTALS
Submit shop drawings and product data.

34.5 COORDINATION
A. Receptacles for Owner-Furnished Equipment: Match plug configurations.

PART 35 - PRODUCTS

35.1 MANUFACTURERS
A. Manufacturers:
B. Wiring Devices:
1. Bryant; Hubbell, Inc.
2. GE Company; GE Wiring Devices.
3. Hubbell Wiring Device – Kellems
4. Leviton Manufacturing Co., Inc.
5. Pass & Seymour/Legrand; Wiring Devices Div.
6. Cooper Wiring Devices
7. Or approved equal.
C. Wiring Devices for Hazardous (Classified) Locations:
1. Crouse-Hinds Electrical Co.; Distribution Equipment Div. or approved equal.
D. Multi-outlet Assemblies:
1. Wiremold.
2. Hubbell, Inc., Wiring Devices Div.
3. Or approved equal.

35.2 RECEPTACLES
A. General Requirements for All Devices
1. Each device shall have an amperage rating not less than that of the branch circuit(s) overcurrent protection device. White color, unless noted otherwise.
a. Emergency devices backed up by an emergency generator and the associated cover plates shall be Red color.
2. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. All devices shall be Commercial Specification Grade (Construction specification grade is prohibited), unless noted otherwise.
a. All convenience receptacles shall be Heavy-Duty 125 V, 20 A; Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; 5362 Series or similar.
B. Straight-Blade Receptacles: Tamper Resistant with 125 V, 15 or 20 A; Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498 Supplement sd, and FS W-C-596. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; HBL5362xTR Series or similar.
C. GFCI Receptacles: Duplex convenience receptacle with integral ground fault current interrupter. Provide one device for each location, daisy-chaining devices to achieve GFCI protection is not approved for this project.
1. Duplex GFCI Convenience Receptacles, 125 V, 20 A.
2. Straight blade, non-feed through type.
3. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
4. Provide with integral means to interrupt power when the GFCI has malfunctioned and no longer provides proper GFCI protection.
5. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; GFR5720xx Series or similar.
D. Isolated-Ground Receptacles: Equipment grounding contacts connected only to the green grounding screw terminal of the device with inherent electrical isolation from mounting strap, screw, grounding clip, and yoke.
1. General Description: Straight Blade, 125 V, 20 A, Configuration 5-20R; Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 1449, and FS W-C-596, with integral TVSS in line to ground, line to neutral, and neutral to ground.
2. TVSS Components: Multiple metal-oxide varistors; with a nominal clamp-level rating of 400 V and minimum single transient pulse energy dissipation of 240 J, according to IEEE C62.41.2 and IEEE C62.45.
3. Active TVSS Indication: Visual and audible, with light visible in face of device to indicate device is "active" or "no longer in service".
4. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; HBL5362SA Series or similar.

35.3 SWITCHES
A. Snap Switches: General-duty, quiet type, rated 20 amperes, 120/277 volts AC. Handle: white plastic, unless noted otherwise.
1. TOGGLE SWITCHES: Heavy-duty, quiet type, rated 20 amperes, 120/277 volts AC Comply with NEMA WD 1, UL 20, and FS W-S-896.
a. Single Pole: Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; 1221 Series or similar.
b. Double Pole: Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; 1222 Series or similar.
c. Three Way: Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; 1223 Series or similar.
d. Four Way: Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; 1224 Series or similar.
2. Pilot-Light Switches, Single pole, with neon-lighted handle, illuminated when switch is "on", 20 A, for 120 and 277 V. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; HBL1221PL Series or similar.
3. Illuminated Switches, Single pole, with neon-lighted handle, illuminated when switch is "off," 20 A, for 120 and 277 V. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; HBL1221IL Series or similar.
4. Key-Operated Switches, 120/277 V, 20 Amp, with factory-supplied key in lieu of switch handle. Subject to compliance with requirements, provide Hubbell Wiring Device-Kellems; HBL1221L Series or similar.
B. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on/off switches and audible and electromagnetic noise filters
1. Incandescent, Continuously-adjustable slide, wall-box dimmer, with on-off switch to suit connections
2. Fluorescent Dimmers: Modular, 120 V, 60 Hz with continuously adjustable slide; single pole with soft tap or other quiet switch; electromagnetic filter to eliminate noise, RF, and TV interference; and 5-inch w/a connecting leads.
3. Fluorescent Lamp Dimmers: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming to a maximum of 1 percent of full brightness.

35.4 WALL PLATES
A. Single and combination types match corresponding wiring devices.
1. Cover plate: Smooth white plastic, unless noted otherwise.
2. Cover plate for surface mounted devices: Galvanized steel.
3. Weatherproof cover plate: White in use, gasketed, cast metal, hinged device covers.
4. Plate-Securing Screws: Metal with head color to match plate finish.

PART 36 - EXECUTION

36.1 INSTALLATION
A. Install devices and assemblies plumb and secure.
B. Install wall plates when painting is complete.
C. Connect wiring according to Section 260519 - Conductors and Cables.
D. Do not share neutral conductor on load side of dimmers.
E. Arrangement of Devices: Unless otherwise indicated, mount flush, vertically, with height as indicated or six inches above counters.
F. Group adjacent switches under single, multigang wall plates.
G. Protect devices and assemblies during painting.
H. Install wall switches with off position down.
I. Install cover plates on switch, receptacle, and blank outlets.

36.2 IDENTIFICATION
A. Switches and receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on the outside of the face plate for receptacles and on the inside of the face plate for switches; utilize durable wire markers or tags within all outlet boxes. Labels shall be Brother ½" TZ tape, black ink on clear, extra-strength adhesive tape, with size 18 text or engineer approved equal. Use matching label printer.

36.3 CONNECTIONS
A. Connect wiring device grounding terminal to outlet box with bonding jumper.
B. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.
C. Isolated-Ground Receptacles: Connect to isolated-ground conductor routed to designated isolated equipment ground terminal of electrical system.
D. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

36.4 FIELD QUALITY CONTROL
A. Test wiring devices for proper polarity and ground continuity. Check each device to verify operation.
B. Test GFCI operation according to manufacturer's written instructions.
C. Replace damaged or defective components.

36.5 CLEANING
A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION 262726

SECTION 262913 - FUSES

PART 37 - GENERAL

37.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

37.2 SUMMARY
A. This Section includes cartridge fuses, rated 600 V and less, for use in switches, panelboards, switchboards, starters, and motor control centers; and spare fuse cabinets.

37.3 SUBMITTALS
A. Product Data: Include dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings for each fuse type indicated.

37.4 QUALITY ASSURANCE
A. Source Limitations: Provide fuses from a single manufacturer.
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in the NEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
C. Comply with NEMA FU 1.

37.5 PROJECT CONDITIONS
A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F or more than 100 deg F, apply manufacturer's ambient temperature adjustment factors to fuse ratings.

37.6 COORDINATION
A. Coordinate fuse ratings with HVAC and refrigeration equipment nameplate limitations of maximum fuse size.

37.7 EXTRA MATERIALS
A. Furnish extra materials described below that match products installed and that are packaged in original cartons or containers and identified with labels describing contents.
1. Spare Fuses: Furnish one set of three of each type and size.

PART 38 - PRODUCTS

38.1 MANUFACTURERS
A. Manufacturers:
1. Cooper Industries, Inc.; Bussmann Div.
2. Gould Shawmut
3. Tracor, Inc.; Littelfuse, Inc. Subsidiary.
4. Or approved equal.

38.2 CARTRIDGE FUSES
A. Characteristics: NEMA FU 1, nonrenewable cartridge fuse; class and current rating indicated; voltage rating consistent with circuit voltage.

38.3 SPARE FUSE CABINET
A. Cabinet: Wall-mounted, 0.05-inch thick steel unit with full-length, recessed piano-hinged door and key-coded cam lock and pull.
1. Size: Adequate for storage of spare fuses specified with 15 percent spare capacity minimum.
2. Finish: Gray, baked enamel.
3. Identification: "SPARE FUSES" in 1-1/2-inch- high letters on exterior of door.
4. Fuse Pullers: For each size fuse.

PART 39 - EXECUTION

39.1 EXAMINATION
A. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.
B. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

39.2 INSTALLATION
A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.
B. Install spare fuse cabinet.

39.3 IDENTIFICATION
A. Install labels indicating fuse replacement information on inside door of each fused switch.

END OF SECTION 262913

SECTION 262917 - DISCONNECT SWITCHES

PART 40 - GENERAL

40.1 RELATED DOCUMENTS
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

40.2 WORK INCLUDED
A. Provide and install motor disconnects.
B. Provide and install circuit disconnects.

40.3 REFERENCES
A. Underwriters' Laboratory, Inc. - Annual Product Directories.
B. NEMA Publication No. Standard Types of Nonventilated Enclosures for Electric Controllers.

40.4 REGULATORY REQUIREMENTS
A. Conform to National Electrical Code and to applicable inspection authority.

PART 41 - PRODUCTS

41.1 ACCEPTABLE MANUFACTURERS
A. Cutler-Hammer/Westinghouse. General Electric, Siemens, Square D, or approved equal.

41.2 COMPONENTS
A. Switches and circuit disconnects shall have an Underwriters' Laboratory label.
B. Single pole Heavy Duty Disconnect Switches: Single pole toggle switch with thermal overload motor protection where indicated. A Horse Power rated switch may be used where fractional horse power motors have internal overload protection.
C. Single or Three Phase Motor Disconnect Switches: two or three pole heavy duty or fusible where other loads are on same circuit, 250 or 600 volt as required in NEMA Type 1, 3R, or 4 enclosures designed to reject all except Class 'R' fuses.

41.3 ACCEPTABLE MANUFACTURERS - FUSES
A. Cooper Bussmann, Edison, Littelfuse, Ferraz Shawmut, or approved equal.

41.4 FUSES
A. As indicated on the drawings. All shall be of the same manufacturer. Provide one spare set of fuses (minimum of three) for each current rating and type installed. See Section 262913.

PART 42 - EXECUTION

42.1 INSTALLATION
A. Install motor and circuit disconnect as indicated on Drawings and as required by Code. Where fuses are indicated, provide fuses correlated with full load current of motors provided.

42.2 IDENTIFICATION
A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs where indicated on drawings.
B. Provide nameplate and circuit number from which served, and the identification of the equipment served by the disconnect. Label the outside of each exterior mounted disconnect with an engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws. Label each interior mounted disconnect with machine-printed, pressure-sensitive, abrasion-resistant label tape. Labels shall be Brother ½" TZ tape, black ink on clear, extra-strength adhesive tape, with size 18 text or engineer approved equal.

END OF SECTION 262815

SECTION 265100 - INTERIOR LIGHTING

PART 43 - GENERAL

43.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

43.2 SUMMARY
A. This Section includes interior lighting fixtures, lighting fixtures mounted on exterior building surfaces and recessed in canopies, emergency lighting units, and accessories.
B. Related Sections include the following:
1. Section 260923 Lighting Control Devices.

43.3 SUBMITTALS
A. Product Data: For each type of lighting fixture indicated, arranged in order of fixture designation. Include data on features and accessories.
B. Maintenance data for lighting fixtures.
C. Emergency lighting units including battery and charger.

43.4 QUALITY ASSURANCE
A. Fixtures, Emergency Lighting Units, and Accessories: Listed and labeled as defined in the NEC, Article 100, by a testing agency acceptable to authorities having jurisdiction.
B. Comply with the NEC.
C. Provide products for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM.
D. NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

43.5 COORDINATION
A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them, including HVAC equipment, fire-suppression system, partition assemblies, and other construction.

43.6 WARRANTY
A. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace batteries that fail in materials or workmanship within specified warranty period. Special warranty shall include the following:
1. Warranty Period for Emergency Lighting Unit Batteries: Five years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining four years.
B. Special Warranty for Ballasts: Manufacturer's standard form in which ballast manufacturer agrees to repair or replace ballasts that fail in materials or workmanship within specified warranty period.
1. Warranty Period for Electronic Ballasts: Five years from date of Substantial Completion.

PART 44 - PRODUCTS

44.1 MANUFACTURERS
A. Products: As indicated on the drawings.

44.2 FIXTURES AND FIXTURE COMPONENTS, GENERAL
A. Metal Parts: Free from burrs, sharp corners, and edges.
B. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.
C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit maintenance without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during maintenance and when secured in operating position.
D. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or annealed crystal glass, unless otherwise indicated.
1. Plastic: High resistance to yellowing and other changes due to aging, exposure to heat, and ultraviolet radiation.
2. Lens Thickness: 0.125 inch minimum, unless greater thickness is indicated.

44.3 EXIT SIGNS
A. General Requirements: Comply with UL 924 and the following:
1. Sign Colors and Lettering Size: Comply with authorities having jurisdiction.
B. Internally Lighted Signs: As follows:
1. Lamps for AC Operation: LED, with end-of-rated-life time of 70,000 hours minimum rated lamp life.
C. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
1. Battery: Sealed, maintenance-free, nickel-cadmium type.
2. Charger: Fully automatic, solid-state type with sealed transfer relay.
3. Operation: Relay automatically energizes lamp from battery when circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay deenergizes lamps from battery, and battery is automatically recharged and floated on charger.
4. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
5. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
6. Self-Diagnostics: Automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and flashing red LED that indicates coded internal signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
7. Integral Self-Test – Where indicated on the drawings. Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and flashing red LED.

44.4 EMERGENCY LIGHTING UNITS
A. Internal Type: Self-contained, modular, battery-inverter unit, factory mounted within lighting fixture body and compatible with ballast. Comply with UL 924.
1. Emergency Connection: Operate fixture continuously at an output of 1100 lumens for 90 minutes. Connect unswitched circuit to battery-inverter unit and switched circuit to fixture ballast.
2. Test Push Button and Indicator Light: Visible and accessible without opening fixture or entering ceiling space. Provide integral to fixture or mounted adjacent to fixture.
a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
3. Battery: Sealed, maintenance-free, nickel-cadmium type.
4. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
5. Battery: Sealed, maintenance-free, nickel-cadmium type.
6. Charger: Fully automatic, solid-state type with sealed transfer relay.
7. Night-Light Connection: Where night-light option is called out in the drawings, operate the fixture continuously.
B. External Type: Self-contained, modular, battery-inverter unit, suitable for powering the light fixture, remote mounted from the lighting fixture. Comply with UL 924.
1. Emergency Connection: Operate fixture continuously at an output of 1100 lumens for 90 minutes. Connect unswitched circuit to battery-inverter unit and switched circuit to fixture ballast.
2. Battery: Sealed, maintenance-free, nickel-cadmium type.
3. Charger: Fully automatic, solid-state, constant-current type.
4. Housing: NEMA 250, Type 1 enclosure.
5. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
6. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

44.5 FIXTURE SUPPORT COMPONENTS
A. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fitting and ceiling canopy. Finish same as fixture.
B. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy arranged to mount a single fixture. Finish same as fixture.
C. Rod Hangers: 3/16-inch- minimum diameter, cadmium-plated, threaded steel rod.
D. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.
E. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer.
F. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm)
G. Rod: Steel.

44.6 FINISHES
A. Fixtures: Manufacturer's standard, unless otherwise indicated.
1. Paint Finish: Applied over corrosion-resistant treatment or primer, free of defects.
2. Metallic Finish: Corrosion resistant.

PART 45 - EXECUTION

45.1 INSTALLATION
A. Fixtures: Set level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials.
B. Furnish and install a protective barrier around fixtures that are not insulation-contact rated (non-IC-rated) in locations where insulation is installed. The protective barrier shall be installed to yield a 4" air-gap from the fixture on all sides and top.
C. Support for Fixtures in or on Grid-Type Suspended Ceilings: Attach supports to building structure.
Editing Option 1:
1. Install a minimum of four ceiling support system rods or wires for each fixture. Locate not more than 6 inches from fixture corners.
2. Support Clips: Fasten to fixtures and to ceiling grid members at or near each fixture corner.
3. Fixtures of Sizes Less Than Ceiling Grid: Arrange as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch metal channels spanning and secured to ceiling tees.
Editing Option 2:
4. Light fixtures (all types) shall be mechanically attached to grid per NEC-410-16 (two per fixture unless independently supported).
a. Surface-mounted fixtures shall be attached to grid.
b. Pendant-hung fixtures shall be directly supported from structure with 8-gauge wire (or approved alternative).
c. Rigid lay-in or can light fixtures:
1) <10 lbs. - one wire to structure (may be slack)
2) 11 to 56 lbs. - two wires from housing to structure (may be slack).
3) >56 lbs. - supported directly to structure by approved method.
D. Suspended Fixture Support: As follows:
1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
3. Continuous Rows: Suspend from cable installed according to fixture manufacturer's written instructions and details on Drawings.

45.2 CONNECTIONS
A. Ground equipment.
B. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

45.3 FIELD QUALITY CONTROL
A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
B. Tests: As follows:
1. Verify normal operation of each fixture after installation.
2. Emergency Lighting: Interrupt electrical supply to demonstrate proper operation.
C. Malfunctioning Fixtures and Components: Replace or repair, then retest. Repeat procedure until unit operates properly.
D. Ballasts: Replace all noisy ballasts. Ballasts that can be heard shall be considered noisy. Repeat the procedure until a ballast is installed that is not noisy.

45.4 CLEANING AND ADJUSTING
A. Clean fixtures internally and externally after installation. Use methods and materials recommended by manufacturer.
B. Adjust aimable fixtures to provide required light intensities.

END OF SECTION 265100

SECTION 265600 – EXTERIOR LIGHTING

PART 46 - GENERAL

46.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section

46.2 SUMMARY
A. This Section includes exterior lighting units with luminaires, LED drivers, poles/support structures, and accessories.
B. Related Sections include the following:
1. Section 260923 - Lighting Control Devices.
2. Section 265100 - Interior Lighting for interior fixtures, emergency lighting units, and accessories; and for exterior luminaires normally mounted on buildings.

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A. Ground equipment.
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.
B. Ground metal poles/support structures.

48.3 FIELD QUALITY CONTROL
A. Inspect each installed unit for damage. Replace damaged units.

48.4 CLEANING AND ADJUSTING
A. Clean units after installation. Use methods and materials recommended by manufacturer.

END OF SECTION 265600

SECTION 271101 – TELECOM RACEWAY SYSTEMS
PART 49 - GENERAL
49.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

49.2 SUMMARY
A. This Section includes telecom raceway systems.

49.3 RELATED WORK
A. Section 260533 – Raceways and Boxes.

49.4 SYSTEM DESCRIPTION
A. Conduit, cable trays and boxes to form an empty raceway system.

PART 50 - PRODUCTS
50.1 EQUIPMENT
A. Conduit: Refer to Section 260533.
B. Outlet, pull or junction boxes: Refer to Section 260533.

PART 51 - EXECUTION
51.1 INSTALLATION
A. Provide pullboxes in telecom conduit runs spaced less than 100 feet apart, and on the backboard side of runs with more than two right angle bends.
B. Place telecom label on pull and junction boxes.
C. Provide pullwire in each telecom conduit run.

END OF SECTION 271101

SECTION 283100 - FIRE ALARM
PART 52 - GENERAL
52.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

52.2 SUMMARY
A. This Section includes fire alarm systems.
B. Related Sections include the following:
1. List below only products and equipment that the reader might expect to find in this Section but are specified elsewhere.
2. Division 8 Section "Door Hardware" for door closers and holders with associated smoke detectors, electric door locks, and release devices that interface with the fire alarm system.

52.3 DEFINITIONS
A. FACP: Fire alarm control panel.
B. LED: Light-emitting diode.
C. NICET: National Institute for Certification in Engineering Technologies.
D. Definitions in NFPA 72 apply to fire alarm terms used in this Section.

52.4 SYSTEM DESCRIPTION
A. Addressable system; multiplexed signal transmission dedicated to fire alarm service with horn/strobes. This system shall be capable of handling the entire fire alarm requirements of the building including, but not limited to fire sprinkler monitoring, magnetic door hold open equipment, HVAC equipment, Elevator Recall and horn/strobes throughout the entire building.

52.5 PERFORMANCE REQUIREMENTS
A. Comply with NFPA 72.
B. Premises protection includes Fully Sprinkled Type Occupancy.
C. Fire alarm signal initiation shall be by one or more of the following devices:
1. Manual stations.
2. Heat detectors.
3. Flame detectors.
4. Smoke detectors.
5. Retain subparagraph above or first subparagraph below. Coordinate on Drawings if both types are included.
6. Verified automatic alarm operation of smoke detectors.
7. Automatic sprinkler system water flow.
8. Fire extinguishing system operation.
9. Fire pump running.
D. Fire alarm signal initiation shall initiate the following actions:
1. Audible notification appliances shall operate continuously.
2. Identify alarm at the FACP and remote annunciators.
3. De-energize electromagnetic door holders.
4. Transmit an alarm signal to the remote alarm receiving station.
5. Unlock electric door locks in designated egress paths.
6. Release fire and smoke doors held open by magnetic door holders.
7. Activate voice/alarm communication system.
8. Switch heating, ventilating, and air-conditioning equipment controls to fire alarm mode.
9. Close smoke dampers in air ducts of system serving zone where alarm was initiated.
10. Record events in the system memory with ability to be printed.
E. Supervisory signal initiation shall be by one or more of the following devices or actions:
1. Operation of a fire-protection system valve tamper.
2. Operation of any duct detectors or indust detectors.
F. System trouble signal initiation shall be by one or more of the following devices or actions:
1. Open circuit, short circuit, and grounded fault for initiating device, signaling line, and notification-appliance circuits.
2. Opening, tampering, or removal of alarm-initiating and supervisory signal-initiating devices.
3. Loss of primary power at the FACP.
4. Ground or a single break in FACP internal circuits.
5. Abnormal ac voltage at the FACP.
6. A break in standby battery circuitry.
7. Failure of battery charging.
8. Abnormal position of switch at the FACP or annunciator.
9. Fire-pump power failure, including a dead phase or phase-reversal condition.
G. System Trouble and Supervisory Signal Actions: Annunciate at the FACP and remote annunciators. Record the event on system memory with ability to be printed.

52.6 SUBMITTALS
A. Prior to the start of work, the contractor shall provide a complete and comprehensive submittal for review by the engineer. Once the engineer of record has reviewed and approved the submittal, the contractor shall provide a complete submittal to the Authority Having Jurisdiction for their review and approval. The contractor shall not begin installation until approval is given by the engineer of record and the Authority Having Jurisdiction. This person shall be a factory trained personnel. This person shall provide to the engineer of record the proof of NICET certification and proof of factory training if requested. Factory training means that this person has received training at the factory. These are to describe the proposed system and its equipment. Failure to provide a complete submittal shall be grounds for summary rejection of any incomplete submittal documentation. Contractors who provide re-submittal's, due to prior rejection shall be subject to a re-review fee, should the Engineer elect to do so. The complete submittal shall include, but not be limited to, all of the following material:
B. Power Calculations
C. Battery calculations shall be a minimum of 125% of the calculated requirement.
1. Supervisory power requirements for all equipment.
2. Alarm power requirements for all equipment.
3. Power supply rating justification showing power requirements for each of the system power supplies. Power supplies shall be sized to furnish the total connected load in a worst case condition plus 25% spare capacity.
4. Voltage-drop calculations for wiring runs demonstrating worst case condition.
D. Complete manufacturers catalog data including supervisory power usage, alarm power usage, physical dimensions, finish and mounting requirements.
E. Complete drawings covering the following shall be submitted by the contractor for the proposed system. Floor plans in a CAD compatible format showing all equipment and wiring. Minimum size for size, conductor count with type and size, showing the percentage of allowable National Electric Code fill used. Floor plans will be prepared at 1/8" scale.
F. A complete proposed system database including a description of all logic strings, control by event programming and point identification labels on a flash drive and in a formatted printed form, as required for offsite editing, shall be submitted for evaluation by the owner.
G. The program shall include all required interactive control functions between the local network systems and the methods for implementing these actions.
H. Provide the address, telephone number, and contact person(s) of the manufacturer's local service facility for normal and off-hour warranty issues.
I. If the fire alarm system and its equipment are supplied by a manufacturer's distributor, as part of the submittal documentation, the manufacturer shall provide, on its corporate letterhead, a "letter of support". Said "letter of support" shall state that, when in the opinion of the Engineer, the distributor's efforts require back-up and/or assistance, the manufacturer shall provide, at no cost to the Owner, all required technical support during the installation phase and for a one (1) year guarantee period starting on the date of final acceptance by the owner and the authority having jurisdiction. If said "letter of support" is not submitted, the manufacturer's equipment will be deemed unacceptable and shall be grounds for summary rejection.
J. Provide a fire alarm system function matrix. Matrix shall illustrate alarm output events in association with initiating devices input events. Matrix shall represent a summary of the installed system alarm, supervisory and trouble functions. Include any and all departures, exceptions, variances or substitutions from these specifications and/or drawings at the time of bid. Failure to provide this requirement shall be cause for summary rejection of submitted documents where additional departures are discovered. (See NFPA-72 for minimum matrix requirements)
K. For each system control panel and/or transponder panel, provide panel ampere loading during both normal and alarm modes, with time calculations to substantiate compliance with battery back-up power requirements (battery Ampere-Hour capacity), described elsewhere in these specifications.
L. For each system control panel and/or transponder panel, provide written schedule of active and spare addresses provided on each addressable circuit to substantiate compliance with circuit usage/spare requirements, described elsewhere in these specifications.
M. For each system control panel and system transponder notification appliance circuit provide a written schedule of spare capability in amperes available for future possible use.
N. Provide manufacturer's printed product data, catalog pages and descriptions of any special installation requirements and/or procedures. Drawings depicting any special physical installation requirements shall show physical plans, elevations, all dimensions, conduit entry, minimum access clearances and any other details required.
O. Provide shop drawings as follows:
P. Drawing or catalog page(s) showing actual dimensions of any additional system control panels, and/or battery cabinets.
1. Drawing(s) or catalog page(s) showing actual dimensions of the remote annunciator(s).
2. Single line riser diagram showing, all equipment, all connections and number and size of all conductors and conduits.
3. Provide samples of various items when so requested by the architect/engineer.
Q. The fire protection contractor shall provide copies of certification for service technician's formal training by the system manufacture. As a minimum, certification documents shall indicate training dates, systems qualified, name of individual certified and current status.
R, Product Data: For each type of product indicated within 96 days of notice to proceed.
S, Within 30 days of notice to proceed, the contractor shall submit a programming printout and digital copy of the program to the Engineer for review.
T, Maintenance Data: For fire alarm system to include in emergency, operation, and maintenance manuals. Comply with NFPA 72.
U, Field quality-control test reports: provide test reports 10 days prior to final test requirements.
V, Operation and Maintenance Data: For fire alarm system to include in emergency, operation, and maintenance manuals. Comply with NFPA 72, recommendations for Owner's manual. Include abbreviated operating instructions for mounting at the FACP.
W, Documentation:
1. Approval and Acceptance: Provide the "Record of Completion" form according to NFPA 72 to Owner, Architect, and authorities having jurisdiction.
2. Record of Completion Documents: Provide the "Permanent Records" according to NFPA 72 to Owner, Architect, and authorities having jurisdiction. Include the following in addition to those required by the NFPA 72 manual:
Hard copies on paper to Owner, Architect, and authorities having jurisdiction.
a. Electronic media may be provided to Architect.

52.7 QUALITY ASSURANCE
A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
B. Installer Qualifications: Personnel certified by NICET as Fire Alarm Level III.
C. Listing and Approval Standards: Components shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
D. 30 days after award of bid, the contractor shall conduct a meeting with the owner; owners representative, the Engineer and the architect to discuss compliance of the specifications and drawings.

52.8 EXTRA MATERIALS
A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Detector Subparagraphs below to suit Project.
2. Initiating Appliances: Quantity equal to 10 percent of amount of each type installed, but not less than 1 unit of each type.
3. Detector Bases: Quantity equal to 2 percent of amount of each type installed, but not less than 1 unit of each type.
4. Keys and Tools: One extra set for access to locked and tamper proofed components.
5. Audible and Visual Notification Appliances: One of each type installed.
6. Fuses if applicable: Two of each type installed in the system.

PART 53 - PRODUCTS
53.1 MANUFACTURERS
A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. FACP and Equipment:
a. Silent Knight by Honeywell
2. Wire and Cable:
Comtran Corporation.
a. Helix/HiTemp Cables, Inc.; a Draka USA Company.
b. Rockbestos-Suprenant Cable Corporation; a Marmon Group Company.
c. West Penn Wire/CDT; a division of Cable Design Technologies.
3. Audible and Visual Signals:
a. System Sensor
b. Wheelock
c. Gentex

53.2 FACP
A. General Description:
1. Modular, power-limited design with electronic modules, UL 864 listed.
2. Addressable initiation devices that communicate device identity and status.
Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at the FACP.
a. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.
3. Addressable control circuits for operation of mechanical equipment.
B. Alphanumeric Display and System Controls: Arranged for interface between human operator at the FACP and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.
1. Some competitive systems have 40-character display unit that may be adequate for small projects.
2. Annunciator and Display: Liquid-crystal type, three line(s) of 80 characters, minimum.
3. Keypad: Arranged to permit entry and execution of programming, display, and control commands; and to indicate control commands to be entered into the system for control of smoke-detector sensitivity and other parameters.
C. Circuits:
1. Signaling Line Circuits: NFPA 72, Class B.
a. Retain subparagraph below with either subparagraph above. See Editing Instruction No. 7 in the Evaluations for discussion of determining the number of addressable devices on a signaling line circuit.
b. System Layout: Each signaling line circuit shall be loaded no more than 80% capacity.
2. See NFPA 72, Table 3-7, for selection criteria.
3. Notification-Appliance Circuits: NFPA 72, Class A.
4. Retain subparagraph above or below.
5. Notification-Appliance Circuits: NFPA 72, Class B.
6. NFPA 72 states that the 10-second requirement will be effective January 1, 2002.
7. Actuation of alarm notification appliances, annunciation, smoke control, shall occur within 10 seconds after the activation of an initiating device.
8. Coordinate subparagraph below with mechanical system design. Shutting down mechanical equipment may not be compatible with emergency operation.
9. Supervised monitoring for the integrity of wiring external to the FACP for mechanical equipment shutdown and magnetic door-holding circuits is not required, provided a break in the circuit will cause doors to close and mechanical equipment to shut down.
D. Smoke-Alarm Verification:
1. Initiate audible and visible indication of an "alarm verification" signal at the FACP.
2. Activate a listed and approved "alarm verification" sequence at the FACP and the detector.
3. Sound general alarm if the alarm is verified.
4. Cancel FACP indication and system reset if the alarm is not verified.
E. Notification Appliances: Electronically operated, audible alarm, complying with ANSI S3.41.
F. Power Supply for Supervision Equipment: Supply for audible and visual equipment for supervision of the ac power shall be from a dedicated dc power supply, and power for the dc component shall be from the ac supply.
G. Alarm Silencing, Trouble, and Supervisory Alarm Reset: Manual reset at the FACP and remote annunciators, after initiating devices are restored to normal.
1. Silencing-switch operation halts alarm operation of notification appliances and activates an "alarm silence" light. Display of identity of the alarm zone or device is retained.
2. Subsequent alarm signals from other devices or zones reactivate notification appliances until silencing switch is operated again.
3. When alarm-initiating devices return to normal and system reset switch is operated, notification appliances operate again until alarm silence switch is reset.
H. Walk Test: A test mode to allow one person to test alarm and supervisory features of initiating devices. Enabling of this mode shall require the entry of a password. The FACP and annunciators shall display a test indication while the test is underway. If testing ceases while in walk-test mode, after a preset delay, the system shall automatically return to normal.
I. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and control of changes in those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and make a print-out of the final adjusted values on the system printer.
J. Service Connection: RS-232 port for system printer and for connection to a dial-in terminal unit.
1. The alarm port shall allow remote access to the FACP for programming changes and system diagnostic routines. Access by a remote terminal shall be by encrypted password algorithm.
K. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signal, supervisory signal supervisory and digital alarm communicator transmitter shall be powered by the 24-V dc source.
1. The alarm current draw of the entire fire alarm system shall not exceed 80 percent of the power-supply module rating.
2. Power supply shall have a dedicated fused safety switch for this connection at the service entrance equipment. Paint the switch box red and identify it with "FIRE ALARM CIRCUIT."
L. Secondary Power: 24-V dc supply system with batteries and automatic battery charger and an automatic transfer switch.
1. Batteries: Vented, wet-cell pocket, plate nickel cadmium.
2. Battery and Charger Capacity: Comply with NFPA 72.
M. Surge Protection:
1. Install surge protection on normal ac power for the FACP and its accessories. Comply with Division 26 Section "Transient Voltage Suppression" for auxiliary panel suppressors.
2. Install surge protectors recommended by FACP manufacturer. Install on all system wiring external to the building housing the FACP.
N. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include operation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

53.3 FIRE ALARM DOCUMENT CABINET
A. General Description:
1. Minimum 18 gauge steel construction
2. Textured, baked on red enamel finish
3. Business card holder
4. Key ring hook
5. Space holder for passwords and system information
6. Cover shall have white lettering that reads "SYSTEM RECORD DOCUMENTS"

53.4 Addressable initiation MANUAL FIRE ALARM BOXES
A. Description: UL 38 listed; finished in red with molded, raised-letter operating instructions in contrasting color. Station shall show visible indication of operation. Mounted on recessed outlet box; if indicated as surface mounted, provide manufacturer's surface back box.
1. Single-action mechanism requiring single actions to initiate an alarm, pull-lever type. With integral addressable module, arranged to communicate manual-station status (normal, alarm, or trouble) to the FACP.
2. Station Key and Test Lock: Keyed alike to match FACP.
3. Retain subparagraph below if physical protection other than a wire guard is required for manual stations or if protection from false alarms provided by optional horn is required. Delete horn if not required.
4. Indoor Protective Shield: Factory-fabricated clear plastic enclosure, hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.

53.5 SYSTEM SMOKE DETECTORS
A. General Description:
1. Operating at 24-V dc, nominal.
2. Integral Addressable Module. Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
3. Retain subparagraph above or first subparagraph and associated subparagraphs below, or both. If retaining both, indicate detector types on Drawings.
4. Multipurpose type, containing the following:
a. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
b. Heat sensor, combination rate-of-rise and fixed temperature.
5. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. Provide terminals in the fixed base for connection of building wiring.
6. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
7. Integral Visual-Indicating Light: LED type. Indicating detector has operated and power-on status.
8. Where noted on drawings provide a vedded wire screen protective cover.
9. Retain subparagraph and associated subparagraphs below for analog-addressable system where remotely adjustable detectors are to be used. If both standard-addressable and analog-addressable devices are required, indicate device types on Drawings.
B. Photoelectric Detectors:
1. Sensor: LED or infrared light source with matching silicon-cell receiver.
2. Verify detector sensitivity below with manufacturers selected.
3. Detector Sensitivity: Between 2.5 and 3.5 percent/foot (0.008 and 0.011 percent/m) smoke obscuration when tested according to UL 268A.
C. Duct Smoke Detectors:
1. Photoelectric Smoke Detectors:
a. Sensor: LED or infrared light source with matching silicon-cell receiver.
b. Verify detector sensitivity below with manufacturers selected. Increased and decreased sensitivities are available to meet special environmental requirements.
2. Retain subparagraph and associated subparagraphs above for photoelectric smoke detectors or first subparagraph and associated subparagraphs below for ionization smoke detectors. If both types are required, indicate detector types on Drawings.
3. UL 268A listed, operating at 24-V dc, nominal.
4. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
5. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. The fixed base shall be designed for mounting directly to the air duct. Provide terminals in the fixed base for connection to building wiring.
a. Weatherproof Duct Housing Enclosure: UL listed for use with the supplied detector. The enclosure shall comply with NEMA 250 requirements for Type 4X.
6. Self-Restoring: Detectors shall not require resetting or readjustment after actuation to restore them to normal operation.
7. Integral Visual-Indicating Light: LED type. Provide remote station for alarm indication and test station where indicated.
8. Retain subparagraph below for analog-addressable system where remotely adjustable detectors are to be used. If both standard-addressable and analog-addressable devices are required, indicate device types on Drawings.
9. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at the FACP for calibration, sensitivity, and alarm condition, and individually adjustable for sensitivity from the FACP.
10. The number of FACP settable levels varies among manufacturers and between detector types. Indicate the specific number of levels on Drawings or in the "Remarks" column of a detector schedule.
11. Verification: Activate multiple levels of detection sensitivity.
12. Sampling Tubes: Design and dimensions as recommended by manufacturer for the specific duct size, air velocity, and installation conditions where applied.
13. Retain below if required.
14. Relay Fan Shutdown: Rated to interrupt fan motor-control circuit.

53.6 NOTIFICATION APPLIANCES
A. Description: Equipped for mounting as indicated and with screw terminals for system connections.
1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.
2. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.
3. Where called for on plans to have a wire guard, provide and install a welded wire screen guard of appropriate size. Polycarbonate or other transparent protective covers are prohibited.
B. Revise sound-level values in first four paragraphs below to comply with local interpretations of ADA requirements. See Editing Instruction No. 10 in the Evaluations.
C. Horns: Electro-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet (3 m) from the horn.
D. Wall-Mounted Alarm Devices: Xenon strobe lights listed under UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.
1. Retain one of two subparagraphs below to suit Project or revise light output to comply with NFPA 72 and ADA minimum requirements. Delete first subparagraph if rated light output is indicated on Drawings. See Editing Instruction No. 11 in the Evaluations.
2. Rated Light Output: as indicated.
3. Strobe Leads: Factory connected to screw terminals.
4. Where called for on plans to have a wire guard, provide and install a welded wire screen guard of appropriate size. Polycarbonate or other transparent protective covers are prohibited.

53.7 SPRINKLER SYSTEM INTERFACE
A. Remote status and alarm-indicator and test stations, with LED indicating lights. Light is connected to flash when the associated device is in an alarm or trouble mode. Lamp is flush mounted in a single-gang wall plate. A red, laminated, phenolic-resin identification plate at the indicating light identifies, in engraved white letters, device initiating the signal and room where the smoke detector or valve is located. For water-flow switches, the identification plate also designates protected spaces downstream from the water-flow switch.

53.8 MAGNETIC DOOR HOLDERS
A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching door plate.
1. Wall-Mounted Units: Fabricated to develop 25-lbf (110-N) holding force.
2. Wall-Mounted Units: Flush mounted, unless otherwise indicated.
3. Retain one of two subparagraphs below.
4. Rating: 24-V dc.
B. Material and Finish: Match door hardware.

53.9 REMOTE ANNUNCIATOR
A. Description: Duplicate annunciator functions of the FACP for alarm, supervisory, and trouble indications. Also duplicate manual switching functions of the FACP for acknowledging, silencing, resetting, and testing.
1. Mounting: Flush cabinet, NEMA 250, Class 1.
B. Display Type and Functional Performance: Alphanumeric display same as the FACP. Controls with associated LED's permit acknowledging, silencing, resetting, and testing functions for alarm, supervisory, and trouble signals identical to those in the FACP.

53.10 ADDRESSABLE INTERFACE DEVICE
A. Description: Microelectronic monitor module listed for use in providing a system address for listed alarm-initiating devices for wired applications with normally open contacts.
B. Description: Capable of providing a direct signal to the elevator controller to initiate elevator recall where indicated to a circuit-breaker shunt trip for power shutdown and to release doors.

53.11 DIGITAL ALARM COMMUNICATOR TRANSMITTER
A. Listed and labeled according to UL 632.
B. Functional Performance: Unit receives an alarm, supervisory, or trouble signal from the FACP, and automatically captures one or two telephone lines and dials a preset number for a remote central station. When contact is made with the central station(s), the signal is transmitted. The unit supervises up to two telephone lines. Where supervising 2 lines, if service on either line is interrupted for longer than 45 seconds, the unit initiates a local trouble signal and transmits a trouble signal over the other line to the central station. If service is interrupted on both telephone lines, no transmission is remaining line. When telephone service is restored, unit automatically reports that event to the central station. If service is lost on both telephone lines, the local trouble signal is initiated.
C. Secondary Power: Integral rechargeable battery and automatic charger. Battery capacity is adequate to comply with NFPA 72 requirements.
D. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

53.12 GUARDS FOR PHYSICAL PROTECTION
A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.
1. Factory fabricated and furnished by manufacturer of the device.
2. Finish: Paint of color to match the protected device.

53.13 WIRE AND CABLE
A. Wire and cable for fire alarm systems shall be UL listed and labeled as complying with NFPA 70, Article 760.
B. Signaling Line Circuits: Twisted, shielded pair, not less than No. 18 AWG size as recommended by system manufacturer.
1. Retain subparagraph below if use of cable is an option.
2. Circuit Integrity Cable: Twisted shielded pair; NFPA 70 Article 760, Classification CI, for power-limited fire alarm signal service. UL listed as complying with UL 2196 requirements for a 2-hour rating.
C. Non-Power-Limited Circuits: Solid-copper conductors with 600-V insulation. 75 deg C color-coded insulation.
1. Adjust wire size in two subparagraphs below to suit Project. NFPA 72 permits wire sizes down to No. 18 AWG.
2. Line-Voltage Circuits: No. 12 AWG, minimum.
D. All wire and cable shall be installed in conduit.

PART 54 - EXECUTION
54.1 EQUIPMENT INSTALLATION
A. Smoke or Heat Detector Spacing:
1. Retain subparagraph below to indicate how Contractor shall determine detector spacing.
2. Smooth ceiling spacing shall not exceed [30 feet (9 m)].
3. Spacing of heat detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas, shall be determined according to Appendix A in NFPA 72.
4. Spacing of heat detectors shall be determined based on guidelines and recommendations in NFPA 72.
B. HVAC: Locate detectors not closer than 3 feet (1 m) from air-supply diffuser or return-air opening.
C. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of the duct.
D. Remote Status and Alarm Indicators: Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal occupied areas.
E. Audible Alarm-Indicating Devices: Install between 80" and 96" above finished floor, this height is to the visual lens portion of the device, or on ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
F. Visible Alarm-Indicating Devices: Install integral to each alarm horn if noted.
G. Device Location-Indicating Lights: Locate in public space near the device they monitor.
H, FACP: Surface mount with top of cabinets not more than 72 inches (1830 mm) above the finished floor.
I, Annunciator: Install with top of panel not more than 72 inches (1830 mm) above the finished floor.
J. Smoke Detectors: Mounted on the ceiling at locations as indicated and not less than 4 inches (100 mm) from a wall. Where indicated on the fire alarm control panel, the exact location shall be identified on the fire alarm control panel.

54.2 WIRING INSTALLATION
A. Install wiring according to the following:
1. NECA 1
2. TIA/EIA 568-A.
B. Wiring Method: Install wiring in metal raceway according to Division 26 Section "Raceways and Boxes."
1. Exception: Fire alarm system and equipment control wiring associated with the fire alarm system shall be installed in a dedicated raceway system. This system shall not be used for any other wire or cable.
C. Wiring Method:
1. Cables and raceways used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, may not contain any other wire or cable.
2. Fire-Rated Cables: Use of 2-hour fire-rated fire alarm cables, NFPA 70 Types MI and CI, is not permitted.
3. Signaling Line Circuits: Power-limited fire alarm cables may be installed in the same cable or raceway as signaling line circuits.
D. Wiring within Enclosures: Separate power-limited and nonpower-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
E. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.
F. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and a different color-code for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint the alarm system junction boxes and covers red.
Wiring to Remote Alarm: Transmitting Device: 1-inch (25-mm) conduit between the FACP and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed for proper monitoring function.

54.3 IDENTIFICATION
A. Identify system components, wiring, cabling, and terminals according to Division 26 Section "Electrical Identification."
B. Install instructions frame in a location visible from the FACP.
C. Paint power-supply disconnect switch red and label "FIRE ALARM CIRCUIT."
D. The location of the branch-circuit overcurrent protective devices shall be permanently identified at the fire alarm control unit.

54.4 GROUNDING
A. Ground the FACP and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to the FACP.

54.5 FIELD QUALITY CONTROL
A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
B. Testing Agency: Owner will engage a qualified testing and inspecting agency to witness field tests and inspections and prepare test reports. The contractor shall provide all personnel for this test. There shall be two tests, one prior to the Fire Marshall test and one with the Fire Marshall.
C. Perform the following field tests and inspections and prepare test reports:
1. Perform tests of wiring integrity for circuits in Subparagraphs above. Edit to suit Project. Delete subparagraphs if testing will be performed by Owner-engaged testing and inspecting agency.
2. Before requesting final approval of the installation, submit a written statement using the form for Record of Completion shown in NFPA 72.
3. Perform each electrical test and visual and mechanical inspection listed in NFPA 72. Certify compliance with test parameters.
4. Retain first subparagraph below for Project that is a renovation or extension of existing fire alarm system.
5. Visual Inspection: Conduct a visual inspection before any testing. Use as-built drawings and system documentation for the inspection. Identify improperly located, damaged, or nonfunctional equipment, and correct before beginning tests.
6. Testing: Follow procedure and record results complying with requirements in NFPA 72.
a. Detectors that are outside their marked sensitivity range shall be replaced.
7. Test and Inspection Records: Prepare according to NFPA 72.
D. At no time shall the contractor make changes to the documents without written permission from the Engineer.

54.6 DEMONSTRATION
A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain the fire alarm system, appliances, and devices. Refer to Division 1 Section "Closeout Procedures and Demonstration and Training."

END OF SECTION 283100

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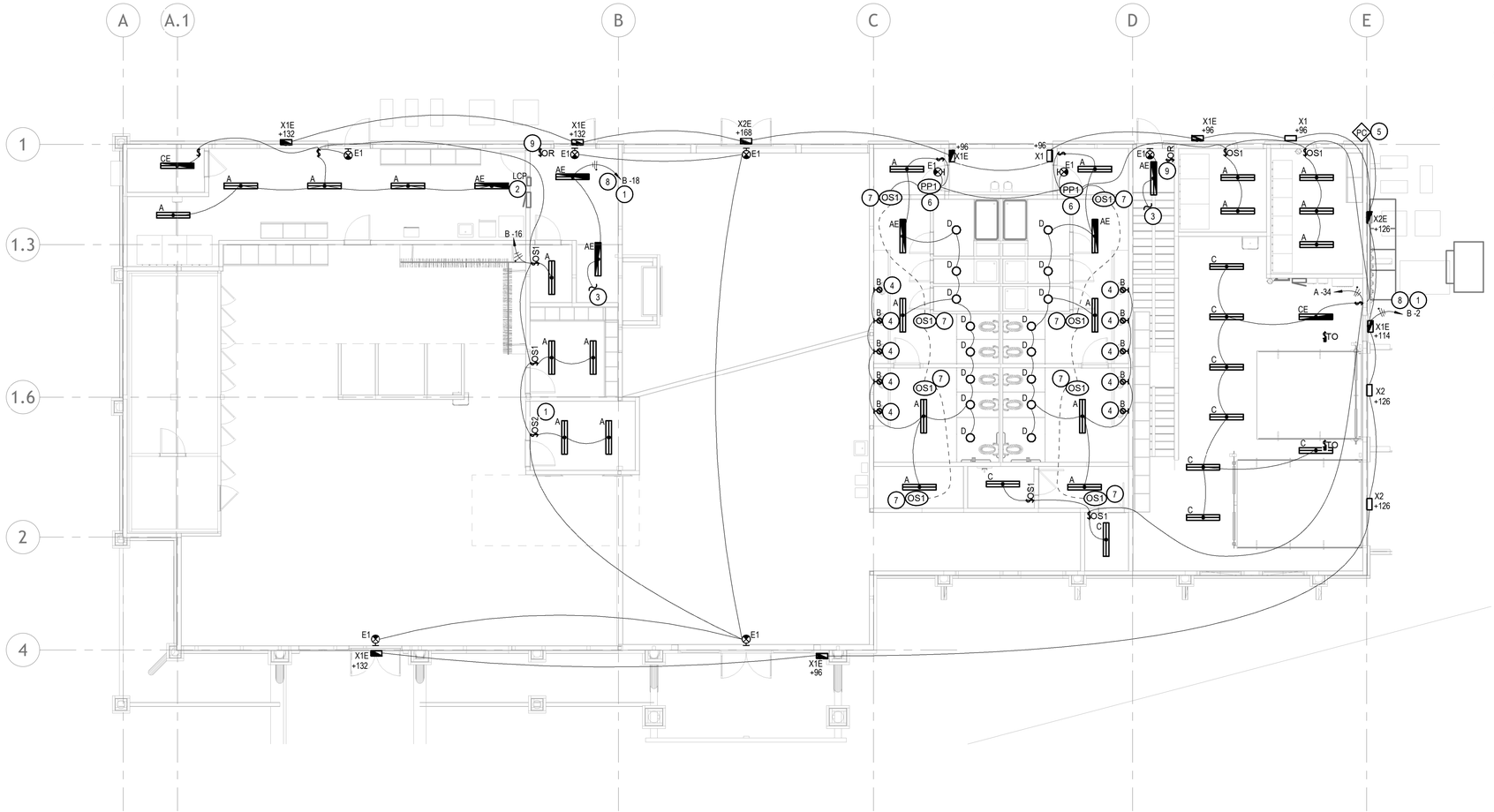
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ELECTRCAL SPECIFICATIONS

E-005

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KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. PROVIDE AND INSTALL 0-10V DIMMING CONDUCTORS TO ALL LIGHTS CONTROLLED BY THIS SWITCH.
2. LIGHTING CONTROL PANEL, SEE SHEET E-800 FOR DETAILS.
3. CONNECT TO LIGHTING ON SECOND LEVEL.
4. VANITY LOCATION AND HEIGHT TO BE COORDINATED WITH ARCHITECT PRIOR TO INSTALLATION.
5. INSTALL PHOTOCELL COMPATIBLE WITH LIGHTING CONTROL PANEL AT 1FT BELOW PARAPET.
6. PROVIDE AND INSTALL POWER PACK COMPATIBLE WITH CEILING OCCUPANCY SENSOR.
7. PROVIDE AND INSTALL DUAL TECHNOLOGY CEILING MOUNT SMALL MOTION OCCUPANCY SENSOR AND CONNECT WITH LOW VOLTAGE CABLE AS RECOMMENDED BY THE MANUFACTURER.
8. CONNECT LIGHTING CIRCUIT TO LCP IN STORAGE ROOM 108, SEE SHEET E-800 FOR DETAILS.
9. OVERRIDE SWITCHES TO BE INSTALLED IN AN EASY TO ACCESS AREA. ELECTRICAL CONTRACTOR TO PROGRAM OVERRIDE SWITCH FUNCTIONALITY PER MANAGERS SPECIFICATION. CONNECT NLIGHT ENABLED DEVICE TO LCP AND OTHER NLIGHT ENABLED DEVICES WITH CAT5E CABLE.

1 FIRST FLOOR LIGHTING PLAN
1/8" = 1'-0"

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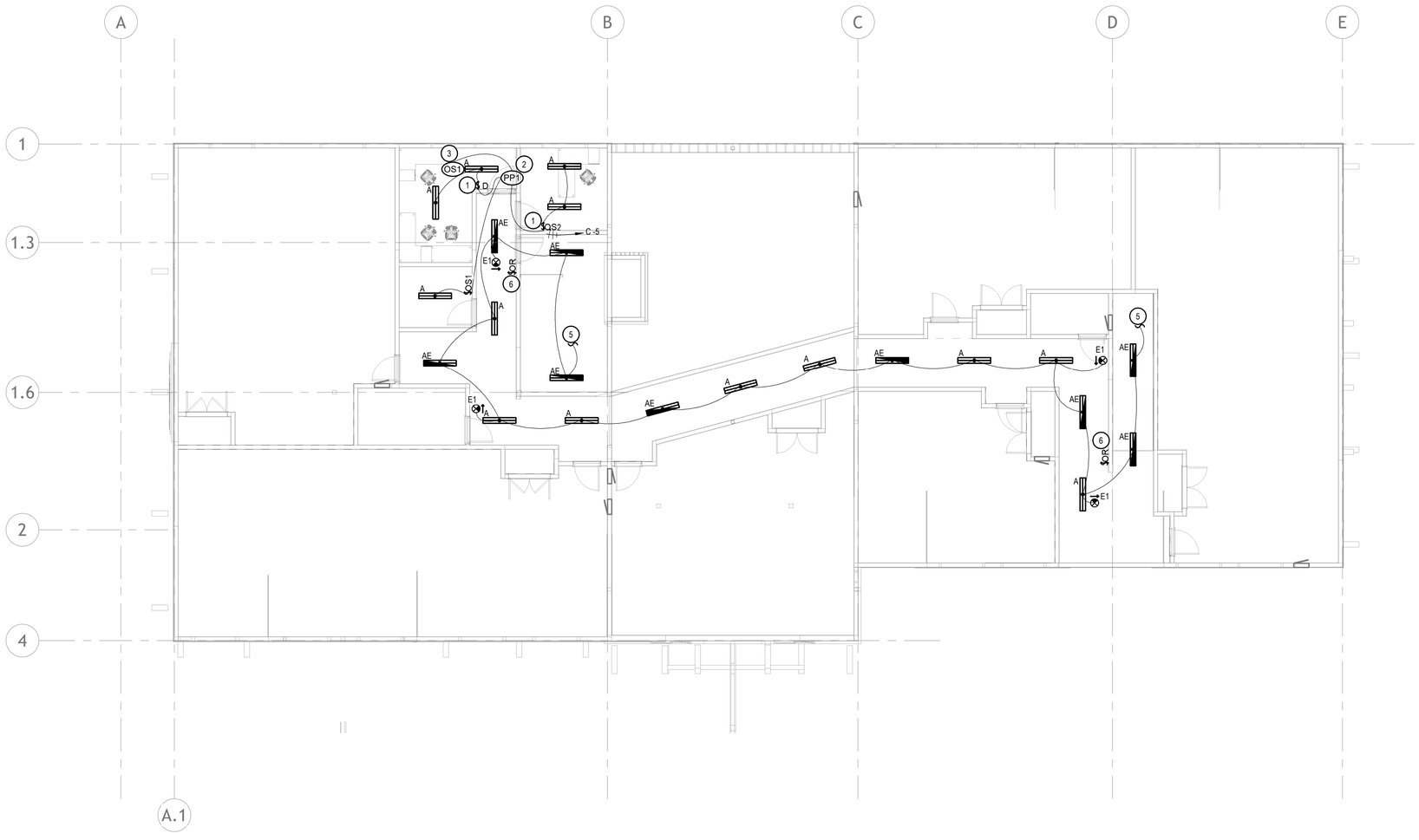
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FIRST FLOOR LIGHTING PLAN

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1 SECOND FLOOR LIGHTING PLAN
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. PROVIDE AND INSTALL 0-10V DIMMING CONDUCTORS TO ALL LIGHTS CONTROLLED BY THIS SWITCH.
2. PROVIDE AND INSTALL POWER PACK COMPATIBLE WITH CEILING OCCUPANCY SENSOR.
3. PROVIDE AND INSTALL DUAL TECHNOLOGY CEILING MOUNT SMALL MOTION OCCUPANCY SENSOR AND CONNECT WITH LOW VOLTAGE CABLE AS RECOMMENDED BY THE MANUFACTURER.
5. CONNECT TO LIGHTING ON FIRST LEVEL.
6. OVERRIDE SWITCHES TO BE INSTALLED IN AN EASY TO ACCESS AREA. ELECTRICAL CONTRACTOR TO PROGRAM OVERRIDE SWITCH FUNCTIONALITY PER MANAGERS SPECIFICATION. CONNECT NLIGHT ENABLED DEVICE TO LCP AND OTHER NLIGHT ENABLED DEVICES WITH CAT5E CABLE.

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SECOND FLOOR LIGHTING PLAN

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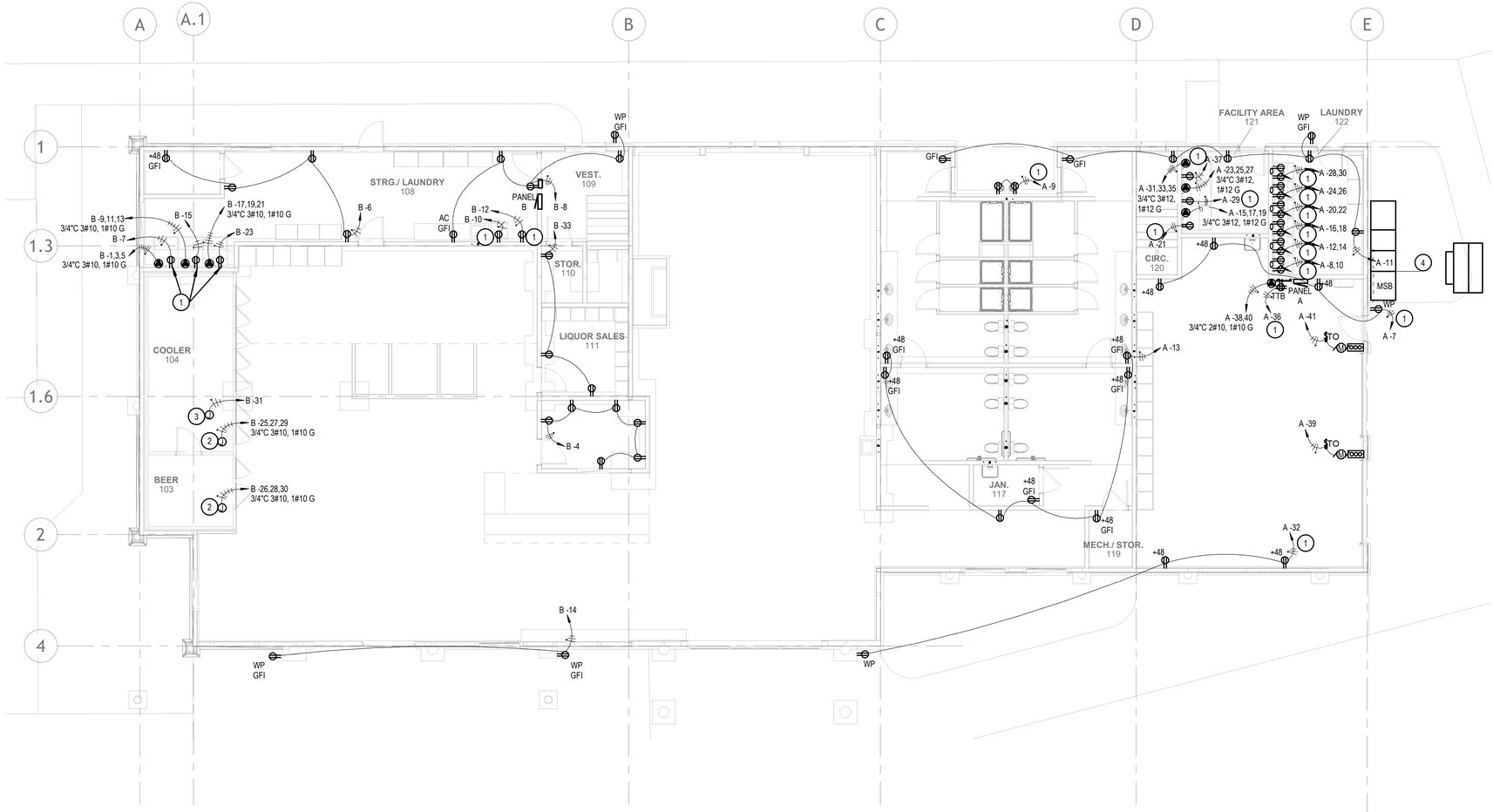
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KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. GROUND FAULT INTERRUPTING CIRCUIT BREAKER INSTALLED IN ELECTRICAL PANEL.
2. POWER FOR COOLER, COORDINATE WITH SPECIFICATIONS PRIOR TO INSTALLATION.
3. POWER FOR COOLER LIGHTS, COORDINATE WITH SPECIFICATIONS PRIOR TO INSTALLATION.
4. ENSURE THERE IS A MINIMUM OF 3 FEET CLEAR BETWEEN THE ELECTRICAL GEAR AND THE UTILITY TRANSFORMER. ENSURE THERE IS A MINIMUM OF 10 FEET CLEAR FROM THE UTILITY TRANSFORMER TO THE BUILDING DOOR.



1 FIRST FLOOR POWER PLAN
1/8" = 1'-0"

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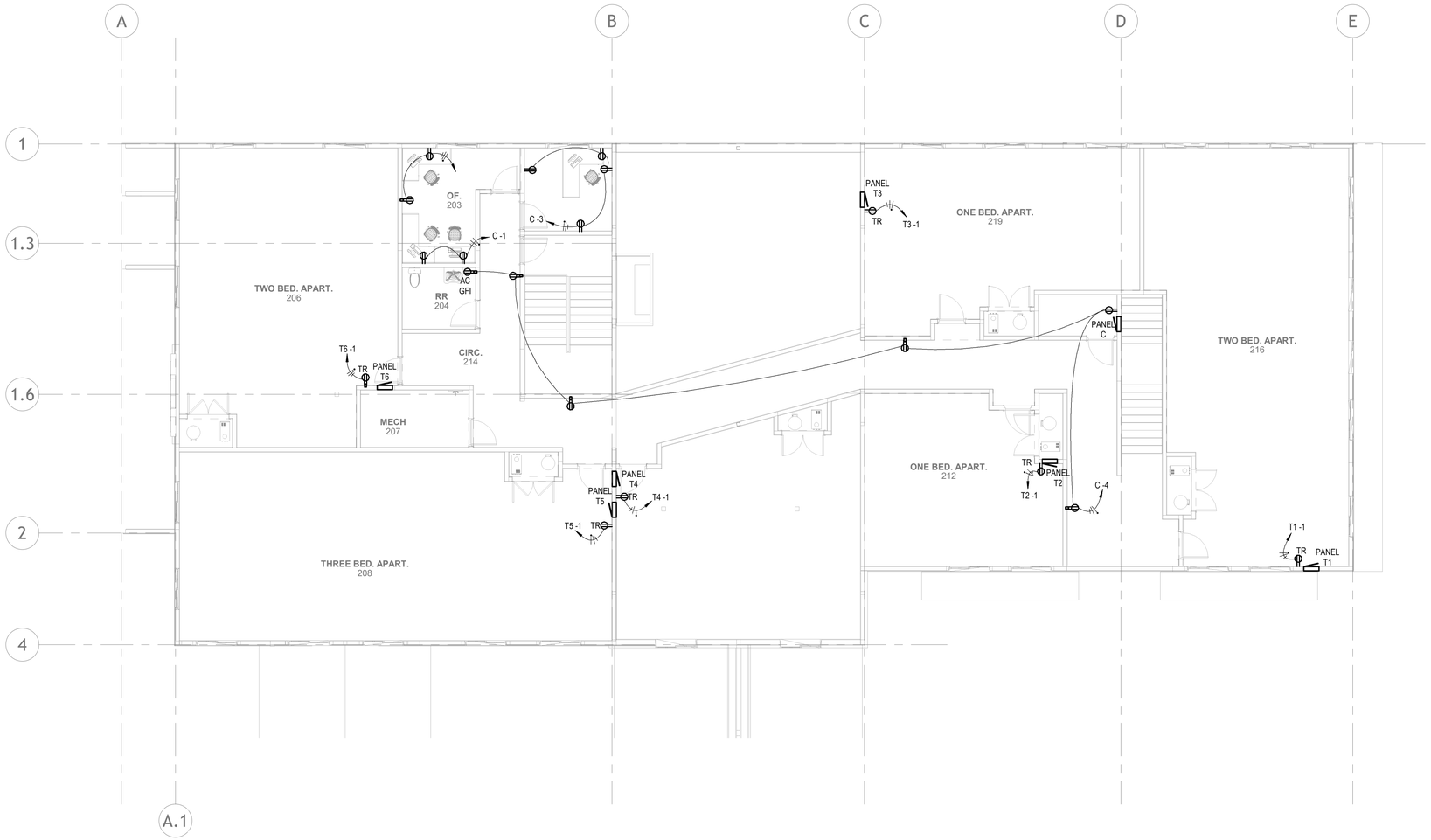
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FIRST FLOOR POWER PLAN

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TBD Alpine, Wyoming, 83128

NO	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

SECOND FLOOR POWER PLAN

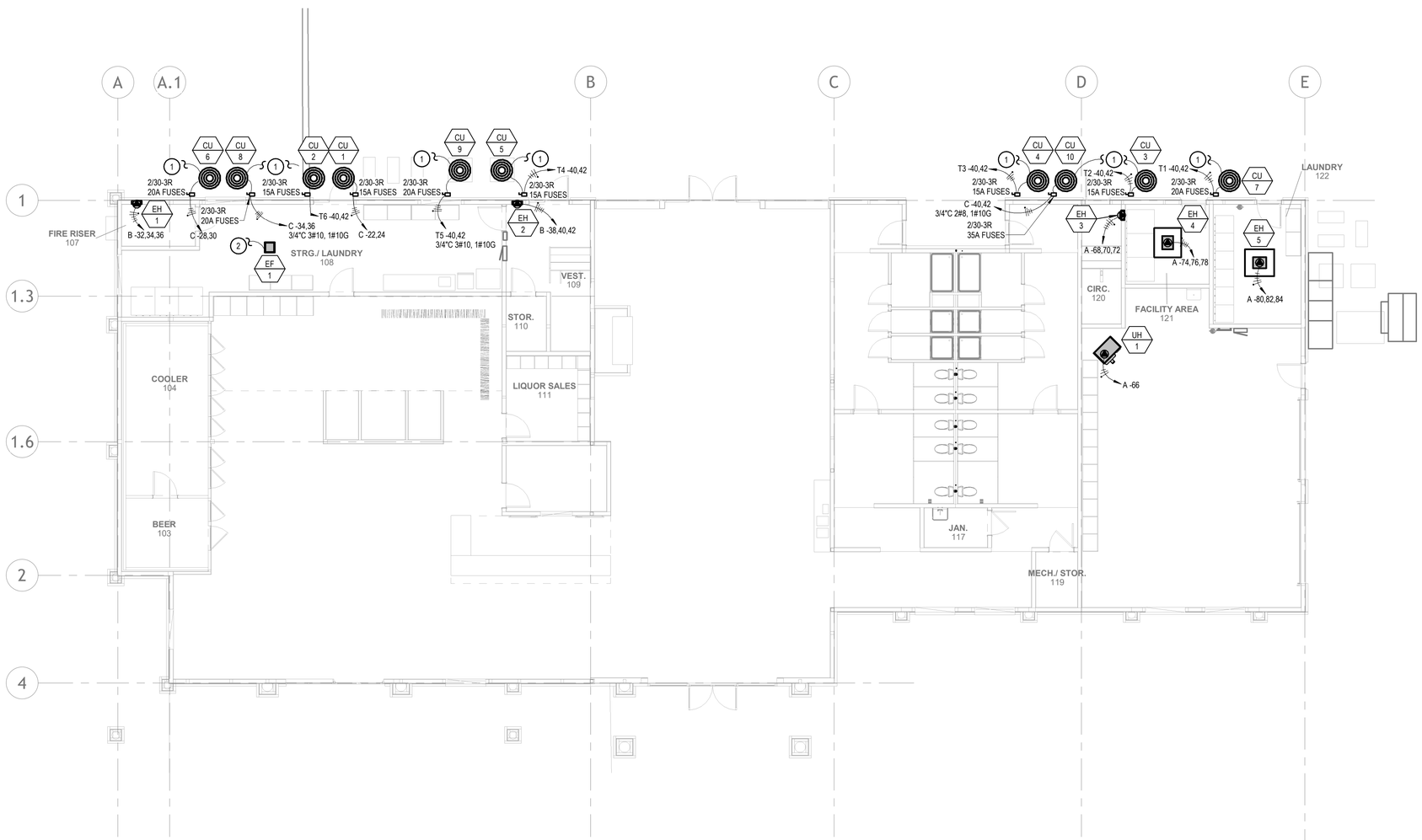
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KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. 3/4" CONDUIT TO CORRESPONDING FURNACE UNIT. BOX, CONDUIT, AND CONDUCTORS TO BE PROVIDED BY ELECTRICAL CONTRACTOR. LEAVE 12" SLACK AT BOX AND FURNACE UNIT.
2. CONNECT TO LIGHTING CIRCUIT IN ROOM.



1 FIRST FLOOR MECHANICAL POWER PLAN
1/8" = 1'-0"

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PH: 208.757.5700

Professional Engineer
THAD MASON
14385
Date 5/2/2025
WYOMING

Project No. 25-077

STRUCTURAL

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2295 N YELLOWSTONE HWY, UNIT 6
IDAHO FALLS, ID 83401
PHONE: (208) 840-5673

MECHANICAL / PLUMBING

MUSGROVE ENGINEERING
234 S. WHISPERWOOD WAY
BOISE, ID 83709
PHONE: (208) 384-0585

ELECTRICAL

MUSGROVE ENGINEERING, P.A.
645 W. 25TH ST.
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CIVIL

SUNRISE ENGINEERING
770 S. WASHINGTON, SUITE A,
AFTON, WY, 83110
PHONE: (307) 885-8500

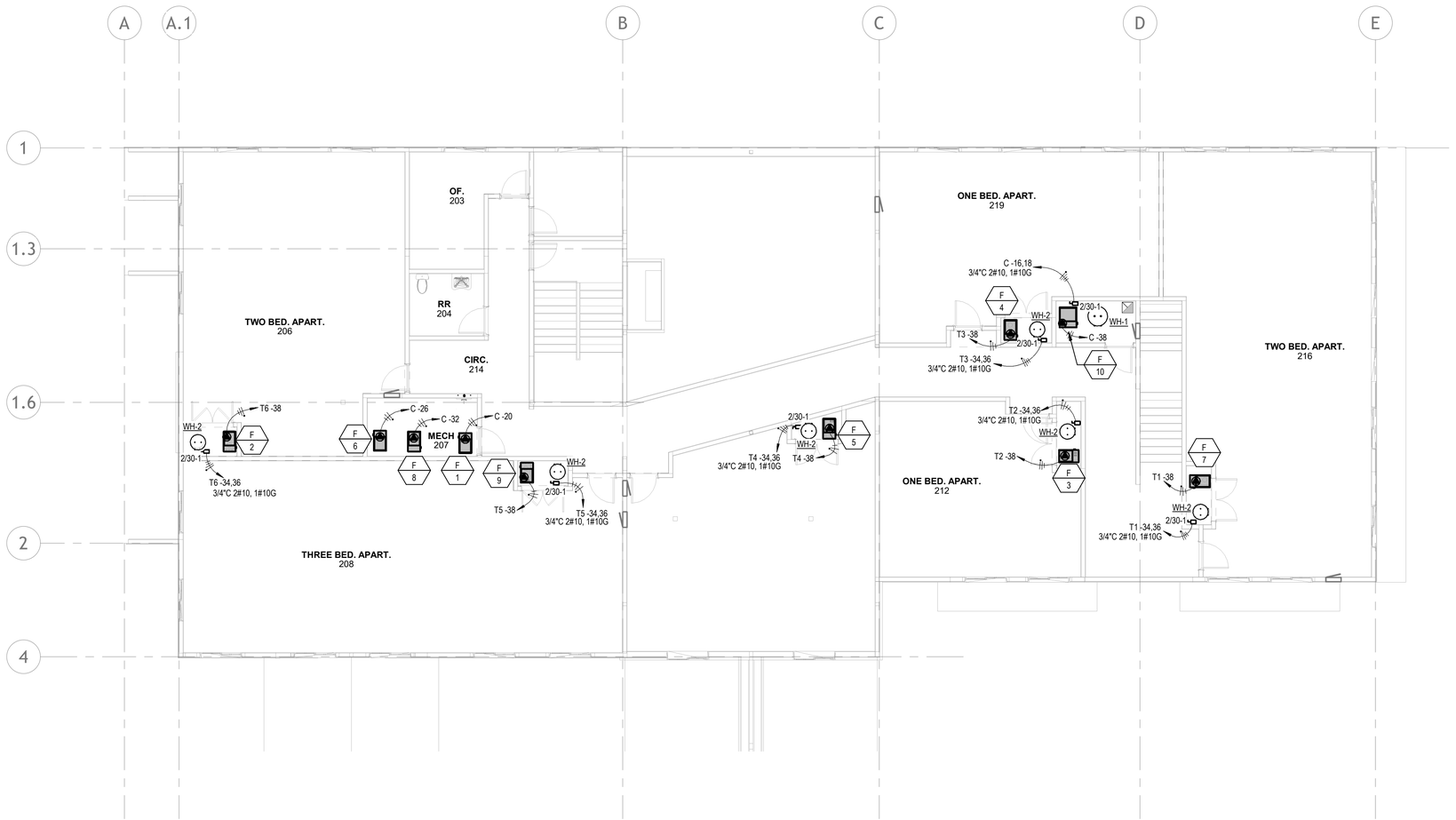
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TBD Alpine, Wyoming, 83128

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FIRST FLOOR MECHANICAL POWER PLAN
E-300

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1 SECOND FLOOR MECHANICAL POWER PLAN
1/8" = 1'-0"

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SECOND FLOOR MECHANICAL POWER PLAN

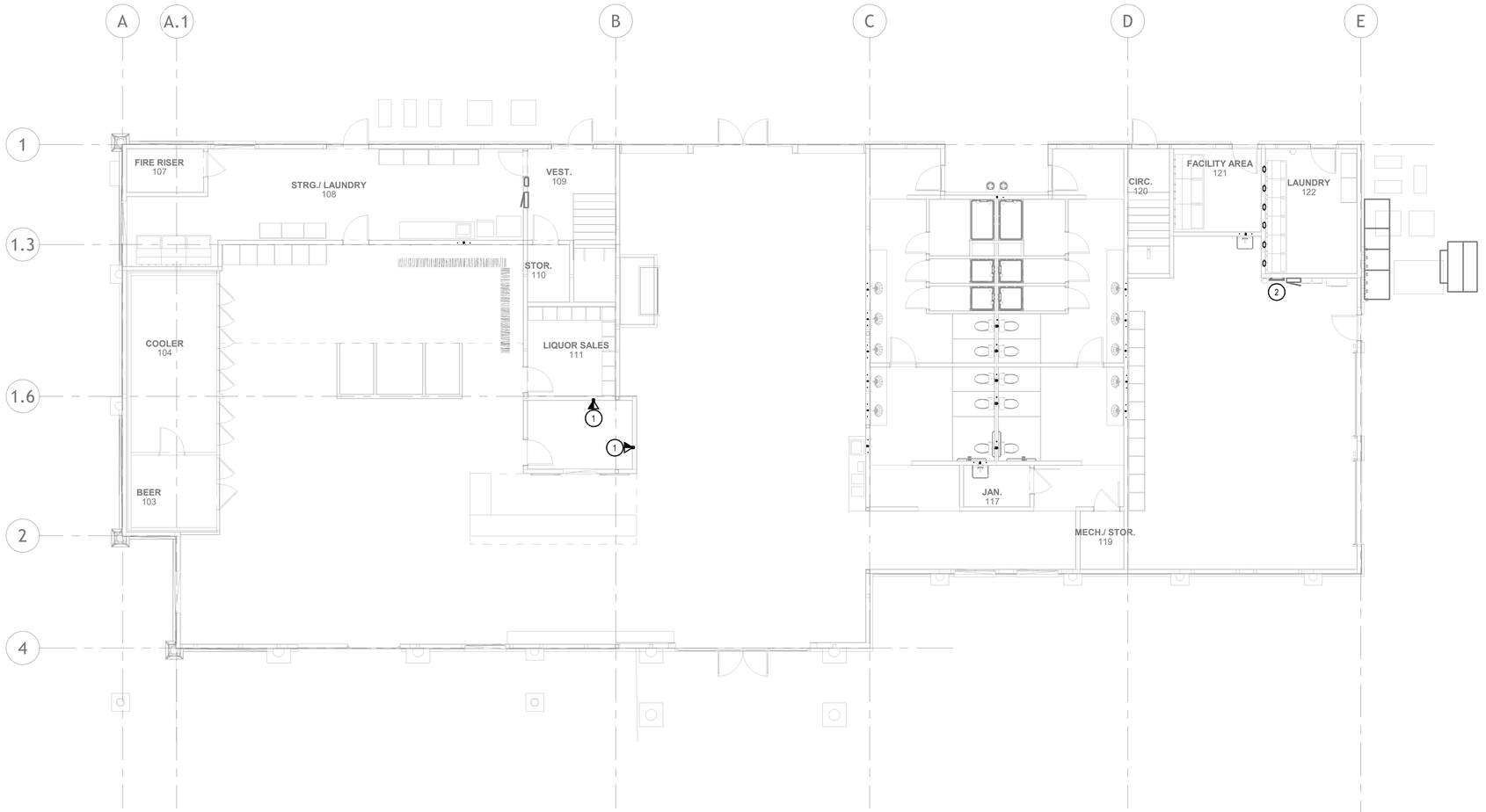
E-301

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KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. SEE SHEET E-700 FOR POWER/DATA ROUGH-IN ELEVATION DETAIL.
2. PROPOSED TELEPHONE BACKBOARD AND SERVER RACK LOCATION. COORDINATE LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. SEE DETAIL ON E-700.



1 FIRST FLOOR SPECIAL SYSTEMS PLAN
1/8" = 1'-0"

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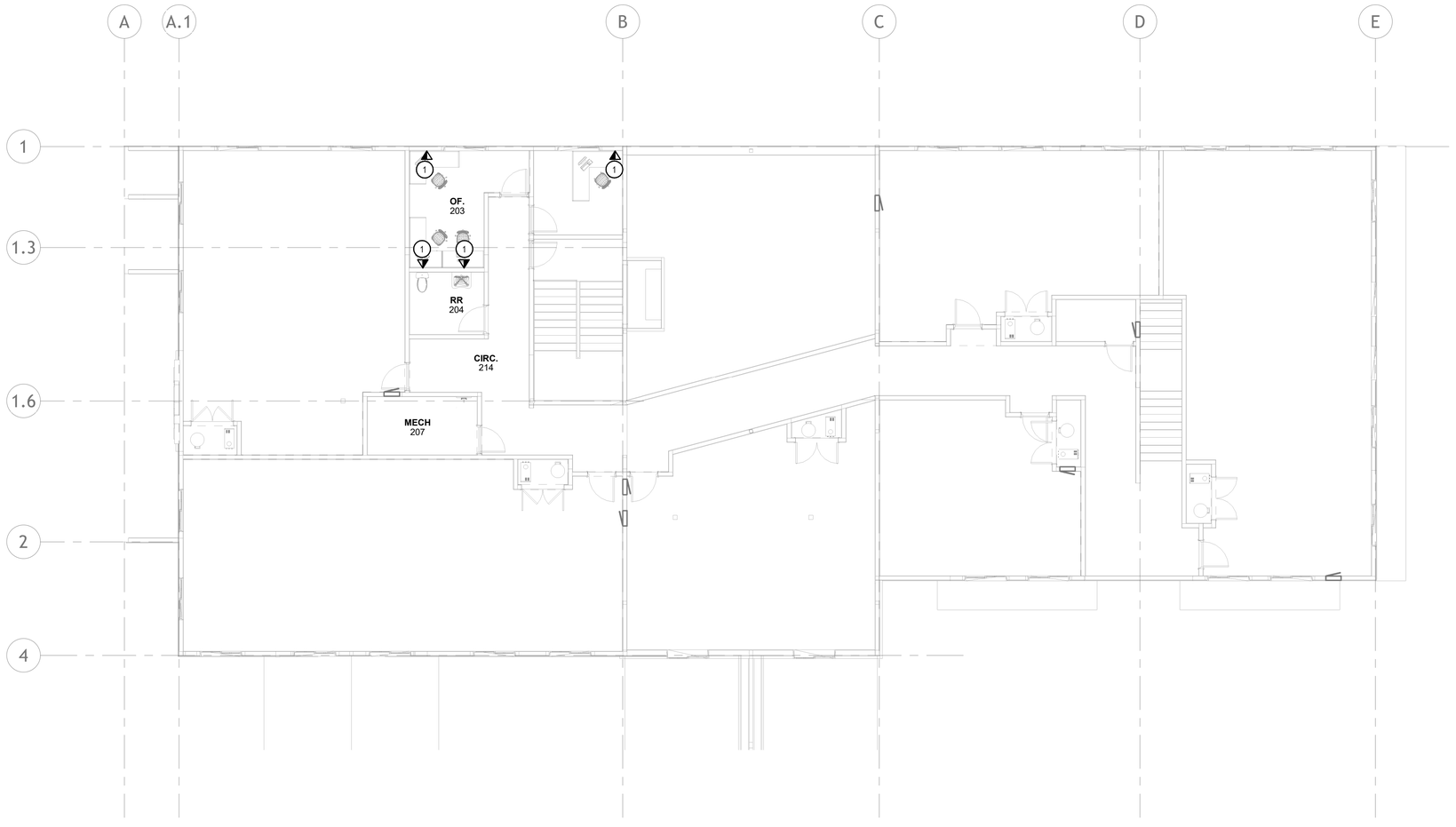
FIRST FLOOR SPECIAL SYSTEMS PLAN
E-400

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KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. SEE SHEET E-700 FOR POWER/DATA ROUGH-IN ELEVATION DETAIL.



1 SECOND FLOOR SPECIAL SYSTEMS PLAN
1/8" = 1'-0"

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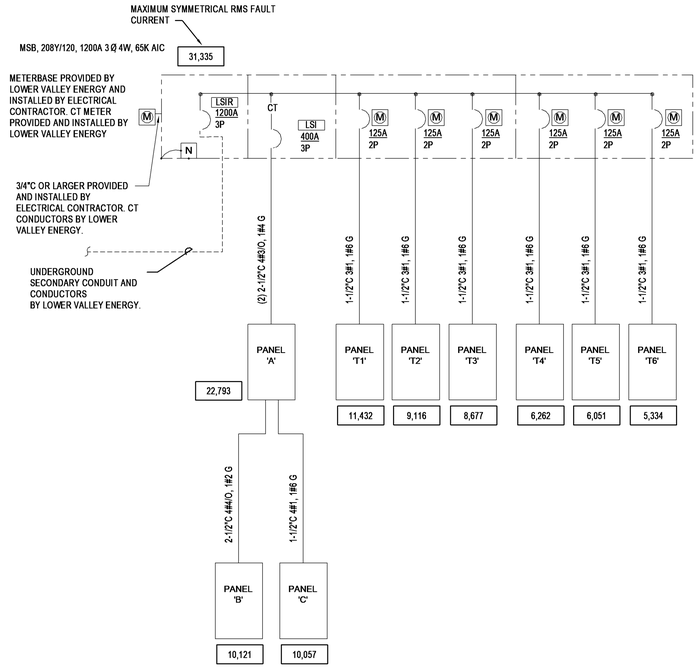
Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

SECOND FLOOR SPECIAL SYSTEMS PLAN

E-401



1 ONE-LINE DIAGRAM
NTS

Switchboard: MSB

Location: EXTERIOR
Supply From: T1
Mounting: SURFACE
Enclosure: TYPE 3R

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: SEE ONE LINE
Mains Type: CB
Mains Rating: 1200 A
MCB Rating: N/A

Notes:

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	A	3	400 A	400 A	67278 VA	
2	T1	2	125 A	125 A	8602 VA	
3	T2	2	125 A	125 A	7670 VA	
4	T3	2	125 A	125 A	7670 VA	
5	T4	2	125 A	125 A	8119 VA	
6	T5	2	125 A	125 A	9265 VA	
7	T6	2	125 A	125 A	8123 VA	
8	SPARE	2	125 A	125 A	0 VA	
9	SPARE	2	125 A	125 A	0 VA	
10	BLANK	1	--	--	--	
11	BLANK	1	--	--	--	
12	BLANK	1	--	--	--	
13	BLANK	1	--	--	--	
14	BLANK	1	--	--	--	
15	BLANK	1	--	--	--	
16	BLANK	1	--	--	--	
17	BLANK	1	--	--	--	
18	BLANK	1	--	--	--	
19	BLANK	1	--	--	--	
20	BLANK	1	--	--	--	
				Total Conn. Load:	116726 VA	
				Total Amps:	324 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	81747 VA	100.00%	81747 VA		
Lighting	2823 VA	100.00%	2823 VA	**Total Conn. Load:**	116726 VA
Motor	1000 VA	100.00%	1000 VA	**Total Est. Demand:**	109246 VA
Power	6200 VA	100.00%	6200 VA	**Total Conn. Current:**	324 A
Receptacle	24960 VA	70.03%	17480 VA	**Total Est. Demand Current:**	303 A

Notes:

Branch Panel: A

Location: GARAGE/STORAGE 123
Supply From: MSB
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 400 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	C	Poles	Trip	CKT Note	Circuit Description	CKT
1	PANEL B		200 A	3	4988 VA / 6828 VA			3	125 A		PANEL C	2
3	--	--	--	--		5960 VA / 10562 VA		--	--	--	--	4
5	--	--	--	--			5448 VA / 8750 VA	--	--	--	--	6
7	RECEPTS GARAGE/STORAGE, EXT	1	20 A	1	720 VA / 600 VA			1	20 A	1	LAUNDRY 122 WASHER	8
9	RECEPTS DRINKING FOUNTAINS EXT	1	20 A	1		1200 VA / 600 VA		1	20 A	1	LAUNDRY 122 DRYER	10
11	RECEPTS GENERAL LAUNDRY, FACILITY, RRS		20 A	1			1260 VA / 600 VA	1	20 A	1	LAUNDRY 122 WASHER	12
13	RECEPTS RESTROOMS, JAN, MECH/STORAGE		20 A	1	1260 VA / 600 VA			1	20 A	1	LAUNDRY 122 DRYER	14
15	FACILITY 121 WASHER	1	20 A	3		167 VA / 600 VA		1	20 A	1	LAUNDRY 122 WASHER	16
17	--	--	--	--			167 VA / 600 VA	1	20 A	1	LAUNDRY 122 DRYER	18
19	--	--	--	--	167 VA / 600 VA			1	20 A	1	LAUNDRY 122 WASHER	20
21	FACILITY 121 DRYER	1	20 A	1		600 VA / 600 VA		1	20 A	1	LAUNDRY 122 DRYER	22
23	FACILITY 121 WASHER		20 A	3			167 VA / 600 VA	1	20 A	1	LAUNDRY 122 WASHER	24
25	--	--	--	--	167 VA / 600 VA			1	20 A	1	LAUNDRY 122 DRYER	26
27	--	--	--	--		167 VA / 600 VA		1	20 A	1	LAUNDRY 122 WASHER	28
29	FACILITY 121 DRYER	1	20 A	1			600 VA / 600 VA	1	20 A	1	LAUNDRY 122 DRYER	30
31	FACILITY 121 WASHER		20 A	3	167 VA / 540 VA			1	20 A	1	RECEPTS SHOP, EXT	32
33	--	--	--	--		167 VA / 1302 VA		1	20 A		LIGHTING GARAGE/STORAGE, LAUNDRY, RRS	34
35	--	--	--	--			167 VA / 180 VA	1	20 A	1	TELEPHONE BACKBOARD GARAGE/STORAGE	36
37	FACILITY 121 DRYER	1	20 A	1	600 VA / 250 VA			2	20 A		SERVER RACK GARAGE/STORAGE	38
39	GARAGE DOOR		20 A	1		500 VA / 250 VA		--	--	--	--	40
41	GARAGE DOOR		20 A	1			500 VA / 0 VA	1	20 A		SPARE	42
43	SPARE		20 A	1	0 VA / 0 VA			1	20 A		SPARE	44
45	SPARE		20 A	1		0 VA / 0 VA		1	20 A		SPARE	46
47	SPARE		20 A	1			0 VA / 0 VA	1	20 A		SPARE	48
49	SPARE		20 A	1	0 VA / 0 VA			1	20 A		SPARE	50
51	SPARE		20 A	1		0 VA / 0 VA		1	20 A		SPARE	52
53	SPARE		20 A	1			0 VA / 0 VA	1	20 A		SPARE	54
55	SPARE		20 A	1	0 VA / 0 VA			1	20 A		SPARE	56
57	SPARE		20 A	1		0 VA / 0 VA		1	20 A		SPARE	58
59	SPARE		20 A	1			0 VA / 0 VA	1	20 A		SPARE	60
61	SPARE		20 A	1	0 VA / 0 VA			1	20 A		SPARE	62
63	SPARE		20 A	1		0 VA / 0 VA		1	20 A		SPARE	64
65	SPARE		20 A	1			0 VA / 288 VA	1	20 A		UNIT HEATER UH-1	66
67	SPARE		20 A	1	0 VA / 667 VA			3	15 A		ELECTRIC HEATER EH-3 CIRC 119	68
69	SPARE		20 A	1		0 VA / 667 VA		--	--	--	--	70
71	SPARE		20 A	1			0 VA / 667 VA	--	--	--	--	72
73	SPARE		20 A	1	0 VA / 667 VA			3	15 A		ELECTRIC HEATER EH-4 FACILITY 120	74
75	SPARE		20 A	1		0 VA / 667 VA		--	--	--	--	76
77	SPARE		20 A	1			0 VA / 667 VA	--	--	--	--	78
79	SPARE		20 A	1	0 VA / 667 VA			3	15 A		ELECTRIC HEATER EH-5 LAUNDRY 121	80
81	SPARE		20 A	1		0 VA / 667 VA		--	--	--	--	82
83	SPARE		20 A	1			0 VA / 667 VA	--	--	--	--	84
				Total Load:	20086 VA	25266 VA	21926 VA					
				Total Amps:	167 A	213 A	185 A					

Legend:

Branch Panel: B

Location: STRG./ LAUNDRY 108
Supply From: A
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 225 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	C	Poles	Trip	CKT Note	Circuit Description	CKT
1	LAUNDRY 108 WASHER		30 A	3	167 VA / 195 VA			1	20 A		LIGHTING EXTERIOR BUILDING	2
3	--	--	--	--		167 VA / 1080 VA		1	20 A		RECEPTS OFFICE 112	4
5	--	--	--	--			167 VA / 720 VA	1	20 A		RECEPTS FIRE RISER, STRG. 108	6
7	LAUNDRY 108 DRYER	1	20 A	1	600 VA / 900 VA			1	20 A		RECEPTS STRG. 108, VEST 109, EXT	8
9	LAUNDRY 108 WASHER		30 A	3		167 VA / 720 VA		1	20 A	1	FRIDGE STRG. 108	10
11	--	--	--	--			167 VA / 720 VA	1	20 A	1	ICE MACHINE STRG. 108	12
13	--	--	--	--	167 VA / 360 VA			1	20 A		RECEPTS EXT FRONT	14
15	LAUNDRY 108 DRYER	1	20 A	1		600 VA / 387 VA		1	20 A		LIGHTING LAUNDRY, OFFICE, STAIRS	16
17	LAUNDRY 108 WASHER		30 A	3			167 VA / 775 VA	1	20 A		LIGHTING STAIRS, SECOND LEVEL HALLWAY	18
19	--	--	--	--	167 VA / 0 VA			1	20 A		SPARE	20
21	--	--	--	--		167 VA / 0 VA		1	20 A		SPARE	22
23	LAUNDRY 108 DRYER	1	20 A	1			600 VA / 0 VA	1	20 A		SPARE	24
25	COOLER		30 A	3	400 VA / 400 VA			3	30 A		BEER COOLER	26
27	--	--	--	--		400 VA / 400 VA		--	--	--	--	28
29	--	--	--	--			400 VA / 400 VA	--	--	--	--	30
31	COOLER LIGHTS		20 A	1	300 VA / 667 VA			3	20 A		ELECTRIC HEATER EH-1 FIRE RISER ROOM	32
33	RECEPTS LIQUOR SALES 111, STRG 110		20 A	1		540 VA / 667 VA		--	--	--	--	34
35	SPARE		20 A	1			0 VA / 667 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 667 VA			3	20 A		ELECTRIC HEATER EH-2 VESTIBULE 109	38
39	SPARE		20 A	1		0 VA / 667 VA		--	--	--	--	40
41	SPARE		20 A	1			0 VA / 667 VA	--	--	--	--	42
				Total Load:	4988 VA	5960 VA	5448 VA					
				Total Amps:	42 A	50 A	46 A					

Legend:

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ONE-LINE DIAGRAM

E-500

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Branch Panel: C

Location: MECH 217
Supply From: A
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	C	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPTS - OFFICE 305		20 A	1	360 VA / 540 VA			1	20 A		RECEPTS - OFFICE 305	2
3	RECEPTS - OFFICE 305		20 A	1		900 VA / 1080 VA		1	20 A		RECEPTS - RESTROOM 305, CORRIDOR	4
5	LIGHTING SECOND LEVEL OFFICES		20 A	1			169 VA / 0 VA	1	20 A		SPARE	6
7	SPARE		20 A	1	0 VA / 0 VA			1	20 A		SPARE	8
9	SPARE		20 A	1		0 VA / 0 VA		1	20 A		SPARE	10
11	SPARE		20 A	1			0 VA / 0 VA	1	20 A		SPARE	12
13	SPARE		20 A	1	0 VA / 0 VA			1	20 A		SPARE	14
15	SPARE		20 A	1		0 VA / 2250 VA		2	30 A		WATER HEATER WH-1	16
17	SPARE		20 A	1			0 VA / 2250 VA	--	--	--	--	18
19	SPARE		20 A	1	0 VA / 1176 VA			1	20 A		FURNACE F-1	20
21	SPARE		20 A	1		0 VA / 907 VA		2	20 A		CONDENSING UNIT CU-1	22
23	SPARE		20 A	1			0 VA / 907 VA	--	--	--	--	24
25	SPARE		20 A	1	0 VA / 1176 VA			1	20 A		FURNACE F-6	26
27	SPARE		20 A	1		0 VA / 1373 VA		2	20 A		CONDENSING UNIT CU-6	28
29	SPARE		20 A	1			0 VA / 1373 VA	--	--	--	--	30
31	SPARE		20 A	1	0 VA / 1656 VA			1	25 A		FURNACE F-8	32
33	SPARE		20 A	1		0 VA / 1464 VA		2	30 A		CONDENSING UNIT CU-8	34
35	SPARE		20 A	1			0 VA / 1464 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1920 VA			1	20 A		FURNACE F-10	38
39	SPARE		20 A	1		0 VA / 2588 VA		2	50 A		CONDENSING UNIT CU-10	40
41	SPARE		20 A	1			0 VA / 2588 VA	--	--	--	--	42
			Total Load:		6828 VA	10562 VA	8750 VA					
			Total Amps:		57 A	90 A	75 A					

Legend:

Branch Panel: T1

Location: TWO BED. APART. 216
Supply From: MSB
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Single
Phases: 1
Wires: 3

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPT		20 A	1	180 VA / 0 VA		1	20 A		SPARE	2
3	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	4
5	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	6
7	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	8
9	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	10
11	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	12
13	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	14
15	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	16
17	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	18
19	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	20
21	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	22
23	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	24
25	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	26
27	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	28
29	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	30
31	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	32
33	SPARE		20 A	1	0 VA / 2250 VA		2	30 A		WATER HEATER WH-2	34
35	SPARE		20 A	1		0 VA / 2250 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1176 VA		1	20 A		FURNACE F-7	38
39	SPARE		20 A	1		0 VA / 1373 VA	2	25 A		CONDENSING UNIT CU-7	40
41	SPARE		20 A	1	0 VA / 1373 VA		--	--	--	--	42
			Total Load:		4979 VA	3623 VA					
			Total Amps:		46 A	35 A					

Legend:

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Professional Engineer
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14385
Date 5/2/2025
WYOMING

Project No. 25-077

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

PANEL SCHEDULES

E-600

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Branch Panel: T2

Location: 1 BED APARTMENT 21212
Supply From: MSB
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Single
Phases: 1
Wires: 3

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPT		20 A	1	180 VA / 0 VA		1	20 A		SPARE	2
3	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	4
5	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	6
7	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	8
9	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	10
11	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	12
13	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	14
15	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	16
17	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	18
19	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	20
21	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	22
23	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	24
25	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	26
27	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	28
29	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	30
31	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	32
33	SPARE		20 A	1	0 VA / 2250 VA		2	30 A		WATER HEATER WH-2	34
35	SPARE		20 A	1		0 VA / 2250 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1176 VA		1	20 A		FURNACE F-3	38
39	SPARE		20 A	1		0 VA / 907 VA	2	15 A		CONDENSING UNIT CU-3	40
41	SPARE		20 A	1	0 VA / 907 VA		--	--	--	--	42
				Total Load:	4513 VA	3157 VA					
				Total Amps:	42 A	30 A					

Legend:

Branch Panel: T3

Location: 1 BED APARTMENT 21919
Supply From: MSB
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Single
Phases: 1
Wires: 3

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPT		20 A	1	180 VA / 0 VA		1	20 A		SPARE	2
3	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	4
5	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	6
7	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	8
9	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	10
11	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	12
13	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	14
15	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	16
17	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	18
19	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	20
21	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	22
23	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	24
25	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	26
27	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	28
29	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	30
31	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	32
33	SPARE		20 A	1	0 VA / 2250 VA		2	30 A		WATER HEATER WH-2	34
35	SPARE		20 A	1		0 VA / 2250 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1176 VA		1	20 A		FURNACE F-4	38
39	SPARE		20 A	1		0 VA / 907 VA	2	15 A		CONDENSING UNIT CU-4	40
41	SPARE		20 A	1	0 VA / 907 VA		--	--	--	--	42
				Total Load:	4513 VA	3157 VA					
				Total Amps:	42 A	30 A					

Legend:

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Project No. 25-077

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

PANEL SCHEDULES

E-601

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Branch Panel: T4

Location: 2 STORY APARTMENT 210
Supply From: MSB
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Single
Phases: 1
Wires: 3

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPT		20 A	1	180 VA / 0 VA		1	20 A		SPARE	2
3	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	4
5	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	6
7	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	8
9	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	10
11	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	12
13	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	14
15	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	16
17	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	18
19	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	20
21	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	22
23	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	24
25	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	26
27	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	28
29	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	30
31	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	32
33	SPARE		20 A	1	0 VA / 2250 VA		2	30 A		WATER HEATER WH-2	34
35	SPARE		20 A	1		0 VA / 2250 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1176 VA		1	20 A		FURNACE F-5	38
39	SPARE		20 A	1		0 VA / 1132 VA	2	20 A		CONDENSING UNIT CU-5	40
41	SPARE		20 A	1	0 VA / 1132 VA		--	--	--	--	42
				Total Load:	4738 VA	3382 VA					
				Total Amps:	44 A	33 A					

Legend:

Branch Panel: T5

Location: 3 BED APARTMENT 208
Supply From: MSB
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Single
Phases: 1
Wires: 3

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPT		20 A	1	180 VA / 0 VA		1	20 A		SPARE	2
3	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	4
5	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	6
7	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	8
9	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	10
11	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	12
13	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	14
15	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	16
17	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	18
19	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	20
21	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	22
23	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	24
25	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	26
27	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	28
29	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	30
31	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	32
33	SPARE		20 A	1	0 VA / 2250 VA		2	30 A		WATER HEATER WH-2	34
35	SPARE		20 A	1		0 VA / 2250 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1656 VA		1	20 A		FURNACE F-9	38
39	SPARE		20 A	1		0 VA / 1464 VA	2	30 A		CONDENSING UNIT CU-9	40
41	SPARE		20 A	1	0 VA / 1464 VA		--	--	--	--	42
				Total Load:	5550 VA	3714 VA					
				Total Amps:	51 A	36 A					

Legend:

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Lodge for Alpine Valley RV Resort
TBD Alpine, Wyoming, 83128

ID	DATE	DESCRIPTION
00	05/05/2025	Issue for AHJ Review

24063

PANEL SCHEDULES

E-602

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Branch Panel: T6

Location: 2 BED APARTMENT 206'06
Supply From: MSB
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Single
Phases: 1
Wires: 3

A.I.C. Rating: SEE ONE LINE
Mains Type: MLO
Mains Rating: 125 A
MCB Rating: N/A

CKT Notes:
1. GFCI FOR PERSONNEL PROTECTION (5mA) 2. GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	CKT Note	Trip	Poles	A	B	Poles	Trip	CKT Note	Circuit Description	CKT
1	RECEPT		20 A	1	180 VA / 0 VA		1	20 A		SPARE	2
3	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	4
5	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	6
7	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	8
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15	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	16
17	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	18
19	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	20
21	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	22
23	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	24
25	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	26
27	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	28
29	SPARE		20 A	1	0 VA / 0 VA		1	20 A		SPARE	30
31	SPARE		20 A	1		0 VA / 0 VA	1	20 A		SPARE	32
33	SPARE		20 A	1	0 VA / 2250 VA		2	30 A		WATER HEATER WH-2	34
35	SPARE		20 A	1		0 VA / 2250 VA	--	--	--	--	36
37	SPARE		20 A	1	0 VA / 1176 VA		1	20 A		FURNACE F-2	38
39	SPARE		20 A	1		0 VA / 1134 VA	2	15 A		CONDENSING UNIT CU-2	40
41	SPARE		20 A	1	0 VA / 1134 VA		--	--	--	--	42
				Total Load:	4740 VA	3384 VA					
				Total Amps:	44 A	33 A					

Legend:

ONE BEDROOM UNIT

Voltage 208/120V single phase

Dwelling Size

1 Bed Unit	647	Sq ft
Total	647	Sq ft

Lighting and Receptacle Circuits at 3 VA / sq ft	1941 VA
Exhaust Fans	48 VA
Range Hood	50 VA
Heat Pump	6528 VA
Range	9600 VA
Microwave	1000 VA
Dishwasher	1000 VA
2 appliance circuits	2000 VA
Water Heater	4500 VA
Washer	1500 VA
Dryer	5000 VA
Total	33167 VA

Max Service Size 33167 VA 208 Volt 138 amps

Derated per NEC 220.82 B

A/C at 0%		
Heating at 100%	6528	VA
First 10 KVA of other loads at 100%	10000	VA
Remainder of other loads at 40%	6656	VA
Total derated load	23184	VA

Minimum Service Size 23184 VA/ 208 Volt 97 amps

Total 97 amps

Install new 125 amp service

TWO BEDROOM UNIT

Voltage 208/120V single phase

Dwelling Size

2 Bed Unit	1120	Sq ft
Total	1120	Sq ft

Lighting and Receptacle Circuits at 3 VA / sq ft	3360 VA
Exhaust Fans	48 VA
Range Hood	50 VA
Heat Pump	6528 VA
Range	9600 VA
Microwave	1000 VA
Dishwasher	1000 VA
2 appliance circuits	2000 VA
Water Heater	4500 VA
Washer	1500 VA
Dryer	5000 VA
Total	34586 VA

Max Service Size 34586 VA 208 Volt 144 amps

Derated per NEC 220.82 B

A/C at 0%		
Heating at 100%	6528	VA
First 10 KVA of other loads at 100%	10000	VA
Remainder of other loads at 40%	7223	VA
Total derated load	23751	VA

Minimum Service Size 23751 VA/ 208 Volt 99 amps

Total 99 amps

Install new 125 amp service

THREE BEDROOM UNIT

Voltage 208/120V single phase

Dwelling Size

3 Bed Unit	1146	Sq ft
Total	1146	Sq ft

Lighting and Receptacle Circuits at 3 VA / sq ft	3438 VA
Exhaust Fans	48 VA
Range Hood	50 VA
Heat Pump	6528 VA
Range	9600 VA
Microwave	1000 VA
Dishwasher	1000 VA
2 appliance circuits	2000 VA
Water Heater	4500 VA
Washer	1500 VA
Dryer	5000 VA
Total	34664 VA

Max Service Size 34664 VA 208 Volt 144 amps

Derated per NEC 220.82 B

A/C at 0%		
Heating at 100%	6528	VA
First 10 KVA of other loads at 100%	10000	VA
Remainder of other loads at 40%	7254	VA
Total derated load	23782	VA

Minimum Service Size 23782 VA/ 208 Volt 99 amps

Total 99 amps

Install new 125 amp service

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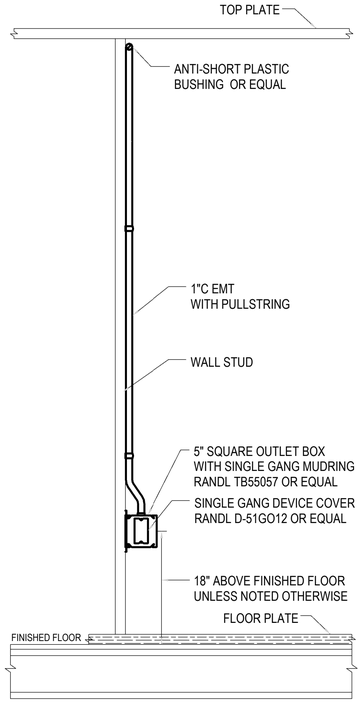
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24063

PANEL SCHEDULES

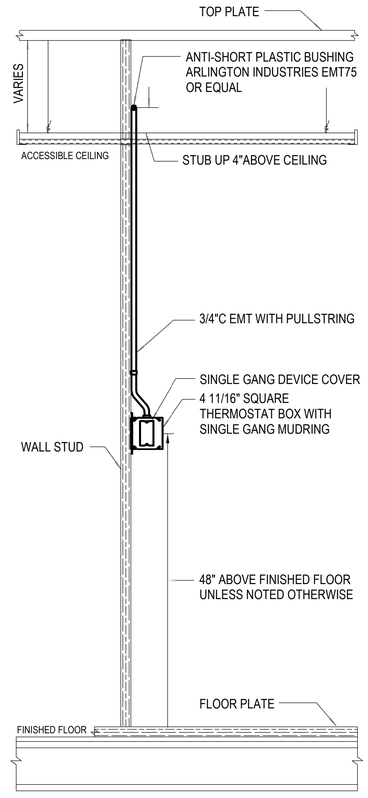
E-603

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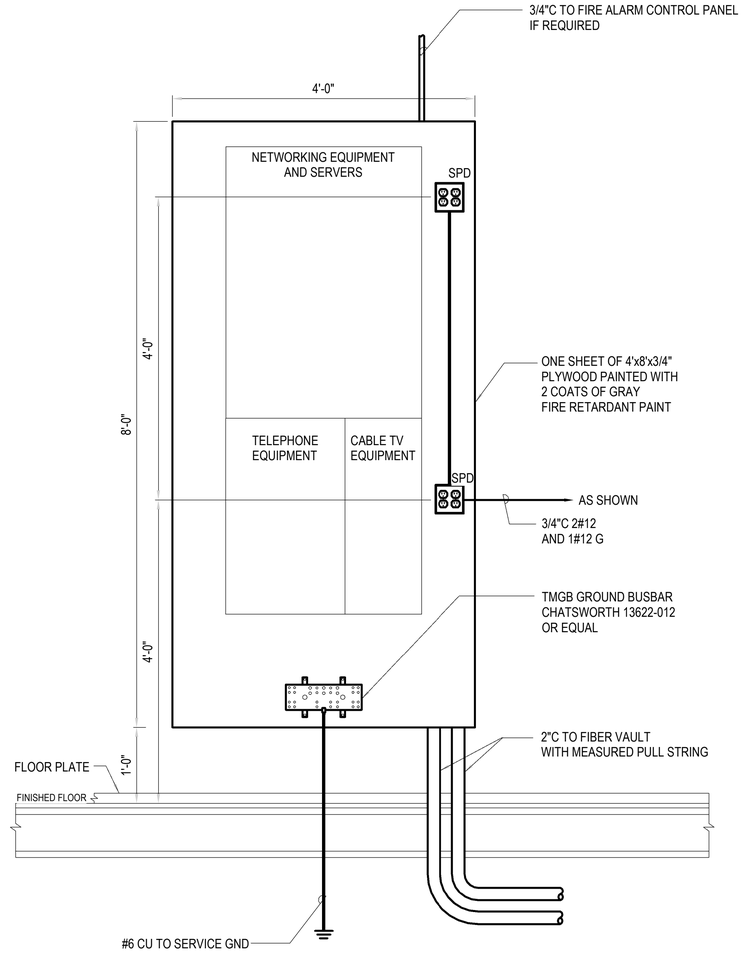
ELECTRICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF DATA/TELEPHONE ROUGH-IN TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

1 DATA ROUGH-IN DETAIL
1" = 1'-0"

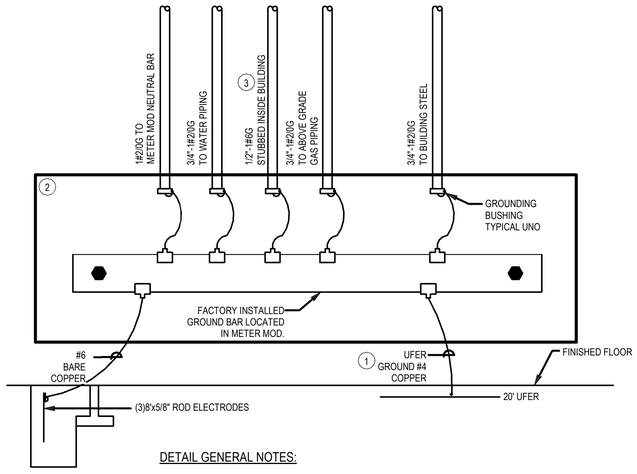


ELECTRICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF THERMOSTAT BOX ROUGH-IN TYPICAL DETAIL - ACTUAL INSTALLATION MAY VARY

2 THERMOSTAT ROUGH-IN DETAIL
1" = 1'-0"



3 TELEPHONE BACKBOARD
1" = 1'-0"



DETAIL GENERAL NOTES:

A. ALL CONDUCTORS SHALL BE IN EMT CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL HAVE A GROUNDING BUSHING AT EACH END.
B. ALL CONNECTIONS SHALL BE EXOTHERMIC WELD, LISTED PRESSURE CONNECTORS, LISTED CLAMPS OR OTHER LISTED MEANS.

DETAIL NOTES:

1. UFER GROUND TO BE 20' OF #4 AWG COPPER OR 1/2" MINIMUM DIAMETER STEEL REINFORCING BAR PER 250.52.
2. INTERNAL TO METER MOD.
3. 1/2" CONDUIT WITH 1#6G FOR FUTURE TTB STUBBED 18" INTO BUILDING 11'-0" AFF. LEAVE 18" EXCESS LENGTH ON CONDUCTOR PAST END OF CONDUIT. MARK AS "TTB GROUND'.

4 GROUNDING BAR METERED DETAIL
NTS

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Professional Engineer
THAD MASON
14385
Date 5/2/2025
WYOMING

Project No. 25-077

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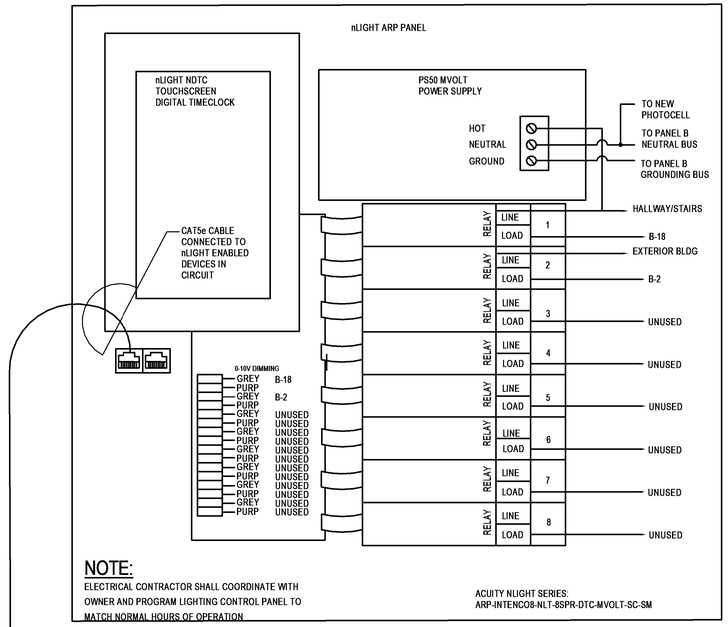
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TBD Alpine, Wyoming, 83128

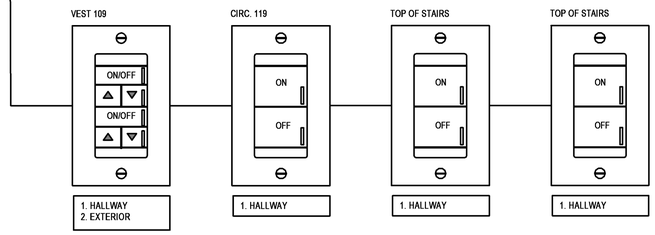
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24063

ELECTRICAL DETAILS

E-700





1 LIGHTING CONTROL PANEL
1" = 1'-0"

LIGHTING FIXTURE SCHEDULE (25-077)

TYPE	DESCRIPTION	MTG.	LAMPS	WATTS	MFG. & CATALOG NUMBER	OR EQUAL BY	NOTES
A	CONTRACTOR SELECT 1'x4' LED FLAT PANEL, MVOLT SWITCHABLE LUMEN OUTPUT SET TO HIGH (4200 LUMENS) DIRECT CEILING MOUNT KIT	SURFACE	LED 4000K	33.7	LITHONIA NO: CPX 1X4 ALO7 SWW7 M4 + DGA14	MH LIGHTING ILS QUANTUM LIGHTING	1
AE	CONTRACTOR SELECT 1'x4' LED FLAT PANEL, MVOLT SWITCHABLE LUMEN OUTPUT SET TO HIGH (4200 LUMENS) DIRECT CEILING MOUNT KIT, EM BATTERY BACKUP	SURFACE	LED 4000K	33.7	LITHONIA NO: CPX 1X4 ALO7 SWW7 M4 + DGA14 + ILBLP CP10 HE SD A	MH LIGHTING ILS QUANTUM LIGHTING	1
B	LED BATHROOM VANITY 24" LENGTH ARCHITECT TO CONFIRM FINISH	SURFACE	LED 4100K	16.8	LUMINII NO: EXPV-24-72SO-41K-F-XX	MH LIGHTING ILS QUANTUM LIGHTING	1
C	4' LINEAR LED FIXTURE 5000 LUMENS, FLAT DIFFUSE LENS MVOLT, 0-10V DIMMING, WHITE FINISH	SURFACE	LED 4000K	35	LITHONIA NO: CLX-L48-5000LM-SEF-FDL-MVOLT-GZ10-40K-80CRI-WH	MH LIGHTING ILS QUANTUM LIGHTING	1
CE	4' LINEAR LED FIXTURE 5000 LUMENS, FLAT DIFFUSE LENS MVOLT, EMERGENCY BATTERY PACK	SURFACE	LED 4000K	35	LITHONIA NO: CLX-L48-5000LM-SEF-FDL-MVOLT-GZ10-40K-80CRI-WH	MH LIGHTING ILS QUANTUM LIGHTING	1
D	LED SURFACE MOUNT DOWNLIGHT 7" 1000 LUMENS, WHITE FINISH FOR FIRE RATED CEILING	SURFACE	LED 4000K	13	JUNO NO: IC1JB-JSF-7IN/10LM-SWW5-90CRI-MVOLT ZT-WH	MH LIGHTING ILS QUANTUM LIGHTING	1
E1	INTEGRATED EXIT/UNIT COMBO FIXTURE GREEN EXIT LED	SURFACE	LED	2.32	LITHONIA NO: ECBG LED M6	MH LIGHTING ILS QUANTUM LIGHTING	1
X1	EXTERIOR LED WALL PACK 1550 LUMENS COLOR BY ARCHITECT	SURFACE	LED 3000K	11	LITHONIA NO: WPX1-LED-P1-30K-MVOLT-XXXX	MH LIGHTING ILS QUANTUM LIGHTING	1
X1E	EXTERIOR LED WALL PACK 1550 LUMENS, EMERGENCY BATTERY PACK 4 WATTS COLOR BY ARCHITECT	SURFACE	LED 3000K	11	LITHONIA NO: WPX1-LED-P1-30K-MVOLT-E4WH-XXXX	MH LIGHTING ILS QUANTUM LIGHTING	1
X2	EXTERIOR LED WALL PACK 3000 LUMENS COLOR BY ARCHITECT	SURFACE	LED 3000K	24	LITHONIA NO: WPX1-LED-P2-30K-MVOLT-XXXX	MH LIGHTING ILS QUANTUM LIGHTING	1
X2E	EXTERIOR LED WALL PACK 3000 LUMENS, EMERGENCY BATTERY PACK 4 WATTS COLOR BY ARCHITECT	SURFACE	LED 3000K	24	LITHONIA NO: WPX1-LED-P2-30K-MVOLT-E4WH-XXXX	MH LIGHTING ILS QUANTUM LIGHTING	1

LIGHTING FIXTURE SCHEDULE NOTES:
1 SUBSTITUTIONS WILL BE ALLOWED IF SUBMITTED PRIOR TO BID DATE BY THE GREATER OF: 7 BUSINESS DAYS OR THE TIME PERIOD SPECIFIED BY DIVISION 1 SPECIFICATIONS, AND IF DEEMED EQUAL BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING SUBSTITUTED FIXTURES MEET OR EXCEED THE SPECIFICATIONS OF THE FIXTURES SPECIFIED.

COMcheck Software Version 4.1.5.5

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title:
Project Type: New Construction

Construction Site: ALPINE, WY 83128
Owner/Agent: ALPINE, WY 83128
Designer/Contractor: CLAIRE JORGENSEN, MUSGROVE ENGINEERING, 645 W 25TH ST, IDAHO FALLS, ID 83401, 208-523-2862, CLAIREJ@MUSGROVEPA.COM

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
Reduced Lighting Power, 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Office	5210	0.71	3704
		Total Allowed Watts =	3704

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Office				
LED 1: A: LED Linear 33W:	1	47	34	1584
LED 2: B: LED Other Fixture Unit 13W:	1	10	17	168
LED 3: C: LED Linear 33W:	1	11	35	385
LED 4: D: LED Other Fixture Unit 13W:	1	16	13	208
			Total Proposed Watts =	2345

Interior Lighting PASSES: Design 37% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Claire Jorgensen, Designer — Name - Title
Signature
04-17-2025 — Date

Project Title:
Data filename: P:\Files\2025\25077\CALCS\ELEC\25077 Electrical_Compliance.cck
Report date: 04/17/25
Page 1 of 8

COMcheck Software Version 4.1.5.5

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title:
Project Type: New Construction
Exterior Lighting Zone: 2 (Residential mixed use area (LZ2))

Construction Site: ALPINE, WY 83128
Owner/Agent: ALPINE, WY 83128
Designer/Contractor: CLAIRE JORGENSEN, MUSGROVE ENGINEERING, 645 W 25TH ST, IDAHO FALLS, ID 83401, 208-523-2862, CLAIREJ@MUSGROVEPA.COM

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Pedestrian and vehicular entrances and exits	65 ft of door	14	Yes	910
			Total Tradable Watts (a) =	910
			Total Allowed Watts =	910
			Total Allowed Supplemental Watts (b) =	400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Pedestrian and vehicular entrances and exits (65 ft of door width): Tradable Wattage				
LED 1: X1: LED Other Fixture Unit 13W:	1	8	11	88
LED 2: X2: LED Other Fixture Unit 25W:	1	3	24	72
			Total Tracable Proposed Watts =	160

Exterior Lighting PASSES: Design 88% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Claire Jorgensen, Designer — Name - Title
Signature
04-17-2025 — Date

Project Title:
Data filename: P:\Files\2025\25077\CALCS\ELEC\25077 Electrical_Compliance.cck
Report date: 04/17/25
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Professional Engineer
THAD MASON
14385
Date 5/2/2025
WYOMING

Project No. 25-077

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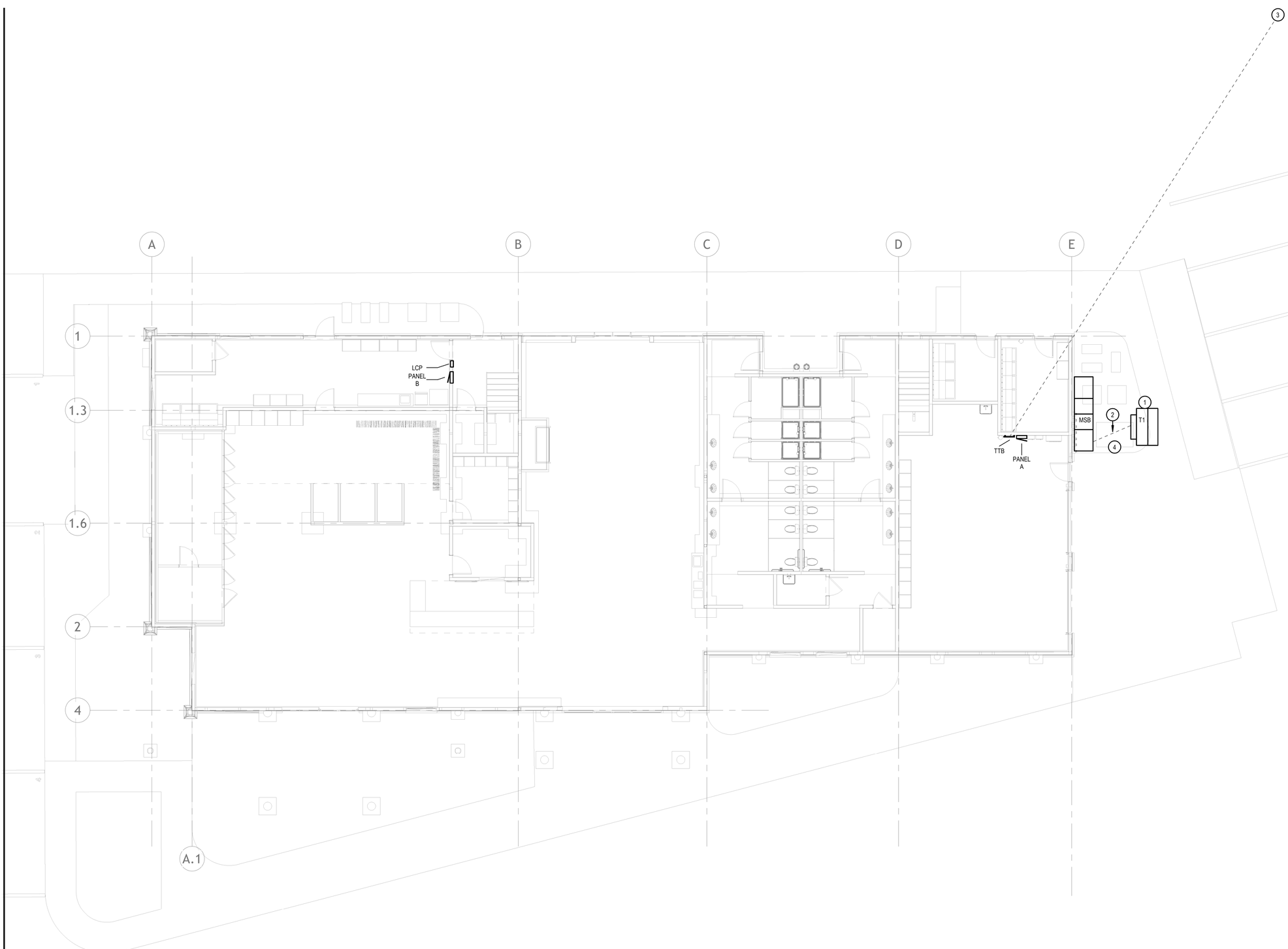
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LIGHTING DETAILS

E-800

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KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. PAD MOUNTED UTITLITY TRANSFORMER. FOR ADDITIONAL INFORMATION, RE: ONE-LINE DIAGRAM.
2. UNDERGROUND SECONDARY. RE:ONE-LINE DIAGRAM.
3. (2)2" CONDUITS FOR FIBER OPTIC CABLE SERVICE. STUB CONDUITS 12" ABOVE FLOOR AT 'TTB' AND STUB CONDUITS TO NEAREST COMMUNICATION VAULT. COORDINATE UTILITY LOCATION PRIOR TO ROUGH-IN. FOR ADDITIONAL INFORMATION, RE: TELEPHONE BACKBOARD DETAIL.
4. ENSURE THERE IS A MINIMUM OF 3 FEET CLEAR BETWEEN THE ELECTRICAL GEAR AND THE UTILITY TRANSFORMER. ENSURE THERE IS A MINIMUM OF 10 FEET CLEAR FROM THE UTILITY TRANSFORMER TO THE BUILDING DOOR.

1 ELECTRICAL SITE PLAN
1/8" = 1'-0"

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ELECTRICAL SITE PLAN

ES-100

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