

GENERAL NOTES

2022 CALIFORNIA BUILDING CODE
 2022 CALIFORNIA RESIDENTIAL CODE
 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
 2022 CALIFORNIA MECHANICAL CODE
 2022 CALIFORNIA ELECTRICAL CODE
 2022 CALIFORNIA PLUMBING CODE
 2022 CALIFORNIA FIRE CODE
 2022 CALIFORNIA ENERGY CODE
 TOWN OF DANVILLE MUNICIPAL CODE

- All materials, workmanship and methods of construction shall conform to the requirements of the 2022 codes listed above. The Contractor is required to incorporate whatever changes or additional work these codes or regulations require without additional cost to the Owner.
- Do not scale drawings. Written dimensions shall always take precedence over scale dimensions. Dimensions shown on floor plans are to face of stud unless otherwise noted or indicated.
- Notify the Architect of any discrepancies in the Documents or between the Documents and the existing conditions before proceeding with any work.
- The Contractor shall obtain all required inspections for his work and give the Owner timely notice of his intent to have inspections.
- The Contractor and/or Subcontractor shall at all times keep the premises free of accumulations of waste materials or rubbish caused by his employees or work. At the completion of the work, he shall remove all his rubbish, all of his tools, scaffolding, and surplus materials from and about the building and shall leave his work "broom clean" or its equivalent.
- Contractor to coordinate and verify all sizes of kitchen appliances, to be selected by the Owner, and the style of the design, materials, hardware and finish of the cabinets with the Owner and cabinet-maker prior to manufacturing.
- The escape opening has a minimum net clear opening of 5.7 square feet; minimum net clear opening height of 24 inches; and minimum net clear opening width of 20 inches. Maximum sill height to be 44" where windows are provided as means of escape or rescue.
- All ICC evaluation reports and manufacturer specifications for fireplaces and skylights to be provided by Contractor and approved by the TOWN OF DANVILLE prior to plan installation.
- Contractor to verify size and clearances of selected water heater and furnace for adequacy of space shown on the drawings prior to construction. Notify Architect immediately of any conflicts with space requirements for this equipment.
- All shower and tub/shower enclosures to be provided with smooth, hard, nonabsorbent finish backing (e.g., tile over W.R. Board to 70" above drain).
- Handrails & Guardrails: Stairways to have handrails on open side of stairs, not less than 34" nor more than 38" above the nosing treads. They should be continuous the full length of the stairs and need not extend 12" beyond top and 12" plus tread width beyond bottom tread. Ends shall be returned or shall terminate in newel posts or safety terminals. Handgrip shall not be less than 1 1/4" or more than 2" in cross-sectional dimension w/ no sharp corners, height of 34 inches to 38 inches above nosing, extend continuously from top to bottom risers, and terminate at newel posts or return to walls; handgrip shall have a space not less than 1 1/2" out from the wall. Open guardrail and stair railings shall have intermediate rails or an ornamental pattern such that a sphere 4" in diameter cannot pass through. All interior and exterior handrails and guardrails to conform to 2022 CRC. Guardrails shall be designed to withstand a 200-pound load applied in any direction at any point along the top rail per 2022 CRC.
- Maximum 3.5-inch handrail projection into the required stair width. Stringers and other projections such as trim are limited to 1- 1/2 inches on each side.
- Handrail(s) is required for stairways with four or more risers.
- Batt insulation shall have maximum flame spread of 25 and smoke development of 450. .
- The Contractor will read and conform to the Title 24 requirements for this project. A copy of Title 24 documents can be obtained from the Owner.
- Glass & glazing to comply with 2022 CRC.
- Discrepancies: In the event of conflict or discrepancy in contract documents, larger quantity and higher quality shall govern unless Architect approval is given in writing.

Site & Grading Notes

- The site plan drawing is not a property survey. All information shown in regard to boundaries of property was taken from the County Assessor's maps. The Architect does not accept responsibility for the accuracy of the data presented and drawn. The Contractor is to hire and pay for a licensed surveyor to locate the property line adjacent to the addition prior to the start of construction.
- Non-removable backflow prevention to be provided at meter and provide non-removable vacuum breaker on all hose bibbs.
- All utilities to be field verified by contractor. William Wood Architects assume no responsibility for accuracy of utility locations, as shown on plans.
- Restore all existing building and site improvements, including sidewalks, curb and gutters, walks, patios, fences, landscaping, sprinklers, plumbing, etc., which have been altered or damaged by reason of the contractor's operations to a new condition, to the complete satisfaction of the owner.
- Work to comply with TOWN OF DANVILLE ordinance for setbacks and grading requirements as shown on the site plan.
- All downspouts, site area drains and catch basins as shown on site plan shall be collected with PVC tight line rigid wall, independent of all other drainage systems.
- All retaining walls shall have drainage with 4" perforated PVC rigid wall and collected with PVC Tight line rigid wall.
- A positive gradient shall be provided away from the foundation in order to provide rapid removal of the surface water runoff away from the foundation to an adequate discharge point. The grade shall fall a minimum of 6" within the first 10' measured perpendicular to the face of the foundation wall per CRC R401.3.

General Construction Notes:

- Gypsum drywall systems with fire-resistance ratings where indicated or required are to comply with governing regulations. Provide materials and installations identical with applicable assemblies that have been tested and listed by recognized authorities, including UL. Comply with FM approval Guide where applicable.

Foundation Notes:

See structural drawing for foundation notes.

Framing Notes:

See Structural Drawings for framing notes:

Plumbing Notes

- Showerheads shall be flow control of 1.8 G.P.M. or less.
- All lavatory faucets shall be flow control of 1.2 G.P.M. or less.
- Kitchen faucet to be 1.8 gallons per minute, maximum.
- Water closet to be 1.28 gallon per flush maximum. or dual flush per CPC 411.2.
- All piping and equipment shall be supported as per section 313 in the CPC.
- Seismic restraint requirements for all piping and equipment (including gas lines and fuel fired equipment) shall be installed per CBC 1613.1 and Chapter 13 of ASCE7-16.
- All backflow prevention devices shall be installed per CPC 603.3.
- All potable and non-potable (closed loop fire sprinkler system) water piping is to be clearly identified as per the requirements of CPC 601.2.
- Hose bibbs shall be protected with a nonremovable hose-bib0-type backflow preventer, a non removable hose-bib-type vacuum breaker or by an atmospheric vacuum breaker installed not less than 6 inches above the highest point of usage located on the discharge side of the last valve. CPC 603.5.7.

Electrical and Mechanical Notes:

- Electrical receptacles in bathrooms, outdoors and within 6'-0" of sink to be on ground fault protection (G.F.I.);
- Provide 1/2-switched outlet under counter at sink for disposal.
- Switch and duplex outlet, or multiple switches shown adjacent to each other on plan are to be under one plate.
- New 110v smoke detector(s), with battery backup, and interconnected, which are audible in all sleeping area will be provided at the following locations: (1) all new bedrooms; (2) in hallways and immediately adjacent to new bedrooms.
- All appliances shall conform to the standards set forth by the California Energy Commission Title 24 requirements.
- Gas fired cooking appliances and space-heating equipment shall have intermittent ignition devices.
- All air ducts penetrating separation wall or ceiling between garage and living area shall be 26 GA. The ducts, plenums, A/C coil boxes must be insulated to R4 minimum and be of 26 ga. sheetmetal in the garage.
- Contractor to verify space requirements for plenums and ducts prior to start of work.
- Mechanical ventilation shall be capable of providing five air changes per hour in lieu of the natural ventilation in bathrooms, water closet compartments and laundry rooms and vented directly to the outside. All exhaust fans and fan systems to have damper controls.
- Gaskets to be provided at exterior receptacles and switch plates.
- Final locations of all mechanical and electrical equipment, panel boards, meters, fixtures, flues, vents, switches etc., shall be approved by Owner prior to installation.
- Lights: All lights shall be high efficiency.
- HVAC equipment, water heaters, showerheads and faucets to be certified by the CEC.
- Provide a setback thermostat on all applicable heating systems.
- Ducts penetrating the one-hour separation between garage and the house shall be not less than 26 gauge galvanized steel.
- The HVAC equipment shown meets the assumed efficiency requirements of this compliance, however, it is recommended that the actual system to be installed be determined by an HVAC designer. The loads shown are only one of the criteria affecting the selection of HVAC equipment. Other relevant design factors such as airflow requirements, outdoor design temperatures, coil sizing, availability of equipment, oversizing safety margin, etc., must also be considered. It is the HVAC designer's responsibility to consider all factors when selecting the HVAC equipment.
- Fused disconnect at A/C compressor unit or approved circuit breaker to be installed.
- Clothes dryer, vented range hoods, and bathroom vent fans must be exhausted to outside per 2022 CMC.
- Install new receptacle outlets as specified in NEC.
- Provide a dedicated 20-amp branch circuit to supply the laundry receptacle outlet.
- Contractor to provide additional electrical load as necessary to equip all new & existing elect. equipment.

REVISIONS	DATE



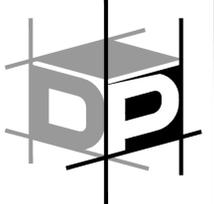
DANVILLE ACCESSORY DWELLING UNITS - STUDIO
 DANVILLE CA 94526

WILLIAM WOOD ARCHITECTS
 301 HARTZ AVENUE, SUITE 203
 DANVILLE, CALIFORNIA 94526
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DRAWN	HL
CHECKED	WW
DATE	03-30-23
SCALE	AS SHOWN
JOB NO.	20.921R
SHEET	GN1
OF	SHEETS

Apr 26, 2025 - 4:05pm GN1 Gen Notes.dwg



ADVANCED ENGINEERING

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NOTE: THE LOADS SHOWN ARE ONLY ONE OF THE CRITERIA AFFECTING THE SELECTION OF HVAC EQUIPMENT. OTHER RELEVANT DESIGN FACTORS SUCH AS ALTITUDE, OUTDOOR DESIGN TEMPERATURES, COIL SIZING, AVAILABILITY OF EQUIPMENT, OVERSIZING, HANGING, ETC. MUST ALSO BE CONSIDERED. IT IS THE HVAC DESIGNER'S RESPONSIBILITY TO VERIFY ALL FACTORS WHEN SELECTING THE HVAC EQUIPMENT. MECHANICAL CONTRACTOR MUST WARRANT THE INSTALLED SYSTEM TO MEET ALL ENERGY STAR REQUIREMENTS IF APPLICABLE. THE MINIMUM SIZE OF THE RESIDENTIAL HEATING SYSTEMS IS REGULATED BY THE CALIFORNIA BUILDING CODE (CBC), SECTION 310.11. THE CBC REQUIRES THAT THE HEATING SYSTEM BE CAPABLE OF MAINTAINING A TEMPERATURE OF 70°F AT A DISTANCE THREE FEET ABOVE THE FLOOR THROUGHOUT THE CONDITIONED SPACE OF THE BUILDING. UP-ADVANCED ENGINEERING, INC. DOES NOT WARRANT OR ASSUME RESPONSIBILITY FOR PERFORMANCE OR INSTALLATION OF ANY EQUIPMENT LABELED OR ALLOWED TO ON ANY CALCULATION PRODUCED BY UP-ADVANCED ENGINEERING, INC. BUILDER AND ALL SUB-CONTRACTORS WORKING ON THE PROJECT INVOLVING TITLE-24 UNDERSTAND AND ACCEPT ALL ASPECTS OF THE TITLE-24 SUBMITTED TO BUILDING DEPARTMENT PERTAINING TO THEIR WORK. ALL SUB-CONTRACTORS ARE RESPONSIBLE TO CONTACT THE BUILDER AND UP-ADVANCED ENGINEERING, INC. BEFORE BEGINNING WORK IF THERE IS ANY ERROR IN ANY CALCULATION THAT WOULD PREVENT THE SUB-CONTRACTOR FROM WARRANTING THE PERFORMANCE OF HIS PRODUCT WHICH INCLUDED ANY ENERGY STAR PROCEDURES.

TOWN OF DANVILLE ACCESSORY DWELLING UNIT

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- 2
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PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR ENERGY SHEETS ONLY.

SHEET DESCRIPTION: ENERGY CALCULATIONS MEDITERRANEAN STUDIO PERFORMANCE CERTIFICATE RESIDENTIAL CF-1R

Initial Issue Date: March 31, 2023
Energy Analyst: J. Bennett Ext. 26
Project Manager: J. Peek Ext. 23
Job No. W021420
Sheet No.



CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: Danville ADU Mediterranean Studio
Calculation Date/Time: 2023-03-30T18:09:40-07:00
Input File Name: Danville ADU_Mediterranean_Studio.rbd22

Energy Use	Standard Design Source Energy (EDEL) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kBtu/ft ² -yr)	Proposed Design Source Energy (EDEL) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kBtu/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	7.13	31.36	3.04	23	4.09	8.36
Space Cooling	1.06	31.57	0.99	32.6	0.07	-1.03
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Health/Credit	0	0	0	0	0	0
South Facing Efficiency Compliance Total	12.65	110.03	8.05	96.06	4.6	13.97
Space Heating	7.13	31.36	3.04	23	4.09	8.36
Space Cooling	1.06	31.57	0.99	32.6	0.07	-1.03
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Health/Credit	0	0	0	0	0	0
West Facing Efficiency Compliance Total	12.65	110.03	8.42	107.01	4.23	3.02

Registration Number: 203-P010387028-000-0000000-0000
Registration Date/Time: 2023-03-31 08:35:29
HERS Provider: CaCERTS, Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance
Report Version: 2022.0.000
Report Generated: 2023-03-30 18:11:02

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Penetration / Glazing	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Window	Type	Surface	Orientation	Admitt	Width (ft)	Height (ft)	Area (ft ²)	U-factor	SHGC	SHGC Source	SHGC	SHGC Source	Exterior Shading
Front Door	Window	Front Wall	Front	0	3	8	1	24	0.34	NFRC	0.2	NFRC		Flag screen
FamilyRm 5050	Window	Front Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC		Flag screen
Bedroom 5050	Window	Front Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC		Flag screen
Kitchen 3030	Window	Left Wall	Left	90	3	3	1	9	0.3	NFRC	0.23	NFRC		Flag screen
Bathroom 2020	Window	Back Wall	Back	180	2	2	1	4	0.3	NFRC	0.23	NFRC		Flag screen
DinningRm 5050	Window	Back Wall	Back	180	5	3	1	15	0.3	NFRC	0.23	NFRC		Flag screen
Bedroom 3030	Window	Right Wall	Right	270	2	2	1	4	0.3	NFRC	0.23	NFRC		Flag screen

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HVAC Distribution - HERS Verification	01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low Leakage Air Handler	Low Leakage Ducts Exposed in Conditioned Space	
Distribution System 1-hers-dit	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No	

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HVAC Fan Systems	01	02	03	04	05	06	07	08	09
Name	Type	Fan Power (Watts/CFM)	Name						
HVAC Fan System 1	HVAC Fan	0.45	HVAC Fan System 1-hers-fan						

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Energy Use	Standard Design Source Energy (EDEL) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kBtu/ft ² -yr)	Proposed Design Source Energy (EDEL) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kBtu/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	7.13	31.36	3.2	24.6	3.93	6.76
Space Cooling	1.06	31.57	0.99	33.14	0.07	-1.57
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Health/Credit	0	0	0	0	0	0
North Facing Efficiency Compliance Total	12.65	110.03	8.21	100.2	4.44	9.83
Space Heating	7.13	31.36	3.2	24.6	3.93	6.76
Space Cooling	1.06	31.57	0.99	33.14	0.07	-1.57
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Health/Credit	0	0	0	0	0	0
East Facing Efficiency Compliance Total	12.65	110.03	8.35	100.68	4.3	7.35

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Building - Features Information	01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems	
Danville ADU Mediterranean Studio	640	1	1	2	0	1	

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Space Conditioning Systems	01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type	
HVAC System 1	Heat pump heating/cooling	FEAD-A2AA7	1	FEAD-A2AA7	1	HVAC Fan System 1	Distribution System 1	Setback	

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HVAC Heat Pumps	01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Efficiency Type	HSFP / HSPF2 / COP	Cap 47	Efficiency Type	SEER / SEER2	EEER / EER / CEER	Quality Control	Compressor Type	HERS Verification		
FEAD-A2AA7	Central split HP	1	HSFP	13.8	20000	14800	SEER2	13.6	11.7	Not Zoned	Single Speed	FEAD-A2AA7-hers-HP-hv	

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Energy Design Ratings	Source Energy (EDEL)	Efficiency EDR (EDR2/Efficiency)	Total EDR (EDR2total)	Source Energy (EDEL)	Efficiency EDR (EDR2/Efficiency)	Total EDR (EDR2total)
Standard Design	41.1	44.5	58.9			
Proposed Design						
North Facing	33.8	40.5	56.6	7.3	4	2.3
East Facing	34	41.5	57.2	7.1	3	1.7
South Facing	33.5	39.7	56	7.6	4.8	2.9
West Facing	34.1	43.3	58.2	7	1.2	0.7

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DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	ACIMPH (deg)	TIR Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
0		Standard (14-17W)	Fixed	none	true	n/a	n/a	n/a	n/a	n/a	n/a

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Water Heating Systems	01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (ft)	
DHW System 1	Domestic Hot Water (DHW)	Standard	Heat Pump WH	1	n/a	None	n/a	Heat Pump WH (1)	

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Water Heaters - NEEA Heat Pump	01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source	
Heat Pump WH	1	40	Rheem	HP-1515	Outside	Outside	Outside	

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General Information	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Project Name	Danville ADU Mediterranean Studio													
Run Title	Title 24 Analysis													
Project Location	City	State	Zip Code	County	Standards Version	2022								
City	Danville, CA				Software Version	CBECC Rev 2022.2.1								
Climate Zone	12	09	Front Orientation (deg/ Cardinal)	All orientations										
Building Type	Single family	11	Number of Dwelling Units	1										
Project Scope	Newly Constructed	13	Number of Bedrooms	1										
Addition Cond. Floor Area (ft ²)	15	15	Number of Stories	1										
Existing Cond. Floor Area (ft ²)	n/a	n/a	Foundation Average U-Factor	0.31										
Total Cond. Floor Area (ft ²)	140	19	Glazing Percentage (%)	17.30%										
ADU Bedrooms Count	n/a													

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Report Version: 2022.0.000
Report Generated: 2023-03-30 18:11:02

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: Danville ADU Mediterranean Studio
Calculation Date/Time: 2023-03-30T18:09:40-07:00
Input File Name: Danville ADU_Mediterranean_Studio.rbd22

Energy Use Intensity	Standard Design (kBtu/ft ² -yr)	Proposed Design (kBtu/ft ² -yr)	Compliance Margin (kBtu/ft ² -yr)	Margin Percentage
North Facing				
Gross EUI ¹	32.25	26.5	5.75	17.83
Net EUI ²	32.25	26.5	5.75	17.83
East Facing				
Gross EUI ¹	32.25	26.75	5.5	17.05
Net EUI ²	32.25	26.75	5.5	17.05
South Facing				
Gross EUI ¹	32.25	26.1	5.65	18.45
Net EUI ²	32.25	26.1	5.65	18.45
West Facing				
Gross EUI ¹	32.25	26.86	5.39	16.71
Net EUI ²	32.25	26.86	5.39	16.71

Registration Number: 203-P010387028-000-0000000-0000
Registration Date/Time: 2023-03-31 08:35:29
HERS Provider: CaCERTS, Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance
Report Version: 2022.0.000
Report Generated: 2023-03-30 18:11:02

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: Danville ADU Mediterranean Studio
Calculation Date/Time: 2023-03-30T18:09:40-07:00
Input File Name: Danville ADU_Mediterranean_Studio.rbd22

Overhangs and Fins	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Dist R					
Bedroom 3030	1	0	2	2	0	0	0	0	0	0	0	0	0	0

Registration Number: 203-P010387028-000-0000000-0000
Registration Date/Time: 2023-03-31 08:35:29
HERS Provider: CaCERTS, Inc.
CA Building Energy



2022 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. (04/2022)

Building Envelope:

Table with 2 columns: Code section and Requirement. Includes items like Air Leakage, Field-fabricated exterior doors, Insulation Certification, Roofing Products, Radiant Barrier, Roof Deck, Ceiling and Rafter Roof Insulation, U-factor, Wall Insulation, Raised-floor Insulation, Slab Edge Insulation, Vapor Retarder, Fenestration Products, etc.

Fireplaces, Decorative Gas Appliances, and Gas Log:

Table with 2 columns: Code section and Requirement. Includes items like Pilot Light, Closable Doors, Combustion Intake, Flue Damper, etc.

Space Conditioning, Water Heating, and Plumbing System:

Table with 2 columns: Code section and Requirement. Includes items like Certification, HVAC Efficiency, Controls for Heat Pumps, Thermostats, Insulation, Isolation Valves, etc.

5/6/22



2022 Single-Family Residential Mandatory Requirements Summary

Table with 2 columns: Code section and Requirement. Includes items like Pilot Lights, Building Cooling and Heating Loads, Clearances, Liquid Line Drier, Water Piping, Insulation Protection, Gas or Propane Water Heating Systems, Solar Water-heating Systems, etc.

Ducts and Fans:

Table with 2 columns: Code section and Requirement. Includes items like Ducts, CMC Compliance, Factory-fabricated Duct Systems, Field-fabricated Duct Systems, Backdraft Damper, Gravity Ventilation Dampers, Protection of Insulation, Porous Inner Core Flex Duct, Duct System Sealing and Leakage Test, Air Filtration, etc.

5/6/22



2022 Single-Family Residential Mandatory Requirements Summary

Table with 2 columns: Code section and Requirement. Includes items like Space Conditioning System Airflow Rate and Fan Efficacy, Ventilation and Indoor Air Quality, Airflow Measurement and Sound Ratings, Field Verification and Diagnostic Testing, etc.

Pool and Spa Systems and Equipment:

Table with 2 columns: Code section and Requirement. Includes items like Certification by Manufacturers, Piping, Directional Inlets and Time Switches for Pools, Pool Systems and Equipment Installation, etc.

Lighting:

Table with 2 columns: Code section and Requirement. Includes items like Lighting Controls and Components, Luminaire Efficacy, Recessed Downlight Luminaires, Light Sources in Enclosed or Recessed Luminaires, Blank Electrical Boxes, Lighting Integral to Exhaust Fans, etc.

5/6/22



2022 Single-Family Residential Mandatory Requirements Summary

Table with 2 columns: Code section and Requirement. Includes items like Screw based luminaires, Light Sources in Enclosed or Recessed Luminaires, Light Sources in Drawers, Cabinets, and Linen Closets, Interior Switches and Controls, Accessible Controls, Multiple Controls, Mandatory Requirements, Energy Management Control Systems, Automatic Shutoff Controls, Dimmers, Independent controls, Residential Outdoor Lighting, Internally illuminated address signs, Residential Garages for Eight or More Vehicles, etc.

Solar Readiness:

Table with 2 columns: Code section and Requirement. Includes items like Single-family Residences, Minimum Solar Zone Area, Azimuth, Shading, Structural Design Loads on Construction Documents, Interconnection Pathways, Documentation, Main Electrical Service Panel, etc.

5/6/22



2022 Single-Family Residential Mandatory Requirements Summary

Table with 2 columns: Code section and Requirement. Includes items like Energy Storage System (ESS) Ready, Heat Pump Space Heater Ready, Electric Cooktop Ready, Electric Clothes Dryer Ready, etc.

*Exceptions may apply.

5/6/22



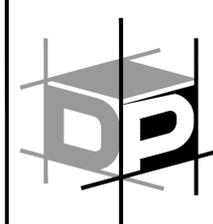
2022 Single-Family Residential Mandatory Requirements Summary

Table with 2 columns: Code section and Requirement. Includes items like Energy Storage System (ESS) Ready, Heat Pump Space Heater Ready, Electric Cooktop Ready, Electric Clothes Dryer Ready, etc.

Lighting:

Table with 2 columns: Code section and Requirement. Includes items like Energy Storage System (ESS) Ready, Heat Pump Space Heater Ready, Electric Cooktop Ready, Electric Clothes Dryer Ready, etc.

5/6/22



ADVANCED ENGINEERING
3381 Walnut Blvd. Ste. 220
Brentwood, CA 94513
Office: 925.516.3502
Fax: 925.262.4662

NOTE: THE LOADS SHOWN ARE ONLY ONE OF THE CRITERIA AFFECTING THE SELECTION OF HVAC EQUIPMENT. OTHER RELEVANT DESIGN FACTORS SUCH AS AIRFLOW, OUTDOOR DESIGN TEMPERATURES, COIL SIZING, AVAILABILITY OF EQUIPMENT, OVERSIZING PIPING, ETC. MUST ALSO BE CONSIDERED. IT IS THE HVAC DESIGNER'S RESPONSIBILITY TO CONSIDER ALL FACTORS WHEN SELECTING THE HVAC EQUIPMENT. MECHANICAL CONTRACTOR MUST WARRANT THE INSTALLED SYSTEM TO MEET ALL ENERGY STAR REQUIREMENTS IF APPLICABLE. THE MINIMUM SIZE OF THE RESIDENTIAL HEATING SYSTEMS IS REGULATED BY THE CALIFORNIA BUILDING CODE (CBC), SECTION 310.11. THE CBC REQUIRES THAT THE HEATING SYSTEM BE CAPABLE OF MAINTAINING A TEMPERATURE OF 70°F AT A DISTANCE THREE FEET ABOVE THE FLOOR THROUGHOUT THE CONDITIONED SPACE OF THE BUILDING. DP ADVANCED ENGINEERING, INC. DOES NOT WARRANT OR ASSUME RESPONSIBILITY FOR PERFORMANCE OR INSTALLATION OF ANY EQUIPMENT LABELED OR ALLOWED TO ON ANY CALCULATION PRODUCED BY DP ADVANCED ENGINEERING, INC. BUILDER AND ALL SUB-CONTRACTORS WORKING ON THE PROJECT INVOLVING TITLE-24 UNDERSTAND AND ACCEPT ALL ASPECTS OF THE TITLE-24 SUBMITTED TO BUILDING DEPARTMENT PERTAINING TO THEIR WORK. ALL SUB-CONTRACTORS ARE RESPONSIBLE TO CONTACT THE BUILDER AND/OR ADVANCED ENGINEERING, INC. BEFORE BEGINNING WORK IF THERE IS ANY ERROR IN ANY CALCULATION THAT WOULD PREVENT THE SUB-CONTRACTOR FROM WARRANTING THE PERFORMANCE OF HIS PRODUCT WHICH INCLUDED ANY ENERGY STAR PROCEDURES.

TOWN OF DANVILLE
ACCESSORY DWELLING UNIT
DANVILLE, CALIFORNIA

ADVANCED ENGINEERING STRUCTURAL ENGINEERING SOLUTIONS
TITLE 24 SUMMARY OF FEATURES
PROJECT: TOWN OF DANVILLE ADU DATE: 3-31-2023
JOB NO: W021420 ANALYST: J. BENNETT
ENVELOPE INSULATION
HERS VERIFICATIONS
WINDOW PERFORMANCE
DOMESTIC HOT WATER
SOLAR (STUDIO)
SOLAR (1 BEDROOM)
3381 Walnut Blvd. Ste.220 Brentwood, CA 94513 PH: 925.516.3502 FX: 925.262.4662 W: WWW.ADVANCEDENGINEERINGINC.COM

PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR ENERGY SHEETS ONLY.
Sheet Description:
ENERGY CALCULATIONS
2022 SINGLE FAMILY RESIDENTIAL MANDATORY MEASURES SUMMARY AND SUMMARY SHEET
Initial Issue Date: March 31, 2023
Energy Analyst: J. Bennett Ext. 26
Project Manager: J. Peek Ext. 23
Job No. W021420
Sheet No. ECM

BROAN

BROAN ERV100
Part no. ERV100S
Low speed: 50 CFM (0.2 in. w.g.), selectable 65 CFM
High speed: 100 CFM (0.4 in. w.g.), selectable 85 CFM



CONSTRUCTION

- 22 ga. galvanized steel housing and door
- One-piece molded insulation shell, (expanded polystyrene, UL 94 HF-1 certified)
- Galvanized steel 5" diameter ports*
- Steel door hinges and latches
- Cold side ports with plastic ring allow vapor barrier sealing
- No drain required
- Included installation brackets

*All unit ports were created to be connected to ducts having a minimum of 5" diameter, but if need be, they can be connected to bigger sized ducts by using an appropriate transition (e.g. 5" diameter to 6" diameter transition).

MOTORS

- Two high reliability, external rotor PSC motors, totally enclosed and thermally protected
- Backward blowers, can support high static pressure environment

FILTERS

- Two washable 20 gpi reticulated polyester urethane foam filters, UL 900 class 2 certified
- Optional MERV 8 filter kit, part no. V21030 (additional 0.1 in. w.g. static pressure to be considered) (sold separately)

ERV CORE

- Crossflow aluminum-polymerized paper core, UL723 certified
- Hydroscopic polymer exchange water by direct vapor transfer using molecular transport without the need of condensation
- Constructed of alternate layers of corrugated aluminum material and polymeric bactericide impregnated media will not promote growth of mold or bacteria
- Unique rectangular flute design to provide very low pressure drop values

ENERGY RECOVERY VENTILATOR

Controls

- Integrated push-button control for Low or High speed operation.
- For a complete list of optional main and auxiliary controls available, refer to the **Wall Control Compatibility Chart** on last pages of wall controls specification sheet, available at www.broan.com.
- For more details about controls, refer to the **Main and auxiliary wall controls** user guide, also available at www.broan.com.
- Removable terminal block included for quicker low voltage control connections.
- LED indicator shows operating modes and error codes.
- Unit must be permanently energized, no control should be installed on power supply of unit.

Air Flow

- Pressure taps and balancing chart to allow easier balancing of the unit
- Integrated balancing/backdraft dampers in cold supply and cold exhaust ports

Defrost Cycles

- Choice of regular or extended defrost cycles, according to climatic conditions
- To set extended defrost cycles, refer to unit installation manual

Outdoor Temperature*		Defrost in Minutes / Air Exchange in Minutes	
Outdoor Temp. °C	Outdoor Temp. °F	Low Speed	High Speed
Warmer than -10	Warmer than 14	No defrost	No defrost
from -10 to -15	from 14 to 5	6/40	9/40
from -15 to -22	from 5 to -17	6/20	9/20
< -27 and less	< -17 and less	8/12	11/12

* Outdoor temperature is read by a thermostat located inside the unit, next to fresh air from outdoor port.

Warranty

The Broan ERV100 is protected by a 5-year warranty on parts only, with the original proof of purchase.

Requirements and standards

- HVI certified
- Complies with the UL 1812 requirements regulating the installation of Energy Recovery Ventilators
- Complies with the CSA C22.2 no. 113 Standard applicable to ventilators
- Complies with CSA C444 requirements regulating the installation of Energy Recovery Ventilators



Professional Prestige® ProTerra™ Hybrid Electric with LeakGuard™ is the most efficient water heater available

Efficiency

- Up to 4.0 UEF reduces operating cost
- ENERGY STAR® rated

Performance

- Delivers hot water faster than most standard electric water heaters

Plus...

- Premium grade anode rod with resistor extends the life of the tank
- 3/4" NPT water inlet and outlet; 3/4" condensate drain connections
- Inclody stainless steel resistor elements
- Dry fire protection
- Easy access, top mounted washable air filter
- 2" Non-CFC foam insulation
- Enhanced flow brass drain valve
- Temperature and pressure relief valve installed
- Design certified to NSF/ANSI 372 (Lead Content)

Integration

- LED Screen with built-in water sensor alert with audible alarm!
- Integrated EcoNet™ WiFi-connected technology and free mobile app gives users control over water heater, allowing for customizable temperature, vacation settings, energy savings and system monitoring at home or away. Visit Rheem.com/hybridolutions

LeakGuard™

- Watershutoff valve

Warranty

- 10-Year limited tank and parts warranty

LEAKGUARD™ WATERSHUTOFF VALVE

- Integrated leak detection and prevention system with factory installed auto water shut-off valve

LeakSense™

- Built-in Leak Detection System detects any leak large or small, internal or external.*

Notes

- *Available with select models. 100% broadband internet connection required. *Source: Rheem Leak Sensing Data, testing under a vacuum for using 50 gallon tank, no expansion tank, average tank pressure of 40 psi, assuming no additional fixtures are opened. *Water level from the heater only, not lowest access components including a minimum of 5.5 inch of water level, using most common installation scenarios.

See specifications chart on next page.



Professional Prestige ProTerra Hybrid
40, 50, 65 and 80-Gallon Capacities
208-240 Volt / 1 PH Electric



PEAD-A24AA7 & PUZ-A24NH7(BS) MID STATIC HORIZONTAL-DUCTED INDOOR UNIT 24,000 BTU/H HEAT PUMP UNIVERSAL OUTDOOR

Job Name: _____ Date: _____
System Reference: _____



- ### INDOOR UNIT FEATURES
- Unobtrusive ceiling-concealed design for short-run ductwork
 - Wide ranging external static pressure (0.14-0.60 in. WG)
 - Built-in condensate lift mechanism (up to 27-9'ft)
 - Auto fan speed mode
 - Optional FB Series filter boxes for easy access and service
 - Ideal for residential homes, retail shopping centers, larger classrooms, office complexes, conference rooms, ballrooms, fitness centers, and more
 - Multiple control options available:
 - Keuro cloud® smart device app for remote access
 - Third-party interface options
 - Wired or wireless controllers
- ### OUTDOOR UNIT FEATURES
- Variable speed INVERTER-driven compressor
 - Power receiver pre-charged with refrigerant volume for piping length up to 70 ft
 - Low ambient cooling down to 0°F providing 100% capacity
 - 24-hour continuous operation (cooling mode)
 - High pressure protection
 - Fast restart
 - Superior energy and operational efficiency

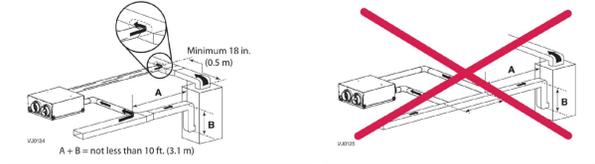
Specifications are subject to change without notice. © 2021 Mitsubishi Electric Trade HVAC US LLC. All rights reserved.

AHRI CERTIFIED Certificate of Product Ratings

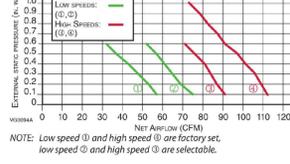
AHRI Certified Reference Number: 201754461 Date: 03-30-2023 Model Status: Active
AHRI Type: HFC/LA-CB (Mini-Split System) Heat Pump with Outdoor Unit-Air-Source, Ducted
Series Name: P-Series
Outdoor Unit Brand Name: Mitsubishi Electric
Outdoor Unit Model Number: PUZ-A24NH7***
Indoor Type: Mini-Splits (Ducted)
Indoor Model Number(s): PEAD-A24AA*
Rated as follows in accordance with the latest edition of AHRI 210/240 - 2017 with Addendum 1, Performance Rating of Unitary Air Conditioning & Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-sponsored, independent, third party testing:
Cooling Capacity (A2) - Single or High Stage (95F), btuh : 24000
SEER : 19.20
EER (A2) - Single or High Stage (95F) : 11.70
Heating Capacity (H12) - Single or High Stage (47F) : 26000
HSPF (Region IV) : 10.80
Rated as follows in accordance with the latest edition of AHRI 210/240 - 2023, Performance Rating of Unitary Air Conditioning & Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-sponsored, independent, third party testing:
Cooling Capacity (A1a) - Single or High Stage (95F), btuh : 24000
SEER2 : 19.20
EER2 (A1a) - Single or High Stage (95F) : 12.00
Heating Capacity (H14a) - Single or High Stage (47F), btuh : 26000
HSPF2 (Region IV) : 9.10
Sold in: USA, Canada

*Active Model Status are those that an AHRI Certification Program Participant is currently producing and offering for sale; OR new models that are being marketed but are not yet being produced. *Model Status are those that an AHRI Certification Program Participant is no longer producing and offering for sale.
Addition that are accompanied by NAEI include an involuntary re-rate. The new published rating is shown along with the previous (i.e. NAEI) rating.
The Department of Energy has published updated energy efficiency metrics for central air conditioners and heat pumps. This publication reflects both the 1987 metric (SEER) and the 2023 metric (SEER2). Efficiency requirements are published at 10 C.F.R. 430.32(c). Please refer to www.NAHEI.org for more information about updated energy efficiency metrics.
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©2023 Air-Conditioning, Heating, and Refrigeration Institute
CERTIFICATE NO.: 1332470440299790

Simplified Installation (connection to a forced air system)



VENTILATION PERFORMANCE



ENERGY PERFORMANCE

Supply Temperature °C	Supply Temperature °F	Net Air Flow L/s	Net Air Flow CFM	Power Consumption Watts	Source Energy Efficiency	Source Recovery Efficiency	Ambient Sound Entrainment	Leak Return/Recovery Efficiency
0	32	23	48	82	40	67	73	0.55
0	32	30	64	109	50	65	70	0.51
0	32	40	85	144	64	61	66	0.51
-10	14	23	49	83	40	65	71	0.53
-25	-13	24	50	85	36	51	73	0.39

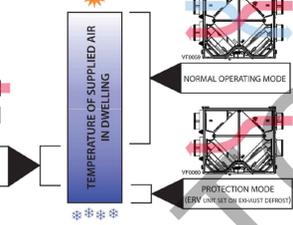
Acoustic Noise Power Chart (dBA)

Airflow	Fresh air to building port	Exhaust air from building port
100 CFM at 0.4 in. w.g.	67.8 dBA	58.3 dBA
55 CFM at 0.1 in. w.g.	58.0 dBA	49.4 dBA

The data shown on left chart come from measurement performed according to ISO 5136 Standard. These data represent the sound power directly measured at the fresh air distribution port and exhaust air from building port. To get the actual noise level in the room, consider noise attenuation resulting from total ductwork installation.

Coldshield™ Protection

ERV UNIT MODES BASED ON AIR DISTRIBUTION TEMPERATURE

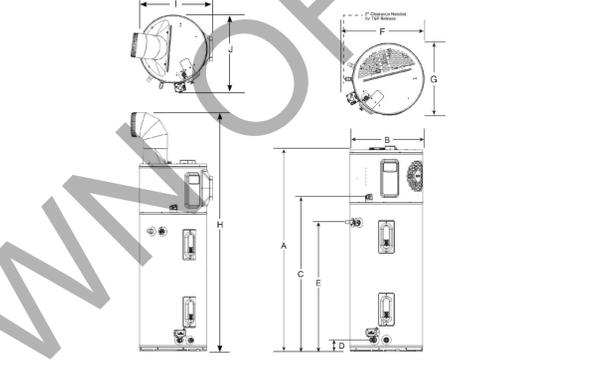


- ERV unit is equipped with an electronic supplemental protection to stop air distribution in dwelling if air distribution temperature drops below freezing point, due to abnormal conditions.

Professional Prestige® ProTerra Hybrid Specifications

NOMINAL CAPACITY	RATED CAPACITY	MODEL NUMBER	ENERGY INFO		COMPRESSION		SOUND LEVEL		DEF. PREVENTION		RECOVERY		TOTAL DEF. WATTAGE	MAX. AMP.	UNIT WEIGHT	UNIT HEIGHT
			SEASONAL ENERGY EFFICIENCY RATIO (SEER)	ENERGY EFFICIENCY INDEX (EER)	CONDENSATE PUMP	DEF. PREVENTION	DEF. PREVENTION	DEF. PREVENTION	DEF. PREVENTION							
ProTerra with LeakGuard																
40	50	PROPH40 T2 RH075-S0	700946	30	3.75	\$104	<2.00	40	60	27	27	4,500	5,000	21	157	174
50	45	PROPH50 T2 RH075-S0	700943	30	3.75	\$104	<2.00	40	60	27	27	4,500	5,000	21	178	218
65	60	PROPH65 T2 RH075-S0	700944	30	3.85	\$156	<2.00	40	75	27	27	4,500	5,000	21	225	282
80	72	PROPH80 T2 RH075-S0	700945	30	4.00	\$148	<2.00	40	87	27	27	4,500	5,000	21	244	281
ProTerra 30 Amp without LeakGuard																
40	50	PROPH40 T2 RH075-S0	700947	30	3.75	\$104	<2.00	40	60	27	27	4,500	5,000	21	157	174
50	45	PROPH50 T2 RH075-S0	700947	30	3.75	\$104	<2.00	40	60	27	27	4,500	5,000	21	178	218
65	60	PROPH65 T2 RH075-S0	700948	30	3.85	\$156	<2.00	40	75	27	27	4,500	5,000	21	225	282
80	72	PROPH80 T2 RH075-S0	700949	30	4.00	\$148	<2.00	40	87	27	27	4,500	5,000	21	244	281
ProTerra 15 Amp without LeakGuard																
40	50	PROPH40 T2 RH075-S0	700947	15	3.40	\$118	<2.00	40	60	16	16	2,250	2,250	12	157	174
50	45	PROPH50 T2 RH075-S0	700948	15	3.75	\$104	<2.00	40	60	16	16	2,250	2,250	12	178	218
65	60	PROPH65 T2 RH075-S0	700949	15	3.65	\$110	<2.00	40	60	16	16	2,250	2,250	12	225	282
80	72	PROPH80 T2 RH075-S0	700948	15	3.70	\$105	<2.00	40	87	16	16	2,250	2,250	12	244	281

Estimated energy cost based on a national average electricity cost of \$0.17/kWh. Uniform Energy Factor (UEF) values given are based on Department of Energy (DOE) requirements. All units have integrated WiFi controls.



NOMINAL CAPACITY	MODEL NUMBER	DIMENSIONS SHOWN IN INCHES									
		A	B	C	D	E	F	G	H	I	J
40	PROPH40	60-6/16	20-1/4	47	3-5/8	39-5/8	25-3/8	20-1/2	18-1/8	23-3/8	23-1/4
50	PROPH50	61-3/4	22-1/4	47	3-5/8	39-5/8	25-3/8	22-1/2	18-5/8	24-3/8	25-9/16
65	PROPH65	64-3/16	24-1/4	49	3-7/8	42-3/8	27-1/2	24-5/8	21-1/8	26-1/2	27-3/8
80	PROPH80	74-3/16	24-1/4	50	3-7/8	42-3/8	27-1/2	24-5/8	21-1/2	27-1/2	27-3/8

SPECIFICATIONS: PEAD-A24AA7 & PUZ-A24NH7(BS)

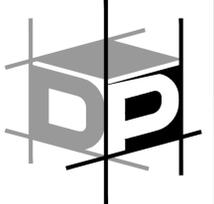
Cooling at 95°F	Maximum Capacity	BTU/H	24,000
	Rated Capacity	BTU/H	24,000
Heating at 47°F	Maximum Capacity	BTU/H	10,000
	Rated Capacity	BTU/H	10,000
Efficiency	SEER		19.20
	EER @ 95°F		11.7
Electrical	Voltage, Phase, Frequency	V AC	208/230, 1, 60
	Guaranteed Voltage Range	V AC	198 - 253
Indoor Unit	Unit Dimensions	W x D x H in. (mm)	43-5/16 x 28-7/8 x 9-7/8 (1103 x 732 x 250)
	Package Dimensions	W x D x H in. (mm)	53-3/16 x 34-1/16 x 13-1/16 (1355 x 865 x 343)

NOTES:
AHRI Rated Conditions
(Rated data is determined at a fixed compressor speed)
Cooling: (Indoor / Outdoor) °F: 80 DB, 67 WB / 95 DB, 75 WB
Heating at 47°F: (Indoor / Outdoor) °F: 70 DB, 60 WB / 47 DB, 45 WB
Heating at 17°F: (Indoor / Outdoor) °F: 70 DB, 60 WB / 17 DB, 15 WB

*Outdoor Unit Operating Temperature Range (Cooling Air Temp. Maximum / Minimum)
• Wind buffer required to operate below 27°F DB cooling mode.
• Heat pump system with wind buffer 0°F - 110°F.
• Refer to wind buffer documentation for further information.

*Indoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Reheat Temperature; Heating Thermal Lock-out / Reheat Temperature);
• System shuts out in heating mode to avoid thermostat error and automatically restarts at these temperatures.
• SEER/COP PROTECTION (EIS MODES)
• Fan Motor Support Epoxy resin coating + Acrylic Enamel coating
• Separator Assembly Vane Size Epoxy resin coating (all edge coat)
• Blue Fan Treatment is an air-concern treatment that is applied to the condenser coil to protect it against airborne contaminants.

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NOTE: THE LOADS SHOWN ARE ONLY ONE OF THE CRITERIA AFFECTING THE SELECTION OF HVAC EQUIPMENT. OTHER RELEVANT DESIGN FACTORS SUCH AS AIRFLOW, OUTDOOR DESIGN TEMPERATURES, COIL SIZING, AVAILABILITY OF EQUIPMENT, OVERSIZING HANGERS, ETC. MUST ALSO BE CONSIDERED. IT IS THE HVAC DESIGNER'S RESPONSIBILITY TO CONSIDER ALL FACTORS WHEN SELECTING THE HVAC EQUIPMENT. MECHANICAL CONTRACTOR MUST WARRANT THE INSTALLATION SYSTEM TO MEET ALL ENERGY STAR REQUIREMENTS IF APPLICABLE. THE MINIMUM SIZE OF THE RESIDENTIAL HEATING SYSTEM IS REGULATED BY THE CALIFORNIA BUILDING CODE (CBC), SECTION 310.11. THE CBC REQUIRES THAT THE HEATING SYSTEM BE CAPABLE OF MAINTAINING A TEMPERATURE OF 70°F AT A DISTANCE THREE FEET ABOVE THE FLOOR THROUGHOUT THE CONDITIONED SPACE OF THE BUILDING. OR INSTALLATION OF ANY EQUIPMENT LABELED OR ALLOWED TO ANY CALCULATION PRODUCED BY ADVANCED ENGINEERING, INC. DOES NOT WARRANT OR ASSURE RESPONSIBILITY FOR PERFORMANCE OF THE HEATING SYSTEM. ALL SUB-CONTRACTORS ARE RESPONSIBLE TO CONTACT THE BUILDER AND ALL SUB-CONTRACTORS WORKING ON THE PROJECT INVOLVING TITLE-24 UNDERSTAND AND ACCEPT ALL ASPECTS OF THE TITLE-24 SUBMITTED TO BUILDING DEPARTMENT PERTAINING TO THEIR WORK. ALL SUB-CONTRACTORS ARE RESPONSIBLE TO CONTACT THE BUILDER AND ALL SUB-CONTRACTORS WORKING ON THE PROJECT INVOLVING TITLE-24 UNDERSTAND AND ACCEPT ALL ASPECTS OF THE TITLE-24 SUBMITTED TO BUILDING DEPARTMENT PERTAINING TO THEIR WORK. ALL SUB-CONTRACTORS ARE RESPONSIBLE TO CONTACT THE BUILDER AND ALL SUB-CONTRACTORS WORKING ON THE PROJECT INVOLVING TITLE-24 UNDERSTAND AND ACCEPT ALL ASPECTS OF THE TITLE-24 SUBMITTED TO BUILDING DEPARTMENT PERTAINING TO THEIR WORK. ALL SUB-CONTRACTORS ARE RESPONSIBLE TO CONTACT THE BUILDER AND ALL SUB-CONTRACTORS WORKING ON THE PROJECT INVOLVING TITLE-24 UNDERSTAND AND ACCEPT ALL ASPECTS OF THE TITLE-24 SUBMITTED TO BUILDING DEPARTMENT PERTAINING TO THEIR WORK.

TOWN OF DANVILLE ACCESSORY DWELLING UNIT

DANVILLE, CALIFORNIA

PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR ENERGY SHEETS ONLY.

ENERGY CALCULATIONS

SUBMITTAL SHEETS FOR EQUIPMENT

Initial Issue Date: March 31, 2023
Energy Analyst: J. Bennett Ext. 26
Project Manager: J. Peek Ext. 23
Job No. W021420
Sheet No.

ECS

GENERAL NOTES

- 1. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE (CBC); THE MOST RECENT VERSIONS OF THE CMC, CPC AND CEC; ALL APPLICABLE LOCAL CODES AND ORDINANCES; AND LOCALLY ACCEPTED STANDARDS OF PRACTICE.
2. THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED EXCLUSIVELY FOR USE ON THIS PROJECT ONLY. THE DRAWINGS AND SPECIFICATIONS, OR PORTIONS THEREOF, SHALL NOT BE USED ON OTHER PROJECTS OR ADDITIONS TO THIS PROJECT EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION OF THE ENGINEER.
3. WRITTEN INFORMATION AND DIMENSIONS SHALL TAKE PRECEDENCE OVER GRAPHIC INFORMATION.
4. STRUCTURAL DRAWINGS SHOW ONLY THE BASIC STRUCTURAL SYSTEMS. REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS FOR ITEMS WHICH REQUIRE SPECIAL PROVISIONS DURING CONSTRUCTION.
5. SEE DRAWINGS OTHER THAN STRUCTURAL FOR: TYPES OF FINISH MATERIALS AND THEIR LOCATIONS, FOR DEPRESSIONS IN FLOOR SLABS, FOR OPENINGS IN WALLS AND FLOORS REQUIRED BY ARCHITECTURAL AND MECHANICAL FEATURES, FOR STAIRS, CURBS, ETC.
6. ALL DETAIL REFERENCES SHALL BE CONSIDERED "TYPICAL". THE INTENT OF TYPICAL DETAILS SHALL BE APPLIED TO SIMILAR CONDITIONS ELSEWHERE IN THE PROJECT. WHEN DETAILS LABELED "SIMILAR" ARE GIVEN ON DRAWINGS, THE CONTRACTOR SHALL APPLY THE GENERAL INTENT OF THE DETAIL TO THE REFERENCED CONDITION.
7. THE CONTRACTOR SHALL REVIEW ALL DRAWINGS IMMEDIATELY UPON RECEIPT AND SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES.
8. STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR THIS WORK HAVE BEEN PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS OF PRACTICE TO MEET THE MINIMUM REQUIREMENTS OF THE APPLICABLE EDITION OF THE CBC. ANY OMISSIONS OR DISCREPANCIES ON THE PLANS OR ANY DEVIATIONS FROM THE PLANS THAT ARE NECESSITATED BY FIELD CONDITIONS OR ANY CONDITION DIFFERENT FROM THOSE INDICATED ON THE PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONTINUING CONSTRUCTION. ALL WORK SHALL BE COORDINATED SO COOPERATION BETWEEN THE TRADES IS ACCOMPLISHED.
9. CONNECTIONS AND IMPLIED CONSTRUCTION ASSEMBLIES THAT ARE NOT SPECIFICALLY DESCRIBED OR DETAILED SHALL BE CONSTRUCTED USING STANDARD CONSTRUCTION PRACTICES IN COMPLIANCE WITH THE GOVERNING CODES AND LOCAL ORDINANCES.
10. THE STRUCTURAL SYSTEMS HAVE BEEN DESIGNED TO CARRY THE SUPERIMPOSED LIVE LOADS AS PRESCRIBED BY THE CALIFORNIA BUILDING CODE AND IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES, WITH NO SPECIAL PROVISIONS TO CARRY CONCENTRATED LOADS FROM STORAGE AND HANDLING OF CONSTRUCTION MATERIALS OR FROM OPERATION OF CONSTRUCTION EQUIPMENT.
11. DRAWINGS AND SPECIFICATIONS REPRESENT FINISHED STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO SHORING AND TEMPORARY BRACING. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURE TO INSURE SAFETY OF ALL PERSONS AND STRUCTURES AT THE SITE AND ADJACENT TO THE SITE. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT, ENGINEER OR CONSTRUCTION MANAGER SHALL NOT RELIEVE THE CONTRACTOR OF SUCH RESPONSIBILITY.
12. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL MAINTAIN THE INTEGRITY OF ALL SCAFFOLDING, BRACING, AND SHORING SYSTEMS AS REQUIRED FOR INSTALLATION, STABILITY AND SAFETY OF NEW WORK AND EXISTING STRUCTURES, PIPING, AND FOUNDATION SYSTEMS. CONTRACTOR SHALL ALSO PROVIDE FOR THE SAFETY OF PEDESTRIANS AND JOB SITE PERSONNEL. AT ALL TIMES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE PROTECTION OF THE JOB SITE, INCLUDING SAFETY OF PERSONS AND PROPERTY. THE CONTRACTOR SHALL PROTECT NEW AND EXISTING CONSTRUCTION FROM INCLIMENT WEATHER AND PHYSICAL DAMAGE.
13. CONTRACTOR SHALL COORDINATE WITH THE CITY TO ENSURE ALL INSPECTIONS (INCLUDING SPECIAL INSPECTIONS) ARE COMPLETED PER THE LOCAL BUILDING DEPARTMENT REQUIREMENTS. APPROVALS BY BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS AND SPECIFICATIONS.
14. IF PROVIDED, OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER IS INTENDED TO IMPROVE THE PROBABILITY THAT THE WORK IS COMPLETED IN GENERAL CONFORMANCE WITH THE ENGINEERING INTENT OF THE DESIGN. OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR COMPLETING THE CONSTRUCTION IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS, GENERALLY ACCEPTED STANDARDS OF PRACTICE, AND CITY/COUNTY REQUIRED INSPECTIONS.
15. ALL FRAMING HARDWARE SHALL BE MANUFACTURED BY SIMPSON STRONGTIE, OR EQUAL. ALTERNATE FRAMING HARDWARE MANUFACTURERS SHALL NOT BE PROVIDED UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER AND THE BUILDING OWNER. IF ALTERNATE HARDWARE SYSTEMS ARE AUTHORIZED, THE CONTRACTOR SHALL FORWARD COMPLETE SHOP DRAWINGS FOR REVIEW AND APPROVAL.

FOUNDATION NOTES

- 1. FOOTING DEPTH DIMENSION ARE INTO UNDISTURBED SOIL OR ENGINEERED FILL APPROVED BY THE GEOTECHNICAL ENGINEER, IF APPLICABLE. FINAL FOOTING DEPTH SHALL BE MEASURED FROM LOWEST ADJACENT GRADE OR BOTTOM OF UNAPPROVED FILL.
2. REMOVE LOOSE SOIL AND STANDING WATER FROM FOUNDATION EXCAVATIONS PRIOR TO PLACING CONCRETE. THE GEOTECHNICAL ENGINEER (IF APPLICABLE) SHALL INSPECT AND APPROVE ALL EXCAVATIONS, SOIL COMPACTION WORK PRIOR TO PLACEMENT OF ANY REBAR OR CONCRETE, SHORING INSTALLATIONS, BACKFILL MATERIALS AND BACK FILLING PROCEDURES.
3. MINIMUM CLEARANCE OF 8" SHALL BE PROVIDED BETWEEN EARTH AND WOOD IN ALL LOCATIONS PER CBC 2304.12
4. DRAINAGE AND SURFACE RUNOFF: PERIMETER GRADES SHOULD BE POSITIVELY SLOPED AT ALL TIMES TO PROVIDE FOR RAPID REMOVAL OF SURFACE WATER RUNOFF AWAY FROM THE FOUNDATION SYSTEMS AND TO PREVENT PONDING OF WATER UNDER FOUNDATIONS OR SEEPAGE TOWARD THE FOUNDATION SYSTEMS AT ANY TIME DURING OR AFTER CONSTRUCTION. PONDING WATER MAY CAUSE UNDESIRABLE SOIL SWELL OR LOSS OF STRENGTH.
A. AS A MINIMUM REQUIREMENT, FINISHED GRADES SHOULD HAVE SLOPES OF AT LEAST 5 PERCENT WITHIN 10 FEET FROM THE EXTERIOR WALLS AND AT RIGHT ANGLES TO ALLOW SURFACE WATER TO DRAIN POSITIVELY AWAY FROM THE STRUCTURE. FOR PAVED AREAS, THE SLOPE GRADIENT CAN BE REDUCED TO 2 PERCENT.
B. ALL SURFACE WATER SHOULD BE COLLECTED AND DISCHARGED INTO APPROVED DRAINAGE FACILITIES. APPROVED DRAINAGE FACILITIES SHALL BE PACIFIED BY THE THE CIVIL ENGINEER, IF APPLICABLE.
C. ALL ROOF STORMWATER SHOULD BE COLLECTED AND DIRECTED TO DOWNSPOUTS. STORMWATER FROM ROOF DOWNSPOUTS SHOULD NOT BE ALLOWED TO DISCHARGE DIRECTLY ONTO THE GROUND SURFACE IN CLOSE PROXIMITY TO THE FOUNDATION SYSTEM. RATHER, STORMWATER FROM ROOF DOWNSPOUTS SHOULD BE DIRECTED BY AN IMPERMEABLE SURFACE INTO THE STREET OR TO AN APPROVED DRAINAGE FACILITY. IF THIS IS NOT ACCEPTABLE, WE RECOMMEND DOWNSPOUTS DISCHARGE AT LEAST 5 FEET AWAY FROM FOUNDATIONS.
5. OVER-OPTIMUM SOIL MOISTURE CONDITIONS: THE CONTRACTOR SHOULD ANTICIPATE ENCOUNTERING EXCESSIVELY OVER-OPTIMUM (WET) SOIL MOISTURE CONDITIONS DURING WINTER OR SPRING GRADING, OR DURING OR FOLLOWING PERIODS OF RAIN. IN ADDITION, WET SOIL CONDITIONS MAY BE ENCOUNTERED NEAR THE BOTTOM OF EXCAVATIONS. WET SOIL CAN MAKE PROPER COMPACTION DIFFICULT OR IMPOSSIBLE. WET SOIL CONDITIONS SHALL BE MITIGATED BY APPROVED MEANS.
6. OVER-OPTIMUM SOIL MOISTURE CONDITIONS: WHERE MOISTURE VAPOR TRANSMISSION IS A CONCERN, CONSULT A WATERPROOFING EXPERT. MOISTURE TRANSITION IS OUTSIDE THE SCOPE OF THESE PLANS.
A. A TIGHT WATER VAPOR RETARDING MEMBRANE SHOULD BE INSTALLED BELOW ALL SLAB FOUNDATIONS. SYSTEMS TO REDUCE MOISTURE CONDENSATION UNDER FLOOR COVERINGS. THE VAPOR RETARDER SHOULD MEET ASTM E 1745 CLASS A REQUIREMENTS FOR WATER VAPOR PERMEANCE, TENSILE STRENGTH, AND PUNCTURE RESISTANCE. VAPOR TRANSMISSION THROUGH THE SLAB FOUNDATIONS CAN ALSO BE REDUCED BY USING HIGH STRENGTH CONCRETE WITH A LOW WATER-CEMENT RATIO.
7. DEEPEN PERIMETER FOOTINGS AS REQUIRED WHERE FOOTING, OR EDGE OF SLAB, IS WITHIN 3'-0" OF EDGE OF BIO-SWALE, BIO-RETENTION FACILITIES, TRENCHES, ETC. DEEPEN FOOTING SUCH THAT A 1:1 PLANE IS MAINTAINED BETWEEN BOTTOM OF FOOTING AND BOTTOM OF ADJACENT EXCAVATION. SEE DTL. FOR MORE INFORMATION.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT EXISTING UTILITIES TO REMAIN DURING AND/OR AFTER CONSTRUCTION.
9. CONTRACTOR TO REMOVE ABANDONED FOOTINGS, UTILITIES, ETC. WHICH INTERFERE WITH NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY BURIED STRUCTURES NOT INDICATED, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC., ARE FOUND.
10. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, UNDERPINNING AND PROTECTION OF EXISTING CONSTRUCTION.
11. PLACE BACKFILL BEHIND RETAINING WALLS AFTER CONCRETE OR MASONRY HAS ATTAINED FULL DESIGN STRENGTH. BRACE BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHED FLOORS AND SLABS ON GRADE ARE COMPLETE AND HAVE ATTAINED FULL DESIGN STRENGTH.

SYMBOLS LEGEND

- NOT ALL SYMBOLS USED IN THE DRAWING ARE LISTED BELOW. REFER TO AMERICAN WELDING SOCIETY PUBLICATIONS FOR WELDING SYMBOLS.
(L) INDICATES SHEARWALL NUMBER AND MINIMUM DESIGN LENGTH. SHEARWALLS SHALL BE AS NOTED IN THE SHEARWALL SCHEDULE.
(H) INDICATES HOLDOWN TYPE AS MANUFACTURED BY THE "SIMPSON STRONGTIE COMPANY." HOLDOWNS SHALL BE AS NOTED IN THE HOLDOWN SCHEDULE, PER
INDICATES INTERIOR BEARING WALL BELOW

SHEARWALL NOTES

- 1. WHERE A STRUCTURAL SHEARWALL IS INDICATED ON PLANS THE ASSEMBLY SHALL RUN HORIZONTALLY AND CONTINUOUSLY TO THE NEAREST WALL OPENING OR END OF THE WALL; THE ASSEMBLY SHALL RUN VERTICALLY CONTINUOUSLY FROM THE BOTTOM OF THE NEAREST SOLE OR BOTTOM PLATE UP TO THE TOP OF THE NEAREST DOUBLE TOP PLATE (OR BEAM). ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED AND EDGE NAILED.
2. WHERE HOLDOWN POSTS OR STUDS ARE INDICATED AT THE END OF A SHEARWALL, THE SHEAR PLYWOOD SHALL BE EDGE NAILED AND THE POST SHALL RUN CONTINUOUSLY FROM THE SOLE PLATE TO THE DOUBLE TOP PLATE. HOLDOWNS SHALL BE ATTACHED TO POSTS AT THE ENDS OF SHEARWALLS AND SHALL EXTEND TO EITHER FRAMING BELOW OR TO FOUNDATION AS SHOWN ON PLANS.
3. SEE SHEARWALL SCHEDULE ON PLANS FOR REQUIRED SHEARWALL NAILING, ANCHOR BOLTS, SILL NAILS, AND OTHER SHEAR TRANSFER HARDWARE.
4. SHEARWALL PLYWOOD SHALL NOT BE CUT FOR PIPE, DUCTS, SLEEVES, ETC., U.N.O. OR DETAILED.
5. UNLESS OTHERWISE DETAILED, ALL INTERIOR SHEARWALLS SHALL BE CONTINUOUS TO THE ROOF OR FLOOR PLYWOOD IN ACCORDANCE WITH THE TYPICAL SHEAR TRANSFER DETAILS
6. PLYWOOD SHEETS LOCATED AT SHEARWALL EDGES SHALL BE AT LEAST 12" WIDE. PLYWOOD EDGES SHALL BE EDGE NAILED TO ALL SHEARWALL FRAMING MEMBERS. SEE SHEARWALL SCHEDULE FOR FIELD NAILING REQUIREMENTS.
7. SEE SHEARWALL SCHEDULE FOR SHEARWALLS THAT REQUIRE 3x MUDDSILLS AND 3x FRAMING AT ADJOINING PLYWOOD PANEL EDGES. SILL PLATES, TOP PLATES AND MEMBERS IN THE FIELD OF INDIVIDUAL PLYWOOD PANELS DO NOT TYPICALLY BACK ADJOINING PANEL EDGES AND THIS MAY BE 2x.

OBSERVATION OF CONSTRUCTION

- 1. IN ADDITION TO OBSERVATIONS BY THE SOILS ENGINEER (IF APPLICABLE), AND CITY INSPECTOR, OBSERVATION OF THE CONSTRUCTION BY THE PROJECT ENGINEER IS RECOMMENDED FOR THIS PROJECT. THE CONTRACTOR SHALL PHASE THE PROJECT AND COORDINATE WITH THE ENGINEER TO ENSURE THAT THE PRIMARY STRUCTURAL ELEMENTS OF THE CONSTRUCTION ARE OBSERVED PRIOR TO COVERING WITH FINISHES OR OTHER MATERIALS. AS A MINIMUM, OBSERVATION BY THE ENGINEER IS RECOMMENDED AS FOLLOWS:
A. REINF. STEEL AND HARDWARE EMBEDDED IN THE FNDTION SHALL BE OBSERVED PRIOR TO CONCRETE PLACEMENT
B. SHEARWALLS AND FRAMING ELEMENTS SHALL BE OBSERVED PRIOR TO INSTALLATION OF FINISHES.
2. OBSERVATION OF THE CONSTRUCTION BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY TO COMPLETE THE CONSTRUCTION IN CONFORMANCE WITH THE PROJECT DOCUMENTS AND GENERALLY ACCEPTED STANDARDS OF PRACTICE. THE PURPOSE OF OUR VISITS WILL NOT BE TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE CONTRACTOR'S WORK AND DETERMINE IF THE WORK IS PROGRESSING IN GENERAL CONFORMANCE WITH OUR DESIGN INTENT. DURING OUR VISITS, ADVANCED ENGINEERING WILL NOT BE MAKING DETAILED INSPECTIONS, OR VERIFYING DIMENSIONS. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING APPLICABLE CODES AND THE APPROVED CONSTRUCTION DOCUMENTS.

SPECIAL INSPECTIONS PER 2022 CBC 1701

- 1. IN ADDITION TO OBSERVATIONS BY THE CITY INSPECTOR AND THE PROJECT ENGINEER, SPECIAL INSPECTIONS BY AN ICC CERTIFIED SPECIAL INSPECTOR IS REQUIRED AS FOLLOWS:
A. EPOXY ANCHORS INSTALLED IN CONCRETE SHALL HAVE SPECIAL INSPECTION OF HOLE DEPTH & DIAMETER, MATERIALS, CLEANING PROCEDURES, AND INSTALLATION PER ICC-REPORT ICC-ES/ESR-2508 SECTION 4.4.3.
B. TITEN HD ANCHORS INSTALLED IN CONCRETE SHALL HAVE SPECIAL INSPECTION OF DRILLING AND INSTALLATION PER ICC-REPORT ICC-ES/ESR-2713 SECTION 4.4.
C. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC-FORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS AND HOLDOWNS PER SECTION 1705.12.2 OF THE CURRENT EDITION OF THE C.B.C.
D. CONTINUOUS INSPECTIONS OF CAST-IN-PLACE DEEP FOUNDATION (PIERS) OR DRILLING OPERATIONS. COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT SHALL BE PROVIDED PER SECTION 1705.8 OF THE CURRENT EDITION OF THE C.B.C.
E. CONTINUOUS INSPECTIONS OF CAST-IN-PLACE DEEP FOUNDATION (PIERS) TO VERIFY: PLACEMENT LOCATIONS AND RUMBLENESS, CONFIRM ELEMENT DIAMETERS, LENGTHS, AND EMBEDMENTS PER SECTION 1705.8 OF THE CURRENT EDITION OF THE C.B.C.
2. THE CONTRACTOR SHALL COORDINATE WITH THE CITY TO ENSURE SPECIAL INSPECTION IS PROVIDED PER CITY REQUIREMENTS. THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY THE OWNER AND MUST DEMONSTRATE HIS QUALIFICATIONS TO THE ARCHITECT/ENGINEER OF RECORD AND THE BUILDING OFFICIAL.

FASTENING SCHEDULE (C.B.C. TABLE 2304.10.2)

Table with columns: ITEM, DESCRIPTION OF CONNECTION, COMMON / BOX, SMOOTH SHANK, STAPLES. Includes rows for JOIST TO SILL OR GIRDER, BRIDGING TO JOIST, JOIST TO SILL OR GIRDER, etc.

NOTES: FOR SI: 1 inch = 25.4 mm

- 1. COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
2. NAILS SPACED AT 6" O.C. AT EDGES, 12" O.C. AT INTERMEDIATE SUPPORTS EXCEPT 6" O.C. AT ALL SUPPORTS WHERE SPANS ARE 4'-0" OR MORE. NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS REFER TO C.B.C. SECTION 2305. WALL SHEATHING NAILS ARE PERMITTED TO BE COMMON, BOX OR CASING.
3. COMMON OR DEFORMED SHANK (6d - 2" x 0.113"; 8d - 2.5" x 0.131"; 10d - 3" x 0.148"; 16d - 3.5" x 0.162")
4. COMMON (6d - 2" x 0.113"; 8d - 2.5" x 0.131"; 10d - 3" x 0.148"; 16d - 3.5" x 0.162")
5. DEFORMED SHANK (6d - 2" x 0.113"; 8d - 2.5" x 0.131"; 10d - 3" x 0.148")
6. CORROSION-RESISTANT SIDING (6d - 1.875" x 0.106"; 8d - 2.375" x 0.128") OR CASING (6d - 2" x 0.099"; 8d - 2.5" x 0.113") NAILS.
7. FOR ROOF SHEATHING APPLICATIONS, 8d NAILS (2.5" x 0.113") ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.
8. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16".
9. FOR ROOF SHEATHING APPLICATIONS, FASTENERS SPACED 4" O.C. AT EDGES AND 8" O.C. AT INTERMEDIATE SUPPORTS.
10. FASTENERS SPACED 4" O.C. AT EDGES AND 8" O.C. AT INTERMEDIATE SUPPORTS FOR SUBFLOOR AND WALL SHEATHING AND 3" O.C. AT EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS FOR ROOF SHEATHING.
11. FASTENERS SPACED 4" O.C. AT EDGES AND 8" O.C. AT INTERMEDIATE SUPPORTS.

NAIL SCHEDULE

Table with columns: FASTENER PER PLAN, SHANK DIA., HEAD DIA., MIN. LENGTH. Includes rows for 8d, 10d, 16d, 16d COMMON, 20d.

NOTES:

- 1. ALL NAILS IN MANUF. HARDWARE SHALL BE PER MANUFACTURERS SPECIFICATIONS AS NOTED TO ACHIEVE MAX HARDWARE VALUE. FASTENERS, INCLUDING NUTS AND WASHERS, IN CONTACT WITH SODIUM BORATE SBX/DOT PRESERVATIVE-TREATED WOOD IN AN INT., DRY ENVIRONMENT SHALL BE PERMITTED.
2. FASTENERS IN CONTACT WITH PRESERVATIVE-TREATED WOOD USING ALKALINE COPPER QUAT (ACQ-C, ACQ-D, ACQ-D CARBONATE), COPPER AZOLE (CA-B & CA-C, MCA-C) OR EXPOSED TO WEATHER SHALL BE HOT DIPPED GALV. OR STAINLESS STEEL

ABBREVIATION LEGEND

Table mapping abbreviations to full names. Includes: @ AT ANCHOR BOLT, A.B. ABOVE, ACI AMERICAN CONCRETE, ADDL ADDITIONAL, A.F.F. ABOVE FINISHED FLOOR, etc.

PRE-CONSTRUCTION MEETING:

PRE-CONSTRUCTION MEETINGS WITH THE CONTRACTOR, BY OUR EXPERIENCE, HAVE SIGNIFICANTLY AIDED IN THE SUCCESS OF THE PROJECT. PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR SHALL COORDINATE AND SCHEDULE A PRE-CONSTRUCTION MEETING FOR ALL MEMBERS OF THE PROJECT TEAM. AS A MINIMUM, THE GENERAL CONTRACTOR, THE FRAMER, THE FOUNDATION SUBCONTRACTOR, AND THE PROJECT ENGINEER SHALL ATTEND.

NOTE REGARDING STRUCTURAL DRAWINGS:

THE STRUCTURAL DRAWINGS SHOW ONLY THE BASIC STRUCTURAL FRAME. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR NONSTRUCTURAL ITEMS INCLUDING NONSTRUCTURAL WALLS, WHICH REQUIRE SPECIAL PROVISIONS DURING CONSTRUCTION. ONLY OPENINGS REQUIRING SPECIAL FRAMING ARE SHOWN ON STRUCTURAL PLANS. SEE TYPICAL DETAILS FOR REINFORCING AROUND NOMINAL OPENINGS NOT SHOWN.

Table with columns: GRAVITY LOAD SCHEDULE, SOILS & FOUNDATION DESIGN DATA. Includes rows for MATERIAL, DEAD LOAD, LIVE LOAD, SPREAD FOOTING FOUNDATION, etc.

STRUCTURAL DESIGN INFORMATION

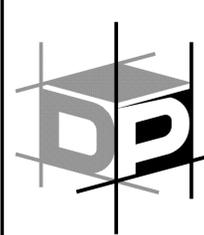
BASIS OF STRUCTURAL DESIGN: 2022 CALIFORNIA BUILDING CODE

LATERAL SYSTEM DESIGN DATA

Table with columns: GENERAL DESIGN DATA, SEISMIC DESIGN DATA. Includes rows for IMPORTANCE FACTOR, OCCUPANCY CATEGORY, ANALYSIS PROCEDURE USED, etc.

DO NOT SCALE THESE DRAWINGS

PLAN SET ID: S-ME-R-F



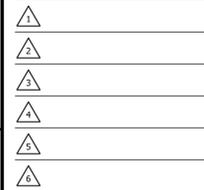
ADVANCED ENGINEERING

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THE DRAWINGS AND SPECIFICATIONS APPEARING HEREIN CONSTITUTE THE ORIGINAL WORK OF DR. ADVANCED ENGINEERING, INC. AND SHALL BE CONSIDERED CONFIDENTIAL AND PROPRIETARY PROPERTY. COPYING OR REPRODUCING ANY PORTION OF THESE DOCUMENTS WITHOUT WRITTEN AUTHORIZATION IS STRICTLY PROHIBITED. THE CONTRACT DOCUMENTS WERE PREPARED FOR USE ON THIS SPECIFIC SITE IN CONJUNCTION WITH ITS ISSUE DATE AND ARE NOT SUITABLE FOR USE ON A DIFFERENT SITE OR AT A LATER TIME. USE OF THESE DRAWINGS FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF A PROPERLY LICENSED ENGINEER. REPRODUCTION OF THE CONTRACT DOCUMENTS FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED.

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DANVILLE, CALIFORNIA



PLEASE NOTE THE REVISION NUMBER AND DATE ARE FOR STRUCTURAL SHEETS ONLY. Engineering Seal:



Sheet Description:
GENERAL NOTES AND DESIGN CRITERIA

No Scale

Initial Issue Date: March 24, 2023

Drawn By: E. Bennett

Project Designer: J. Peek

Project Manager: J. Peek Ext. 23

Job No. W021420

Sheet No.

SN1

GENERAL FRAMING NOTES

- 1. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED, OR APPROVED BY THE ENGINEER. NOTCH DETAILS, IF PROVIDED, ARE FOR GENERAL GUIDANCE ONLY. THE ENGINEER SHALL BE CONTACTED TO APPROVE LOCATIONS OF PROPOSED NOTCHES. STUDS IN EXTERIOR WALLS AND BEARING PARTITIONS MAY BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25% OF STUD WIDTH. CUTTING OR NOTCHING OF STUDS IN NON-BEARING PARTITIONS SHALL NOT EXCEED 40% OF THE WIDTH. SEE DETAIL 404 FOR MORE INFORMATION.
2. TYPICAL FRAMING AND STRUCTURAL MATERIALS: ALL FRAMING LUMBER SHALL BE DOUGLAS FIR, AND SHALL BE STAMPED WITH A GRADE MARK WITH THE FOLLOWING GRADES. FRAMING LUMBER SHALL CONFORM TO GRADING RULES OF WVPA AND COMPLIES WITH DOC PS 20. MAXIMUM MOISTURE CONTENT SHALL NOT EXCEED 19% AT THE TIME OF CONSTRUCTION.

Table with 4 columns: FRAMING MATERIAL, GRADE, FRAMING MATERIAL, GRADE. Lists materials like rafters, joists, studs, and their respective grades.

- 1. SOLE PLATES, AS NOTED ABOVE, ARE ALL INTERIOR SILL PLATES NOT IN CONTACT WITH CONCRETE. MATERIAL SHALL BE UC1 INTERIOR/DRY CATEGORY AS DEFINED BY AWPA STANDARD U1.
2. MUDSILLS, AS NOTED ABOVE, ARE ALL INTERIOR SILL PLATES IN DIRECT CONTACT WITH CONCRETE. MATERIAL SHALL BE UC2 INTERIOR/DAMP CATEGORY AS DEFINED BY AWPA STANDARD U1.
3. LUMBER EXPOSED TO WEATHER, AS NOTED ABOVE, IS ALL EXTERIOR LUMBER ABOVE GROUND AND EXPOSED TO WEATHER. MATERIAL SHALL BE UC3B ABOVE GROUND EXPOSED CATEGORY AS DEFINED BY AWPA STANDARD U1.

- 3. PRESERVATIVE TREATED OR NATURALLY DURABLE MATERIALS: ALL INTERIOR/DAMP CONSTRUCTION, UC2 CATEGORY, SHALL BE TREATED WITH SODIUM BORATE SBX/DOT. 1. PLAIN CARBON STEEL FASTENERS, INCLUDING NUTS AND WASHERS, IN CONTACT WITH SODIUM BORATE SBX/DOT PRESERVATIVE-TREATED WOOD IN AN INTERIOR, DRY ENVIRONMENT SHALL BE PERMITTED.
B. ALL EXTERIOR ABOVE GROUND CONSTRUCTION (INCL. DECK FRAMING), UC3B CATEGORY, SHALL BE TREATED WITH ALKALINE COPPER QUAT (ACQ-C, ACQ-D, ACQ-D CARBONATE), OR COPPER AZOLE (CA-B & CA-C, MCA-C)
1. ALL FASTENERS AND CONNECTORS IN CONTACT WITH PRESERVATIVE-TREATED TREATED WOOD USING ALKALINE COPPER QUAT (ACQ-C, ACQ-D, ACQ-D CARBONATE), OR COPPER AZOLE (CA-B & CA-C) MCA-C SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL IN ACCORDANCE WITH GOVERNING CBC SEC. 2304.10 AND SHALL BE IN ACCORDANCE WITH ASTM A 153.
C. WOOD JOISTS OR WOOD STRUCTURAL FLOORS THAT ARE CLOSER THAN 18 INCHES OR WOOD GIRDERS THAT ARE CLOSER THAN 12 INCHES TO EXPOSED GROUND IN CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIMETER OF THE BUILDING FOUNDATION SHALL BE PRESERVATIVE-TREATED WOOD IN ACCORDANCE CBC.

- 4. GLUE-LAMINATED STRUCTURAL MATERIALS: STANDARD SPECIFICATIONS FOR GLUE-LAMINATED STRUCTURAL MEMBERS, ANSI/AITC A 190.1 AND ASTM D3737. GLUE-LAMINATED BEAMS SHALL BE INSPECTED AND A CERTIFICATE PROVIDED TO THE FILED INSPECTOR AT THE TIME OF FRAMING INSPECTION. FABRICATION SHALL BE PERFORMED IN ACCORDANCE WITH CBC 1705.5. ALL GLUE-LAMINATED BEAMS THAT ARE CONTINUOUS OVER SUPPORTS OR CANTILEVERED SHALL HAVE TENSION LAMINATIONS ON TOP OF BEAMS. MAXIMUM MOISTURE CONTENT SHALL NOT EXCEED 16% AT THE TIME OF CONSTRUCTION.
A. GLULAM MEMBERS IN DRY SERVICE USE SHALL BE DOUGLAS-FIR 24F-V4 (SINGLE SPAN) OR COMBINATION 24F-V8 (MULTI-SPAN & CANTILEVER) U.N.O. BEAMS SHALL BE ARCHITECTURAL GRADE WHEN EXPOSED TO VIEW, S.A.D.
1. GLULAM MEMBERS, SEE PLAN SPECIFICATIONS FOR CAMBER WHERE OCCURS.
MATERIAL GRADE E (x10^3 psi) Fb (psi) Fv (psi) Fc (psi) RADIUS, U.N.O.
DF/DF 24F-V4 1.8 2400 265 650 3500' RADIUS
DF/DF 24F-V8 1.8 2400 265 650 NO CAMBER
B. GLULAM MEMBERS IN WET SERVICE USE SHALL BE ALASKAN CEDAR 20F-V12 (SINGLE SPAN) OR COMBINATION 20F-V13 (MULTI-SPAN & CANTILEVER) U.N.O.
1. GLULAM MEMBERS, SEE PLAN SPECIFICATIONS FOR CAMBER WHERE OCCURS.
MATERIAL GRADE E (x10^3 psi) Fb (psi) Fv (psi) Fc (psi) RADIUS, U.N.O.
AC/AC 20F-V12 1.5 2000 265 560 3500' RADIUS
AC/AC 20F-V13 1.5 2000 265 560 NO CAMBER
C. DESIGN, FABRICATION AND CONSTRUCTION OF STRUCTURAL GLULAM MEMBERS SHALL CONFORM TO THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION STANDARD, MANUAL No. 301 AND THE COMMERCIAL STANDARD FOR STRUCTURAL GLUED LAMINATED TIMBER, CS 253.
D. STRUCTURAL PLYWOOD SHALL BE GRADED PER APA PSI-83AND SHALL BE INTERIOR TYPE SHEATHING C-D GRADE WITH EXTERIOR GLUE. EQUIVALENT O.S.B. WOOD STRUCTURAL PANEL MAY BE USED AS AN ALTERNATE TO PLYWOOD. HOWEVER, IN ACCORDANCE WITH THE TILE COUNCIL OF AMERICA RECOMMENDATIONS, O.S.B. SHALL NOT BE USED BELOW TILE MORTAR. ALL HORIZONTAL PLYWOOD SHALL BE LAID WITH FACE GRAIN PERPENDICULAR TO FRAMING MEMBERS, WITH STAGGERED JOINTS.

Table with 7 columns: SPECIFICATION, MATERIAL, WIDTH (in.)^2, E (x10^3 psi), Fb (psi), Fv (psi), Fc (psi), Fc11 (psi). Lists specifications for RIM JOIST, LVL COLUMN, LVL STUD, LVL BEAM.

- 1. BEAM DEPTH IS ASSUMED TO MATCH FLOOR FRAMING DEPTH U.N.O.
2. MFR BEAM MEMBERS MAY BE BUILT UP TO ACHIEVE SPECIFIED WIDTHS PER DETAIL 609/SD6 U.N.O. ON PLANS.
6. ALL STUD WALLS SHOWN ON STRUCTURAL DRAWINGS SHALL BE FRAMED AS FOLLOWS (U.O.N.):
EXTERIOR WALL STUD HEIGHT TABLE (L/360 DEFL.)
MAX. PLATE HT STUD TYPE SPACING
21'-5" (2) 2x6 DOUG-FIR #1 12" O.C.
19'-5" (2)-2x6 DOUG-FIR #1 16" O.C.
15'-1" 2x6 DOUG-FIR #2 16" O.C.
12'-1" (2)-2x4 DOUG-FIR #1 16" O.C.
2x6 STUD GRADE 16" O.C.
2x4 DOUG-FIR #1 16" O.C.
2x6 STUD GRADE 16" O.C.
9'-1" 2x4 DOUG-FIR #2 16" O.C.
2x6 STUD GRADE 16" O.C.
2x4 STUD GRADE 16" O.C.
8'-1" 2x6 STUD GRADE 16" O.C.
INTERIOR WALL STUD HEIGHT TABLE (L/240 DEFL.)
MAX. PLATE HT STUD TYPE SPACING
21'-5" 2x6 STUD GRADE 12" O.C.
19'-5" 2x6 STUD GRADE 16" O.C.
15'-1" 2x6 STUD GRADE 16" O.C.
12'-1" 2x4 STUD GRADE 16" O.C.
2x6 STUD GRADE 16" O.C.
NOTE:
A. STUD HEIGHTS EXCEEDING 10'-1" SHALL BE BRACED MID-HEIGHT USING FULL DEPTH 2x BLOCKING.

- 7. TOP PLATES SHALL BE DOUBLED ON ALL STUD WALLS. LAP 4'-0" MINIMUM AT TOP PLATE SPLICES, WITH (12) 16d NAILS EACH SIDE OF SPLICE, U.N.O. SPLICES IN UPPER AND LOWER PLATES SHALL BE STAGGERED 4'-0" MINIMUM.
8. POSTS IN WALLS MAY BE MADE WITH MULTIPLE STUDS OF EQUIVALENT WIDTH AND DEPTH, U.O.N. SECURE MULTIPLE STUDS WITH 16d NAILS AT 8" O.C. STAGGERED.
9. PROVIDE KING STUDS AT THE ENDS OF ALL HEADERS OR OTHER BEAMS INSTALLED IN WALLS, SEE DETAIL 401/SD4
ADJACENT, STACKING WINDOWS SHALL BE SEPARATED BY KING STUDS THAT ARE CONTINUOUS FROM SILL TO TOP PLATE, CRIPPLE STUDS UNDER HEADERS SHALL BE CONTINUOUS TO SILL PLATE. END NAIL KING STUDS TO HEADERS.
10. ALL MEMBERS IN BEARING SHALL BE ACCURATELY CUT AND ALIGNED SO THAT FULL BEARING IS PROVIDED WITHOUT THE USE OF SHIMS.
11. BLOCK ALL STUD WALLS AS REQUIRED FOR SHEATHING AND FINISHES. BALLOON FRAME ALL WALLS WITH SLOPING CEILING OR WITH RAISED CEILINGS.
12. INSTALL HORIZONTAL MEMBERS WITH CROWN UP. WHERE KNOTS EXIST NEAR THE TOP OR BOTTOM OF HORIZONTAL MEMBERS, INSTALL MEMBER WITH KNOTS UP. CANTILEVERED DECK JOISTS SHALL BE CAREFULLY NOTCHED AND TRIMMED (IF NECESSARY) TO PROVIDE SLOPE WITHOUT OVER-CUTTING.
13. PROVIDE FULL DEPTH BLOCKING OR CONTINUOUS RIM JOIST AT ALL FLOOR AND ROOF FRAMING SUPPORTS. FRAMING MEMBERS SHALL HAVE A MINIMUM OF 2" BEARING AT SUPPORTS. LAPPING JOISTS SHALL HAVE 6" MINIMUM OVERLAP CENTERED OVER INTERIOR SUPPORTS.
14. ALL BOLTED WOOD CONNECTIONS SHALL HAVE A WASHER UNLESS A STEEL PLATE IS SPECIFIED. HOLES SHALL BE PROPERLY ALIGNED. OVERSIZED HOLES ARE NOT ALLOWED. NUTS SHALL BE SNUG TIGHTENED. BOLT HOLES SHALL BE NOMINAL DIAMETER OF BOLT PLUS 1/16".
15. NAILED WOOD CONNECTIONS SHALL USE COMMON WIRE NAILS, U.N.O. MIN. NAILING REQUIREMENTS FOR STANDARD CONNECTIONS SHALL BE IN ACCORDANCE WITH THE GOVERNING C.B.C. FASTENING SCHEDULE (TABLE 2304.10.1).
16. ALL MANUFACTURED CONNECTION HARDWARE SHALL BE AS DESIGNATED ON DRAWINGS AND INSTALLED (WITH ALL NAIL HOLES FILLED) IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPLICABLE ICC APPROVALS.
17. INSTALL LAG SCREWS IN DRILLED LEAD HOLES WITH A DIA. EQUAL TO 3/4" OF THE SHANK DIAMETER. LAG SCREWS SHALL NOT BE HAMMERED IN. PROVIDE WASHERS UNDER HEADS BEARING ON WOOD. HOLES SHALL BE PROPERLY ALIGNED.

CONCRETE NOTES

CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2022 BUILDING CODE (C.B.C.) AND THE LATEST EDITION OF THE AC1318-14, UNLESS NOTED OTHERWISE.

Table with 7 columns: MINIMUM COMPRESSIVE STRENGTH (psi) (+/- 1/2"), SLUMP (+/- 1/2"), AGGREG. SIZE, SPEC. INSP. REQD, MAXIMUM WATER TO CEMENT RATIO (NOTE 1F), CEMENT TYPE ASTM C150. Lists requirements for GRADE BEAMS & STEM WALLS, CONCRETE PIERS, FOOTINGS ON GRADE, FLOOR SLABS ON GRADE.

- 1. CONCRETE REQUIREMENTS: BASED ON NORMAL WEIGHT CONCRETE (UNIT WEIGHT OF 145 TO 150 pcf).
A. COARSE AGGREGATE SHALL BE HARD, DURABLE CRUSHED STONE OR GRAVEL GRADED PER ASTM C33. MAXIMUM SIZE OF AGGREGATE SHALL BE AS NOTED IN SCHEDULE ABOVE AND DEFINED BELOW. SAND SHALL BE CLEAN, HARD, DURABLE, WASHED FREE FROM SILT, LOAM OR CLAY.
1. GRADE BEAMS, STEM WALLS, RETAINING WALLS AND OTHER CONCRETE FRAMEWORK LESS THAN 10" WIDE SHALL USE 3/4" AGGREGATE CONFORMING TO ASTM C33 WITH 100% PASSING 1" SIEVE AND 90% (MINIMUM) PASSING 3/4" SIEVE. TO ENSURE PROPER CONCRETE COVER AND CONSOLIDATION.
2. FOOTING AND SLABS ON GRADE, INCLUDING POST-TENSION AND MAT SLABS, SHALL USE 1" AGGREGATE CONFORMING TO ASTM C33 WITH 95% (MINIMUM) PASSING 1" SIEVE.
B. MIXING WATER SHALL BE CLEAN AND FREE FROM INJURIOUS AMOUNTS OF OIL, ACIDS, ALKALIES, ORGANIC MATERIALS OR OTHER DELTERIOUS SUBSTANCES.
C. CONCRETE EXPOSED TO SULFATE SHALL USE TYPE V CEMENT WITH POZZOLAN.
D. FLY ASH OR POZZOLANS, IF USED, SHALL CONFORM WITH ASTM C618, COAL FLY ASH AND RAW OR CALCINED NATURAL POZZOLAN FOR USE AS A MINERAL ADMXTURE IN CONCRETE. USAGE SHALL NOT EXCEED 25 PERCENT, BY WEIGHT OF THE TOTAL CEMENTITIOUS MATERIALS. WHEN POZZOLANS ARE USED TO MITIGATE THE EFFECT OF SULFATE CONTAINING SOILS THEY SHALL BE OF A TYPE THAT HAS DEMONSTRATED SUCH ABILITY BY TEST OR SERVICE RECORD.
E. ADMXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE USED.
F. CEMENT SHALL CONFORM WITH ASTM C150 & C 595, PORTLAND CEMENT AND BLENDED HYDRAULIC CEMENTS
G. TRANSIT MIX SHALL BE PER ASTM C-94.
H. MIX DESIGN SHALL MEET THE RECOMMENDED SPECIFICATION UNLESS AN ALTERNATE MIX IS SUBMITTED AND REVIEWED BY THE ENGINEER.

- 2. SPECIAL INSPECTION OF CONCRETE WORK IS REQD WHERE NOTED ABOVE. WHEN REQD, SPECIAL INSPECTION SHALL INCLUDE THE INSPECTION OF THE PLACEMENT OF REINFORCEMENT, AND THE INSPECTION OF THE CONCRETE PLACEMENT OPERATIONS AS WELL AS CONCRETE CYLINDER TESTS, PER C.B.C. SECTION 1705.3. THE FOLLOWING THREE CRITERIA ESTABLISH THE REQD MINIMUM SAMPLING FREQUENCY FOR EACH CLASS OF CONCRETE:
A. ONE EACH DAY A GIVEN CLASS IS PLACED, NOR LESS THAN
B. ONCE FOR EACH 150 yd OF EACH CLASS PLACED EACH DAY, NOR LESS THAN
C. ONCE FOR EACH 5000 ft OF SLAB OR WALL SURFACE AREA PLACED EACH DAY.
3. SPLICES OF CONTINUOUS REINFORCEMENT SHALL HAVE A MINIMUM LAP PER DETAILS 202/SD2 AND 203/SD2 UNLESS NOTED OTHERWISE. ALL REINFORCING STEEL SHALL BE SECURELY WIRED AND PROPERLY SUPPORTED ABOVE GROUND, AND AWAY FROM FORMS. REINFORCING BAR FABRICATION, LAPS AND PLACEMENT SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE OF THE CONCRETE REINFORCING STEEL INSTITUTE.
4. REINFORCING SHALL BE NEW STOCK, DEFORMED BARS, NO. 3 AND SMALLER: GRADE 40
NO. 4 AND LARGER: GRADE 60
A. ALL BARS TO BE WELDED SHALL MEET THE REQUIREMENTS OF ASTM A706, GRADE 60.
B. WELDED WIRE FABRIC SHALL CONFORM TO ASTM
A-185, FLAT SHEETS ONLY. LAP FABRIC 6" MINIMUM.
C. REINFORCEMENT PLACEMENT SHALL CONFORM TO DETAIL A/SD3
D. ANCHOR BOLTS SHALL BE ASTM A307, U.N.O. AND SHALL CONFORM TO DETAIL 201/SD2

- 5. REINFORCEMENT COVER: ALL DIMENSIONS SHOWING THE LOCATIONS OF REINFORCEMENT STEEL NOT NOTED AS "CLEAR", ARE TO THE CENTER OF THE STEEL. MINIMUM CLEAR COVERAGE OF REINFORCEMENT SHALL BE AS FOLLOWS:
A. CONCRETE CAST AGAINST EARTH, EXCEPT SLABS ON GRADE: 3"
SLABS ON GRADE: 1-1/2" U.N.O.
B. CONCRETE CAST IN FORMS, BUT EXPOSED TO EARTH OR WEATHER: NO. 5 REINFORCING AND SMALLER: 1-1/2"
NO. 6 REINFORCING AND LARGER: 2"
C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND: SLABS, WALLS AND JOISTS: 3/4"
BEAMS AND COLUMNS: 1-1/2"
6. UNFORMED CONCRETE SURFACE CURING:
A. CURE FOR ONE TO SEVEN DAYS BY MAINTAINING TEMPERATURE ABOVE 50 DEGREES FAHRENHEIT, AND IN A MOIST CONDITION.
B. APPLY MEMBRANE-FORMING CURING COMPOUND TO DAMP CONCRETE IMMEDIATELY AFTER COMPLETION OF THE MOIST-CURING PERIOD.
7. THE CONTRACTOR SHALL INFORM THE ENGINEER AT LEAST TWO DAYS PRIOR TO POURING ANY STRUCTURAL CONCRETE SO THAT OBSERVATION OF THE WORK MAY BE PERFORMED AS REQUIRED BY THE ENGINEER'S CONTRACT OR THE CODE.
8. FOOTING/GRADE BEAM CONSTRUCTION JOINTS SHALL CONFORM TO DETAIL 204/SD2
9. CRACK CONTROL JOINTS SHALL BE PLACED IN CONCRETE SLABS ON GRADE AT A SPACING OF 12'-0" MAX. O.C. EACH WAY (U.N.O. ON PLAN) PER DETAIL 205A/SD2
LOCATION OF SLAB ON GRADE CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. SLAB ON GRADE CONSTRUCTION JOINTS SHALL CONFORM TO 205B/SD2
10. ALL PIPES AND DUCTS THROUGH CONCRETE SHALL BE SLEEVED. VERIFY OPENINGS WITH PLUMBER AND ELECTRICIAN. SEE DETAIL 206/SD2
11. IF SPECIFIED, WELDED WIRE FABRIC SHALL BE 6x6-W1.4xW1.4. WIRE FABRIC SHALL BE ELECTRICALLY WELDED STEEL PER ASTM A185. LAP 6" MINIMUM AT ALL EDGES AND TIE AT THREE PLACES TO REINFORCING DOWELS (WHERE OCCURS) EXCEPT LOCATIONS WHERE SLAB IS INDEPENDENT OF FOUNDATION. CONTRACTOR SHALL PROVIDE SUPPORT CHAIRS TO ENSURE FABRIC IS LOCATED IN THE CENTER OF THE SLAB.
12. WELDING OF REINFORCING BARS SHALL CONFORM TO AWS D1.4 USING ASTM A706 REINFORCING BAR SPECIFICATIONS.

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- 1. THE FOLLOWING SECTION APPLIES TO ALL STRUCTURAL STEEL 1/8" THICK OR LARGER.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE CBC CHAPTER 22, AISC 15th EDITION, AND THE 2015 A.W.S. D1.1.
3. STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING:
A. PLATES AND SHAPES, U.N.O. ASTM A992 (fy = 50 ksi), OR ASTM A572, GRADE 50
ASTM A500, GRADE B.
B. STRUCTURAL TUBE COLUMNS AND BEAMS: ASTM A53, TYPE E OR S, GRADE B
C. PIPE COLUMNS: ASTM A36 (fy = 36 ksi)
D. ROD
4. FASTENERS SHALL CONFORM TO THE FOLLOWING:
A. ANCHOR BOLTS: ASTM A307, U.N.O.
B. STEEL TO WOOD CONNECTIONS: ASTM A307, U.N.O. USE CUT WASHERS (IF CONCEALED) AND MALLEABLE IRON WASHERS (IF EXPOSED)
5. WELDING ELECTRODES SHALL CONFORM TO 2015 A.W.S. D1.1 AND SHALL BE LOW HYDROGEN MATCHING FILLER METAL. SURFACES OF STEEL TO BE FIELD WELDED SHALL BE FREE AND CLEAR OF ALL PAINT, DIRT, GREASE, OR OTHER DELTERIOUS COATINGS.
6. STEEL FRAMING, EXCEPT THOSE PORTIONS TO BE EMBEDDED IN CONCRETE, CONCEALED IN FRAMING, FIELD WELDED, OR HIGH STRENGTH BOLTED SHALL BE SHOP-PAINTED PER THE SPECIFICATIONS.
7. FIELD PAINT ALL EXPOSED STEEL SURFACES AFTER INSTALLATION, PER THE SPECIFICATIONS.
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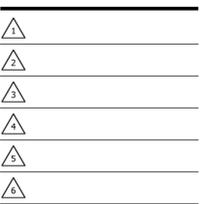


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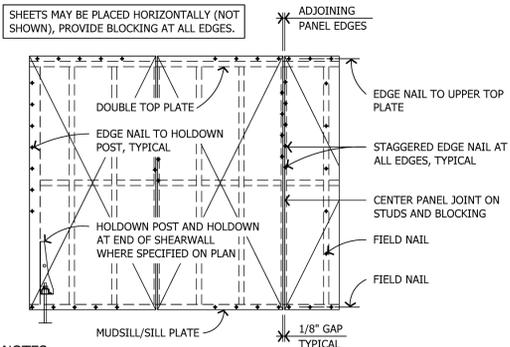


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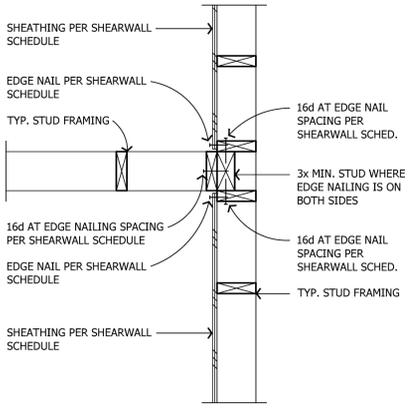


Sheet Description:
GENERAL STRUCTURAL SPECIFICATIONS AND NOTES
No Scale
Initial Issue Date: March 24, 2023
Drawn By: E. Bennett
Project Designer: J. Peek
Project Manager: J. Peek Ext. 23
Job No. W021420
Sheet No.

SN2



NOTES:
 1. SEE SHEARWALL SCHEDULE FOR REQUIRED SHEATHING, NAILING, AND SILL CONNECTIONS.
 2. FOR LOCATION OF TIEDOWNS AND TD POSTS, SEE TYPICAL DETAILS ON SHEET SD2.

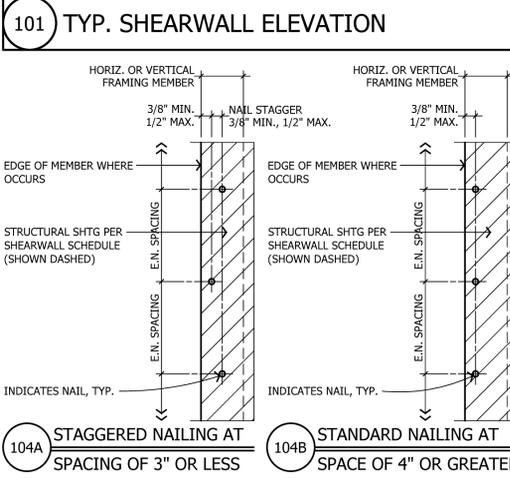


101 TYP. SHEARWALL ELEVATION

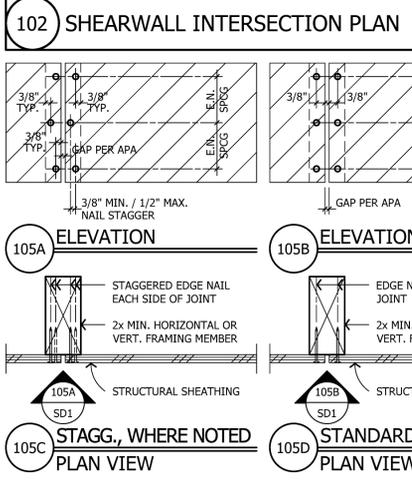
SHEARWALL LENGTH: SHEARWALL DESIGNATION:	X'-X" SW-1	X'-X" SW-2	X'-X" SW-3	X'-X" SW-4	X'-X" SW-5
	PLYWOOD OR O.S.B. SHEATHING THICKNESS:	15/32"	15/32"	15/32"	15/32"
10d EDGE NAIL (0.148 DIA):	10d @ 6" O.C.	10d @ 4" O.C.	10d @ 3" O.C.	10d @ 2" O.C.	10d @ 2" O.C.
10d FIELD NAIL (0.148 DIA.):	10d @ 21" O.C.	10d @ 12" O.C.	10d @ 12" O.C.	10d @ 12" O.C.	10d @ 12" O.C.
FRAMING MEMBER AT ADJOINING PANEL EDGES:	SINGLE 2x	SINGLE 3x, 4x OR 2-2x w/ 10d @ 4" O.C.	SINGLE 3x, 4x OR 2-2x w/ 10d @ 3" O.C.	SINGLE 3x OR 4x	SINGLE 3x OR 4x
3x SILL REQ. (NOTE 6):	NO	NO	NO	YES	YES
SILL CONNECTION: 16d NAIL (0.148 DIA.): SDS SCREW (SDS25600):	16d @ 4" O.C. SDS @ 21" O.C.	16d @ 3" O.C. SDS @ 14" O.C.	16d @ 2" O.C. SDS @ 9" O.C.	--	16d @ 4" O.C. SDS @ 3" O.C.
5/8" DIA. MUDSILL A.B.: WITH 2x SILL	@ 48" O.C. MAX	@ 38" O.C. MAX	@ 29" O.C. MAX	@ 28" O.C. MAX	@ 26" O.C. MAX
TOP CONNECTION - "RBC"	@ 16" O.C. MAX	@ 10" O.C. MAX	@ 8" O.C. MAX	@ 6" O.C. MAX	@ 6" O.C. MAX
TOP CONNECTION - "LTP4"	@ 23" O.C. MAX	@ 15" O.C. MAX	@ 12" O.C. MAX	@ 8" O.C. MAX	@ 8" O.C. MAX
TOP CONNECTION - "A35"	@ 24" O.C. MAX	@ 18" O.C. MAX	@ 13" O.C. MAX	@ 10" O.C. MAX	@ 8" O.C. MAX
ALLOWABLE SHEAR	310	460	600	770	870

SHEARWALL LENGTH: SHEARWALL DESIGNATION:	X'-X" SW-6	X'-X" SW-7	X'-X" SW-8
	PLYWOOD OR O.S.B. SHEATHING THICKNESS:	15/32" STR. 1 EACH FACE	15/32" STR. 1 EACH FACE
10d EDGE NAIL (0.148 DIA):	10d @ 4" O.C.	10d @ 3" O.C.	10d @ 2" O.C.
10d FIELD NAIL (0.148 DIA.):	10d @ 12" O.C.	10d @ 12" O.C.	10d @ 12" O.C.
FRAMING MEMBER AT ADJOINING PANEL EDGES:	SINGLE 3x OR 4x	SINGLE 3x OR 4x	SINGLE 3x OR 4x
3x SILL REQ. (NOTE 6):	YES	YES	YES
SILL CONNECTION: LAG SCREW (1/2" DIA. x 7.5"): SDS SCREW (SDS25600):	LAG @ 7" O.C. SDS @ 5" O.C.	LAG @ 5" O.C. SDS @ 4" O.C.	LAG @ 4" O.C. SDS @ 3" O.C.
5/8" DIA. MUDSILL A.B.: WITH 3x SILL	@ 18" O.C. MAX	@ 16" O.C. MAX	@ 12" O.C. MAX
TOP CONNECTION - "RBC"	@ 5" O.C. MAX	@ 5" O.C. MAX	--
TOP CONNECTION - "LTP4"	@ 7" O.C. MAX	@ 6" O.C. MAX	--
TOP CONNECTION - "A35"	@ 8" O.C. MAX	@ 6" O.C. MAX	@ 4.5" O.C. MAX
ALLOWABLE SHEAR	1020	1330	1740

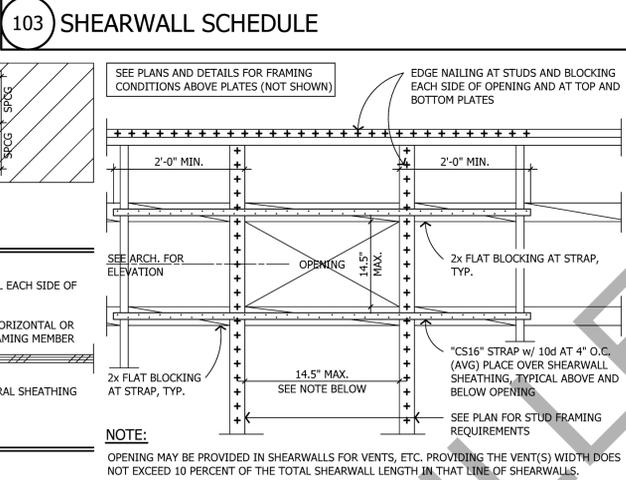
- ALL NAILS SHALL HAVE MINIMUM SHANK DIAMETER AS SPECIFIED IN SCHED.
- ALL FASTENERS THAT ARE INSTALLED INTO OR IN CONTACT WITH PRESSURE TREATED LUMBER ARE TO BE HOT DIPPED GALVANIZED PLYWOOD AND OSB SHALL BE TYPE CDX GRADE OR BETTER (EXCEPT WHERE STRUCTURAL 1 GRADE IS NOTED).
- STR. 1 = STRUCTURAL 1 GRADE PLYWOOD / O.S.B.
- WHEN FASTENERS ARE SPACED LESS THAN 4" ON CENTER, NAILING AT PANEL EDGES SHOULD BE STAGGERED PER DETAIL
- ALL DOUBLE SIDED WALLS REQUIRE 3x SILL, MIN.
- PREDRILL SILL CONNECTIONS WHERE NEEDED TO AVOID WOOD SPLITTING. USE DRILL BIT SIZE = 0.75 x NAIL (OR SCREW) DIAMETER.
- 3x SILL PLATES MAY BE OMITTED WHEN ALTERNATE SHEATHING JOINT AT RIM OR BLOCKING IS PROVIDED PER DETAIL
- INSTALL OBL 2x POST MIN. AT END OF SHEARWALLS. IF 3x FRAMING MEMBERS ARE REQUIRED USE 4x POST MINIMUM.
- ALL ANCHOR BOLTS MUST BE INSTALLED WITH 3"x3"x0.229" GALVANIZED PLATE WASHERS PER THE CURRENT CBC.
- WHERE SHEAR MATERIAL IS APPLIED ON BOTH FACES OF A SHEARWALL, AND NAIL SPACING IS LESS THAN 6" O.C. ALL THE FOLLOWING REQ. SHALL BE MET:
 - USE 3x SILLS AND 3x TOP PLATES.
 - THE VERTICAL SHEAR PANEL JOINTS ON OPPOSITE FACES SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS, UNLESS SUCH FRAMING MEMBERS ARE 4x OR THICKER.
 - INSTALL 4x RIM / BLOCKING MINIMUM BELOW ALL DOUBLE SIDED SHEARWALLS.
- FOR ALTERNATE MUDSILL ANCHORAGE, SEE DETAIL



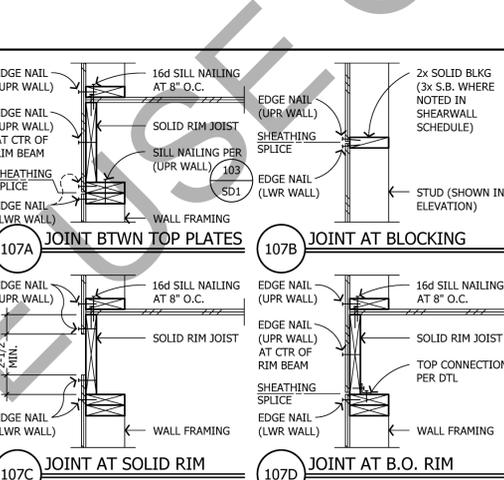
102 SHEARWALL INTERSECTION PLAN



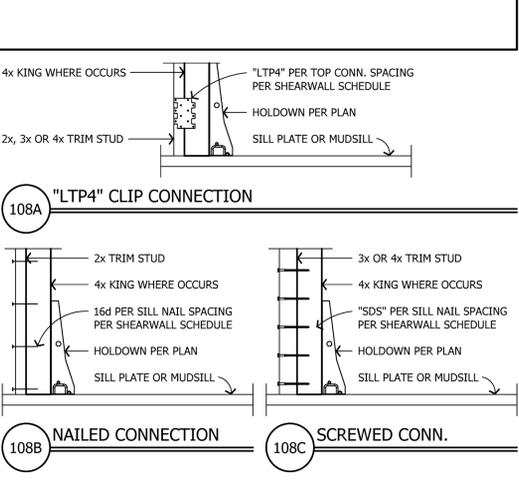
103 SHEARWALL SCHEDULE



104 TYP. SHEARWALL EDGE NAIL PATTERN



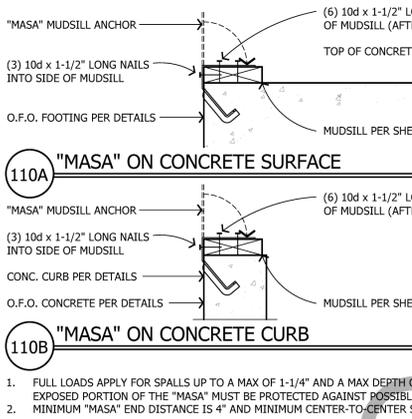
105 SHEARWALL SHEATHING AT JOINT



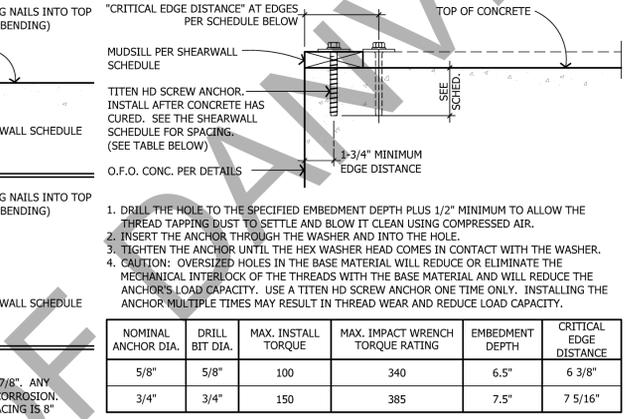
106 SMALL OPENING IN SHEARWALL

ALTERNATIVE MUDSILL ANCHORAGE			
THE FOLLOWING ALTERNATIVE ANCHORAGE MAY BE INSTALLED IN LIEU OF 5/8" DIA. ANCHOR BOLTS NOTED IN THE SHEARWALL SCHEDULE AND PLAN NOTES.			
SHEARWALL DESIGNATION	"MASA" (NOTE 1.)	"TITEN HD" (NOTE 2.)	
X'-X" SW-1	32" O.C.	48" O.C.	
X'-X" SW-2	22" O.C.	36" O.C.	
X'-X" SW-3	16" O.C.	28" O.C.	
X'-X" SW-4	10" O.C.	24" O.C.	
X'-X" SW-5	9" O.C.	24" O.C.	
X'-X" SW-6	8" O.C.	24" O.C.	
X'-X" SW-7 & SW-8	NOT ALLOWED	16" O.C. 3/4" DIA. TITEN HD	

- SIMPSON "MASA" ANCHORS SHALL BE INSTALLED PER ICC REPORT NO. ESR-2555.
- SIMPSON TITEN HD ANCHORS SHALL BE INSTALLED PER ICC REPORT NO. ESR-2713.



107 SHEATHING JOINT AT RIM OR BLKG



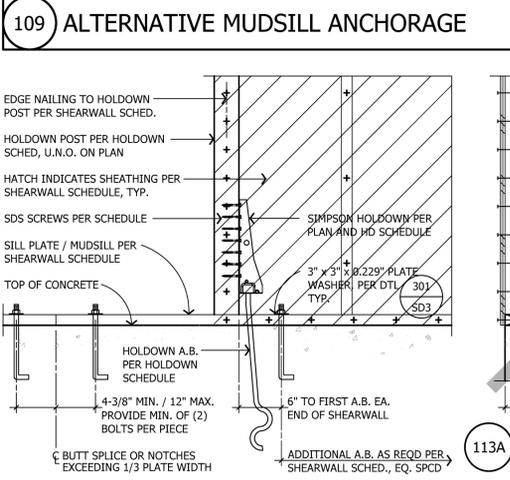
108 TRIM STUD TO HOLDOWN POST

STRAP HOLDOWN SCHEDULE				
STRAP	END LENGTH	FASTENERS EA. END	MIN. POST SIZE	ALLOWABLE LOAD
"CS14"	15"	(13) 10d (0.148 DIA. x 2-1/2")	(2) 2x	2490 lbs
(2) "CS14"	15"	(13) 10d (0.148 DIA. x 2-1/2") EACH STRAP	4x4 / (2) 2x6	4980 lbs
"CMST14"	30"	(33) 10d (0.148 DIA. x 2-1/2")	4x6 / 6x6	6490 lbs
"CMST12"	39"	(43) 10d (0.148 DIA. x 2-1/2")	4x8 / 6x6	9215 lbs

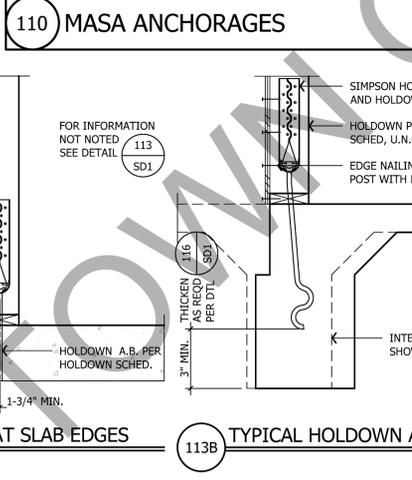
- FILL ALL NAIL HOLES PER MANUFACTURER'S REQUIREMENTS.
- STRAPS MUST BE INSTALLED OVER PLYWOOD SHEATHING.
- STRAPS MUST BE INSTALLED FLAT TO THE FACE OF THE POST. NO BENDS, NICKS OR SLACK OF ANY KIND ARE ALLOWED. STRAPS INSTALLED WITH ANY BENDS, NICKS OR SLACK SHALL BE CONSIDERED AS INADEQUATE AND MUST BE RE-INSTALLED.
- STRAPS MUST BE INSTALLED VERTICALLY WHEN USED AS A HOLDOWN. STRAPS INSTALLED ON A SLOPE OR AT AN ANGLE SHALL BE CONSIDERED AS INADEQUATE AND MUST BE RE-INSTALLED.
- LOADS INCLUDE A 60% LOAD DURATION INCREASE ON THE FASTENERS FOR WIND OR SEISMIC.
- CMST STRAPS ONLY - USE EVERY OTHER ROUND HOLE IF THE WOOD TENDS TO SPLIT. INCREASE STRAP LENGTH AS REQUIRED TO ACHIEVE MINIMUM NUMBER OF FASTENERS LISTED IN TABLE ABOVE.
- PRE-DRILL HOLES TO PREVENT WOOD SPLITTING AS REQUIRED.

SCREWED / BOLTED HOLDOWN SCHEDULE				
ANCHOR	POST CONNECTORS	HOLDOWN ANCHOR	MIN. POST	ALLOW. LOAD
"HDU2"	(6) SDS25212 SCREWS	SSTB24 OR SB5/8x24	(2) 2x	2940 lbs
"HDU4"	(10) SDS25212 SCREWS	SSTB24 OR SB5/8x24	(2) 2x	3815 lbs
"HDU5"	(14) SDS25212 SCREWS	SSTB24 OR SB5/8x24	(2) 2x	5645 lbs
"HDU8"	(20) SDS25212 SCREWS	SSTB28 OR SB7/8x24	4x6 / 6x6	7855 lbs
"HDU11"	(30) SDS25212 SCREWS	SB1x30(A)	4x8 / 6x6	11175 lbs
"HDU14"	(36) SDS25212 SCREWS	PAB8 (OR EQUIV.)	4x8 / 6x6	14390 lbs
"HD19"	(5) 1" DIA. A307 BOLTS	PAB10 (OR EQUIV.)	4x8 / 6x6	19070 lbs

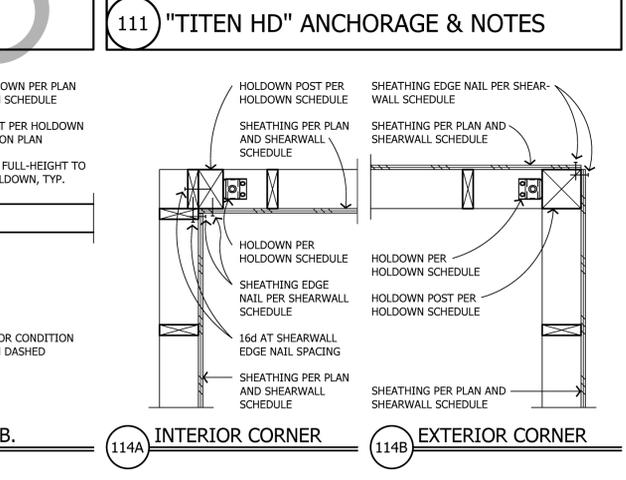
- RE-TIGHTEN ALL BOLTS PRIOR TO SHEARWALL CLOSE-IN.
- DOUBLE 2x HOLDOWN POSTS SHALL BE SISTERED TOGETHER PER SILL NAILING REQUIREMENTS FOR SHEARWALL TYPE. SEE DETAIL FOR MORE INFORMATION.
- CONTRACTOR'S OPTION TO SUBSTITUTE "STHD" TYPE HOLDOWNS:



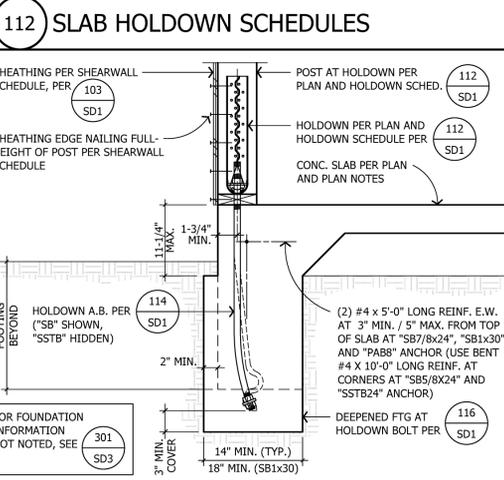
109 ALTERNATIVE MUDSILL ANCHORAGE



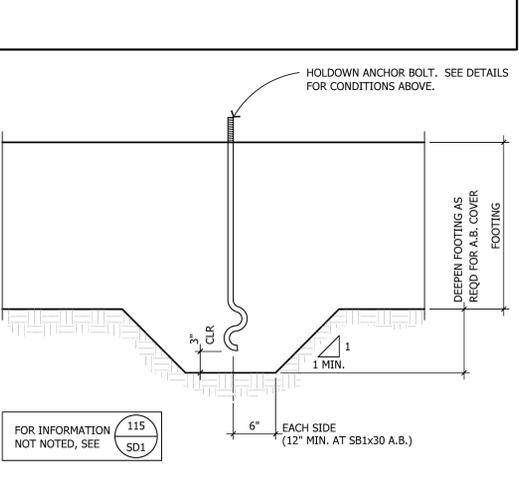
110 MASA ANCHORAGES



111 "TITEN HD" ANCHORAGE & NOTES



112 SLAB HOLDOWN SCHEDULES



113 TYPICAL HOLDOWN AND HOLDOWN ANCHOR BOLT INSTALLATION

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PLAN CHECK RESPONSES	DATE
	04-19-23

REGISTERED PROFESSIONAL ENGINEER
 State of California
 CIVIL
 J. Peek
 C.E. 151
 Exp. 12/31/2024

Sheet Description:
SHEARWALL SCHEDULE AND HOLDOWN SCHEDULE AND TYPICAL DETAILS

No Scale

Initial Issue Date: March 24, 2023

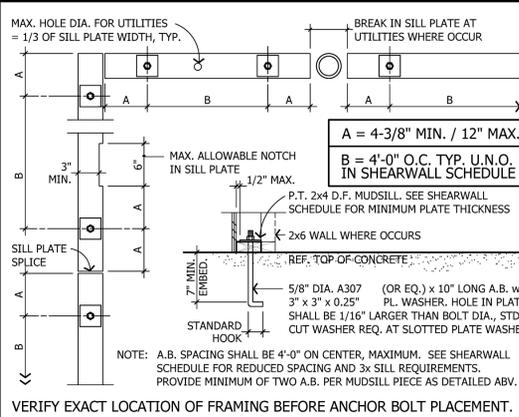
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Project Designer: J. Peek

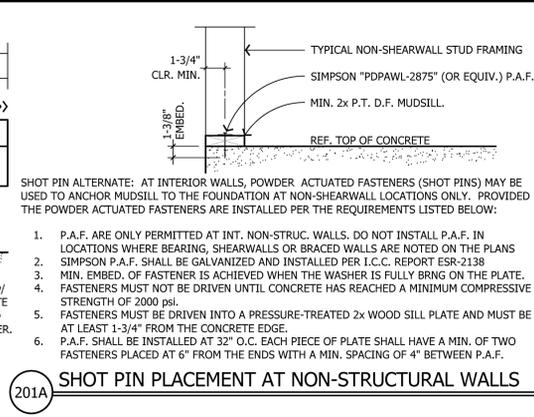
Project Manager: J. Peek Ext. 23

Job No. G010120

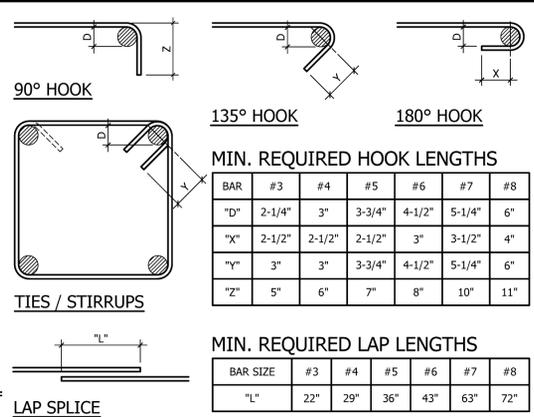
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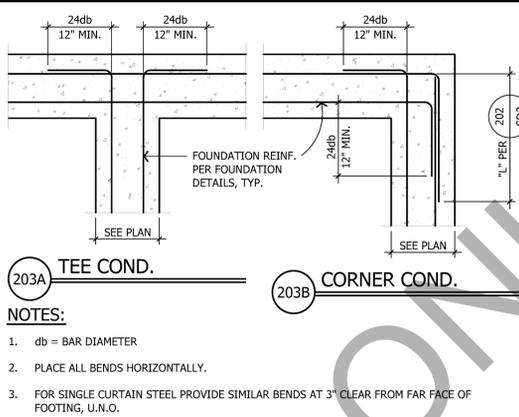
201 TYPICAL ANCHOR BOLT AND SHOT PIN PLACEMENT



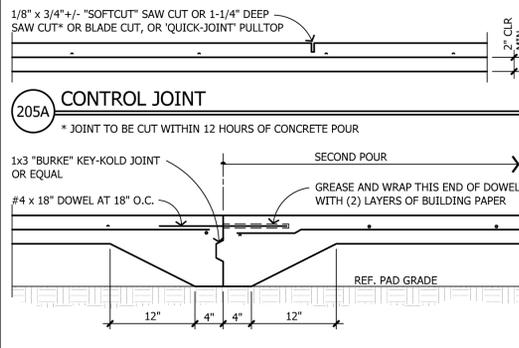
202 TYP. REINFORCING HOOKS AND LAPS



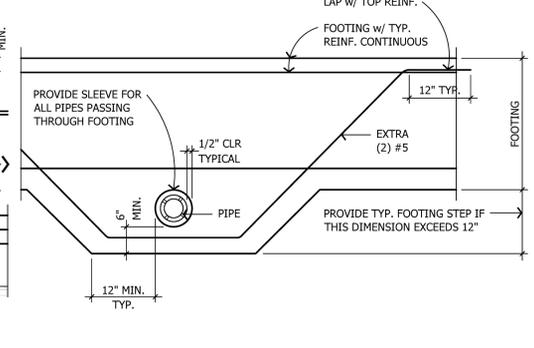
203 STD REINF. HOOKS - DOUBLE ROW



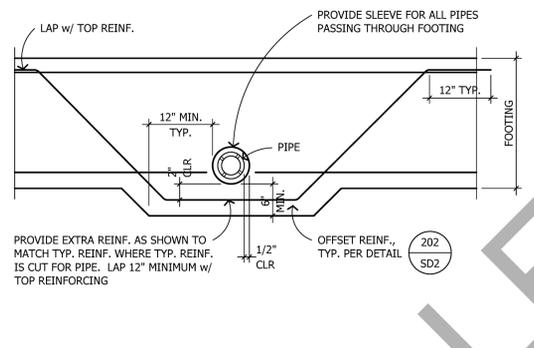
204 FOOTING CONSTRUCTION JOINT



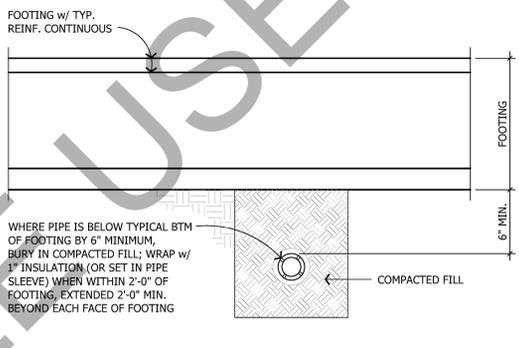
205A CONTROL JOINT



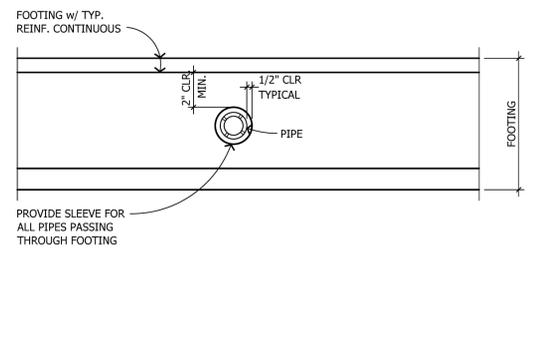
205B CONSTRUCTION JOINT



206A PIPE BELOW FOOTING



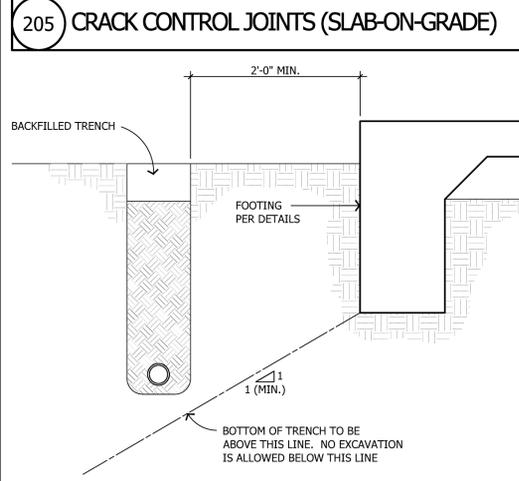
206B PIPE THROUGH FOOTING



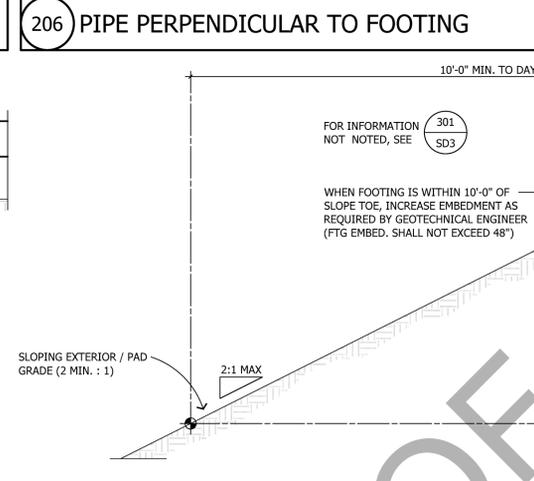
206C PIPE BELOW FOOTING



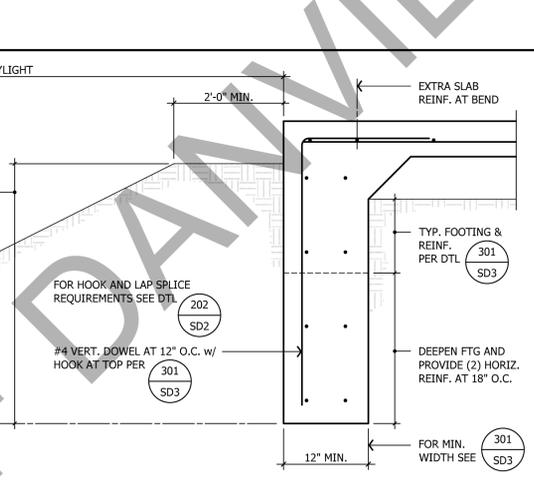
206D PIPE BETWEEN BARS



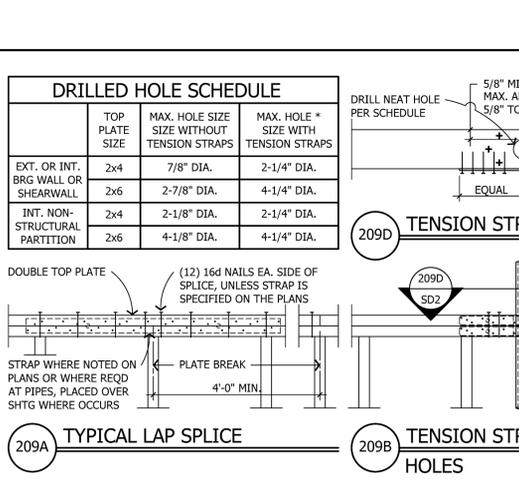
207 PIPE / TRENCH PARALLEL TO FOOTING



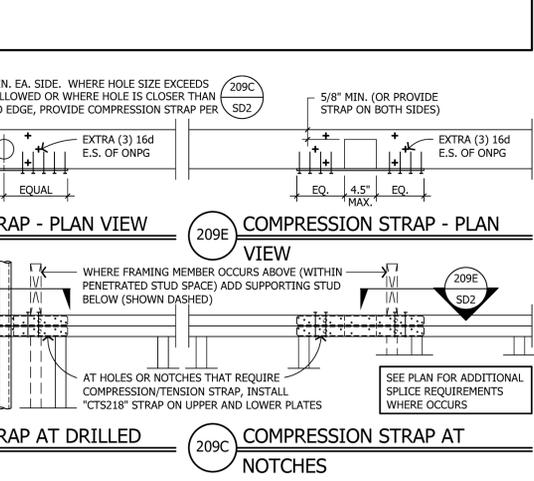
208 INCREASED FOOTING DEPTH BY SLOPE



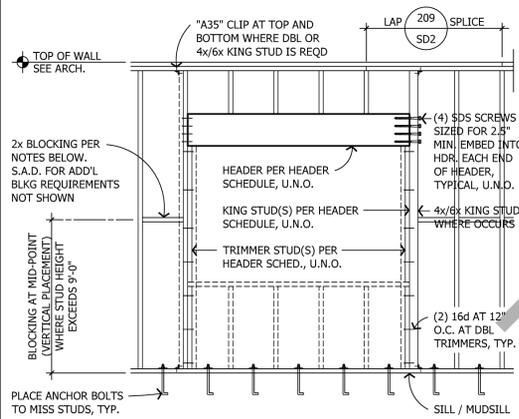
209A TYPICAL LAP SPLICE



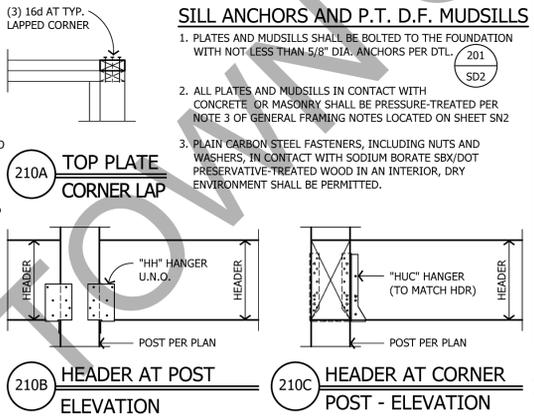
209B TENSION STRAP AT DRILLED HOLES



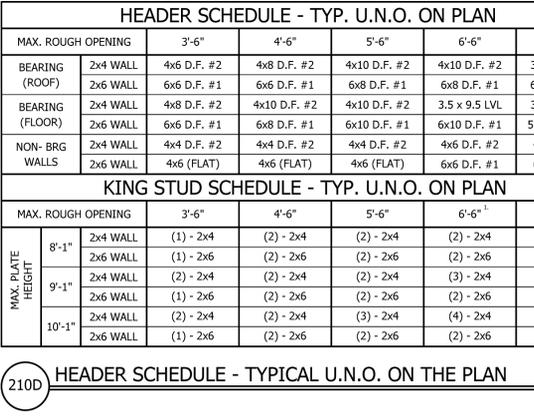
209C COMPRESSION STRAP AT NOTCHES



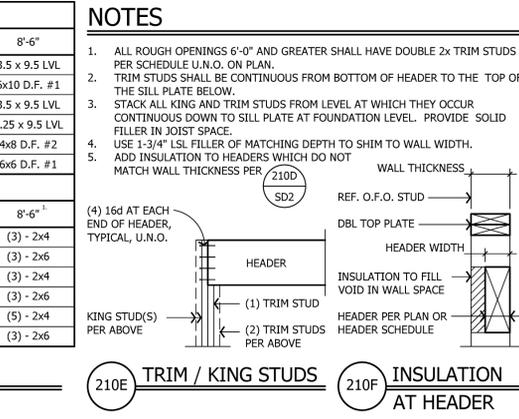
210A TOP PLATE CORNER LAP



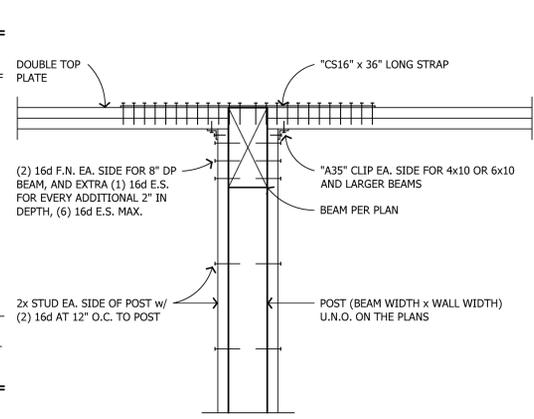
210B HEADER AT POST ELEVATION



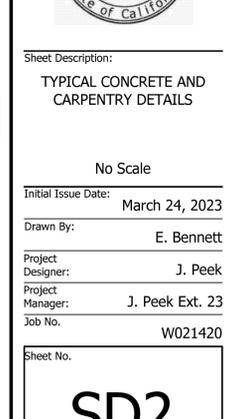
210C HEADER AT CORNER POST - ELEVATION



210D HEADER SCHEDULE - TYPICAL U.N.O. ON THE PLAN



210E TRIM / KING STUDS



210F INSULATION AT HEADER



210 TYPICAL FRAMED WALL OPENING AND HEADER SCHEDULE



211 TYPICAL BEAM SUPPORT IN WALL



212 DRILLED HOLE SCHEDULE



213 TENSION STRAP - PLAN VIEW



214 COMPRESSION STRAP - PLAN VIEW

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Sheet Description:
TYPICAL CONCRETE AND CARPENTRY DETAILS

No Scale

Initial Issue Date: March 24, 2023

Drawn By: E. Bennett

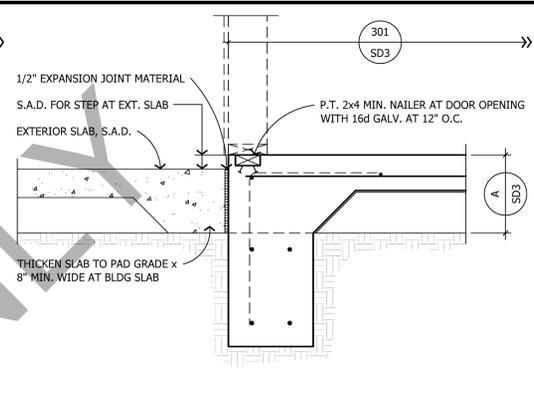
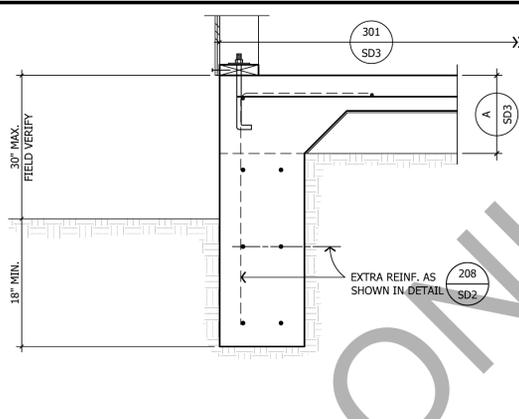
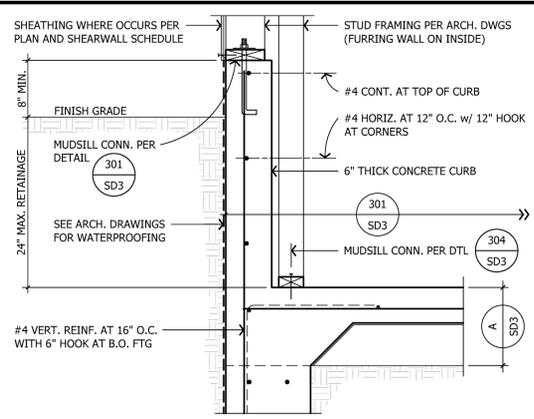
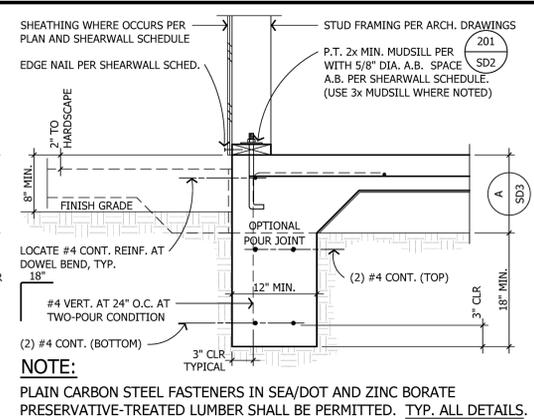
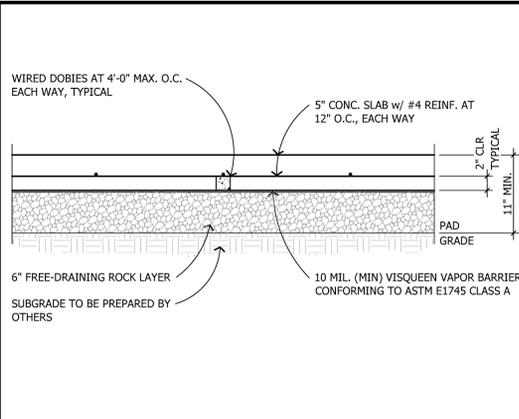
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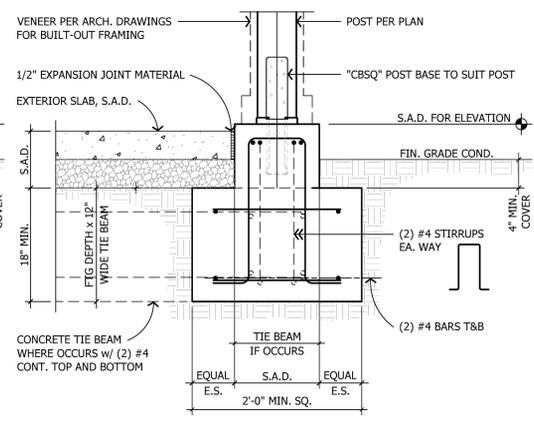
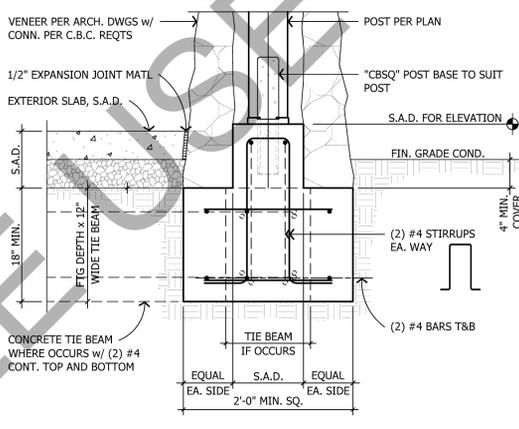
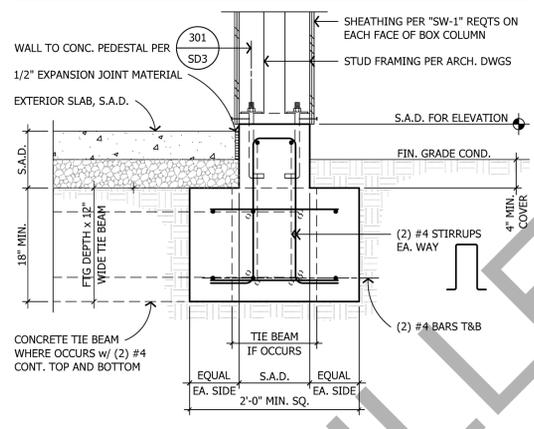
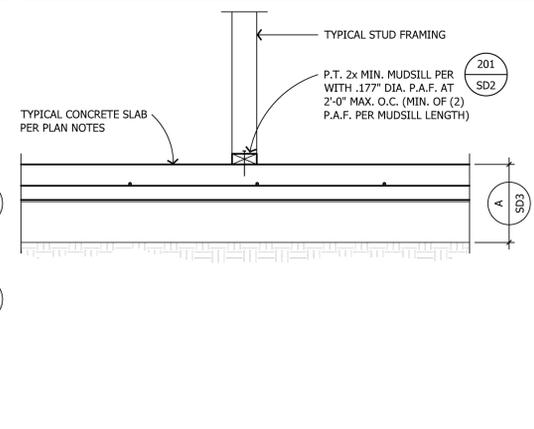
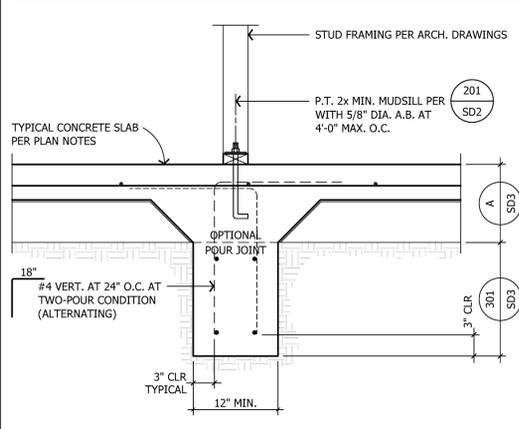
A TYPICAL SLAB-ON-GRADE SECTION

301 TYPICAL PERIMETER FOOTING

301A) RAISED CONC. CURB AT HIGH GRADE COND.

301B) DEEPEMED FOOTING AT LOW GRADE COND.

302 THRESHOLD EMBEDDED NAILER AT DOOR



303 TYPICAL INTERIOR FOOTING

304 NON BRG / NON-SHEARWALL TO SLAB

305 PORCH STUD COLUMN AND FOOTING

306 PORCH STUD COLUMN AND FOOTING

307 PORCH STUD COLUMN AND FOOTING

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Sheet Description:
FOUNDATION DETAILS
SLAB ON GRADE

Scale: 1" = 1'-0"

Initial Issue Date: March 24, 2023

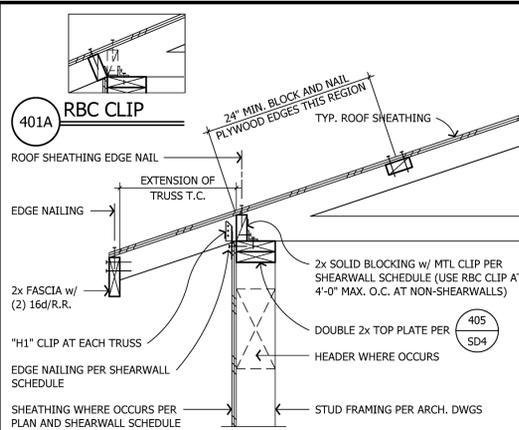
Drawn By: E. Bennett

Project Designer: J. Peek

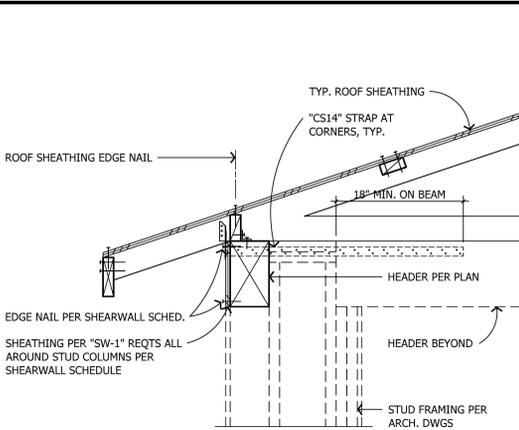
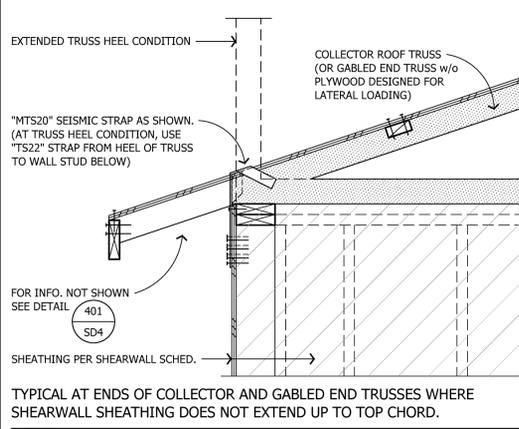
Project Manager: J. Peek Ext. 23

Job No. W021420

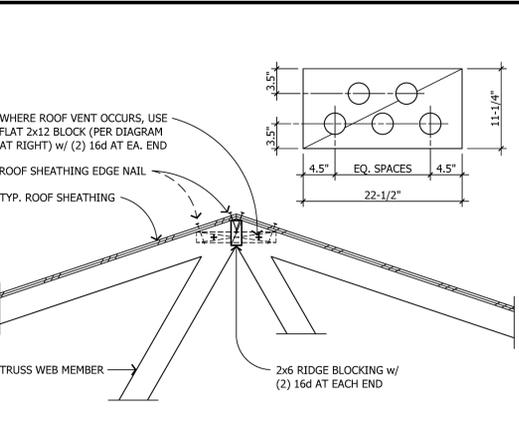
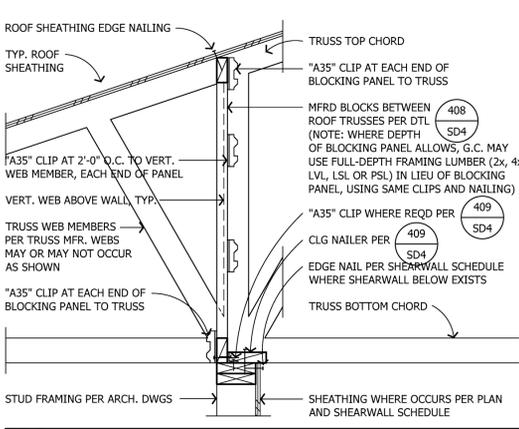
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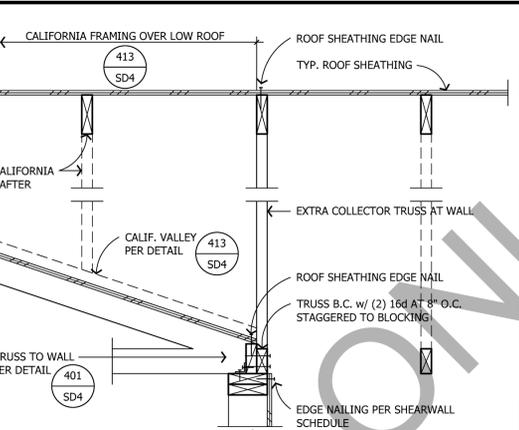
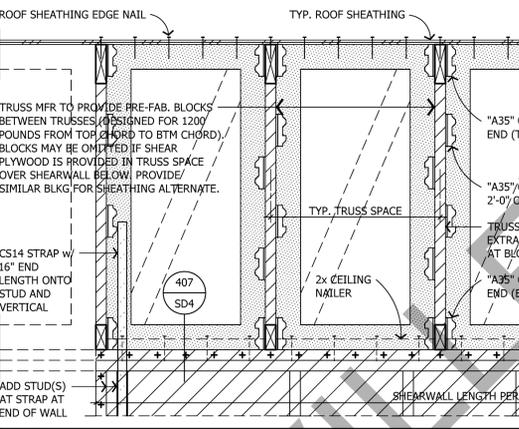
401 TRUSS PERPEND. TO EXTERIOR WALL



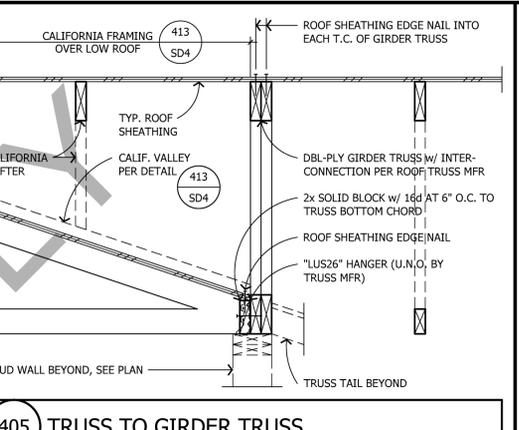
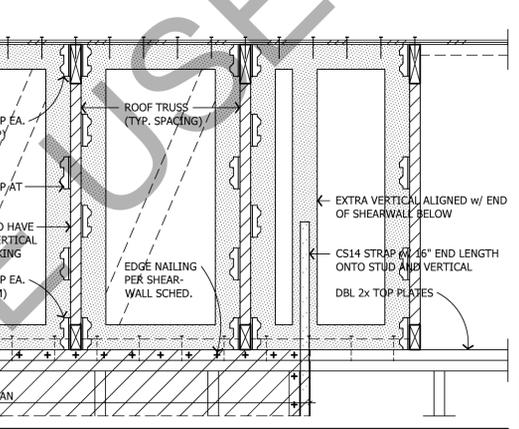
402 TRUSS PERPEND. TO PORCH BEAM



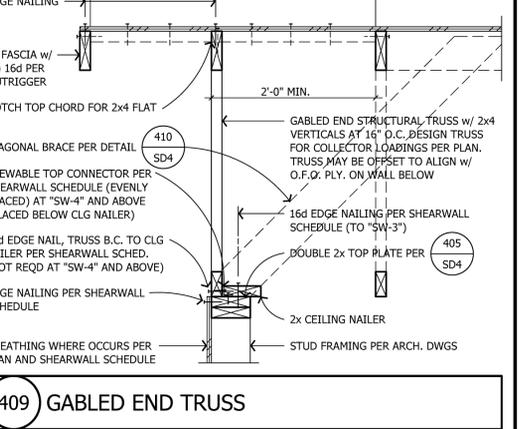
403 RIDGE BLOCKING AT ROOF TRUSSES



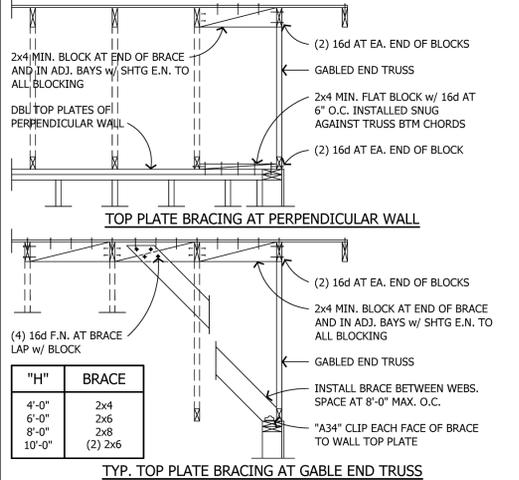
404 TRUSS TO INTERIOR BEARING WALL



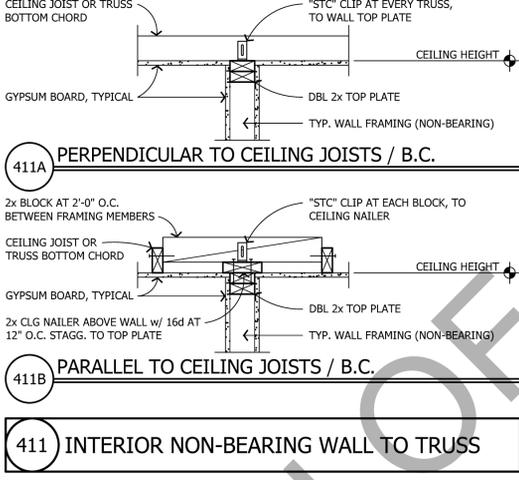
405 TRUSS TO GIRDER TRUSS



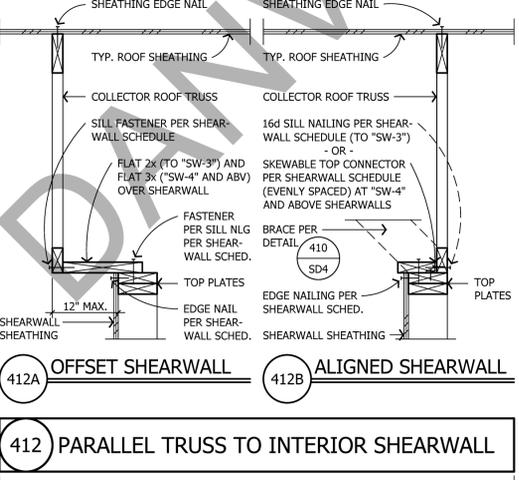
406 COLLECTOR TRUSS UPLIFT ANCHORAGE



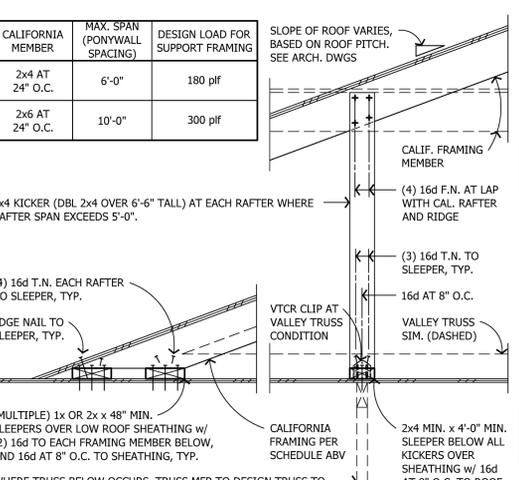
407 TRUSS TO INTERIOR SHEAR WALL



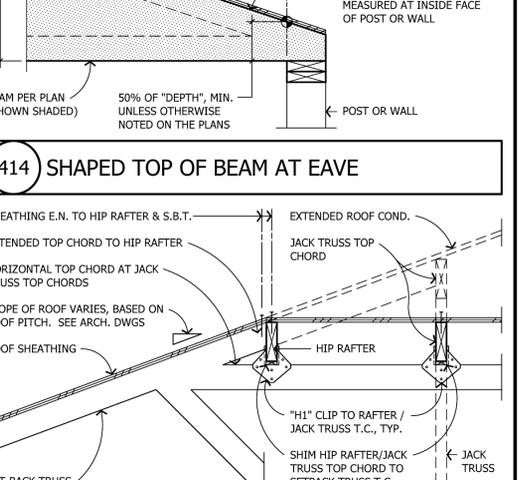
408 FABRICATED TRUSS BLOCKING PANEL ELEVATION ABOVE SHEARWALL



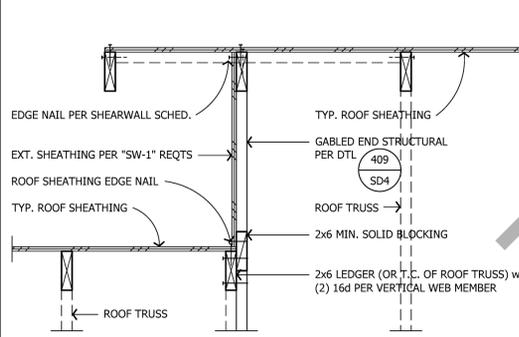
409 GABLED END TRUSS



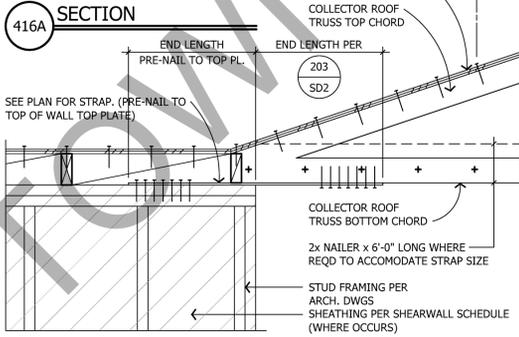
410 GABLE END TRUSS BRACING



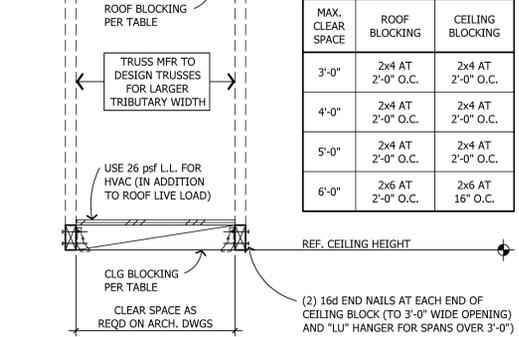
410 GABLE END TRUSS BRACING



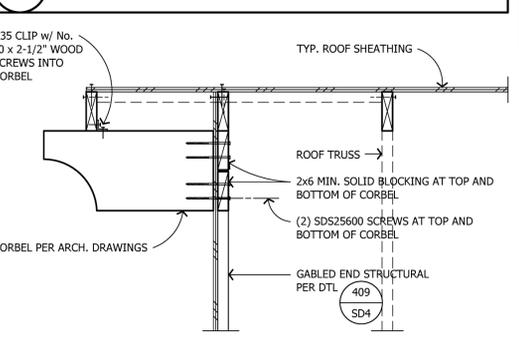
411 INTERIOR NON-BEARING WALL TO TRUSS



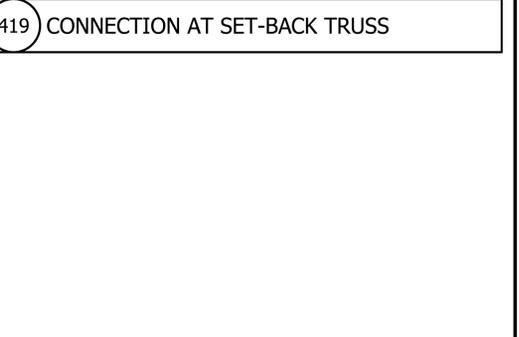
412 PARALLEL TRUSS TO INTERIOR SHEARWALL



413 CALIFORNIA FRAMING DETAIL



414 SHAPED TOP OF BEAM AT EAVE



415 ROOF STEP



416 HORIZONTAL STRAP TO WALL TOP PLATE



417 ROOF TRUSSES AT HVAC / ATTIC ACCESS



418 CORBEL BEAM AT GABLED END TRUSS



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Sheet Description:
ROOF FRAMING DETAILS

Scale: 1" = 1'-0"
 Initial Issue Date: March 24, 2023
 Drawn By: E. Bennett
 Project Designer: J. Peek
 Project Manager: J. Peek Ext. 23
 Job No. W021420
 Sheet No.

SD4

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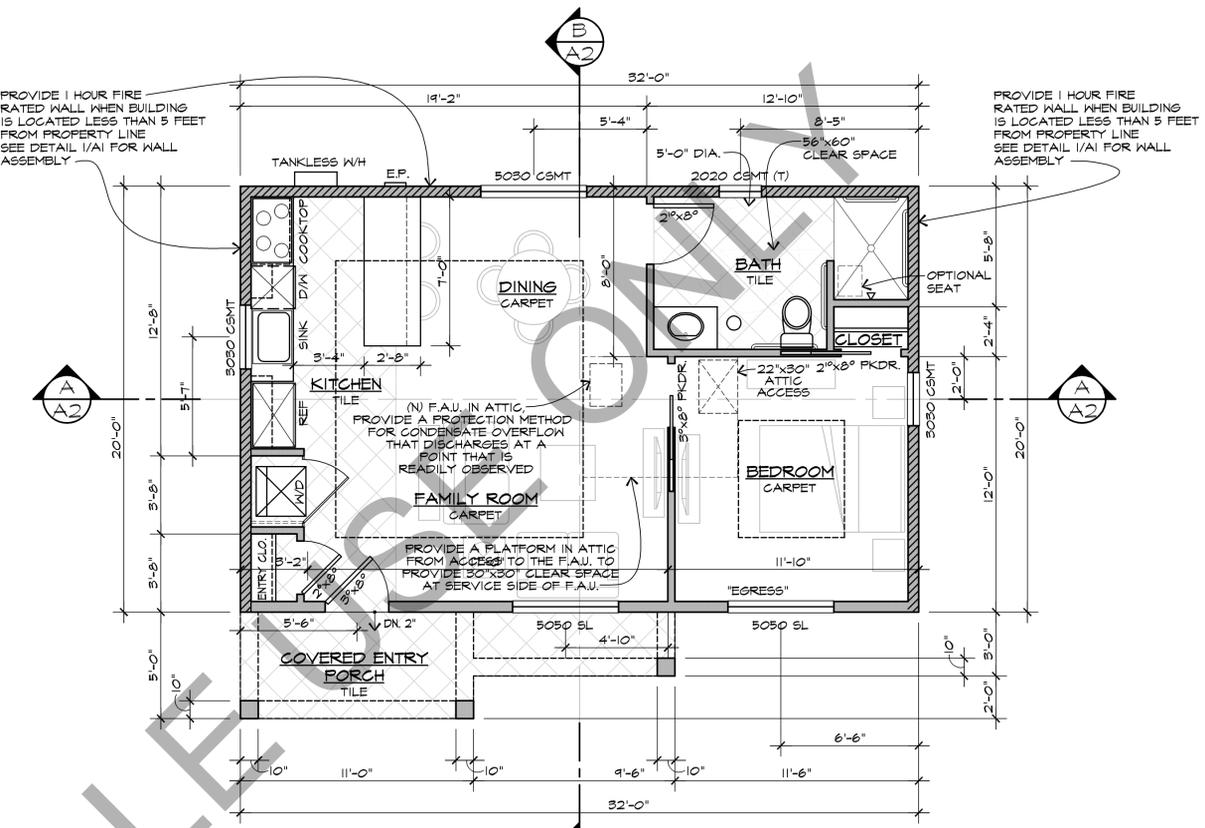
NOTES:

- 1) ALL NEW EXTERIOR WALLS TO BE 2x6 FRAMED STUD WALLS.
- 2) WINDOWS MARKED W/ (T) SHALL BE TEMPERED SAFETY GLASS.
- 3) ALL WINDOW HEAD HTS. SHALL BE 8'-0" TYP., U.N.O.
- 4) ALL WINDOWS MARKED "EGRESS" SHALL MEET MIN. EMERGENCY EGRESS WINDOW STANDARDS OF MIN. NET CLEAR OPENING OF 5.7 SQ. FT. 4 MIN. NET CLEAR HEIGHT OF 24" & MIN. NET CLEAR WIDTH OF 34" CONTRACTOR SHALL VERIFY W/ WINDOW MANUFACTURER.
- 5) THERE MUST BE AT LEAST 15" INCHES BETWEEN THE CENTER OF PLUMBING FIXTURES SUCH AS WATER CLOSETS OR SINKS AND THE NEAREST WALL OR OBJECT.
- 6) CONTRACTOR SHALL VERIFY LOCATION & NUMBER OF A/C UNITS W/ OWNER. PROVIDE 4" CONC. SLAB W/ #10 W.K.M. ALL NECESSARY PLUMBING & ELECTRICAL. MINIMUM OF 36-INCH DEEP LANDING IS REQUIRED IN DIRECTION OF TRAVEL. MAXIMUM RISE OF STEP IS 7.75-INCH.
- 7) BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR. CRC R302.2.
- 8) GYPSUM BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY. CRC T02.3.T.

*** EGRESS WINDOW DETAIL**
EGRESS WINDOWS SHALL COMPLY W/ ALL 4 CONDITIONS ILLUSTRATED BELOW.

ESCAPE OR RESCUE WINDOWS SHALL HAVE A MINIMUM NET CLEAR OPENABLE AREA OF 5.7 SQ/FT. (0.53 M²). (EXCEPTION: THE MINIMUM NET CLEAR OPENING FOR EMERGENCY ESCAPE AND RESCUE GRADE-FLOOR OPENINGS SHALL BE 5 SQUARE FEET (0.46M²). THE MINIMUM NET CLEAR OPENABLE HEIGHT DIMENSION SHALL BE 24 INCHES (610 MM). THE MINIMUM NET CLEAR OPENABLE WIDTH DIMENSION SHALL BE 20 INCHES (508 MM). THE NET CLEAR OPENING DIMENSIONS SHALL BE THE RESULT OF NORMAL OPERATION OF THE OPENING WHEN WINDOWS ARE PROVIDED AS A MEANS OF ESCAPE OR RESCUE, THEY SHALL HAVE A FINISHED SILL HEIGHT NOT MORE THAN 44 INCHES (1118 MM) ABOVE THE FLOOR. CRC SECTION R310.1, R310.1.1, R310.1.2, R310.1.3, AND R310.1.4.

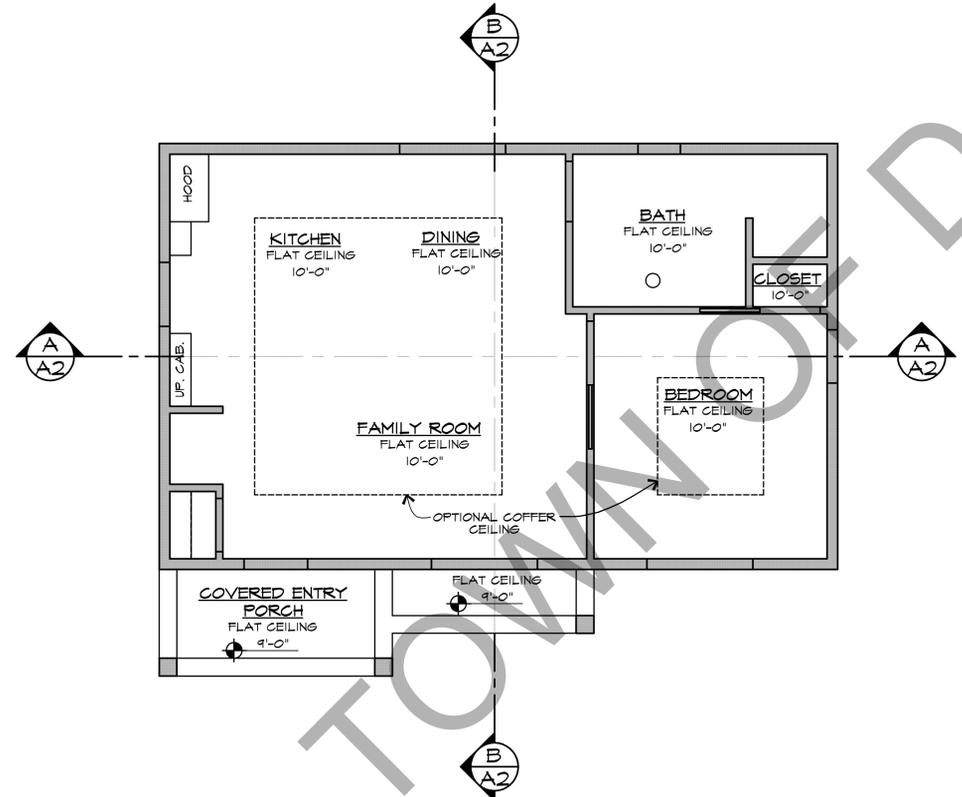
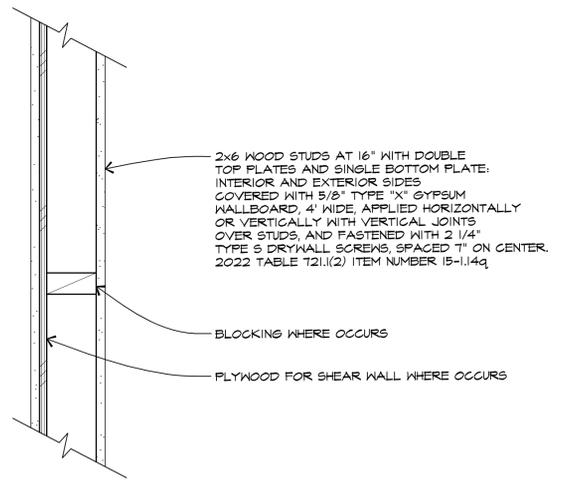
CONTRACTOR NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL EGRESS REQUIREMENTS.



FLOOR PLAN (STUDIO) (MEDITERRANEAN STYLE)

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

1 HOUR FIRE RATED WALL DETAIL



REFLECTED CEILING PLAN

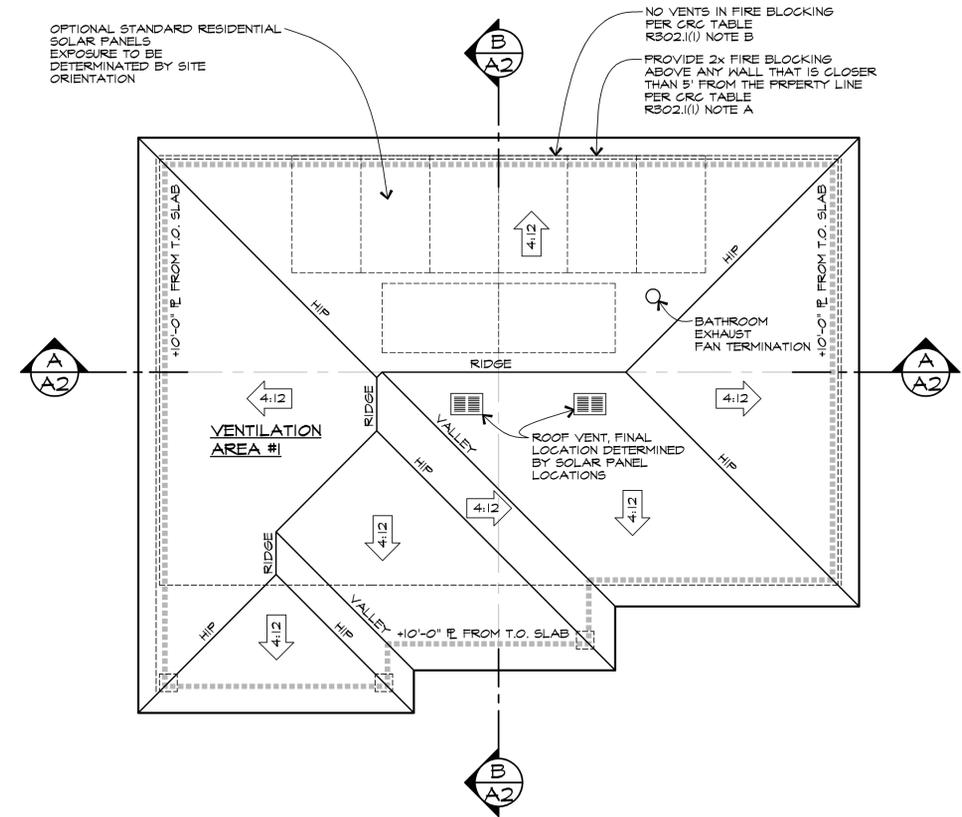
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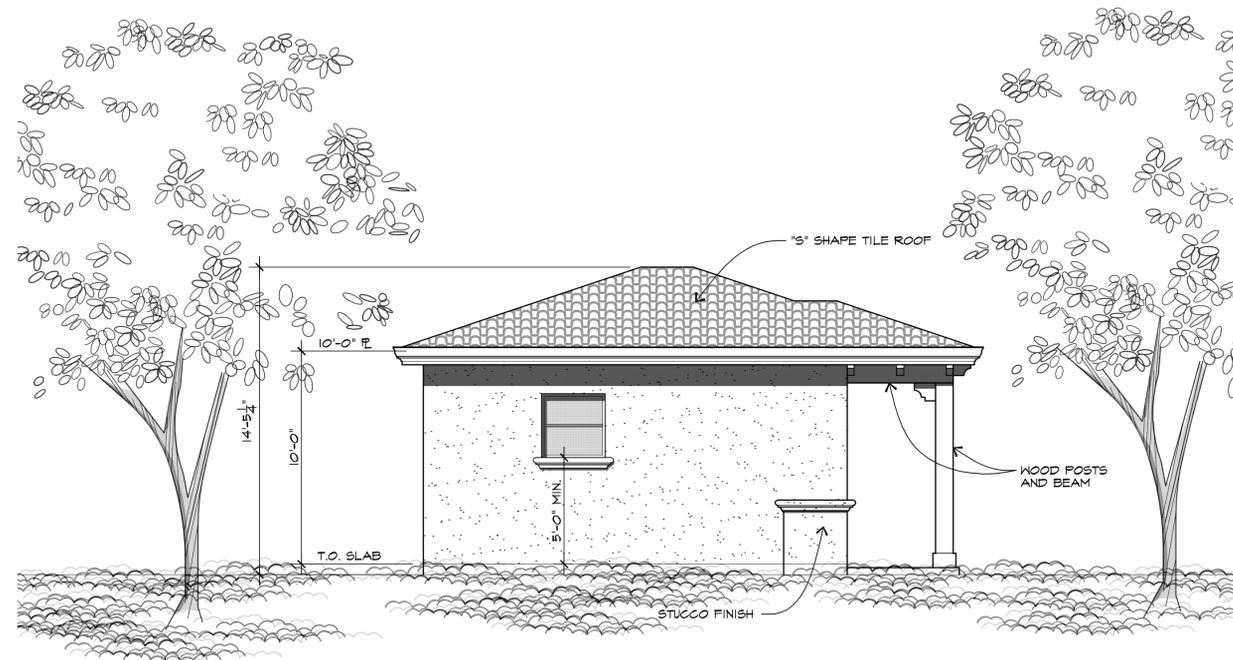
VENTILATION CALCULATIONS

AREA 1	
* ATTIC AREA:	724 SQ. FT.
* REQUIRED AREA: (CONVERTED TO INCHES @ 1/300)	547.5 SQ. IN.
* UPPER AREA: (50% REQUIRED IN UPPER 1/3)	173.75 SQ. IN.
* PROVIDE 173.75 SQ. IN. IN UPPER 1/3 OFF ROOF WITH CHASING "FLAT" VENT (98.75 SQ. IN. FREE AREA) * 2 VENTS REQUIRED	
* LOWER AREA: (50% REQUIRED IN LOWER 1/3)	173.75 SQ. IN.
* TO BE PROVIDED BY 25 VENTED FRIEZE BLOCKS MIN. (7 SQ. IN. FREE VENTING PER BLOCK VIA 3-2" DIA. HOLES)	

ROOF PLAN

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





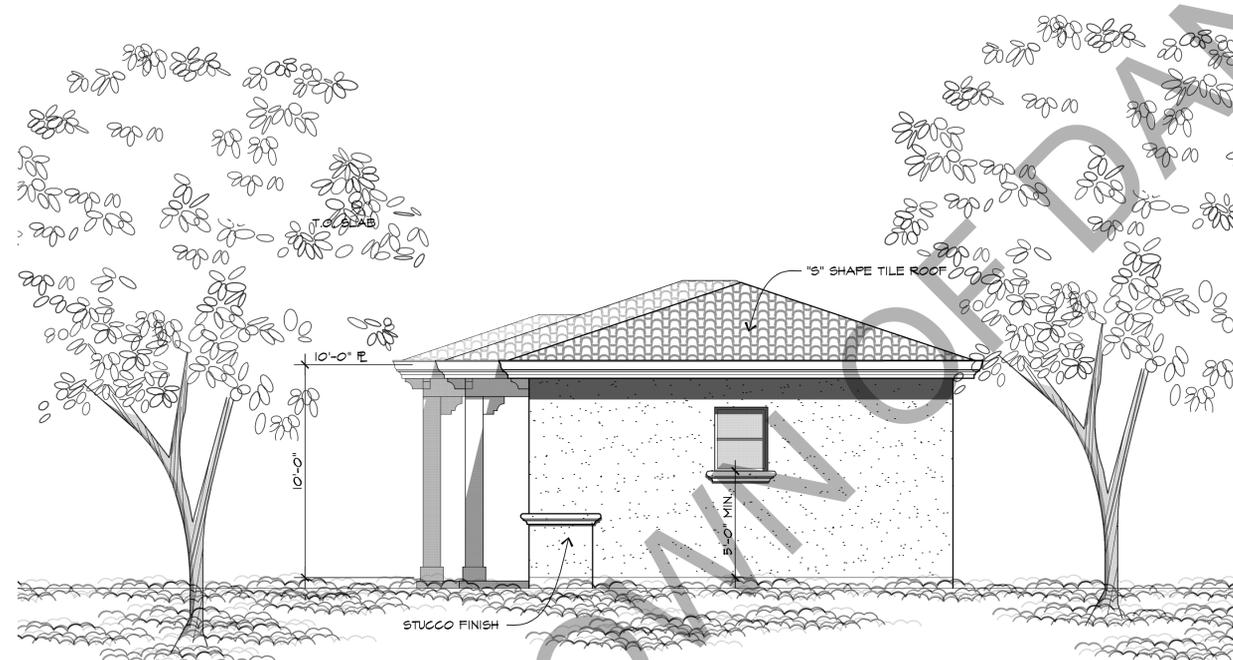
LEFT ELEVATION (MEDITERRANEAN STYLE)

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



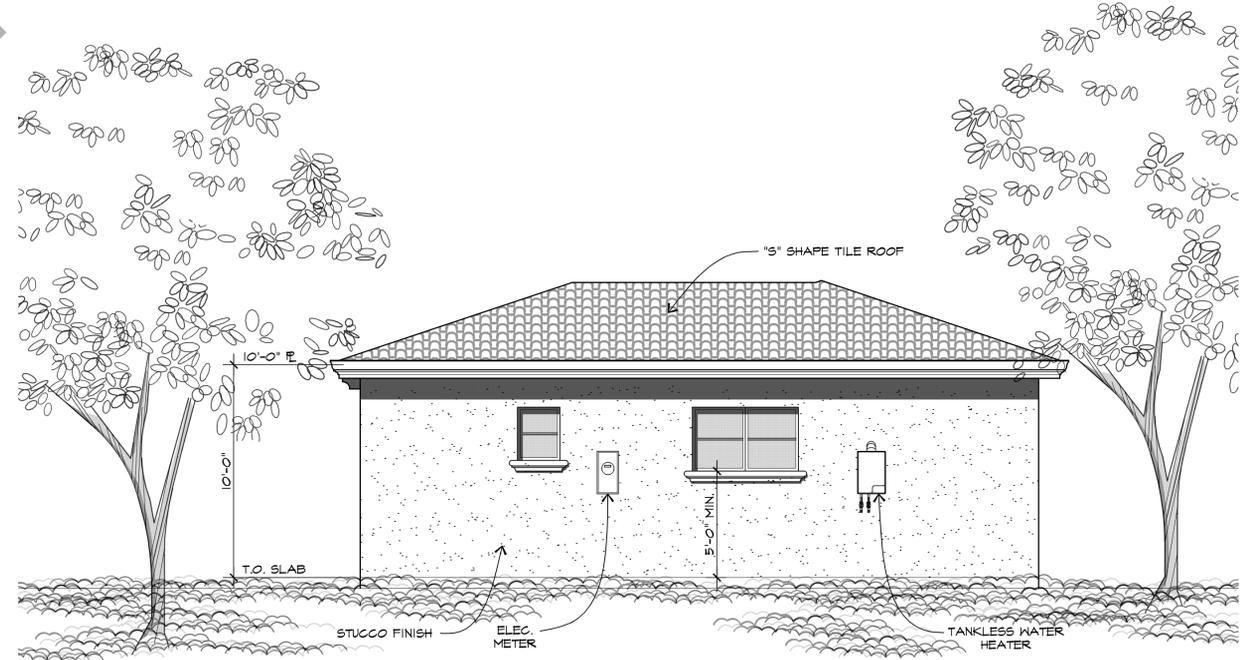
FRONT ELEVATION (MEDITERRANEAN STYLE)

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



RIGHT ELEVATION (MEDITERRANEAN STYLE)

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



REAR ELEVATION (MEDITERRANEAN STYLE)

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

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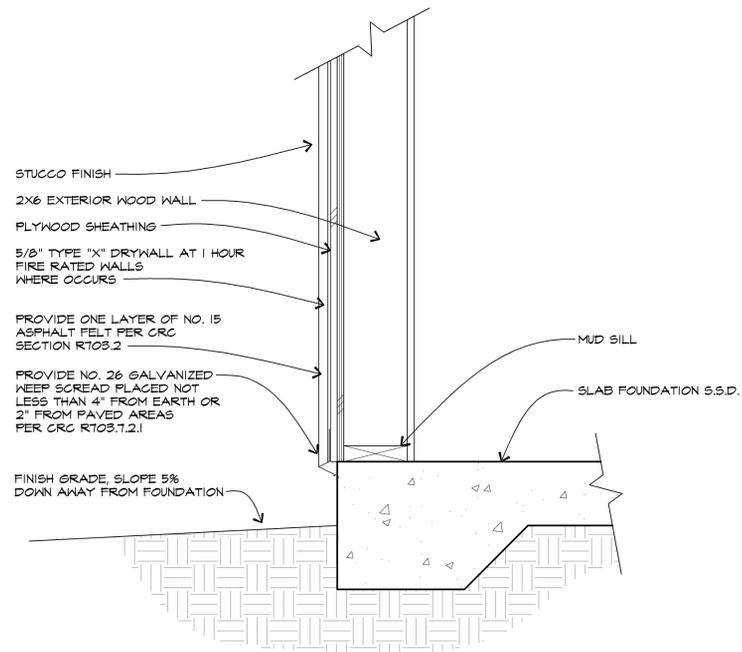
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SCALE	AS SHOWN
JOB NO.	20.921R
SHEET	

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OF SHEETS

Apr. 26, 2025 - 4:07pm AS Studio Mediterranean style.dwg



TYPICAL WALL DETAIL

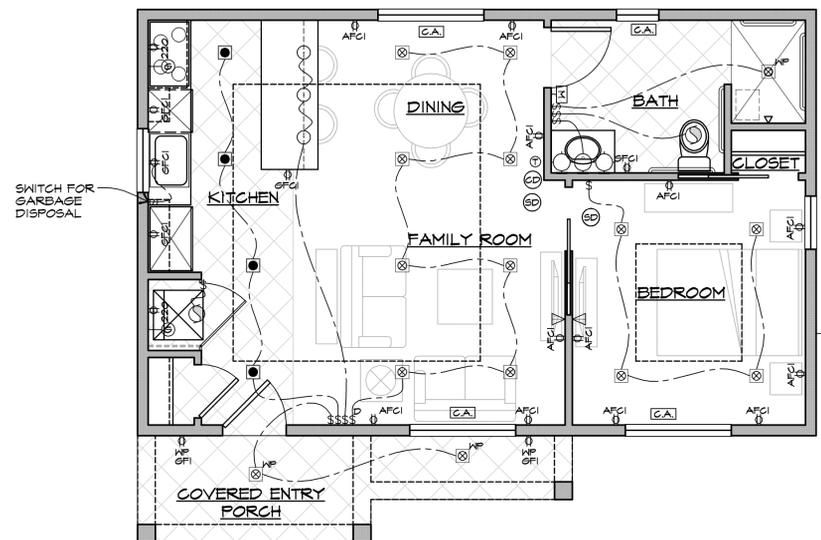
SCALE: 1/2" = 1'-0"

ELECTRICAL/MECHANICAL KEY

- ⊕ SWITCHED RECEPTACLE OUTLET @ 12" U.N.O.
- ⊕^{AFCI} DUPLEX RECEPTACLE OUTLET @ 12" U.N.O. W/ ARC-FAULT CIRCUIT INTERRUPTER
- ⊕^{GFCI} DUPLEX RECEPTACLE OUTLET W/ GROUND FAULT CIRCUIT INTERRUPTER
- ⊕^{WP} WEATHER PROOF DUPLEX RECEPTACLE OUTLET (GFCI PROTECTED PER NEC210-8(a)(3))
- ⊕²²⁰ DUPLEX RECEPTACLE OUTLET - 220 VOLT
- ⊕ SINGLE POLE SWITCH @ 48" U.N.O.
- ⊕³ THREE-WAY SWITCH
- ⊕^{W/D} SWITCH W/ DIMMER
- ⊕^{M/L} SWITCH W/ MOTION LIGHT
- ⊕^{M/S} MOTION SENSOR
- ⊕^{CMLF} CEILING MOUNTED LIGHT FIXTURE
- ⊕^{WMLF} WALL MOUNTED LIGHT FIXTURE
- ⊕^{WMLF-D} WALL MOUNTED LIGHT FIXTURE - SHALL BE SUITABLE FOR DAMP LOCATIONS
- ⊕^{H/L} HANGING LIGHT
- ⊕^{RLED} RECESSED LED CEILING LIGHT FIXTURE
- ⊕^{RLED-L} RECESSED LED LOW VOLTAGE CEILING LIGHT
- ⊕^{RLED-D} RECESSED LIGHT FIXTURE - SHALL BE LABELED SUITABLE FOR DAMP LOCATIONS
- ⊕^{E/F} EXHAUST FAN
- ⊕^{SD} SMOKE DETECTOR - (110V W/ BATTERY BACK-UP) HARD WIRED & INTERCONNECTED
- ⊕^{CD} CARBON MONOXIDE DETECTOR - (110V W/ BATTERY BACK-UP) HARD WIRED & INTERCONNECTED
- ⊕^{T/O} TELEVISION OUTLET
- ⊕^{H/B} HOSE BIBB (1/2" CW) W/ NON-REMOVABLE ANTI-SIPHON DEVICE (FOR OUTSIDE BIBB)
- ⊕^{G/O} GAS OUTLET
- ⊕^T THERMOSTAT
- ⊕^{CA} CEILING SUPPLY AIR REGISTER
- ⊕^{FA} FLOOR AIR SUPPLY REGISTER
- ⊕^{RA} COLD AIR RETURN @ CEILING

ELECTRICAL NOTES

- 1) THERMOSTAT LOCATION TO BE DETERMINED BY HVAC DESIGNER.
- 2) CEILING AIR REGISTERS TO BE DETERMINED BY HVAC DESIGNER.
- 3) KITCHEN & BATHROOM LIGHTING SHALL MEET EFFICIENCY REQUIREMENT OF 2022 TITLE 24.
- 4) CONTRACTOR TO PROVIDE A COLD WATER CONNECTION @ THE REFRIGERATOR.
- 5) CONTRACTOR TO PROVIDE THE OPTION OF GAS OR 220V @ THE COOK TOP (VERIFY W/ OWNER).
- 6) WATER CLOSETS TO BE MAX 1.28 GALLONS PER FLUSH PER CAL GREEN SECTION 4.303.1.1.
- 7) INSTALLATION INSTRUCTIONS FOR ALL EQUIP. SHALL BE PROVIDED TO THE FIELD INSPECTOR @ THE TIME OF INSPECTION.
- 8) PROVIDE TWO SMALL APPLIANCE BRANCH CIRCUITS FOR THE KITCHEN AND ARE LIMITED TO SUPPLYING WALL AND COUNTER SPACE OUTLETS FOR THE KITCHEN, PANTRY, BREAKFAST ROOM, DINING ROOM, OR SIMILAR AREAS. NOTE: THESE CIRCUITS CANNOT SERVE OUTSIDE PLUGS, RANGE HOOD, DISHWASHERS OR MICROWAVES-ONLY THE REQUIRED COUNTERTOP/WALL OUTLETS INCLUDING THE REFRIGERATOR.
- 9) PROVIDE A DEDICATED 20-AMP BRANCH CIRCUIT TO SUPPLY THE LAUNDRY RECEPTACLE OUTLET.
- 10) PROVIDE AN ARC-FAULT CIRCUIT INTERRUPTER TO PROTECT ALL RECEPTACLES IN THE BEDROOMS.
- 11) PROVIDE RECEPTACLE OUTLETS IN FOLLOWING LOCATIONS:
 - A. AT EACH KITCHEN AND DINING AREA COUNTER SPACE WIDER THAN 12" LOCATED SO THAT NO POINT ALONG THE COUNTER WALL IS OVER 24" FROM A RECEPTACLE.
 - B. AN EXTERIOR RECEPTACLES AT THE FRONT AND REAR OF THE HOME. THEY MUST BE WITHIN 6 FEET, 6 INCHES OF GRADE AND WATERPROOF.
 - C. ONE RECEPTACLE FOR THE LAUNDRY, (I.E. WASHER).
 - D. IN ANY HALLWAY 10 FT OR MORE IN LENGTH.
- 12) KITCHEN COUNTERTOP RECEPTACLES SHALL BE LOCATED ABOVE THE COUNTERTOP NOT MORE THAN 18", AND MAY NOT BE INSTALLED FACE-UP IN THE COUNTER.
- 13) ALL LIGHT FIXTURE IN TUB OR SHOWER ENCLOSURES SHALL BE LABEL "SUITABLE FOR DAMP LOCATIONS" AND IF CEILING HEIGHT IS > 8 FT. BE PROTECTED BY GFCI.
- 14) AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL-BURNING APPLIANCES ARE INSTALLED. CARBON MONOXIDE ALARMS REQUIRED BY SECTIONS R315.1 AND R315.2 SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS: OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING ARE IN THE IMMEDIATE VICINITY OF THE BEDROOM(S); ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. CARBON MONOXIDE ALARMS COMBINED WITH SMOKE ALARMS SHALL COMPLY WITH SECTION R315. ALL APPLICABLE STANDARDS, AND REQUIREMENTS FOR LISTING AND APPROVAL BY THE OFFICE OF THE STATE FIRE MARSHALL, FOR SMOKE ALARMS.
- 15) EXHAUST FANS TO BE 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS. IN WATER CLOSETS, 50 CFM CONTINUOUS.
- 16) ALL RECEPTACLES IN THE BATHROOMS, UTILITY ROOMS, KITCHEN COUNTERS, KITCHEN ISLAND, GARAGE (INCLUDING CEILING MOUNTED) AND ALL EXTERIOR LOCATIONS ARE TO BE GFCI PROTECTED CEC 210.8(a).
- 17) CONDUIT IN CONCRETE SLAB IS TO BE RATED FOR WET LOCATIONS. CEC 400.
- 18) PROVIDE DEDICATED CIRCUITS FOR FOR BATHROOM CIRCUITS SERVING ONLY THE RECEPTACLES PER CEC201.1(c)(3).
- 19) PROVIDE TAMPER RESISTANT RECEPTACLES IN ALL NEW CIRCUITS PER CEC SECTION 406.12. & 406.4(D)(5).
- 20) OUTDOOR LIGHTS TO BE "HIGH EFFICACY" OR "LOW EFFICACY" AND ON PHOTO/MOTION SENSOR PER CA ENERGY SECTION 150.0(R)(4).
- 21) HOSE BIBS SHALL HAVE NON-REMOVABLE BACKFLOW PREVENTER OR 3/8" TYPE VACUUM BREAKER.
- 22) WATER CLOSETS TO BE 1.28 GALLONS PER FLUSH MAXIMUM OR DUAL FLUSH PER CFC 411.2.
- 23) KITCHEN FAUCET TO BE 1.8 GALLONS PER MINUTE, MAXIMUM PER CFC 4.303.1.4.4.
- 24) LAVATORY FAUCET TO BE 1.2 GALLONS PER MINUTE, MAXIMUM, PER CFC 407.2.2.
- 25) SHOWER HEADS TO BE 1.8 GALLONS PER MINUTE AT 80 PSI, MAXIMUM, PER CFC 403.3



ELECTRICAL/ MECHANICAL PLAN

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

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DANVILLE CA 94526

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DRAWN	JJ
CHECKED	WW
DATE	03-30-23
SCALE	AS SHOWN
JOB NO.	20.921R
SHEET	
A4	
OF	SHEETS

Apr. 26, 2023 - 4:07pm A4 Studio Mediterranean style.dwg

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Town of Danville ADU
Danville, CA 94526

Project Designer:

William Wood Architects
301 Hartz Ave #203
Danville, CA 94526
(925) 820-8233

Report Prepared by:

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Job Number:

W021420

Date:

March 31, 2023

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01E

Project Name: Danville ADU Mediterranean Studio

Calculation Date/Time: 2023-03-30T18:09:40-07:00

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Calculation Description: Title 24 Analysis

Input File Name: Danville ADU_Mediterranean_Studio.ribd22

GENERAL INFORMATION					
01	Project Name	Danville ADU Mediterranean Studio			
02	Run Title	Title 24 Analysis			
03	Project Location	Varies			
04	City	Danville, CA	05	Standards Version	2022
06	Zip code	94526	07	Software Version	CBECC-Res 2022.2.1
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	All orientations
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	1
14	Addition Cond. Floor Area (ft²)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft²)	n/a	17	Fenestration Average U-factor	0.31
18	Total Cond. Floor Area (ft²)	640	19	Glazing Percentage (%)	17.30%
20	ADU Bedroom Count	n/a			

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

Registration Number:

223-P010038752B-000-000-0000000-0000

Registration Date/Time:

2023-03-31 08:35:29

HERS Provider:

CalCERTS inc.

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Report Version: 2022.0.000

Schema Version: rev 20220901

Report Generated: 2023-03-30 18:11:02

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ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)
Standard Design	41.1	44.5	58.9			
Proposed Design						
North Facing	33.8	40.5	56.6	7.3	4	2.3
East Facing	34	41.5	57.2	7.1	3	1.7
South Facing	33.5	39.7	56	7.6	4.8	2.9
West Facing	34.1	43.3	58.2	7	1.2	0.7
RESULT³: PASS						
¹ Efficiency EDR includes improvements like a better building envelope and more efficient equipment ² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries ³ Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded						
<ul style="list-style-type: none"> Standard Design PV Capacity: 0.00 kWdc Proposed PV Capacity Scaling: North (0.00 kWdc) East (0.00 kWdc) South (0.00 kWdc) West (0.00 kWdc) 						

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	7.13	31.36	3.2	24.6	3.93	6.76
Space Cooling	1.06	31.57	0.99	33.14	0.07	-1.57
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Flexibility Credit				0		0
North Facing Efficiency Compliance Total	12.65	110.03	8.21	100.2	4.44	9.83
Space Heating	7.13	31.36	3.18	24.18	3.95	7.18
Space Cooling	1.06	31.57	1.15	36.04	-0.09	-4.47
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Flexibility Credit				0		0
East Facing Efficiency Compliance Total	12.65	110.03	8.35	102.68	4.3	7.35

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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	7.13	31.36	3.04	23	4.09	8.36
Space Cooling	1.06	31.57	0.99	32.6	0.07	-1.03
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Flexibility Credit				0		0
South Facing Efficiency Compliance Total	12.65	110.03	8.05	98.06	4.6	11.97
Space Heating	7.13	31.36	3.12	23.97	4.01	7.39
Space Cooling	1.06	31.57	1.28	40.58	-0.22	-9.01
IAQ Ventilation	0.87	9.28	1.38	14.79	-0.51	-5.51
Water Heating	3.59	37.82	2.64	27.67	0.95	10.15
Self Utilization/Flexibility Credit				0		0
West Facing Efficiency Compliance Total	12.65	110.03	8.42	107.01	4.23	3.02

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ENERGY USE INTENSITY				
	Standard Design (kBtu/ft ² - yr)	Proposed Design (kBtu/ft ² - yr)	Compliance Margin (kBtu/ft ² - yr)	Margin Percentage
North Facing				
Gross EUI ¹	32.25	26.5	5.75	17.83
Net EUI ²	32.25	26.5	5.75	17.83
East Facing				
Gross EUI ¹	32.25	26.75	5.5	17.05
Net EUI ²	32.25	26.75	5.5	17.05
South Facing				
Gross EUI ¹	32.25	26.3	5.95	18.45
Net EUI ²	32.25	26.3	5.95	18.45
West Facing				
Gross EUI ¹	32.25	26.86	5.39	16.71
Net EUI ²	32.25	26.86	5.39	16.71
Notes 1. Gross EUI is Energy Use Total (not including PV) / Total Building Area. 2. Net EUI is Energy Use Total (including PV) / Total Building Area.				

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REQUIRED PV SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
0		Standard (14-17%)	Fixed	none	true	n/a	n/a	n/a	n/a	n/a	

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
<ul style="list-style-type: none"> PV exception 2: No PV required when minimum PV size (Section 150.1(c)14) < 1.8 kWdc (0 kW) Indoor air quality, balanced fan IAQ Ventilation System Heat Recovery: minimum 67 SRE and 73 ASRE IAQ Ventilation System: supply outside air inlet, filter, and H/ERV cores accessible per RACM Reference Manual IAQ Ventilation System: fault indicator display Insulation below roof deck Window overhangs and/or fins Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURE SUMMARY
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
<ul style="list-style-type: none"> Indoor air quality ventilation Kitchen range hood Minimum Airflow Verified SEER/SEER2 Verified Refrigerant Charge Fan Efficacy Watts/CFM Verified HSPF Verified heat pump rated heating capacity Duct leakage testing

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BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Danville ADU Mediterranean Studio	640	1	1	1	0	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft ²)	Avg. Ceiling Height	Water Heating System 1	Status
Accessory Unit	Conditioned	HVAC System 1	640	10	DHW System 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft ²)	Tilt (deg)
Front Wall	Accessory Unit	Exterior 2x6 Wall R-21	0	Front	320	74	90
Left Wall	Accessory Unit	Exterior 2x6 Wall R-21	90	Left	200	9	90
Back Wall	Accessory Unit	Exterior 2x6 Wall R-21	180	Back	320	19	90
Right Wall	Accessory Unit	Exterior 2x6 Wall R-21	270	Right	200	9	90
Ceiling Below Attic	Accessory Unit	R-38 Attic Ceiling	n/a	n/a	640	n/a	n/a

ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic	Attic Roof	Ventilated	4	0.1	0.85	No	No

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FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Front Door	Window	Front Wall	Front	0	3	8	1	24	0.34	NFRC	0.2	NFRC	Bug Screen
FamilyRm 5050	Window	Front Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
Bedroom 5050	Window	Front Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
Kitchen 3030	Window	Left Wall	Left	90	3	3	1	9	0.3	NFRC	0.23	NFRC	Bug Screen
Bathroom 2020	Window	Back Wall	Back	180	2	2	1	4	0.3	NFRC	0.23	NFRC	Bug Screen
DiningRm 5030	Window	Back Wall	Back	180	5	3	1	15	0.3	NFRC	0.23	NFRC	Bug Screen
Bedroom 3030	Window	Right Wall	Right	270	3	3	1	9	0.3	NFRC	0.23	NFRC	Bug Screen

OVERHANGS AND FINNS													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
Front Door	5	0	2	2	0	0	0	0	0	0	0	0	0
FamilyRm 5050	4	0	2	2	0	0	0	0	0	0	0	0	0
Bedroom 5050	1	0	2	2	0	0	0	0	0	0	0	0	0
Kitchen 3030	1	0	2	2	0	0	0	0	0	0	0	0	0
Bathroom 2020	1	0	2	2	0	0	0	0	0	0	0	0	0
DiningRm 5030	1	0	2	2	0	0	0	0	0	0	0	0	0

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OVERHANGS AND FINIS													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
Bedroom 3030	1	0	2	2	0	0	0	0	0	0	0	0	0

SLAB FLOORS							
01	02	03	04	05	06	07	08
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab On Grade	Accessory Unit	640	104	none	0	80%	No

OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Exterior 2x6 Wall R-21	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.065	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Sheathing / Insulation: Wood Siding/sheathing/decking Exterior Finish: 3 Coat Stucco
Attic Roof	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-13	None / None	0.072	Roofing: 10 PSF (RoofTileAirGap) Tile Gap: present Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Top Chrd Around Roof Joists: R-0.0 insul.
R-38 Attic Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board

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BUILDING ENVELOPE - HERS VERIFICATION				
01	02	03	04	05
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50	CFM50
Not Required	Not Required	N/A	n/a	n/a

WATER HEATING SYSTEMS								
01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (#)
DHW System 1	Domestic Hot Water (DHW)	Standard	Heat Pump WH	1	n/a	None	n/a	Heat Pump WH (1)

WATER HEATERS - NEEA HEAT PUMP							
01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
Heat Pump WH	1	40	Rheem	RheemPROPH40T2R H37515	Outside	Outside	Outside

WATER HEATING - HERS VERIFICATION						
01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Shower Drain Water Heat Recovery
DHW System 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required

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SPACE CONDITIONING SYSTEMS								
01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
HVAC System 1	Heat pump heating cooling	PEAD-A24AA7	1	PEAD-A24AA7	1	HVAC Fan System 1	Distribution System 1	Setback

HVAC - HEAT PUMPS												
01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating				Cooling			Zonally Controlled	Compressor Type	HERS Verification
			Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2	EER / EER / CEER			
PEAD-A24AA7	Central split HP	1	HSPF	10.8	26000	14800	EERSEER	19.6	11.7	Not Zonal	Single Speed	PEAD-A24AA7-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
PEAD-A24AA7-hers-htpump	Required	350	Not Required	Required	Yes	Yes	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
Name	Type	Design Type	Duct Ins. R-value		Duct Location		Surface Area		Bypass Duct	Duct Leakage	HERS Verification
			Supply	Return	Supply	Return	Supply	Return			
Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Distribution System 1-hers-dist

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HVAC DISTRIBUTION - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Distribution System 1-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS			
01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan System 1	HVAC Fan	0.45	HVAC Fan System 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION		
01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan System 1-hers-fan	Required	0.45

INDOOR AIR QUALITY (IAQ) FANS								
01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display?	HERS Verification	Status
SFam IAQVentRpt 1-1	49	0.816326	Balanced	Yes	73	No	Yes	

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Registration Date/Time:

2023-03-31 08:35:29

HERS Provider:

CalCERTS inc.

CA Building Energy Efficiency Standards - 2022 Residential Compliance

Report Version: 2022.0.000

Schema Version: rev 20220901

Report Generated: 2023-03-30 18:11:02

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01E

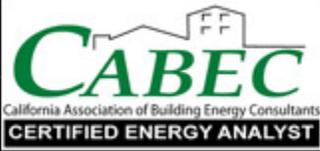
Project Name: Danville ADU Mediterranean Studio

Calculation Date/Time: 2023-03-30T18:09:40-07:00

(Page 13 of 13)

Calculation Description: Title 24 Analysis

Input File Name: Danville ADU_Mediterranean_Studio.ribd22

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Jason E Bennett	Documentation Author Signature: <i>Jason Bennett</i>
Company: DP Advanced Engineering	Signature Date: 2023-03-30 19:18:04
Address: 3381 Walnut Blvd. Ste. 220	CEA/ HERS Certification Identification (If applicable): R19-21-30042
City/State/Zip: Brentwood, CA 94513	Phone: 925-516-3502
	
RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California:	
<ol style="list-style-type: none"> I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. 	
Responsible Designer Name: William Wood	Responsible Designer Signature: <i>William Wood</i>
Company: William Wood Architects	Date Signed: 2023-03-31 08:35:29
Address: 301 Hartz Ave #203	License: C13874
City/State/Zip: Danville, CA 94526	Phone: 925-820-8233

Digitally signed by CalCERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies

Registration Provider responsibility for the accuracy of the information.



Easy to Verify
at CalCERTS.com

Registration Number:
223-P010038752B-000-000-0000000-0000

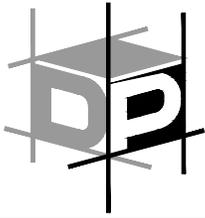
Registration Date/Time:
2023-03-31 08:35:29

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ENVELOPE INSULATION

EXTERIOR WALLS:

R-21 IN 2x6

FOUNDATION:

SLAB, NOT INSULATED

ROOF OVER LIVING SPACE:

R-38 BETWEEN CEILING JOISTS

R-13 BETWEEN RAFTERS

WINDOW PERFORMANCE

MAXIMUM WINDOW PERFORMANCE VALUES (U-FACTOR / SHGC)

WINDOWS: .30/.23

FRENCH DOORS: .32/.16

DOMESTIC HOT WATER

RHEEM 40-GALLON HEAT PUMP WATER HEATER OR EQUIV.

SOLAR (STUDIO)

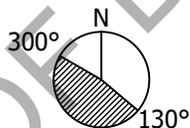
(NOT REQUIRED; CALCULATED SIZE IS <1.8 KW)

SOLAR (1 BEDROOM)

2.0 KW MINIMUM

ACCEPTABLE ORIENTATION:

(DEGREES EAST OF TRUE NORTH)



HERS VERIFICATIONS

- INDOOR AIR QUALITY VENTILATION
- KITCHEN RANGE HOOD
- MINIMUM AIRFLOW [350 CFM/TON]
- VERIFIED SEER [19.6]
- VERIFIED REFRIGERANT CHARGE
- FAN EFFICACY WATTS/CFM [0.45]
- VERIFIED HSPF [10.8]
- VERIFIED HEAT PUMP RATED HEATING CAPACITY
- DUCT LEAKAGE TESTING [5%]

SPACE HEATING & COOLING

HEAT PUMP (10.2 HSPF, 19.6 SEER, 11.7 EER)

MITSUBISHI PEAD-A24AA7 + PUZ-A24NHA7

AHRI # 201754661

DUCTS

SUPPLY AIR DUCTS IN ATTIC

DUCTS IN UNCONDITIONED SPACE TO HAVE R-6 INSULATION

INDOOR AIR QUALITY

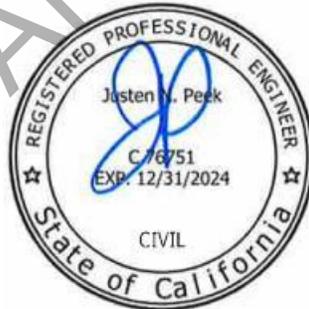
BROAN ERV100S ENERGY RECOVERY VENTILATOR OR EQUIV.

Structural Calculations

PROJECT: Town of Danville Studio ADU
ADDRESS: Danville, California

JOB No.: W021420
DELTA: Permit Submittal
DATE: March 24, 2023

CLIENT: Town of Danville



GOVERNING CODE: California Building Code, 2022 Edition
CONSTRUCTION: One-Story Wood Framed Building

STRUCTURE:
Vertical Load System - Wood Framed Roof
Lateral Load System - Wood Framed Shear Walls



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

STRUCTURAL CALCULATIONS ARE BASED ON THE FOLLOWING CRITERIA, UNLESS NOTED OTHERWISE

STRUCTURAL MATERIALS:

Structural Steel:

W Shapes	ASTM A992, Fy = 50 ksi
Shapes (M, S, HP, C, MC, L)	ASTM A572, Grade 50
Pipe	ASTM A53, Grade B
Tube (HSS)	ASTM A500, Grade B
Plates and Bars	ASTM A572, Grade 50
Welding	Current AWS D1.1
Bolts - Unfinished	ASTM A307
Bolts - High Strength (HSB)	ASTM A325 SC/N/X
Threaded Rods	ASTM A449
Light Gage Steel Studs and Joists	ASTM A653, Grade 50
Welding (Light Gage)	Current AWS D1.3

Concrete:

Slab on Grade	2500 psi @ 28 Days
Foundation	2500 psi @ 28 Days
Tilt-Up Wall Panels	4000 psi @ 28 Days
Structural Concrete	3000 psi @ 28 Days
Reinforcing Steel (#3 Rebar)	ASTM A615, Grade 40
Reinforcing Steel (#4 & larger)	ASTM A615, Grade 60
Welding (Reinf.).....	Current AWS D1.4

Wood:

2" to 4" Thick x 2" and Wider	DF No. 2 or better
Joists and Planks	DF No. 2 or better
Beams and Stringers	DF No. 1 or better
Posts and Timbers	DF No. 1 or better
Glu-lam Beams (simple span)	2400F-V4 DF/DF
Glu-lam Beams (cantilevers)	2400F-V8 DF/DF
Sheathing	Exposure 1, Grade C-D, C-C



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

STRUCTURAL CALCULATIONS ARE BASED ON THE FOLLOWING CRITERIA, UNLESS NOTED OTHERWISE

LOADING SCHEDULE:

Roof Dead Load:

Max. Roof Pitch /12:

5

Roofing:	Concrete Tile	10.8 psf
Sheathing:	1/2" Plywood	1.8 psf
Insulation:	R38 Insulation Ceiling & R19 Insulation Roof Deck	1.0 psf
Framing:	Trusses @ 24" o.c.	2.5 psf
Ceiling:	5/8" Gyp. Installed on Bottom of Roof Framing	2.8 psf
Sprinklers:	Automatic Fire Sprinklers	1.0 psf
Misc:	HVAC + Miscellaneous	2.1 psf
		<hr/>

22.0 psf

Photovoltaic Dead Load:

Non-concurrent with Live Load

3.0 psf

Roof Live Load:

Sloped Roof (Reducible)

20.0 psf

Exterior Wall Load:

Wall Type: 2x6 @ 16 in, 5/8" Gyp, Insulated, 7/8" Stucco

17.0 psf

Interior Wall Load:

Wall Type: 2x4 @ 16 in, (2) 5/8" Gyp, Insulated

7.0 psf

TOWN OF DANVILLE USE ONLY



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SEISMIC LOADS: ASCE 7-16 SECTION 12.8 (EQUIV. LATERAL FORCE):

SITE INFORMATION:

S _s	2.500	ASCE 7-16 Sect. 11.4.2
S ₁	1.200	ASCE 7-16 Sect. 11.4.2
Site Class.....	D	Per Geotech Report
Risk Category	II	ASCE 7-16 Table 1.5-1
Importance Factor	1.0	ASCE 7-16 Table 1.5-2

Site coefficients and adjusted maximum considered eq. spectral response accel. parameters

F _a	1.200	ASCE 7-16 Sect. 11.4.4
F _v	1.700	ASCE 7-16 Sect. 11.4.4

Table 11.4-1 Short-Period Site Coefficient F_a

Site Class	S _s ≤ 0.25	S _s = 0.50	S _s = 0.75	S _s = 1.00	S _s = 1.25	S _s ≥ 1.50
A	0.8	0.8	0.8	0.8	0.8	0.8
B	0.9	0.9	0.9	0.9	0.9	0.9
C	1.3	1.3	1.2	1.2	1.2	1.2
D	1.6	1.4	1.2	1.1	1.0	1.0
E	2.4	1.7	1.3	1.2	1.2	1.2
F	<i>Site-Specific Response Analysis Required</i>					

Table 11.4-2 Short-Period Site Coefficient F_v

Site Class	S ₁ ≤ 0.10	S ₁ = 0.20	S ₁ = 0.30	S ₁ = 0.40	S ₁ = 0.50	S ₁ ≥ 0.60
A	0.8	0.8	0.8	0.8	0.8	0.8
B	0.8	0.8	0.8	0.8	0.8	0.8
C	1.5	1.5	1.5	1.5	1.5	1.4
D	2.4	2.2	2	1.9	1.8	1.7
E	4.2	3.3	2.8	2.4	2.2	2
F	<i>Site-Specific Response Analysis Required</i>					

S _{MS} = F _a S _s	3.000	(EQ. 11.4-1)
S _{M1} = F _v S ₁	2.040	(EQ. 11.4-2)
S _{DS} = (2/3)S _{MS}	2.000 g	(EQ. 11.4-3)
S _{D1} = (2/3)S _{M1}	1.360 g	(EQ. 11.4-4)

Seismic Design Category Based on Short-Period Response Accelerations:

VALUE OF S _{DS}	1 OR 11	111	1V
S _{DS} < 0.167g	A	A	A
0.167g ≤ S _{DS} < 0.33g	B	B	C
0.33g ≤ S _{DS} < 0.50g	C	C	D
0.50g ≤ S _{DS}	D	D	D

S₁ IS GREATER THAN 0.75
USE CATEGORY E
PER CBC 1613.2.5

Seismic Design Category Based on 1-Second Response Accelerations:

VALUE OF S _{D1}	1 OR 11	111	1V
S _{D1} < 0.067g	A	A	A
0.067g ≤ S _{D1} < 0.133g	B	B	C
0.133g ≤ S _{D1} < 0.20g	C	C	D
0.20g ≤ S _{D1}	D	D	D

S₁ IS GREATER THAN 0.75
USE CATEGORY E
PER CBC 1613.2.5



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SEISMIC LOADS: ASCE 7-16 SECTION 12.8 (CONT.):

BUILDING INFORMATION:

Building Height, h_n 14.7 ft
 Mean Roof Height, H_m 12.3 ft
 Eave Height, h 10.0 ft

Building Depth:

Bldg Depth (Roof Level)..... 25.0 ft

Building Width:

Bldg Width (Roof Level)..... 32.0 ft

EQUIVALENT LATERAL FORCE PROCEDURE:

Seismic Base Shear:

R (ASCE 7-16 Table 12.2-1)..... 6.5
 C_t 0.020
 X 0.75
 $T_a = C_t(h_n)^X$ 0.15 sec

Seismic Response Coefficient:

$C_S = S_{DS}/(R/I)$ 0.308 (EQ. 12.8-2)
 $C_S = S_{D1}/T(R/I)$ 1.396 (EQ. 12.8-3)
 $C_S = 0.044S_{DS}I$ 0.088 (EQ. 12.8-5)
 $C_S = 0.5S_1/(R/I)$ 0.092 (EQ. 12.8-6)

Seismic Base Shear:

$V = C_S W$ **0.308 W** (EQ. 12.8-1)

BUILDING WEIGHTS:

Roof Loads:	AREA (sq ft)	WEIGHT (psf)	TOTAL (lb)
Roof Area	842	22.0	18545
Roof Top Deck	0	15.0	0
Photovoltaic Area	842	3.0	2526

SEISMIC BASE SHEAR:

Building DL = 33802 lb
 Seismic Coef. = 0.308
 $k = 1.00$
Base Shear = 10401 lb

Roof Loads:	LENGTH (ft)	WEIGHT (psf)	TOTAL (lb)
Linear Feet of Ext. Wall	114	17.0	8305
Linear Feet of Int. Wall	125	7.0	4426

*Note: Approximate Fenestration Percentage: 15 %
TOTAL ROOF LOAD (lb): 33802

CALCULATE SEISMIC SHEAR LOADS:

VERTICAL DISTRIBUTION OF SEISMIC FORCES					
Level	w_x (lb)	Top Plate Height (ft)	h_x (ft)	F_x (lb)	Unit Shear (psf)
ROOF	33802	10.1	12.3	10401	12.4
			$\sum w_i * h_i^k =$	416945	

REDUNDANCY FACTOR (ASCE 7-16 SECTION 12.3.4):

Seismic Design Cat: **USE CATEGORY E**
 Roof East/ West: **1.0**

*Note: Refer to calculations on following sheets
 Roof North/South: **1.3**

SUMMARY OF SEISMIC DESIGN LOADS:

Level	Direction	SEISMIC	UNIT	Redundancy	ASD DESIGN	ASD DESIGN
		FORCE (lb)	SHEAR (psf)		Factor	FORCE (lb)
Roof	North/South	10401	12.4	1.3	9464	11.2
Roof	East/West	10401	12.4	1.0	7280	8.6



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

WIND ANALYSIS (ENCLOSED, PARTIALLY ENCLOSED AND OPEN BUILDINGS OF ALL HEIGHTS)

MAIN WIND-FORCE RESISTING SYSTEM:

Design Wind Speed..... 95 mph
 Wind Exposure..... C
 Site Elevation..... Unknown Feet
 Topographic factor, ASCE 7-10 Section 26.8.2 -
 K_{zt} (Assumed Flat Area)..... 1.00

BUILDING INFORMATION:

Building Height, h_n 14.7 ft
 Mean Roof Height, H_m 12.3 ft
 Eave Height, h 10.0 ft

Building Depth "B":

Bldg Depth (Roof Level)..... 25.0 ft
 Bldg Depth (Floor Level)..... 0.0 ft

Building Width "L":

Bldg Width (Roof Level)..... 32.0 ft
 Bldg Width (Floor Level)..... 0.0 ft

DETERMINE WIND LOAD PARAMETERS:

DIRECTIONALITY FACTOR (K_d): 0.85 ** See ASCE 7-16 Section 26.6 and Table 26.6-1
 TOPOGRAPHIC FACTOR (K_{zT}): 1.00 ** See ASCE 7-16 Section 26.8 and Figure 26.8-1
 GUST FACTOR (G): 0.85 ** See ASCE 7-16 Section 26.11.1
 ENCLOSURE CLASSIFICATION Enclosed ** See ASCE 7-16 Section 26.12
 INTERNAL PRESSURE (CG_{PI}) 0.18 ** See ASCE 7-16 Section 26.12 and Table 26.13-1
 GROUND ELEVATION FACTOR (K_e) 1.00 ** See ASCE 7-16 Table 26.9-1, Note 2

Table 26.10-1 Velocity Pressure Coefficients, K_z

Height Above Ground (ft)	Exposure Category		
	B	C	D
15.0	0.57	0.85	1.03
20.0	0.62	0.90	1.08
25.0	0.66	0.94	1.12
30.0	0.70	0.98	1.16
35.0	0.73	1.01	1.19
40.0	0.76	1.04	1.22
45.0	0.79	1.07	1.25
50.0	0.81	1.09	1.27
55.0	0.83	1.11	1.29
60.0	0.85	1.13	1.31

VELOCITY COEFFICIENT (K_z): 0.85
 ** See ASCE 7-16 Table 26.10.1

DETERMINE VELOCITY PRESSURE:

$q_z = 0.00256 K_z K_{zT} K_d K_e V^2$: 16.69 psf



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

WIND ANALYSIS (ENCLOSED, PARTIALLY ENCLOSED AND OPEN BUILDINGS OF ALL HEIGHTS)

DETERMINE WALL PRESSURE:

Wall Pressure Coefficients, ASCE-7 (Figure 27..3-1)

Surface	L/B	Cp	Use With
Windward Wall	All Values	0.8	q _z
Leeward Wall	0-1	-0.5	q _h
	2	-0.3	
	>4	-0.2	
Side Wall	All Values	-0.7	q _h

Determine Cp Values

Level	Direction	L/B Values	Windward C _p Value	Leeward C _p Value
Roof	East/West	1.28	0.80	-0.444

Level	Direction	L/B Values	Windward C _p Value	Leeward C _p Value
Roof	North/South	0.78	0.80	-0.500

Windward Pressures:

Plan North/South

CASE 1: 14.36
CASE 2: 8.35

Plan East/West

CASE 1: 14.36
CASE 2: 8.35

Leeward Pressures:

Plan North/South

CASE 1: 4.09
CASE 2: 10.10

Plan East/West

CASE 1: 3.30
CASE 2: 9.30

SUMMARY OF WIND FORCE DESIGN LOADS

Level	Direction	WIND DEISGN	UNIT	ASD DESIGN	ASD DESIGN
		FORCE (lb)	SHEAR (plf)		
Roof	North/South	4305	135	2583	81
Roof	East/West	3218	129	1931	77



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SHEARWALL DESIGN: ROOF LEVEL

Shearwall Framing: 3/8" CDX ply with 8d Nailing

SHEAR LINE ID:	1	2
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DETERMINATION OF LATERAL DESIGN LOADS:

Grid Line Trib. Area (sq ft):	375	467
Seismic Shear Load (psf):	8.6	8.6
Seismic Shear Force (lb):	3242	4038

Grid Line Trib. Width (ft):	10	15
Wind Design Load (plf):	77	77
Wind Design Force (lb):	772	1159

SHEARWALL LENGTHS:

Wall Length 1 (ft):	8.0	5.2
Wall Length 2 (ft):	7.4	4.0
Wall Length 3 (ft):	0.0	0.0
Wall Length 4 (ft):	0.0	0.0
Wall Length 5 (ft):	0.0	0.0

SHEARWALL RIGIDITY DESIGN:

Wall 1 Rigidity K_i (kip/in):	5.12	4.42
Wall 2 Rigidity K_i (kip/in):	4.58	2.99
Wall 3 Rigidity K_i (kip/in):		
Wall 4 Rigidity K_i (kip/in):		
Wall 5 Rigidity K_i (kip/in):		

NAILING DESIGN BASED ON SDPWS SECTION 4.3.4 CAPACITY ADJ:

Wall 1 Design Shear (plf):	214	466
<i>Sec. 4.3.4.2 Capacity Reduction</i>	1.00	1.00
Wall 2 Design Shear (plf):	206	436
<i>Sec. 4.3.4.2 Capacity Reduction</i>	1.00	0.93
Wall 3 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		
Wall 4 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		
Wall 5 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		

Shear Capacity (plf):	260	490
-----------------------	-----	-----

Shear Designation #: Type 1 Type 3

REDUNDANCY FACTOR ANALYSIS (ASCE 7-16 SECTION 12.3.4):

Wall 1 Capacity (%):	0.24	0.30
Wall 2 Capacity (%):	0.23	0.23
Wall 3 Capacity (%):		
Wall 4 Capacity (%):		
Wall 5 Capacity (%):		

Redundancy Factor: Use 1.0 Use 1.0



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SHEARWALL DESIGN (CONT.): ROOF LEVEL

SHEAR LINE ID:	1	2
-----------------------	----------	----------

SHEARWALL OVERTURNING DESIGN:

Wall Height (ft):	10.1	10.1
Wall Weight (psf):	17.0	17.0
Roof Trib. Width (ft):	2	2
Roof Weight (psf):	22.0	22.0

SEISMIC UPLIFT FORCE (lb): Load Combo (ASCE 7-16): (0.6-0.14*SDS)D+0.7E

Wall Dead Load (plf):	69	69
Wall 1 Uplift (lb):	1881	4521
Wall 2 Uplift (lb):	1826	3971
Wall 3 Uplift (lb):		
Wall 4 Uplift (lb):		
Wall 5 Uplift (lb):		

WIND UPLIFT FORCE (lb): Load Combo (ASCE 7-16): 0.6D+0.6W

Wall Dead Load (plf):	129	129
Wall 1 Uplift (lb):	-3	1014
Wall 2 Uplift (lb):	16	920
Wall 3 Uplift (lb):		
Wall 4 Uplift (lb):		
Wall 5 Uplift (lb):		

HOLDOWN TYPE:

Wall 1 Holdown Type:	HDU2	HDU5
Wall 2 Holdown Type:	HDU2	HDU5
Wall 3 Holdown Type:		
Wall 4 Holdown Type:		
Wall 5 Holdown Type:		

STORY DRIFT CHECK (C_d=4): Due to approximate nature of rigidity calculation methods, +/- 10% variation OK.

Wall 1 Defl. Check (in):	1.5	2.8
Wall 2 Defl. Check (in):	1.5	2.8
Wall 3 Defl. Check (in):		
Wall 4 Defl. Check (in):		
Wall 5 Defl. Check (in):		
Wall 1 Drift Check (in):	OK	OK
Wall 1 Drift Check (in):	OK	OK
Wall 1 Drift Check (in):		
Wall 1 Drift Check (in):		
Wall 5 Drift Check (in):		

AREA VERIFICATION CHECK:

Seismic Trib Area Sum:	842 sq ft	Trib Width Sum:	25 ft
------------------------	-----------	-----------------	-------



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SHEARWALL DESIGN: ROOF LEVEL

Shearwall Framing: 3/8" CDX ply with 8d Nailing

SHEAR LINE ID:	A	B
-----------------------	----------	----------

DETERMINATION OF LATERAL DESIGN LOADS:

Grid Line Trib. Area (sq ft):	451	391
Seismic Shear Load (psf):	11.2	11.2
Seismic Shear Force (lb):	5069	4395

Grid Line Trib. Width (ft):	16	16
Wind Design Load (plf):	81	81
Wind Design Force (lb):	1291	1291

SHEARWALL LENGTHS:

Wall Length 1 (ft):	11.5	9.5
Wall Length 2 (ft):	0.0	0.0
Wall Length 3 (ft):	0.0	0.0
Wall Length 4 (ft):	0.0	0.0
Wall Length 5 (ft):	0.0	0.0

SHEARWALL RIGIDITY DESIGN:

Wall 1 Rigidity K_i (kip/in):	13.50	10.63
Wall 2 Rigidity K_i (kip/in):		
Wall 3 Rigidity K_i (kip/in):		
Wall 4 Rigidity K_i (kip/in):		
Wall 5 Rigidity K_i (kip/in):		

NAILING DESIGN BASED ON SDPWS SECTION 4.3.4 CAPACITY ADJ:

Wall 1 Design Shear (plf):	441	463
<i>Sec. 4.3.4.2 Capacity Reduction</i>	1.00	1.00
Wall 2 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		
Wall 3 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		
Wall 4 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		
Wall 5 Design Shear (plf):		
<i>Sec. 4.3.4.2 Capacity Reduction</i>		

Shear Capacity (plf): 490 490

Shear Designation #: Type 3 Type 3

REDUNDANCY FACTOR ANALYSIS (ASCE 7-16 SECTION 12.3.4):

Wall 1 Capacity (%):	0.45
Wall 2 Capacity (%):	
Wall 3 Capacity (%):	
Wall 4 Capacity (%):	
Wall 5 Capacity (%):	

Redundancy Factor: Use 1.0 Use 1.3



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SHEARWALL DESIGN (CONT.): ROOF LEVEL

SHEAR LINE ID:	A	B
-----------------------	----------	----------

SHEARWALL OVERTURNING DESIGN:

Wall Height (ft):	10.1	10.1
Wall Weight (psf):	17.0	17.0
Roof Trib. Width (ft):	0	0
Roof Weight (psf):	22.0	22.0

SEISMIC UPLIFT FORCE (lb): Load Combo (ASCE 7-16): (0.6-0.14*SDS)D+0.7E

Wall Dead Load (plf):	55	55
Wall 1 Uplift (lb):	4130	4404
Wall 2 Uplift (lb):		
Wall 3 Uplift (lb):		
Wall 4 Uplift (lb):		
Wall 5 Uplift (lb):		

WIND UPLIFT FORCE (lb): Load Combo (ASCE 7-16): 0.6D+0.6W

Wall Dead Load (plf):	103	103
Wall 1 Uplift (lb):	541	882
Wall 2 Uplift (lb):		
Wall 3 Uplift (lb):		
Wall 4 Uplift (lb):		
Wall 5 Uplift (lb):		

HOLDOWN TYPE:

Wall 1 Holdown Type:	HDU5	HDU5
Wall 2 Holdown Type:		
Wall 3 Holdown Type:		
Wall 4 Holdown Type:		
Wall 5 Holdown Type:		

STORY DRIFT CHECK (C_d=4): Due to approximate nature of rigidity calculation methods, +/- 10% variation OK.

Wall 1 Defl. Check (in):	2.0	2.2
Wall 2 Defl. Check (in):		
Wall 3 Defl. Check (in):		
Wall 4 Defl. Check (in):		
Wall 5 Defl. Check (in):		
Wall 1 Drift Check (in):	OK	OK
Wall 1 Drift Check (in):		
Wall 1 Drift Check (in):		
Wall 1 Drift Check (in):		
Wall 5 Drift Check (in):		

AREA VERIFICATION CHECK:

Seismic Trib Area Sum:	842 sq ft	Trib Width Sum:	32 ft
------------------------	-----------	-----------------	-------



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

ROOF DIAPHRAGM DESIGN:

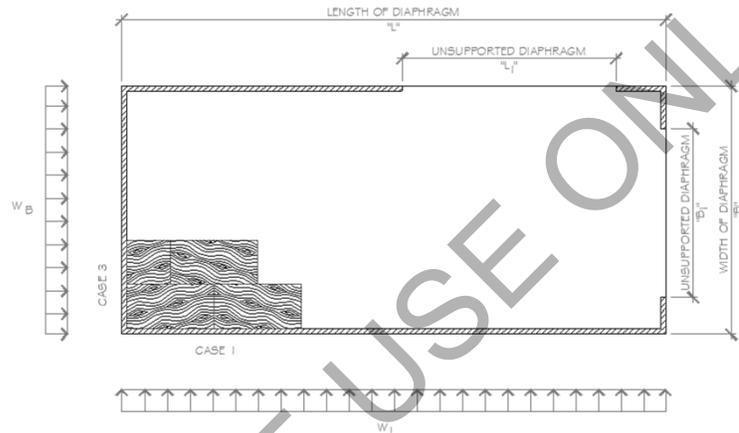
DIMENSIONS:

L = 32 ft

B = 25 ft

B₁ = 0 ft

L₁ = 0 ft



FRAMING MATERIALS:

- Plywood Panel Grade CD, CC
- Minimum Nominal Framing Size: 2 x
- Nominal Plywood Thickness: 15/32
- Common Nail Size: 8 d
- Wall framing size: 2x4
- Specific Gravity of Framing Members: 0.5

LATERAL FORCE ALONG L SIDE:

w_L = 281 plf

LATERAL FORCE ALONG B SIDE:

w_B = 277 plf

ANALYSIS -

The diaphragm is considered flexible if its maximum lateral deformation is more than 2x the average shearwall deflection of the associated story.

Diaphragm Ratio: L/B = 1.28 < 3 Diaphragm OK

Shear_{MAX} along Side V_L = w_B*B / 2*L = 108 plf

Shear_{MAX} along Side V_B = w_L*L / 2*B = 180 plf

Chord Forces:

Side L: T_L = C_L = w_L*L² / 8*B = 1439 lb

** Min. Blkg Req'd @ 96 in o.c.

Side B: T_B = C_B = w_B*B² / 8*L = 676 lb

** Min. Blkg Req'd @ 96 in o.c.

Drag Forces:

Side L: F_L = V_L*L₁ = 0 lb

** Min. Strap Req'd - NONE

Side B: F_B = V_B*B₁ = 0 lb

** Min. Strap Req'd - NONE

DIAPHRAGM DEFLECTION -

* per APA: Supplement For Shearwall and Diaphragms

$$D = \frac{5vL^3}{8EAb} + \frac{vL}{4Gt} + 0.188Le_n + \frac{S(D_cX)}{2b}$$

Chord Properties:

Area (in²): 5.25

G_vt_v of ply (lb/in): 83500

E (psi): 1600000

e_n (in) = (V_n/616)^{3.018}: 0.045

ν (plf): 180

S (D_cX) (in): 2.50

D = 0.37 in

D_{ALLOW} = 0.025 * Story Height = 3.7 in

Deflection OK



PROJECT: Town of Danville Studio ADU

0

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 45009

ROOF DIAPHRAGM DESIGN:

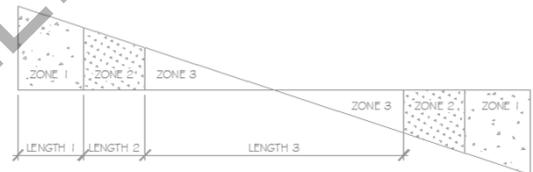
NAILING PATTERN -

Panel Grade	Common Nail	Min. Pen. (in)	Min. Thick. (in)	Member Width (in)	Blocked Nail Spacing				Unblocked	
					Boundary / Other Edges				Case 1	Others
					6 / 6	4 / 6	2.5 / 4	2 / 3		
CD, CC	8 d	1 1/2	15/32	2	270	360	530	600	240	180

DIAPHRAGM NAILING DESIGN - Along Length 'L'

Zone 1: 32 FT WIDE x 25 FT DEEP

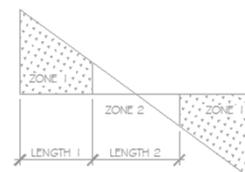
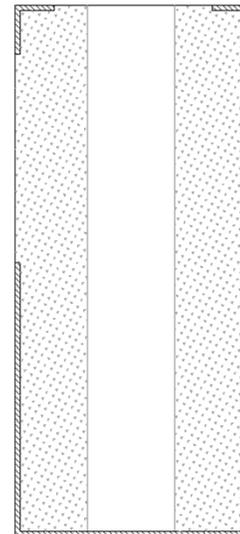
UNBLOCKED 15/32 SHEATHING WITH 8 d COMMON NAILS
6.0 IN O.C. BOUNDARY/ 12 IN O.C. EDGES/ 12 IN O.C. FIELD



DIAPHRAGM NAILING DESIGN - Along Length 'B'

Zone 1: 25 FT WIDE x 32 FT DEEP

UNBLOCKED 15/32 SHEATHING WITH 8 d COMMON NAILS
6.0 IN O.C. BOUNDARY/ 12 IN O.C. EDGES/ 12 IN O.C. FIELD



Wood Beam

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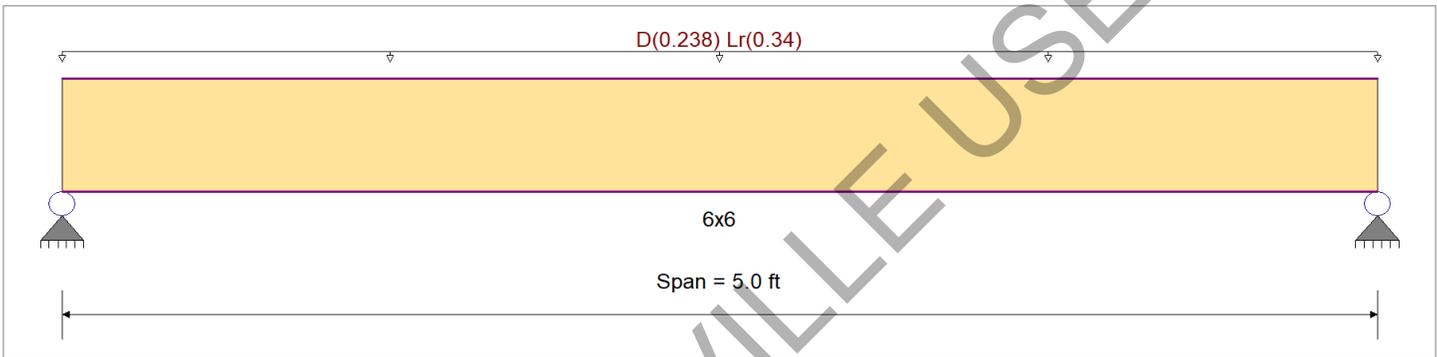
DESCRIPTION: Typical Header

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,350.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1,350.0 psi	Ebend- xx
	Fc - Prll	925.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1	Fv	170.0 psi	
	Ft	675.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			31.210pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
 Uniform Load : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 17.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.468 < 1	Maximum Shear Stress Ratio	=	0.279 < 1
Section used for this span	=	6x6	Section used for this span	=	6x6
	=	790.53 psi		=	59.24 psi
	=	1,687.50 psi		=	212.50 psi
Load Combination	=	+D+Lr	Load Combination	=	+D+Lr
Location of maximum on span	=	2.500ft	Location of maximum on span	=	0.000ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.039 in	Ratio =	1522	>=360
Max Upward Transient Deflection		0.000 in	Ratio =	0	<360
Max Downward Total Deflection		0.068 in	Ratio =	885	>=240
Max Upward Total Deflection		0.000 in	Ratio =	0	<240

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values						
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v				
D Only	Length = 5.0 ft	1	0.272	0.162	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.76	330.73	1215.00	0.00	0.00	0.00	0.50	24.78	153.00
+D+Lr	Length = 5.0 ft	1	0.468	0.279	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.83	790.53	1687.50	0.00	0.00	0.00	0.00	59.24	212.50
+D+0.750Lr	Length = 5.0 ft	1	0.400	0.238	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.56	675.58	1687.50	0.00	0.00	0.00	0.00	50.63	212.50
+0.60D	Length = 5.0 ft	1	0.092	0.055	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	0.46	198.44	2160.00	0.00	0.00	0.00	0.00	0.00	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0678	2.518		0.0000	0.000

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DESCRIPTION: Typical Header

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.461	1.461
Overall MINimum	0.850	0.850
D Only	0.611	0.611
+D+Lr	1.461	1.461
+D+0.750Lr	1.249	1.249
+0.60D	0.367	0.367
Lr Only	0.850	0.850

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Wood Beam

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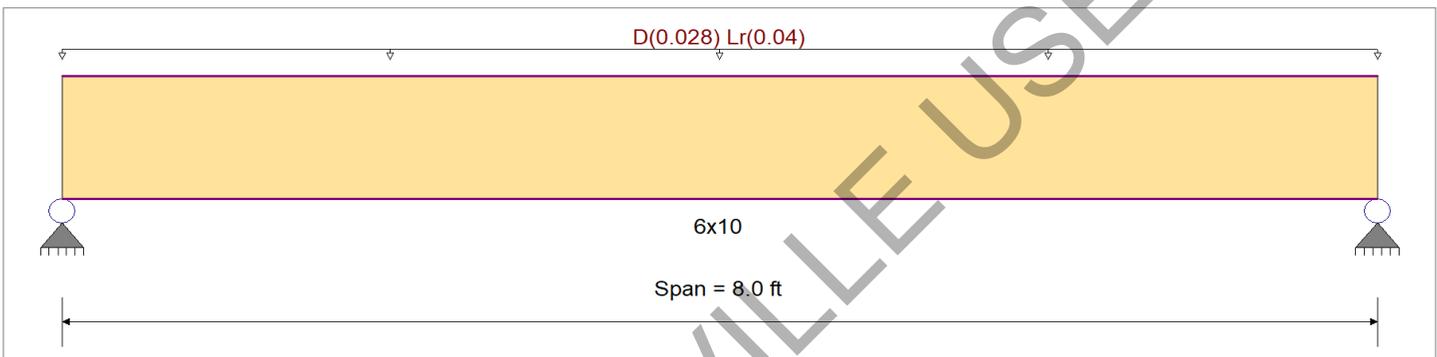
DESCRIPTION: B1

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,350.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1,350.0 psi	Ebend- xx
	Fc - Prll	925.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1	Fv	170.0 psi	
	Ft	675.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			31.210pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
 Uniform Load : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 2.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.055 : 1	Maximum Shear Stress Ratio =	0.034 : 1
Section used for this span =	6x10	Section used for this span =	6x10
=	92.05 psi	=	7.31 psi
=	1,687.50 psi	=	212.50 psi
Load Combination =	+D+Lr	Load Combination =	+D+Lr
Location of maximum on span =	4.000ft	Location of maximum on span =	7.212 ft
Span # where maximum occurs =	Span # 1	Span # where maximum occurs =	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.006 in	Ratio =	16278 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.012 in	Ratio =	8208 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values							
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v					
D Only	Length = 8.0 ft	1	0.038	0.024	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.31	45.63	1215.00	0.00	0.00	0.00	0.13	3.63	153.00
+D+Lr	Length = 8.0 ft	1	0.055	0.034	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.63	92.05	1687.50	0.00	0.00	0.00	0.25	7.31	212.50
+D+0.750Lr	Length = 8.0 ft	1	0.048	0.030	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.55	80.45	1687.50	0.00	0.00	0.00	0.22	6.39	212.50
+0.60D	Length = 8.0 ft	1	0.013	0.008	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.19	27.38	2160.00	0.00	0.00	0.00	0.08	2.18	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0117	4.029		0.0000	0.000

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DP ADVANCED ENGINEERING INC.

DESCRIPTION: B1

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.317	0.317
Overall MINimum	0.160	0.160
D Only	0.157	0.157
+D+Lr	0.317	0.317
+D+0.750Lr	0.277	0.277
+0.60D	0.094	0.094
Lr Only	0.160	0.160

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Wood Beam

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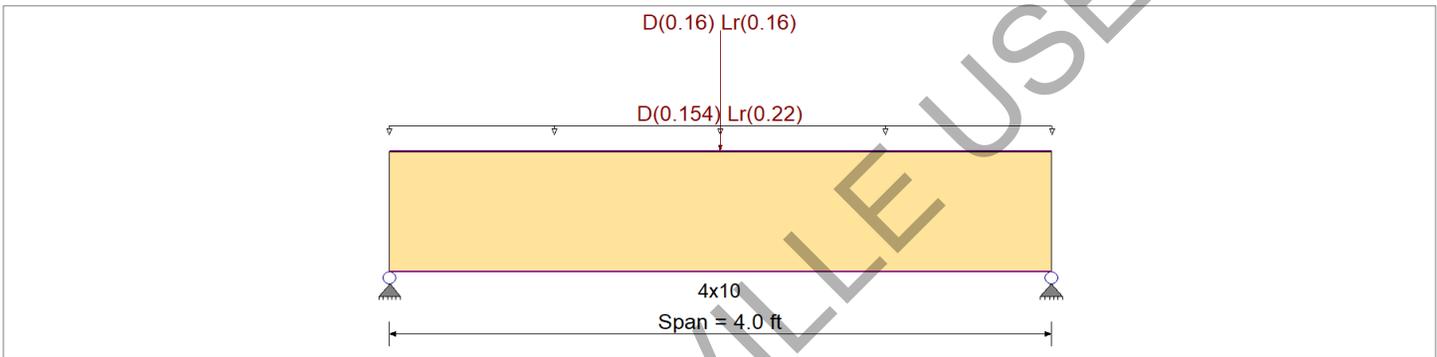
DESCRIPTION: B2

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,350.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1,350.0 psi	Ebend- xx
	Fc - Prll	925.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1	Fv	170.0 psi	Density
	Ft	675.0 psi	31.210pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
 Uniform Load : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 11.0 ft
 Point Load : D = 0.160, Lr = 0.160 k @ 2.0 ft, (PL FROM B1)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.128 : 1	Maximum Shear Stress Ratio =	0.138 : 1
Section used for this span =	4x10	Section used for this span =	4x10
=	260.15psi	=	29.32 psi
=	2,025.00psi	=	212.50 psi
Load Combination =	+D+Lr	Load Combination =	+D+Lr
Location of maximum on span =	2.000ft	Location of maximum on span =	3.241 ft
Span # where maximum occurs =	Span # 1	Span # where maximum occurs =	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.004 in	Ratio =	10775 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.008 in	Ratio =	6012 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values							
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v				
D Only	Length = 4.0 ft	1	0.079	0.085	0.90	1.200	1.00	1.00	1.00	1.00	1.00	1.00	0.48	115.89	1458.00	0.00	0.00	0.00	0.28	12.96	153.00
+D+Lr	Length = 4.0 ft	1	0.128	0.138	1.25	1.200	1.00	1.00	1.00	1.00	1.00	1.00	1.08	260.15	2025.00	0.63	29.32	212.50	0.00	0.00	0.00
+D+0.750Lr	Length = 4.0 ft	1	0.111	0.119	1.25	1.200	1.00	1.00	1.00	1.00	1.00	1.00	0.93	224.08	2025.00	0.54	25.23	212.50	0.00	0.00	0.00
+0.60D	Length = 4.0 ft	1	0.027	0.029	1.60	1.200	1.00	1.00	1.00	1.00	1.00	1.00	0.29	69.54	2592.00	0.17	7.78	272.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0080	2.015		0.0000	0.000

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DESCRIPTION: B2

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.922	0.922
Overall MINimum	0.520	0.520
D Only	0.402	0.402
+D+Lr	0.922	0.922
+D+0.750Lr	0.792	0.792
+0.60D	0.241	0.241
Lr Only	0.520	0.520

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Wood Beam

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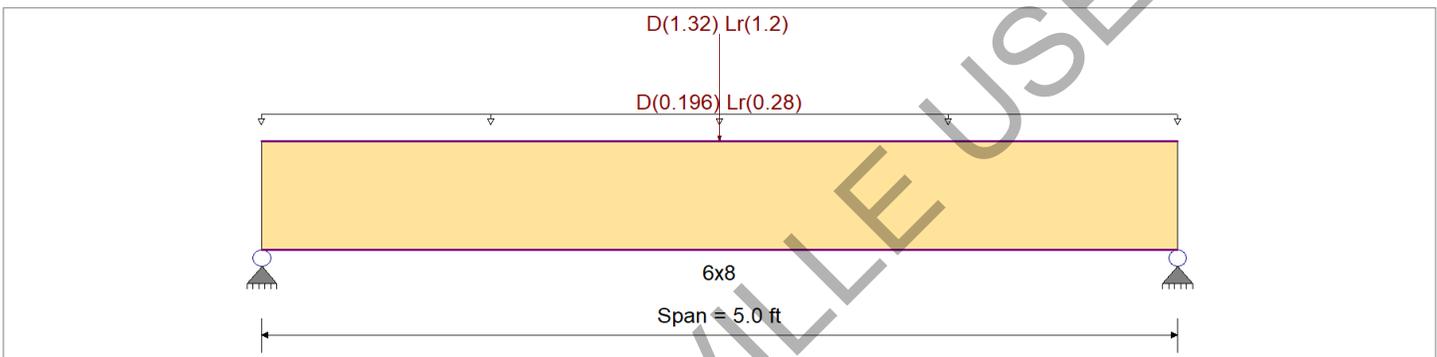
DESCRIPTION: B3

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,350.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	1,350.0 psi	Ebend- xx
	Fc - Prll	925.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1	Fv	170.0 psi	
	Ft	675.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			31.210pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
 Uniform Load : D = 0.0140, Lr = 0.020 ksf, Tributary Width = 14.0 ft
 Point Load : D = 1.320, Lr = 1.20 k @ 2.50 ft, (PL From G.T.)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.643 : 1	Maximum Shear Stress Ratio =	0.372 : 1
Section used for this span =	6x8	Section used for this span =	6x8
=	1,085.77 psi	=	78.96 psi
=	1,687.50 psi	=	212.50 psi
Load Combination =	+D+Lr	Load Combination =	+D+Lr
Location of maximum on span =	2.500ft	Location of maximum on span =	0.000ft
Span # where maximum occurs =	Span # 1	Span # where maximum occurs =	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.030 in	Ratio =	1976 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.059 in	Ratio =	1016 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values								
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v					
D Only	Length = 5.0 ft	1	0.439	0.248	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.29	533.05	1215.00	0.00	0.00	0.00	1.05	38.01	153.00
+D+Lr	Length = 5.0 ft	1	0.643	0.372	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.67	1,085.77	1687.50	0.00	0.00	0.00	2.17	78.96	212.50
+D+0.750Lr	Length = 5.0 ft	1	0.562	0.323	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.07	947.59	1687.50	0.00	0.00	0.00	1.89	68.72	212.50
+0.60D	Length = 5.0 ft	1	0.148	0.084	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.37	319.83	2160.00	0.00	0.00	0.00	0.63	22.80	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0590	2.518		0.0000	0.000

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DESCRIPTION: B3

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.472	2.472
Overall MINimum	1.300	1.300
D Only	1.172	1.172
+D+Lr	2.472	2.472
+D+0.750Lr	2.147	2.147
+0.60D	0.703	0.703
Lr Only	1.300	1.300

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Wood Column

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DESCRIPTION: 6x6 POST

Maximum Reactions

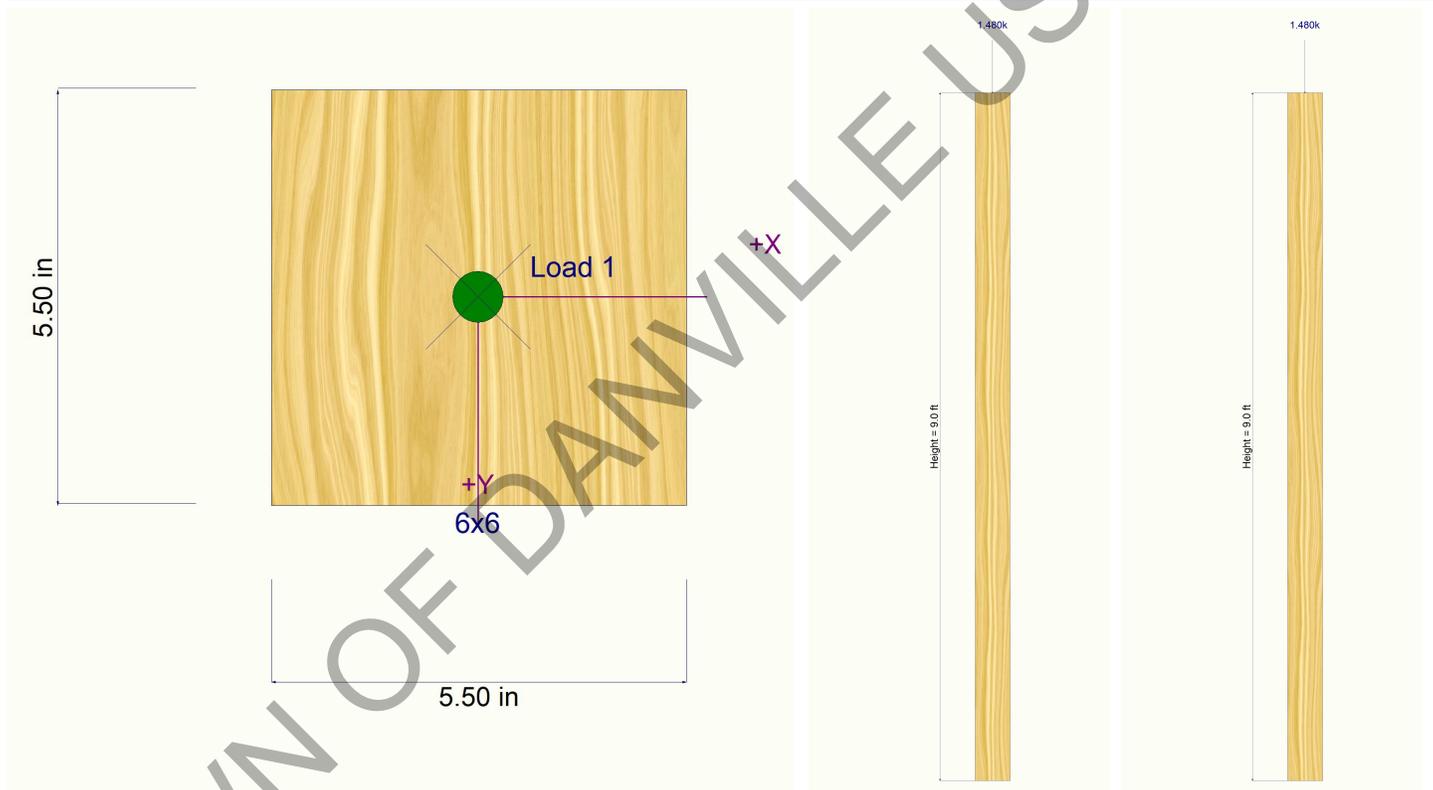
Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		k	Y-Y Axis Reaction		Axial Reaction	My - End Moments		Mx - End Moments	
	@ Base	@ Top		@ Base	@ Top		@ Base	@ Top	@ Base	@ Top
+0.60D						0.431				
Lr Only						0.820				

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.0000 in	0.000 ft
+D+Lr	0.0000 in	0.000 ft	0.0000 in	0.000 ft
+D+0.750Lr	0.0000 in	0.000 ft	0.0000 in	0.000 ft
+0.60D	0.0000 in	0.000 ft	0.0000 in	0.000 ft
Lr Only	0.0000 in	0.000 ft	0.0000 in	0.000 ft

Sketches





PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

SPREAD FOOTING FOUNDATION ANALYSIS:

<u>Allowable Stress:</u>		<u>Footing Reinf:</u>	
fy (ksi):	60	(2) #4 in Top	As used: 0.4
f'c (psi):	2500	(2) #4 in Bottom	

Grid Line:	1	2	A	B
<u>Footing Design Criteria:</u>				
Allow. Bearing Pres. (psf):	1500	1500	1500	1500
Footing Width (in):	12	12	12	12
Footing Depth (in):	18	18	18	18
Unsupported Length (ft):	5.0	5.0	5.0	5.0
<u>Uniform Loads:</u>				
Roof Trib (ft)	11.0	13.0	17.0	17.0
Roof DL (psf)	22.0	22.0	22.0	22.0
Roof LL (psf)	20.0	20.0	20.0	20.0
Floor Trib (ft)	0.0	0.0	0.0	0.0
Floor DL (psf)	15.0	15.0	15.0	15.0
Floor LL (psf)	40.0	40.0	40.0	40.0
Lower Floor Trib (ft)	0.0	0.0	0.0	0.0
Lower Floor DL (psf)	15.0	15.0	15.0	15.0
Lower Floor LL (psf)	40.0	40.0	40.0	40.0
Deck Trib (ft)	0.0	0.0	0.0	0.0
Deck DL (psf)	15.0	15.0	15.0	15.0
Deck LL (psf)	60.0	60.0	60.0	60.0
Wall Trib (ft)	10.0	10.0	10.0	10.0
Wall DL (psf)	17.0	17.0	17.0	17.0
TOTAL DL (plf):	412	456	544	544
TOTAL Lr (plf):	220	260	340	340
TOTAL LL (plf):	0	0	0	0
<u>Point Load:</u>				
Max. Point DL (lbs)	1320	1320	0	0
Max. Point Lr (lbs)	1200	1200	0	0
Max. Point LL (lbs)	0	0	0	0
Max. HD Load (lbs)	1881	3521	4130	4404
<u>Soil Analysis:</u>				
q (psf):	1247	1331	723	771
q/ q _{ALLOW} :	0.83	0.89	0.48	0.51
M_{max} (ft-lb):	7026 ft-lb	7391 ft-lb	5417 ft-lb	5674 ft-lb
V_{max} (lb):	3869 lbs	4161 lbs	2993 lbs	2993 lbs
Allowable M_{max} (ft-lb):	25253 ft-lb	25253 ft-lb	25253 ft-lb	25253 ft-lb
Allowable V_{max} (lb):	7395 lbs	7395 lbs	7395 lbs	7395 lbs
Footing A(s) req'd:	0.40	0.40	0.40	0.40
	O.K.	O.K.	O.K.	O.K.



PROJECT: Town of Danville Studio ADU

CLIENT: Town of Danville

JOB NO.: W021420

CALCS BY: J. Peek

DATE: 3/24/2023

PIER AND GRADE BEAM FOUNDATION ANALYSIS:

<u>Allowable Stress:</u>		<u>Grade Beam Reinf:</u>	
fy (ksi):	60	(3) #5 in Top	As used: 0.93
f'c (psi):	2500	(3) #5 in Bottom	

Grid Line:	1	2	A	B
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Pier Design Criteria:

Allow. Skin Friction (psf):	250	250	250	250
Pier Diameter (in):	16	16	16	16
Neglect Pier Depth (ft):	2	2	2	2

Grade Beam Design Criteria:

Grade Beam Width (in):	12	12	12	12
Grade Beam Depth (in):	18	18	18	18
Grade Beam Span (ft):	8.0	8.0	8.0	8.0

Uniform Loads:

Roof Trib (ft)	11.0	13.0	17.0	17.0
Roof DL (psf)	22.0	22.0	22.0	22.0
Roof LL (psf)	20.0	20.0	20.0	20.0
Floor Trib (ft)	0.0	0.0	0.0	0.0
Floor DL (psf)	15.0	15.0	15.0	15.0
Floor LL (psf)	40.0	40.0	40.0	40.0
Lower Floor Trib (ft)	0.0	0.0	0.0	0.0
Lower Floor DL (psf)	15.0	15.0	15.0	15.0
Lower Floor LL (psf)	40.0	40.0	40.0	40.0
Deck Trib (ft)	0.0	0.0	0.0	0.0
Deck DL (psf)	15.0	15.0	15.0	15.0
Deck LL (psf)	60.0	60.0	60.0	60.0
Wall Trib (ft)	10.0	10.0	10.0	10.0
Wall DL (psf)	17.0	17.0	17.0	17.0
TOTAL DL (plf):	637	681	769	769
TOTAL Lr (plf):	220	260	340	340
TOTAL LL (plf):	0	0	0	0

Point Load:

Max. Point DL (lbs)	1320	1320	0	0
Max. Point Lr (lbs)	1200	1200	0	0
Max. Point LL (lbs)	0	0	0	0
Max. HD Load (lbs)	1881	3521	4130	4404

Grade Beam Analysis:

M_{max} (ft-lb):	15942 ft-lb	16877 ft-lb	11764 ft-lb	12176 ft-lb
V_{max} (lb):	6219 lbs	6686 lbs	5869 lbs	5869 lbs
Allowable M_{max} (ft-lb):	56104 ft-lb	56104 ft-lb	56104 ft-lb	56104 ft-lb
Allowable V_{max} (lb):	7395 lbs	7395 lbs	7395 lbs	7395 lbs
Grade Beam A(s) req'd:	0.93	0.93	0.93	0.93
	O.K.	O.K.	O.K.	O.K.

Pier Analysis:

Design Pier Load (lbs):	9378	10051	8875	8875
Req'd Pier Depth (ft)	10.96	11.60	10.48	10.48
Use Pier Depth (ft):	11	12	11	11