

ALL PRO DESIGNS

2130 Huntington Drive Unit #310
South Pasadena, CA 91030
Cell: 951-475-0211
email: dionvelasco@gmail.com

PROJECT NAME:

CITY OF LAKE ELSINORE
GARAGE CONVERSION ADU
PLAN SET

STAMP APPROVAL

REGISTRATION & SIGNATURE

ATTACHED OR DETACHED GARAGE CONVERSION

ISSUES / REVISIONS:

JOB NUMBER: DV2024-008

DESIGNER: DIONICIA VELASCO

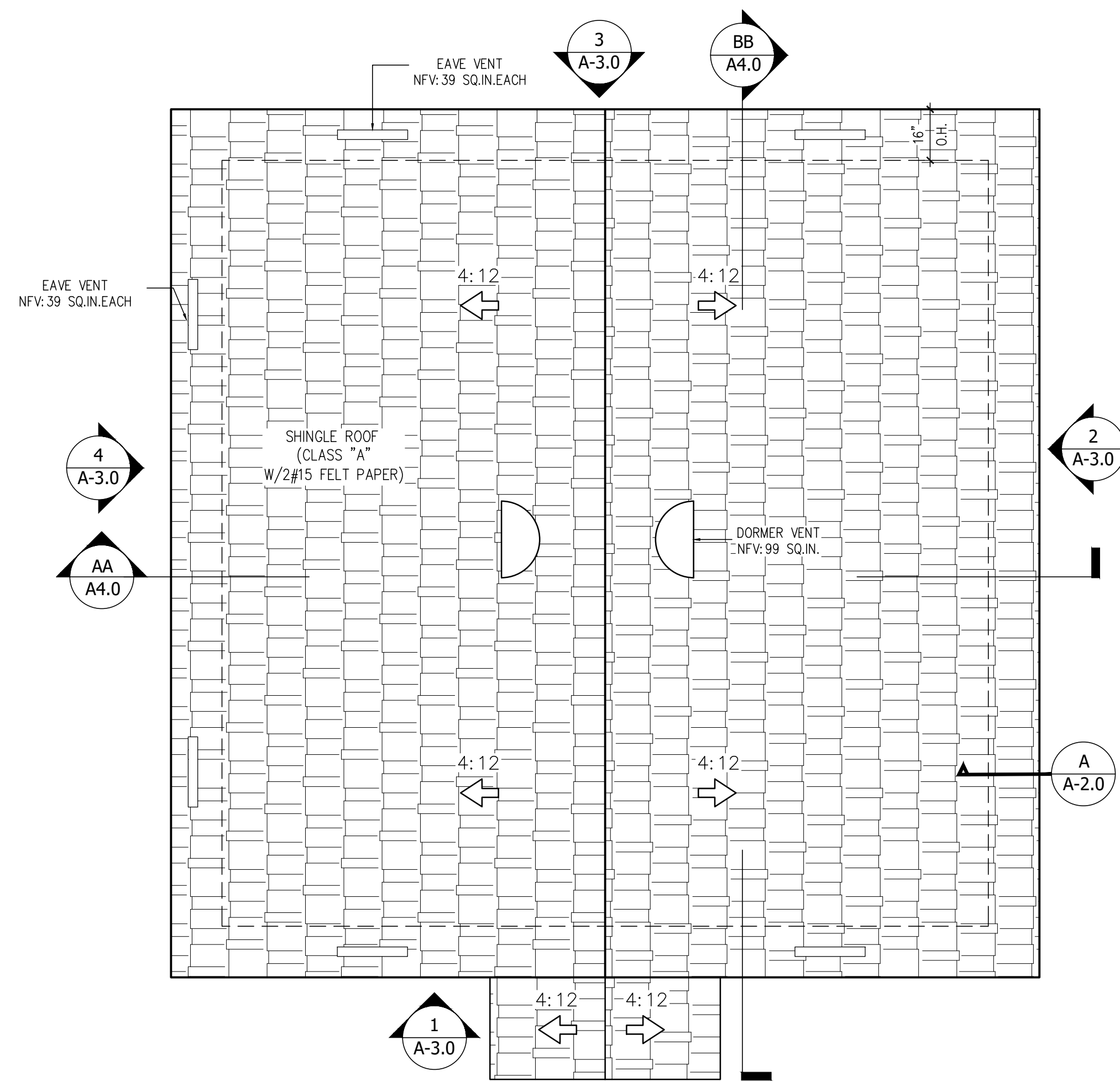
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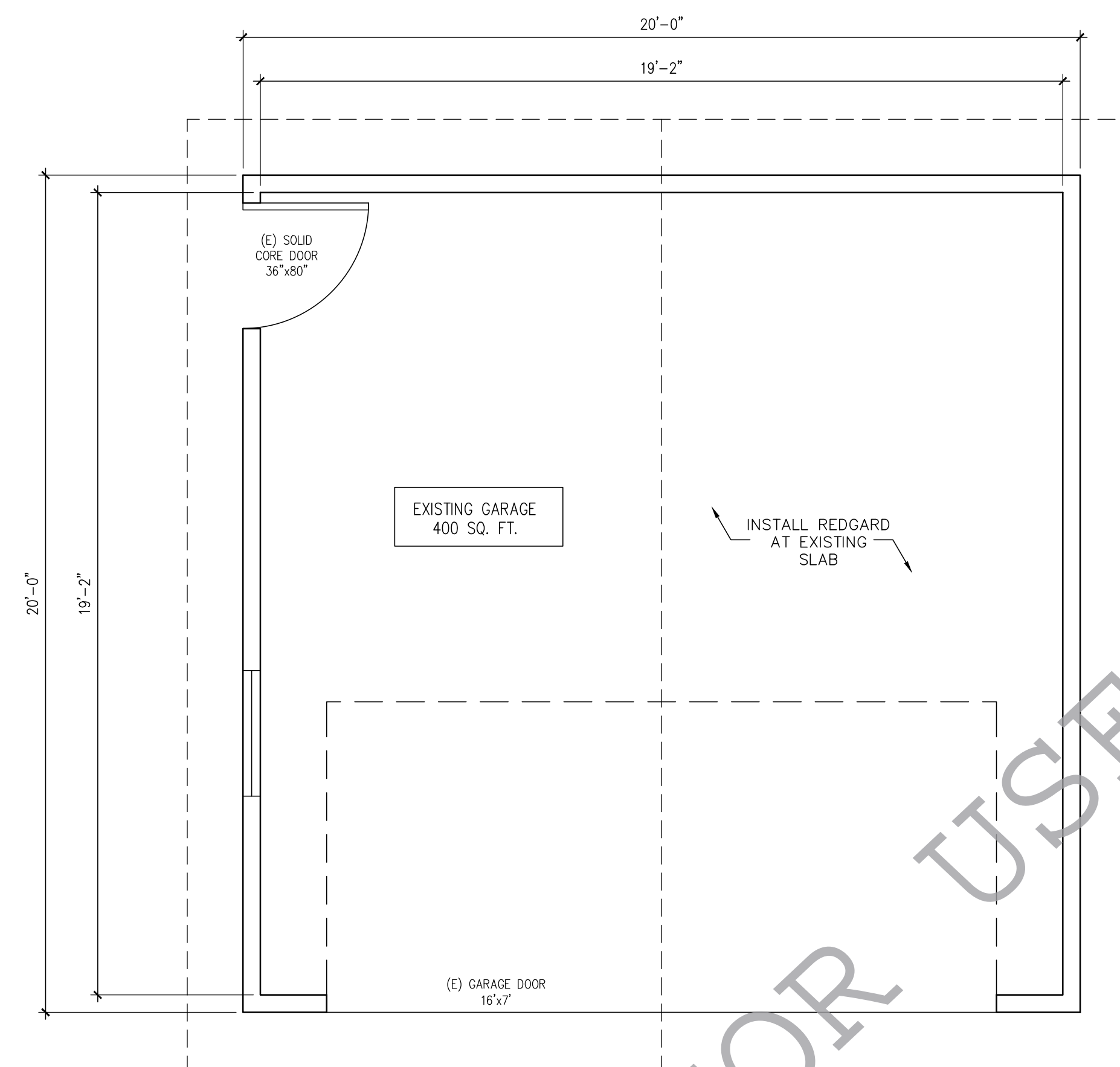
SHEET CONTENTS:
PROPOSED ROOF PLAN,
EXISTING & PROPOSED
FLOOR PLAN

SHEET NUMBER:

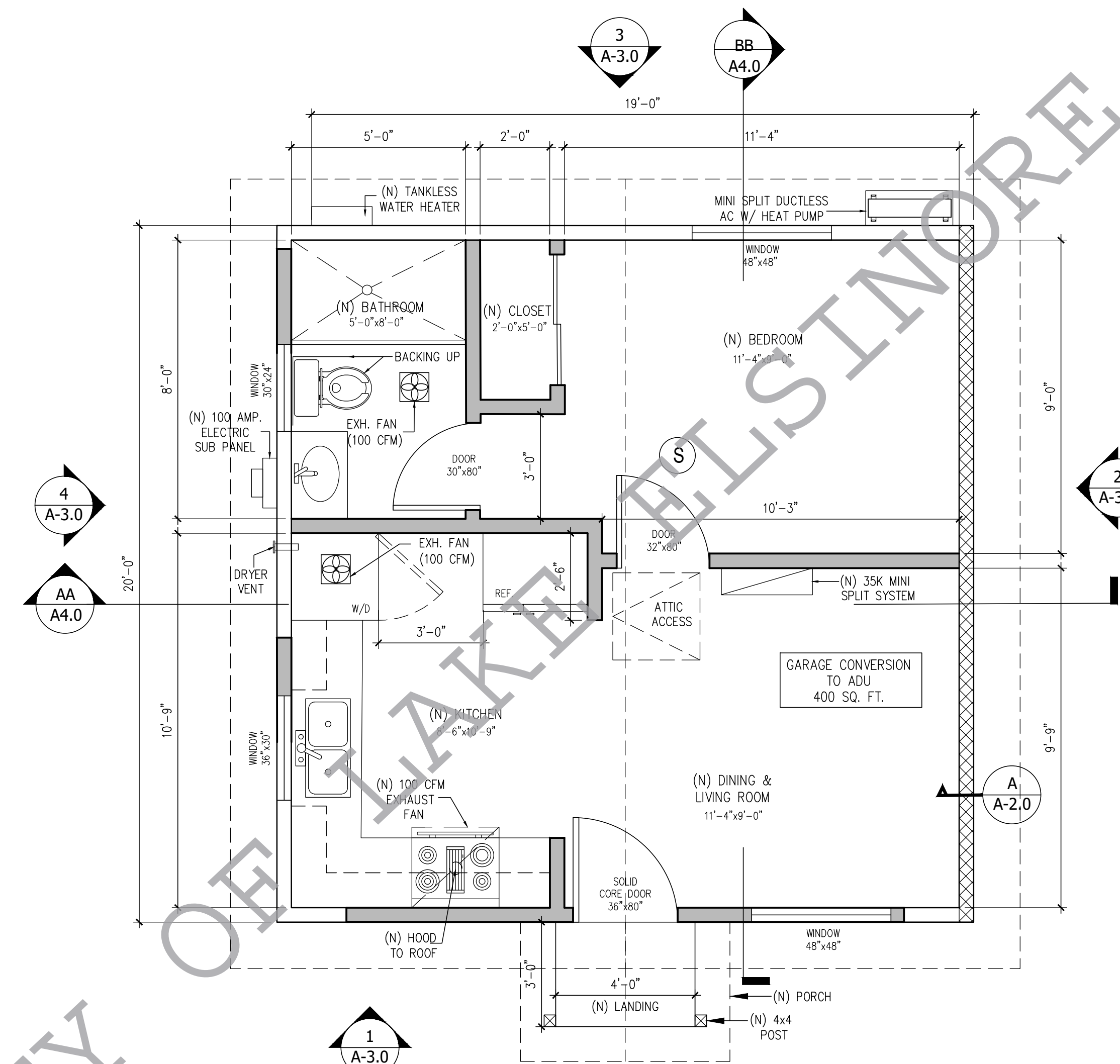
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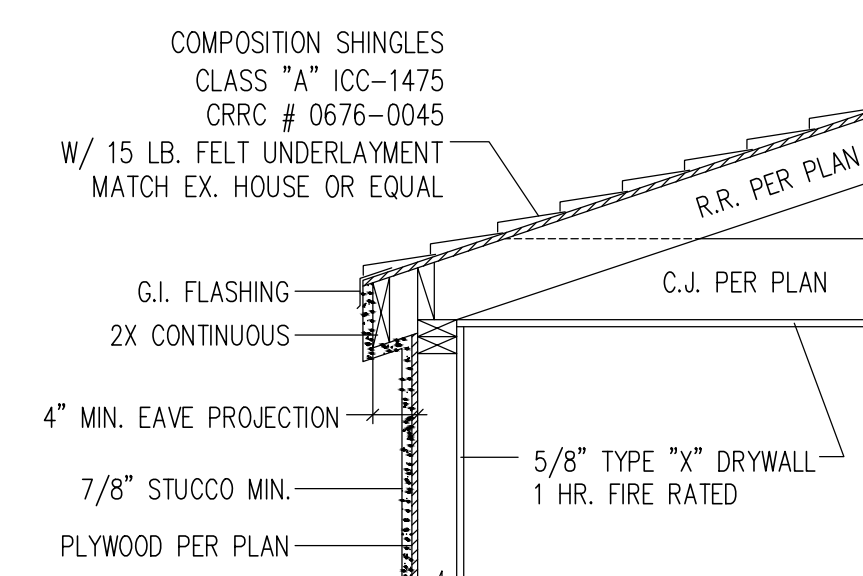
1 EXISTING/PROPOSED ROOF PLAN (CONVERSION GARAGE TO ADU)
SCALE : 3/8"=1'-0"



2 EXISTING FLOOR PLAN (GARAGE)
SCALE : 3/8"=1'-0"



3 PROPOSED FLOOR PLAN (NEW ADU)
SCALE : 3/8"=1'-0"



A 1-HR RATED DETAIL
NO EAVE VENT PERMITTED

- NOTES:
1. THE ARCHITECTURAL STYLE OF THE CONVERSION GARAGE TO ADU HAS TO MATCH WITH THE EXISTING HOUSE.
 2. DO NOT PUT EAVE VENT ON WALL THAT HAS A 1-HOUR FIRE RATING.
 3. IF APPLICABLE ON GARAGE CONVERSION (ADU) IS LESS THAN 5 FEET DISTANCE FRONT PROPERTY LINE A 1-HOUR FIRE SEPARATION MUST APPLY.
 4. IF THE EXISTING HOME HAS A FIRE SPRINKLER SYSTEM, THE GARAGE TO ADU CONVERSION MUST ALSO HAVE FIRE SPRINKLER SYSTEM.
 5. IF THE EXISTING HOME DOES NOT HAVE A FIRE SPRINKLER SYSTEM, THE NEW ADU WILL NOT HAVE A FIRE SPRINKLER.
 6. WINDOW U FACTOR 0.3, SHGC=0.22

ATTIC VENTILATION CALCULATIONS (ADU):

ATTIC VENTS SHALL MEET THE FOLLOWING: (R806.1, R806.2)
THE NET FREE VENTILATING AREA SHALL NOT BE LESS THAN: 1/150 OF THE ATTIC SPACE OR 1/300 PROVIDED AT LEAST 40% AND NOT MORE THAN 50% OF THE REQUIRED VENT AREA IS LOCATED WITHIN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS.

1. ATTIC AREA FOR ADU : 400 SQ.FT.
2. REQUIRED VENTILATION = 400 SQ. FT. X 1/150 X 144 = 2.7 SQ. FT. = 384 SQ. IN.
3. VENTILATION AREA REQUIRED AT DORMER VENTS OR EAVE VENTS = 384 SQ. IN.
4. NET FREE VENTILATION (NFV) FOR 24" X 12" LOUVER ATTIC VENT = 99 SQ. IN. 1 X 99 SQ. IN. = 99 SQ.IN. (PROVIDED)

384 SQ.IN.(REQUIRED) - 99 SQ.IN. = 285 SQ.IN. REMAINING

5. NET FREE VENTILATION (NFV) FOR 3" X 22" EAVE VENT = 39 SQ. IN. 285 SQ. IN. (REMAINING) / 39 SQ. IN.PER VENT = 8 EAVE VENT

TOTAL VENTS REQUIRED:

TOTAL VENTILATION PROVIDED:

1 DORMER VENT @ 99 SQ. IN. NFV =	99	SQ.IN. NFV
8 EAVE VENT @ 39 SQ. IN. NFV =	312	SQ.IN. NFV
TOTAL VENTILATION PROVIDED =	411	SQ.IN. NFV
TOTAL VENTILATION REQUIRED =	384	SQ.IN. NFV

411 SQ.IN. PROVIDED > 384 SQ.IN. REQUIRED

WALL LEGEND	
	: EXISTING STUD WALL 2x4 AS BUILT W/R13 INSULATION
	: NEW STUD WALL 2x4 @ 16" TYPE 'X' & W.P. AT WET WALL
	: 1-HOUR FIRE RATED WALL STC-50

ELECTRICAL LEGEND	
	EXHAUST FAN (100 CFM) HUMIDITY CONTROLLED PER CALGREEN 4.506.1

FIRE PROTECTION	
	KIDDE COMBINATION SMOKE AND CARBON MONOXIDE ALARM BATTERY OPERATED WITH VOICE ALERT. MODEL # : KN-COSM-XRT-B HARDWIRES W/ BATTERY BACKUP NOTE: INSTALL WHERE NOT PRESENT & REQUIRED
	SMOKE DETECTOR, HARDWIRED WITH BATTERY BACKUP (ONLY), INSTALL IF NOT PRESENT OR REPLACE FOR REQUIRED (WHERE MORE THAN ONE (1) CARBON MONOXIDE ALARM IS REQUIRED THEY SHALL BE INTERCONNECTED SO THAT THE ACTIVATION OF ONE (1) ALARM WILL ACTIVATE ALL ALARMS)

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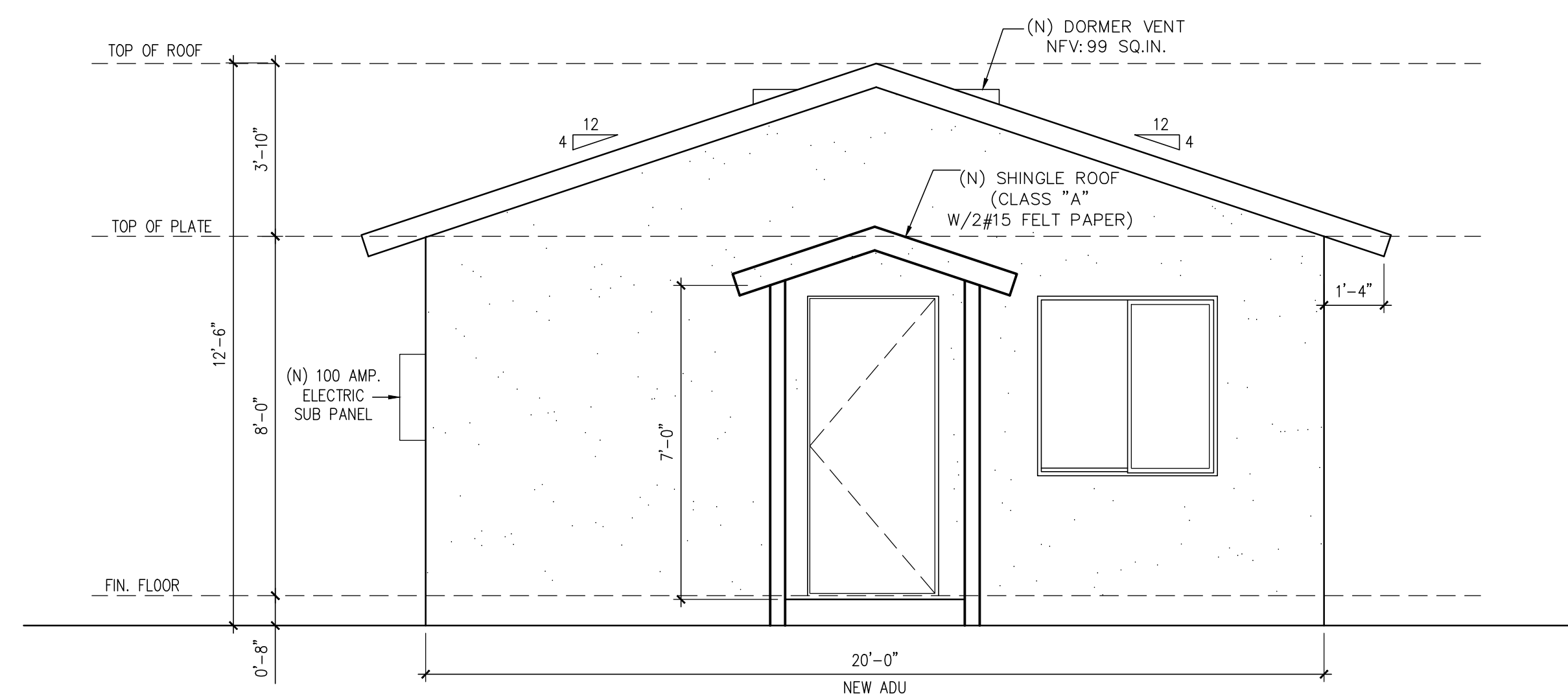
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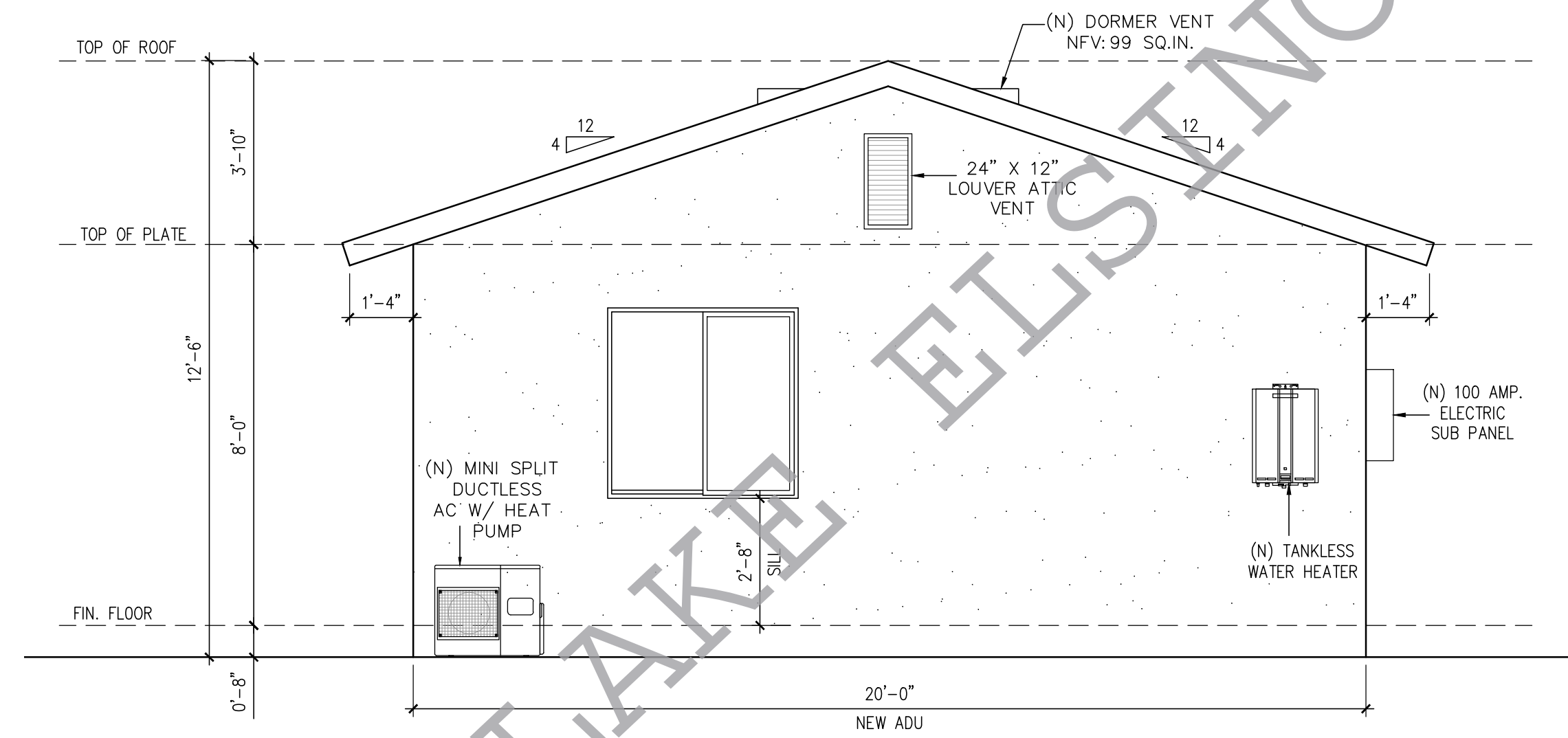
**PROPOSED
ELEVATIONS**

SHEET NUMBER:

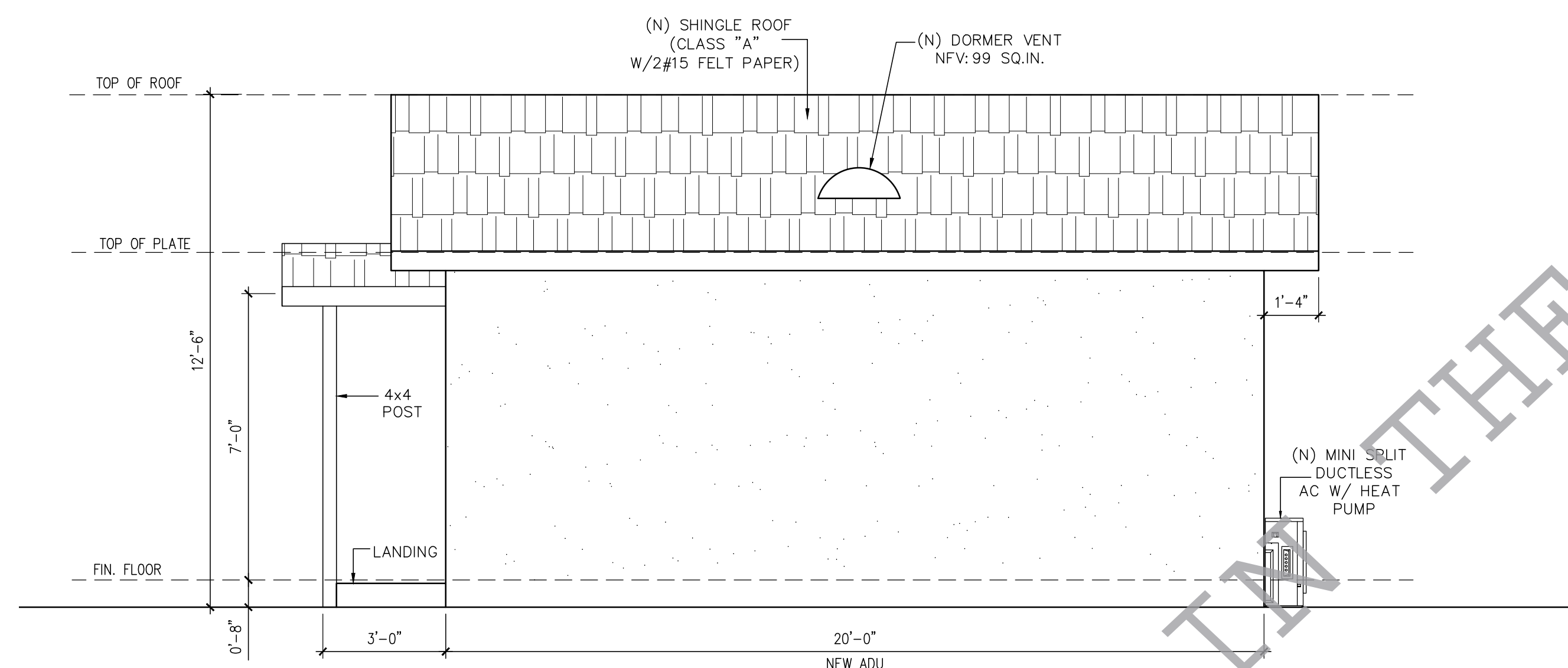
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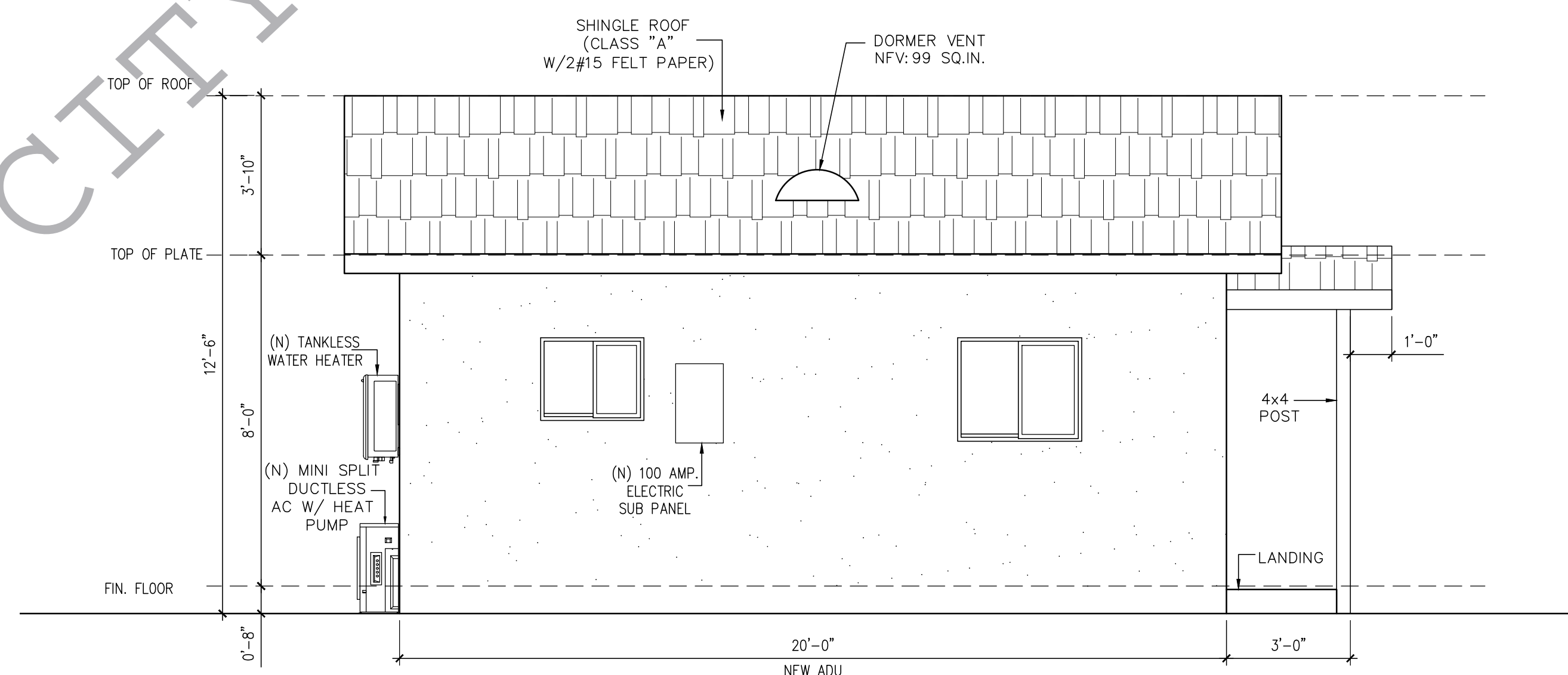
1 PROPOSED SOUTH ELEVATION
SCALE 3/8"=1'-0"



3 PROPOSED NORTH ELEVATION
SCALE 3/8"=1'-0"



2 PROPOSED EAST ELEVATION
SCALE 3/8"=1'-0"



4 PROPOSED WEST ELEVATION
SCALE 3/8"=1'-0"

NOTE:
1. WINDOW U FACTOR 0.3, SHGC=0.23
2. THE ARCHITECTURAL STYLE OF THE CONVERSION GARAGE TO ADU HAS TO MATCH WITH THE EXISTING HOUSE.

FOR USE IN THE CITY OF LAKE ELSINORE

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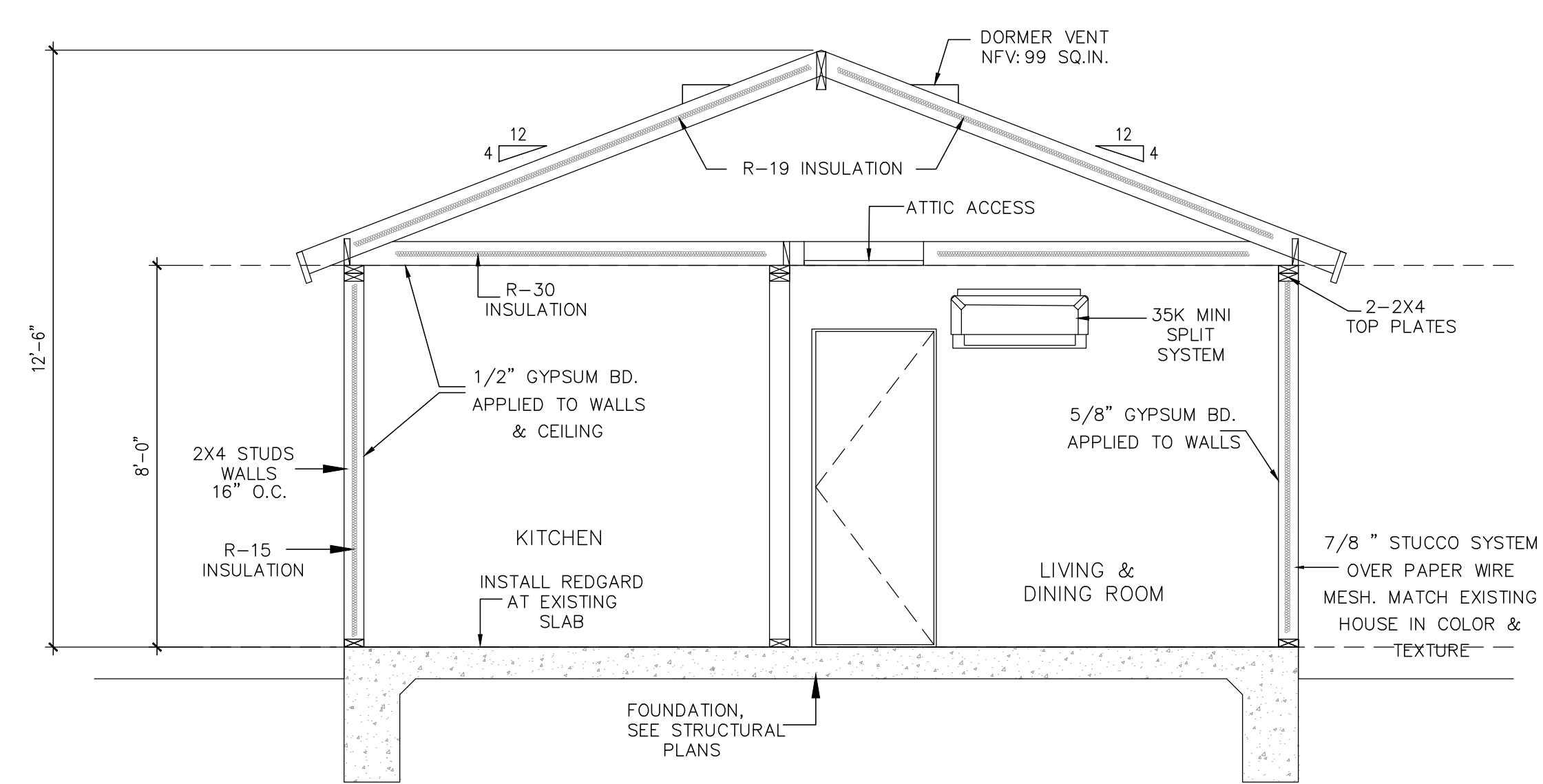
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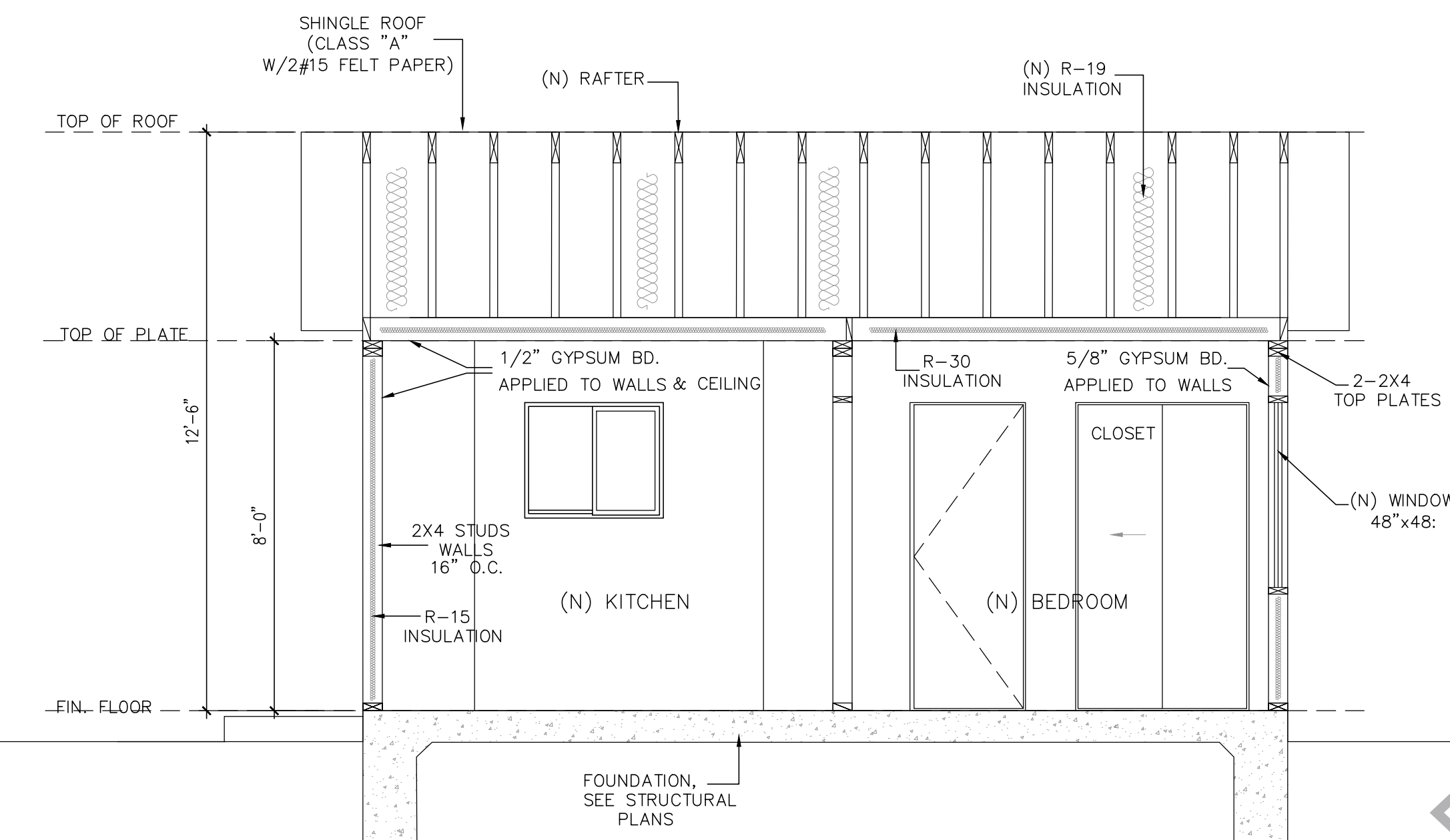
SHEET CONTENTS:
PROPOSED SECTIONS Y
PROPOSED ELECTRIC
PLAN

SHEET NUMBER:

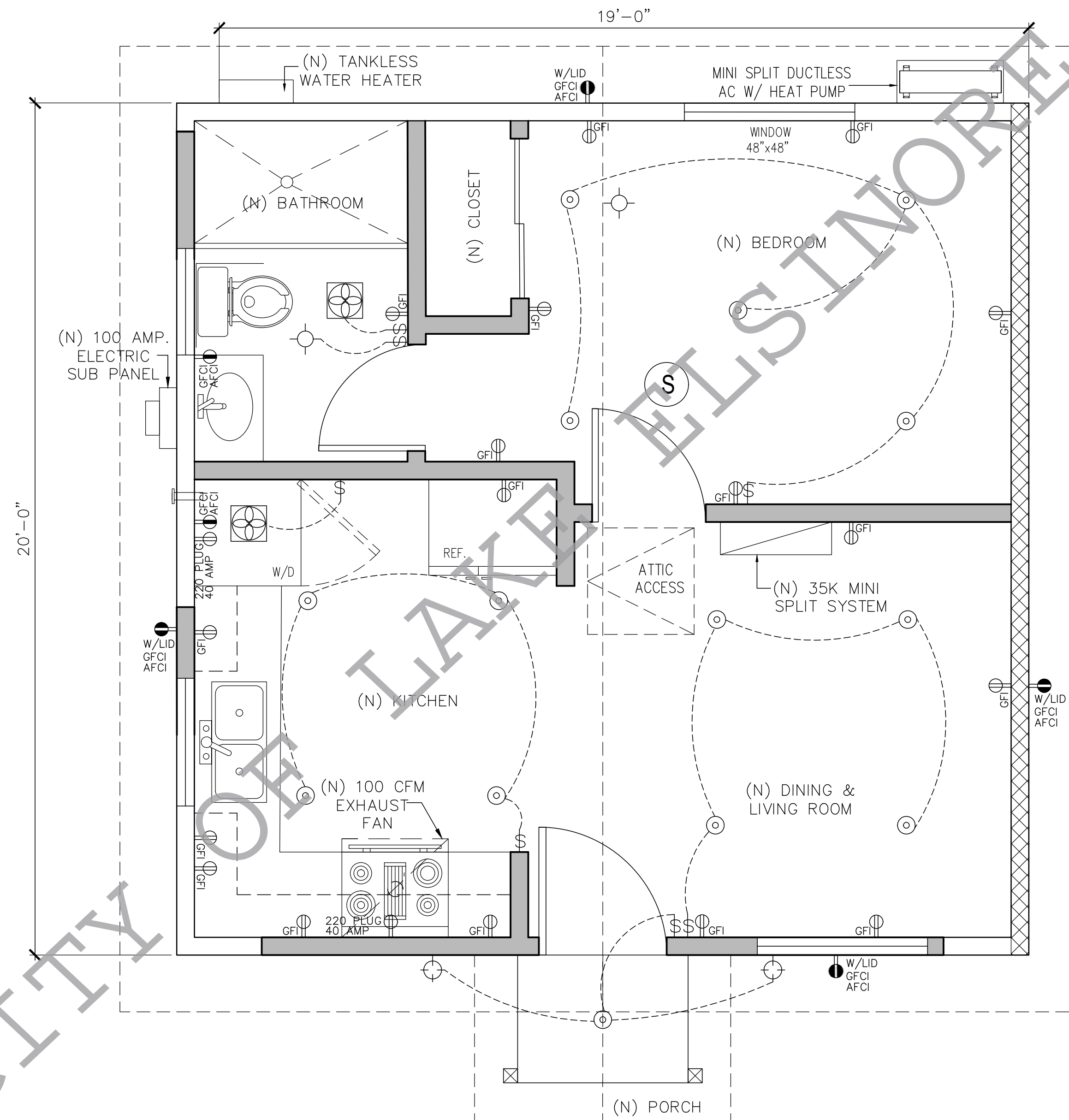
A-4.0



A-A PROPOSED SECTION
 SCALE 3/8"=1'-0"



B-B PROPOSED SECTION
 SCALE 3/8"=1'-0"



1 PROPOSED ELECTRIC PLAN (ADU)
 SCALE :1/2"=1'-0"

ELECTRICAL NOTES:

- EVERY KITCHEN, FAMILY ROOM, DINING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM, OR SIMILAR ROOM OR AREA SHALL HAVE RECEPTACLE OUTLETS INSTALLED IN ACCORDANCE WITH:
 - RECEPTACLES SHALL BE INSTALLED SO THAT NO POINT MEASURED HORIZONTALLY ALONG THE FLOOR LINE IN ANY WALL SPACE IS MORE THAN 6 FT. FROM A RECEPTACLE OUTLET.
 - WALL SPACE SHALL INCLUDE: 1) ANY SPACE 2 FT. OR MORE IN WIDTH (INCLUDING SPACE MEASURED AROUND CORNERS) AND UNBROKEN ALONG THE FLOOR LINE BY DOORWAYS, FIREPLACES AND SIMILAR OPENINGS> 2) THE SPACE OCCUPIED BY FIXED PANELS IN EXTERIOR WALL, EXCLUDING SLIDING PANELS. 3) THE SPACE AFFORDED BY FIXED ROOM DIVIDERS SUCH AS FREESTANDING BAR-TYPE COUNTERS OR RAILINGS.
- RECEPTACLE OUTLETS SHALL BE INSTALLED IN ACCORDANCE WITH:
 - AT LEAST ONE OUTLET ACCESSIBLE AT GRADE LEVEL AND NOT MORE THAN 6-1/2 FT. ABOVE GRADE SHALL BE INSTALLED AT THE FRONT AND BACK OF THE DWELLING.
 - ON RECEPTACLE OUTLET WITHIN 3-FT. OF THE WATER HEATER.
- A 125-VOLT, 15-OR 20-AMPERE-RATED RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION FOR THE SERVICING OF HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT. THE OUTLET SHALL BE INSTALLED AT THE SAME LEVEL AND WITHIN 25'-FT. OF THE EQUIPMENT.
- INDICATE THAT THE RECEPTACLE SERVING THE KITCHEN APPLIANCES SHALL BE ON A DEDICATED CIRCUIT.
- ALL 120-VOLT, SINGLE-PHASE 15-AND 20-AMPERE RECEPTACLES SHALL HAVE A GROUND-FULT CIRCUIT-INTERRUPTER (GFCI OR GFPI) PROTECTION WHEN INSTALLED IN THE FOLLOWING LOCATIONS:
 - KITCHEN COUNTERTOPS
 - WHITING 6-FT OF SINK
 - LAUNDRY
 - OUTDOORS (WEATHER-RESISTIVE, TOO)
- ALL 120-VOLT, SINGLE-PHASE 15-AND 20-AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER (AFCI), COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT WHEN INSTALLED IN THE SINGLE-FAMILY RESIDENCE (BATHROOM & GARAGES ARE EXEMPT).
- GFCI & AFCI PROTECTION SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION.
- PER HIGH EFFICACY LIGHTING REQUIREMENTS OF THE ENERGY CODE, THE LIGHTING SHALL COMPLY WITH THE FOLLOWING:
 - ALL INTERIOR LIGHTING SHALL BE HIGH EFFICACY.
 - IF JA8 LISTED (LED), THEN LIGHTING SHALL BE CONTROLLED BY DIMMER OR VACANCY SENSOR.
 - BATHROOMS AND LAUNDRY SHALL BE PROVIDED WITH AT LEAST ONE HIGH EFFICACY LIGHTING FIXTURE CONTROLLED BY A VACANCY SENSOR.
 - EXTERIOR LIGHTING ATTACHED TO THE STRUCTURE SHALL BE HIGH EFFICACY AND MUST BE CONTROLLED BY A MANUAL ON AND OFF SWITCH AND ONE OF THE FOLLOWING AUTOMATIC CONTROL TYPES:
 - PHOTOCONTROL AND MOTION SENSOR
 - PHOTOCONTROL AND AUTOMATIC TIME SWITCH CONTROL.
- ALL 15- AND 20- AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES THAT ARE INSTALLED ON THE EXTERIOR OF A DWELLING UNIT AND LOCATED IN DAMP OR WET LOCATIONS, SHALL BE LISTED AS WEATHER-RESISTANT TYPE. [CEC 406.9(A)&(B)] INDIVIDUAL DEDICATED CIRCUITS ARE REQUIRED FOR ALL MAJOR APPLIANCES. THE RATING OF AN INDIVIDUAL BRANCH CIRCUIT SHALL NOT BE LESS THAN THE MARKED RATING OF THE APPLIANCES OR THE COMBINED LOADS AS PROVIDED IN 422.62. [CEC 210.11(C) & 422.10(A)] DEDICATED 20-AMP CIRCUIT FOR BATHROOM, 20-AMP CIRCUIT FOR LAUNDRY ROOM AND A MINIMUM OF (2) 20-AMP CIRCUIT FOR SMALL APPLIANCES AT KITCHEN.

ELECTRICAL LEGEND	ELECTRICAL LEGEND
EXHAUST FAN (80 CFM) 5-AIR CHANGES PER HOUR HUMIDITY CONTROLLED PER CALGREEN 4.506.1	EXHAUST FAN (100 CFM) HUMIDITY CONTROLLED PER CALGREEN 4.506.1
ELECTRICAL OUTLET, TYP., AFCI	FIRE PROTECTION
ELECTRICAL OUTLET ABOVE COUNTER OR 36" OFF GROUND, (AFCI, GFCI)	
GFCI ELECTRICAL OUTLET (W) - WALL MOUNTED OUTLET, AFCI	KIDDE COMBINATION SMOKE AND CARBON MONOXIDE ALARM BATTERY OPERATED WITH VOICE ALERT. MODEL # : KN-COSM-XRT-B HARDWIRES W/ BATTERY BACKUP NOTE: INSTALL WHERE NOT PRESENT & REQUIRED
ELECTRICAL OUTLET W/ LID, AFCI, GFCI	SMOKE DETECTOR, HARDWIRED WITH BATTERY BACKUP (ONLY). INSTALL IF NOT PRESENT OR REPLACE FOR REQUIRED (WHERE MORE THAN ONE (1) CARBON MONOXIDE ALARM IS REQUIRED, THEY SHALL BE INTERCONNECTED SO THAT THE ACTIVATION OF ONE (1) ALARM WILL ACTIVATE ALL ALARMS)
LIGHT SWITCH WITH WHITE FACEPLATE	WALL LEGEND
2-WAY LIGHT SWITCH WITH WHITE FACEPLATE (DIMMER)	
LED TYPE LIGHT FIXTURE	
6" RECESSED LIGHT FIXTURE	:EXISTING STUD WALL 2x4 AS BUILT W/R13 INSULATION
WALL MOUNTED LIGHT (LED TYPE)	:NEW STUD WALL 2x4 @ 16" TYPE 'X' & W.P. AT WET WALL
	:1-HOUR FIRE RATED WALL STC-50

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE RESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2024 Supplement)

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SHEET CONTENTS:

2022 CAL GREEN
BUILDING
STANDARDS CODE

SHEET NUMBER:

GB-1

<p>CHAPTER 3 GREEN BUILDING SECTION 301 GENERAL 301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.</p> <p>301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.</p> <p>The mandatory provision of Section 4.106.4.2 may apply to additions or alterations of existing parking facilities or the addition of new parking facilities serving existing multifamily buildings. See Section 4.106.4.3 for application.</p> <p>Note: Repairs including, but not limited to, resurfacing, restriping and repairing or maintaining existing lighting fixtures are not considered alterations for the purpose of this section.</p> <p>Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.</p> <p>301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of individual sections of CALGreen may apply to either low-rise residential buildings or high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.</p> <p>SECTION 302 MIXED OCCUPANCY BUILDINGS 302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.</p> <p>Exceptions:</p> <ol style="list-style-type: none">[HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.[HCD] For purposes of CALGreen, live/work units, complying with Section 419 of the California Building Code, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable. <p>DIVISION 4.1 PLANNING AND DESIGN ABBREVIATION DEFINITIONS:</p> <p>HCD Department of Housing and Community Development BSC California Building Standards Commission DSA-SS Division of the State Architect, Structural Safety OSH/PD Office of Statewide Health Planning and Development LR Low Rise HR High Rise AA Additions and Alterations N New</p> <p>CHAPTER 4 RESIDENTIAL MANDATORY MEASURES</p> <p>SECTION 4.102 DEFINITIONS 4.102.1 DEFINITIONS The following terms are defined in Chapter 2 (and are included here for reference)</p> <p>FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.</p> <p>WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.</p> <p>4.106 SITE DEVELOPMENT 4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.</p> <p>4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.</p> <ol style="list-style-type: none">Retention basins of sufficient size shall be utilized to retain storm water on the site.Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency.Compliance with a lawfully enacted storm water management ordinance. <p>Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil. (Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)</p> <p>4.106.3 GRADING AND PAVING. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:</p> <ol style="list-style-type: none">SwalesWater collection and disposal systemsFrench drainsWater retention gardensWater water measures which keep surface water away from buildings and aid in groundwater recharge. <p>Exception: Additions and alterations not altering the drainage path.</p> <p>4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Section 4.106.4.1 or 4.106.4.2. Electric vehicle supply equipment (EVSE) shall comply with the California Electrical Code.</p> <p>Exceptions:</p> <ol style="list-style-type: none">On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:<ol style="list-style-type: none">Where there is no local utility power supply or the local utility is unable to supply adequate power.Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 4.106.4, may adversely impact the construction cost of the project.Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities. <p>4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere 208/240-volt minimum dedicated branch circuit and space(s) reserved for installation of a branch circuit overcurrent protective device.</p> <p>Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger at the time of original construction in accordance with the California Electrical Code.</p> <p>4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".</p>	<p>4.106.4.2 New multifamily dwellings, hotels and motels and new residential parking facilities. When parking is provided, parking spaces for new multifamily dwellings, hotels and motels shall meet the requirements of Section 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as an EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.</p> <p>4.106.4.2.1 Reserved.</p> <p>4.106.4.2.2 Multifamily dwellings, hotels and motels</p> <p>1. EV ready parking spaces with receptacles.</p> <p>a. Hotels and motels. Forty (40) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles.</p> <p>b. Multifamily parking facilities. Forty (40) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. EV charging receptacles required by this section shall be located in at least one assigned parking space per dwelling unit where assigned parking is provided but need not exceed forty (40) percent of the total number of assigned parking spaces provided on the site.</p> <p>Exception: Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the California Building Code; or parking facilities otherwise incapable of supporting electric vehicle charging.</p> <p>c. Receptacle power source. EV charging receptacles in multifamily parking facilities shall be provided with a dedicated branch circuit connected to the dwelling unit's electrical panel, unless determined as infeasible by the project builder or designer and subject to concurrence of the local enforcing agency.</p> <p>Exception: Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the California Building Code; or parking facilities otherwise incapable of supporting electric vehicle charging.</p> <p>d. Receptacle configurations. 208/240V EV charging receptacles shall comply with one of the following configurations:</p> <ol style="list-style-type: none">For 20-ampere receptacles, NEMA 6-20RFor 30-ampere receptacles, NEMA 14-30RFor 50-ampere receptacles, NEMA 14-50R <p>2. EV ready parking spaces with EV chargers.</p> <p>a. Hotels and motels. Ten (10) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers. At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors.</p> <p>b. Multifamily parking facilities. Ten (10) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers. At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors. Where common use parking or unassigned parking is provided, EV chargers shall be located in common use or unassigned parking areas and shall be available for use by all residents or guests.</p> <p>Where low power Level 2 EV charging receptacles or Level 2 EV chargers are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EV chargers shall have a capacity of not less than 30 amperes.</p> <p>4.106.4.2.2.1 Electric vehicle charging stations (EVCS). Electric vehicle charging stations required by Section 4.106.4.2.2, Item 2, with EV chargers installed shall comply with Section 4.106.4.2.2.1.1.</p> <p>Exception: Electric vehicle charging stations serving public accommodations, public housing, hotels and motels shall not be required to comply with this section. See California Building Code, Chapter 11B, for applicable requirements.</p> <p>4.106.4.2.2.1.1 Electric vehicle charging stations (EVCS) spaces with EV chargers installed; dimensions and location. EVCS spaces shall be designed to comply with the following:</p> <ol style="list-style-type: none">The minimum length of each EVCS space shall be 18 feet (5486 mm).The minimum width of each EVCS space shall be 9 feet (2743 mm).One in every 25 EVCS spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EVCS space is 12 feet (3658 mm). Surface slope for this EVCS space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction. These EVCS spaces shall also comply with at least one of the following:<ol style="list-style-type: none">The EVCS space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space.The EVCS space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.1. <p>4.106.4.2.2.1.2 Accessible electric vehicle charging station spaces. In addition to the requirements in Section 4.106.4.2.2.1.1, all EV chargers, where installed, shall comply with accessibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A.</p> <p>4.106.4.2.3 Reserved.</p> <p>4.106.4.2.4 Reserved.</p> <p>4.106.4.2.5 Electric vehicle ready space signage. Electric vehicle ready spaces shall be identified by signage or pavement markings, in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).</p> <p>4.106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multi-family buildings. Where new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered shall be EV capable spaces to support future Level 2 electric vehicle supply equipment. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE".</p> <p>Notes:</p> <ol style="list-style-type: none">Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.	<p>DIVISION 4.2 ENERGY EFFICIENCY 4.201 GENERAL 4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.</p> <p>DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION 4.303 INDOOR WATER USE 4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.1.4.</p> <p>Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.</p> <p>4.303.1.1 Water Closets. The effective flush volume of dual flush toilets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.</p> <p>Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.</p> <p>4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.</p> <p>4.303.1.3 Showerheads.</p> <p>4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.</p> <p>4.303.1.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.</p> <p>Note: A hand-held shower shall be considered a showerhead.</p> <p>4.303.1.4 Faucets.</p> <p>4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 80 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.</p> <p>4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 80 psi.</p> <p>4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.</p> <p>4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 80 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 80 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 80 psi.</p> <p>Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.</p> <p>4.303.1.4.5 Pre-rinse spray valves. When installed, shall meet the requirements in the California Code of Regulations, Title 20 (Appliance Efficiency Regulations), Sections 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7) and shall be equipped with an integral automatic shutoff.</p> <p>FOR REFERENCE ONLY: The following table and code section have been reprinted from the California Code of Regulations, Title 20 (Appliance Efficiency Regulations), Section 1605.3 (h)(4) and Section 1605.3 (h)(4)(A).</p> <table border="1"><caption>TABLE F-2 STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019</caption><thead><tr><th>PRODUCT CLASS [spray force in ounces force (ozf)]</th><th>MAXIMUM FLOW RATE (gpm)</th></tr></thead><tbody><tr><td>Product Class 1 (≤ 5.0 ozf)</td><td>1.00</td></tr><tr><td>Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)</td><td>1.20</td></tr><tr><td>Product Class 3 (> 8.0 ozf)</td><td>1.28</td></tr></tbody></table> <p>Title 20 Section 1605.3 (h)(4)(A). Commercial pre-rinse spray valves manufactured on or after January 1, 2006, shall have a minimum spray force of not less than 4.0 ounces-force (ozf) [113 grams-force (gf)]</p> <p>4.303.2 Submeters for multifamily buildings and dwelling units in mixed-used residential-commercial buildings. Submeters shall be installed to measure water usage of individual retail dwelling units in accordance with the California Plumbing Code.</p> <p>4.303.3 Standards for plumbing fixtures and fittings. Plumbing fixtures and fittings shall be installed in accordance with the California Plumbing Code, and shall meet the applicable standards referenced in Table 1701.1 of the California Plumbing Code.</p> <p>NOTE: THIS TABLE COMPLETES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.</p> <table border="1"><caption>TABLE - MAXIMUM FIXTURE WATER USE</caption><thead><tr><th>FIXTURE TYPE</th><th>FLOW RATE</th></tr></thead><tbody><tr><td>SHOWER HEADS (RESIDENTIAL)</td><td>1.8 GMP @ 80 PSI</td></tr><tr><td>LAVATORY FAUCETS (RESIDENTIAL)</td><td>MAX. 1.2 GPM @ 80 PSI MIN. 0.8 GPM @ 20 PSI</td></tr><tr><td>LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS</td><td>0.5 GPM @ 80 PSI</td></tr><tr><td>KITCHEN FAUCETS</td><td>1.8 GPM @ 80 PSI</td></tr><tr><td>METERING FAUCETS</td><td>0.2 GAL/CYCLE</td></tr><tr><td>WATER CLOSET</td><td>1.28 GAL/FLUSH</td></tr><tr><td>URINALS</td><td>0.125 GAL/FLUSH</td></tr></tbody></table>	PRODUCT CLASS [spray force in ounces force (ozf)]	MAXIMUM FLOW RATE (gpm)	Product Class 1 (≤ 5.0 ozf)	1.00	Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20	Product Class 3 (> 8.0 ozf)	1.28	FIXTURE TYPE	FLOW RATE	SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI	LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 80 PSI MIN. 0.8 GPM @ 20 PSI	LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 80 PSI	KITCHEN FAUCETS	1.8 GPM @ 80 PSI	METERING FAUCETS	0.2 GAL/CYCLE	WATER CLOSET	1.28 GAL/FLUSH	URINALS	0.125 GAL/FLUSH	<p>4.304 OUTDOOR WATER USE 4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.</p> <p>NOTES:</p> <ol style="list-style-type: none">The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code Regulations, Title 23, Chapter 2.7, Division 2. MWELO and supporting documents, including water budget calculator, are available at: https://www.water.ca.gov/ <p>DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY 4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE 4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in solebottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.</p> <p>4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING 4.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.</p> <p>Exceptions:</p> <ol style="list-style-type: none">Excavated soil and land-clearing debris.Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. <p>The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.</p> <p>4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.</p> <ol style="list-style-type: none">Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).Identify diversion facilities where the construction and demolition waste material collected will be taken.Identify construction methods employed to reduce the amount of construction and demolition waste generated.Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both. <p>4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.</p> <p>Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.</p> <p>4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq.ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1.</p> <p>4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1.</p> <p>4.408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5, Section 4.408.3 or Section 4.408.4.</p> <p>Notes:</p> <ol style="list-style-type: none">Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section.Mixed construction and demolition debris (C & D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle). <p>4.410 BUILDING MAINTENANCE AND OPERATION 4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:</p> <ol style="list-style-type: none">Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.Operation and maintenance instructions for the following:<ol style="list-style-type: none">Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment.Roof and yard drainage, including gutters and downspouts.Space conditioning systems, including condensers and air filters.Landscape irrigation systems.Water reuse systems.Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.Public transportation and/or carpool options available in the area.Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.Information about water-conserving landscape and irrigation design and controllers which conserve water.Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.Information about state solar energy and incentive programs available.A copy of all special inspections verifications required by the enforcing agency or this code.Information from the Department of Forestry and Fire Protection on maintenance of defensible space around residential structures.Information and/or drawings identifying the location of grab bar reinforcements. <p>4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.</p> <p>Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42949.82 (a)(2)(A) et seq. are not required to comply with the organic waste portion of this section.</p> <p>DIVISION 4.5 ENVIRONMENTAL QUALITY SECTION 4.501 GENERAL 4.501.1 Scope. The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorless, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.</p> <p>SECTION 4.502 DEFINITIONS 4.502.1 DEFINITIONS The following terms are defined in Chapter 2 (and are included here for reference)</p> <p>AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.</p> <p>COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardwood, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.</p> <p>DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.</p>
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DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE RESIDENTIAL MANDATORY MEASURES, SHEET 2 (July 2024 Supplement)

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		<p>MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O₃/g ROG). Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.</p> <p>MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.</p> <p>PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging). Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).</p> <p>REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.</p> <p>VOC. A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94509(a).</p> <p>4.503 FIREPLACES 4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.</p> <p>4.504 POLLUTANT CONTROL 4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.</p> <p>4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.</p> <p>4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:</p> <ol style="list-style-type: none"> Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAGMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with section 94507. <p>4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.</p> <p>4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(b)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.</p> <p>4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:</p> <ol style="list-style-type: none"> Manufacturer's product specification. Field verification of on-site product containers. 																																																																																								
		<p>TABLE 4.504.1 - ADHESIVE VOC LIMIT_{1,2} (Less Water and Less Exempt Compounds in Grams per Liter)</p> <table border="1"> <thead> <tr> <th>ARCHITECTURAL APPLICATIONS</th> <th>VOC LIMIT</th> </tr> </thead> <tbody> <tr><td>INDOOR CARPET ADHESIVES</td><td>50</td></tr> <tr><td>CARPET PAD ADHESIVES</td><td>50</td></tr> <tr><td>OUTDOOR CARPET ADHESIVES</td><td>150</td></tr> <tr><td>WOOD FLOORING ADHESIVES</td><td>100</td></tr> <tr><td>RUBBER FLOOR ADHESIVES</td><td>60</td></tr> <tr><td>SUBFLOOR ADHESIVES</td><td>65</td></tr> <tr><td>CERAMIC TILE ADHESIVES</td><td>65</td></tr> <tr><td>VCT & ASPHALT TILE ADHESIVES</td><td>50</td></tr> <tr><td>DRYWALL & PANEL ADHESIVES</td><td>50</td></tr> <tr><td>COVE BASE ADHESIVES</td><td>50</td></tr> <tr><td>MULTIPURPOSE CONSTRUCTION ADHESIVE</td><td>70</td></tr> <tr><td>STRUCTURAL GLAZING ADHESIVES</td><td>100</td></tr> <tr><td>SINGLE-PLY ROOF MEMBRANE ADHESIVES</td><td>250</td></tr> <tr><td>OTHER ADHESIVES NOT LISTED</td><td>50</td></tr> </tbody> </table> <p>SPECIALTY APPLICATIONS</p> <table border="1"> <tbody> <tr><td>PVC WELDING</td><td>510</td></tr> <tr><td>CPVC WELDING</td><td>490</td></tr> <tr><td>ABS WELDING</td><td>325</td></tr> <tr><td>PLASTIC CEMENT WELDING</td><td>250</td></tr> <tr><td>ADHESIVE PRIMER FOR PLASTIC</td><td>550</td></tr> <tr><td>CONTACT ADHESIVE</td><td>80</td></tr> <tr><td>SPECIAL PURPOSE CONTACT ADHESIVE</td><td>250</td></tr> <tr><td>STRUCTURAL WOOD MEMBER ADHESIVE</td><td>140</td></tr> <tr><td>TOP & TRIM ADHESIVE</td><td>250</td></tr> </tbody> </table> <p>SUBSTRATE SPECIFIC APPLICATIONS</p> <table border="1"> <tbody> <tr><td>METAL TO METAL</td><td>30</td></tr> <tr><td>PLASTIC FOAMS</td><td>50</td></tr> <tr><td>POROUS MATERIAL (EXCEPT WOOD)</td><td>50</td></tr> <tr><td>WOOD</td><td>30</td></tr> <tr><td>FIBERGLASS</td><td>80</td></tr> </tbody> </table> <p>1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED. 2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.</p>	ARCHITECTURAL APPLICATIONS	VOC LIMIT	INDOOR CARPET ADHESIVES	50	CARPET PAD ADHESIVES	50	OUTDOOR CARPET ADHESIVES	150	WOOD FLOORING ADHESIVES	100	RUBBER FLOOR ADHESIVES	60	SUBFLOOR ADHESIVES	65	CERAMIC TILE ADHESIVES	65	VCT & ASPHALT TILE ADHESIVES	50	DRYWALL & PANEL ADHESIVES	50	COVE BASE ADHESIVES	50	MULTIPURPOSE CONSTRUCTION ADHESIVE	70	STRUCTURAL GLAZING ADHESIVES	100	SINGLE-PLY ROOF MEMBRANE ADHESIVES	250	OTHER ADHESIVES NOT LISTED	50	PVC WELDING	510	CPVC WELDING	490	ABS WELDING	325	PLASTIC CEMENT WELDING	250	ADHESIVE PRIMER FOR PLASTIC	550	CONTACT ADHESIVE	80	SPECIAL PURPOSE CONTACT ADHESIVE	250	STRUCTURAL WOOD MEMBER ADHESIVE	140	TOP & TRIM ADHESIVE	250	METAL TO METAL	30	PLASTIC FOAMS	50	POROUS MATERIAL (EXCEPT WOOD)	50	WOOD	30	FIBERGLASS	80																														
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PLASTIC CEMENT WELDING	250																																																																																									
ADHESIVE PRIMER FOR PLASTIC	550																																																																																									
CONTACT ADHESIVE	80																																																																																									
SPECIAL PURPOSE CONTACT ADHESIVE	250																																																																																									
STRUCTURAL WOOD MEMBER ADHESIVE	140																																																																																									
TOP & TRIM ADHESIVE	250																																																																																									
METAL TO METAL	30																																																																																									
PLASTIC FOAMS	50																																																																																									
POROUS MATERIAL (EXCEPT WOOD)	50																																																																																									
WOOD	30																																																																																									
FIBERGLASS	80																																																																																									
		<p>TABLE 4.504.2 - SEALANT VOC LIMIT (Less Water and Less Exempt Compounds in Grams per Liter)</p> <table border="1"> <thead> <tr> <th>SEALANTS</th> <th>VOC LIMIT</th> </tr> </thead> <tbody> <tr><td>ARCHITECTURAL</td><td>250</td></tr> <tr><td>MARINE DECK</td><td>760</td></tr> <tr><td>NONMEMBRANE ROOF</td><td>300</td></tr> <tr><td>ROADWAY</td><td>250</td></tr> <tr><td>SINGLE-PLY ROOF MEMBRANE</td><td>450</td></tr> <tr><td>OTHER</td><td>420</td></tr> </tbody> </table> <p>SEALANT PRIMERS</p> <table border="1"> <thead> <tr> <th>ARCHITECTURAL</th> <th>VOC LIMIT</th> </tr> </thead> <tbody> <tr><td>NON-POROUS</td><td>250</td></tr> <tr><td>POROUS</td><td>775</td></tr> <tr><td>MODIFIED BITUMINOUS</td><td>500</td></tr> <tr><td>MARINE DECK</td><td>760</td></tr> <tr><td>OTHER</td><td>750</td></tr> </tbody> </table>	SEALANTS	VOC LIMIT	ARCHITECTURAL	250	MARINE DECK	760	NONMEMBRANE ROOF	300	ROADWAY	250	SINGLE-PLY ROOF MEMBRANE	450	OTHER	420	ARCHITECTURAL	VOC LIMIT	NON-POROUS	250	POROUS	775	MODIFIED BITUMINOUS	500	MARINE DECK	760	OTHER	750																																																														
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		<p>TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS_{1,2} GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS</p> <table border="1"> <thead> <tr> <th>COATING CATEGORY</th> <th>VOC LIMIT</th> </tr> </thead> <tbody> <tr><td>FLAT COATINGS</td><td>50</td></tr> <tr><td>NON-FLAT COATINGS</td><td>100</td></tr> <tr><td>NONFLAT-HIGH GLOSS COATINGS</td><td>150</td></tr> </tbody> </table> <p>SPECIALTY COATINGS</p> <table border="1"> <tbody> <tr><td>ALUMINUM ROOF COATINGS</td><td>400</td></tr> <tr><td>BASEMENT SPECIALTY COATINGS</td><td>400</td></tr> <tr><td>BITUMINOUS ROOF COATINGS</td><td>50</td></tr> <tr><td>BITUMINOUS ROOF PRIMERS</td><td>350</td></tr> <tr><td>BOND BREAKERS</td><td>350</td></tr> <tr><td>CONCRETE CURING COMPOUNDS</td><td>350</td></tr> <tr><td>CONCRETE/MASONRY SEALERS</td><td>100</td></tr> <tr><td>DRIVEWAY SEALERS</td><td>50</td></tr> <tr><td>DRY FOG COATINGS</td><td>150</td></tr> <tr><td>FALX FINISHING COATINGS</td><td>350</td></tr> <tr><td>FIRE RESISTIVE COATINGS</td><td>350</td></tr> <tr><td>FLOOR COATINGS</td><td>100</td></tr> <tr><td>FORM-RELEASE COMPOUNDS</td><td>250</td></tr> <tr><td>GRAPHIC ARTS COATINGS (SIGN PAINTS)</td><td>500</td></tr> <tr><td>HIGH TEMPERATURE COATINGS</td><td>420</td></tr> <tr><td>INDUSTRIAL MAINTENANCE COATINGS</td><td>250</td></tr> <tr><td>LOW SOLIDS COATINGS₁</td><td>120</td></tr> <tr><td>MAGNESITE CEMENT COATINGS</td><td>450</td></tr> <tr><td>MASTIC TEXTURE COATINGS</td><td>100</td></tr> <tr><td>METALLIC PIGMENTED COATINGS</td><td>500</td></tr> <tr><td>MULTICOLOR COATINGS</td><td>250</td></tr> <tr><td>PRETREATMENT WASH PRIMERS</td><td>420</td></tr> <tr><td>PRIMERS, SEALERS, & UNDERCOATERS</td><td>100</td></tr> <tr><td>REACTIVE PENETRATING SEALERS</td><td>350</td></tr> <tr><td>RECYCLED COATINGS</td><td>250</td></tr> <tr><td>ROOF COATINGS</td><td>50</td></tr> <tr><td>RUST PREVENTATIVE COATINGS</td><td>250</td></tr> <tr><td>SHELLACS</td><td></td></tr> <tr><td>CLEAR</td><td>730</td></tr> <tr><td>OPAQUE</td><td>550</td></tr> <tr><td>SPECIALTY PRIMERS, SEALERS & UNDERCOATERS</td><td>100</td></tr> <tr><td>STAINS</td><td>250</td></tr> <tr><td>STONE CONSOLIDANTS</td><td>450</td></tr> <tr><td>SWIMMING POOL COATINGS</td><td>340</td></tr> <tr><td>TRAFFIC MARKING COATINGS</td><td>100</td></tr> <tr><td>TUB & TILE REFINISH COATING</td><td>420</td></tr> <tr><td>WATERPROOFING MEMBRANES</td><td>250</td></tr> <tr><td>WOOD COATINGS</td><td>275</td></tr> <tr><td>WOOD PRESERVATIVES</td><td>350</td></tr> <tr><td>ZINC RICH PRIMERS</td><td>340</td></tr> </tbody> </table> <p>1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS 2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE. 3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.</p>	COATING CATEGORY	VOC LIMIT	FLAT COATINGS	50	NON-FLAT COATINGS	100	NONFLAT-HIGH GLOSS COATINGS	150	ALUMINUM ROOF COATINGS	400	BASEMENT SPECIALTY COATINGS	400	BITUMINOUS ROOF COATINGS	50	BITUMINOUS ROOF PRIMERS	350	BOND BREAKERS	350	CONCRETE CURING COMPOUNDS	350	CONCRETE/MASONRY SEALERS	100	DRIVEWAY SEALERS	50	DRY FOG COATINGS	150	FALX FINISHING COATINGS	350	FIRE RESISTIVE COATINGS	350	FLOOR COATINGS	100	FORM-RELEASE COMPOUNDS	250	GRAPHIC ARTS COATINGS (SIGN PAINTS)	500	HIGH TEMPERATURE COATINGS	420	INDUSTRIAL MAINTENANCE COATINGS	250	LOW SOLIDS COATINGS ₁	120	MAGNESITE CEMENT COATINGS	450	MASTIC TEXTURE COATINGS	100	METALLIC PIGMENTED COATINGS	500	MULTICOLOR COATINGS	250	PRETREATMENT WASH PRIMERS	420	PRIMERS, SEALERS, & UNDERCOATERS	100	REACTIVE PENETRATING SEALERS	350	RECYCLED COATINGS	250	ROOF COATINGS	50	RUST PREVENTATIVE COATINGS	250	SHELLACS		CLEAR	730	OPAQUE	550	SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100	STAINS	250	STONE CONSOLIDANTS	450	SWIMMING POOL COATINGS	340	TRAFFIC MARKING COATINGS	100	TUB & TILE REFINISH COATING	420	WATERPROOFING MEMBRANES	250	WOOD COATINGS	275	WOOD PRESERVATIVES	350	ZINC RICH PRIMERS	340
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		<p>TABLE 4.504.5 - FORMALDEHYDE LIMITS: MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION</p> <table border="1"> <thead> <tr> <th>PRODUCT</th> <th>CURRENT LIMIT</th> </tr> </thead> <tbody> <tr><td>HARDWOOD PLYWOOD VENEER CORE</td><td>0.05</td></tr> <tr><td>HARDWOOD PLYWOOD COMPOSITE CORE</td><td>0.05</td></tr> <tr><td>PARTICLE BOARD</td><td>0.09</td></tr> <tr><td>MEDIUM DENSITY FIBERBOARD</td><td>0.11</td></tr> <tr><td>THIN MEDIUM DENSITY FIBERBOARD₁</td><td>0.13</td></tr> </tbody> </table> <p>1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12. 2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).</p>	PRODUCT	CURRENT LIMIT	HARDWOOD PLYWOOD VENEER CORE	0.05	HARDWOOD PLYWOOD COMPOSITE CORE	0.05	PARTICLE BOARD	0.09	MEDIUM DENSITY FIBERBOARD	0.11	THIN MEDIUM DENSITY FIBERBOARD ₁	0.13																																																																												
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		<p>CHAPTER 7 INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS</p> <p>702 QUALIFICATIONS</p> <p>702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified installers shall perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:</p> <ol style="list-style-type: none"> State certified apprenticeship program. Public utility training program. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. Programs sponsored by manufacturing organizations. Other programs acceptable to the enforcing agency. <p>702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate compliance to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certification or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:</p> <ol style="list-style-type: none"> Certification by a national or regional green building program or standard publisher. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors. Successful completion of a third party apprentice training program in the appropriate trade. Other programs acceptable to the enforcing agency. <p>Notes:</p> <ol style="list-style-type: none"> Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS). <p>(BSC) When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate compliance to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.</p> <p>Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.</p>																																																																																								
		<p>DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)</p> <p>4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2007 (Emission testing method for California Specification 01350)</p> <p>See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CDC/PHP/DI/DC/CEHLB/IAQ/Pages/VOC.aspx</p> <p>4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2007 (Emission testing method for California Specification 01350)</p> <p>See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CDC/PHP/DI/DC/CEHLB/IAQ/Pages/VOC.aspx</p> <p>4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.</p> <p>4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2007 (Emission testing method for California Specification 01350)</p> <p>See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CDC/PHP/DI/DC/CEHLB/IAQ/Pages/VOC.aspx</p> <p>4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5</p> <p>4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:</p> <ol style="list-style-type: none"> Product certifications and specifications. Product labels and custody certifications. Product labels and invoices as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.). Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European EN 339 standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards. Other methods acceptable to the enforcing agency. 																																																																																								
		<p>4.505 INTERIOR MOISTURE CONTROL</p> <p>4.505.1 General. Buildings shall meet or exceed the provisions of the California Building Standards Code.</p> <p>4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.</p> <p>4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:</p> <ol style="list-style-type: none"> A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curing, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06. Other equivalent methods approved by the enforcing agency. A slab design specified by a licensed design professional. <p>4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:</p> <ol style="list-style-type: none"> Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing. <p>Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.</p>																																																																																								
		<p>4.506 INDOOR AIR QUALITY AND EXHAUST</p> <p>4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:</p> <ol style="list-style-type: none"> Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control. <ol style="list-style-type: none"> Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 90%. A humidity control may utilize manual or automatic means of adjustment. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in) <p>Notes:</p> <ol style="list-style-type: none"> For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination. Lighting integral to bathroom exhaust fans shall comply with the California Energy Code. <p>4.507 ENVIRONMENTAL COMFORT</p> <p>4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:</p> <ol style="list-style-type: none"> The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods. <p>Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.</p>																																																																																								

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.

ALL PRO DESIGNS

2130 Huntington Drive Unit #310
South Pasadena, CA 91030
Cell: 951-475-0211
email: dionvelasco@gmail.com

PROJECT NAME:

CITY OF LAKE ELSINORE
GARAGE CONVERSION ADU
PLAN SET

STAMP APPROVAL

REGISTRATION & SIGNATURE

ATTACHED OR DETACHED GARAGE CONVERSION

ISSUES / REVISIONS:

JOB NUMBER: DV2024-008

DESIGNER: DIONICIA VELASCO

PLOT DATE:

PERMIT #

SHEET CONTENTS:
**2022 CAL GREEN
BUILDING
STANDARDS CODE**

SHEET NUMBER:

GB-2

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: GARAGE TO BE CONVERTED INTO A.D.U.
Calculation Date/Time: 2024-12-20T14:24:08-08:00
Calculation Description: Title 24 Analysis

Table with 2 columns: Item ID and Description. Includes project name, location (130 S. MAIN ST.), city (LAKE ELSINORE), standards version (2022), and various building parameters like climate zone, building type, and floor area.

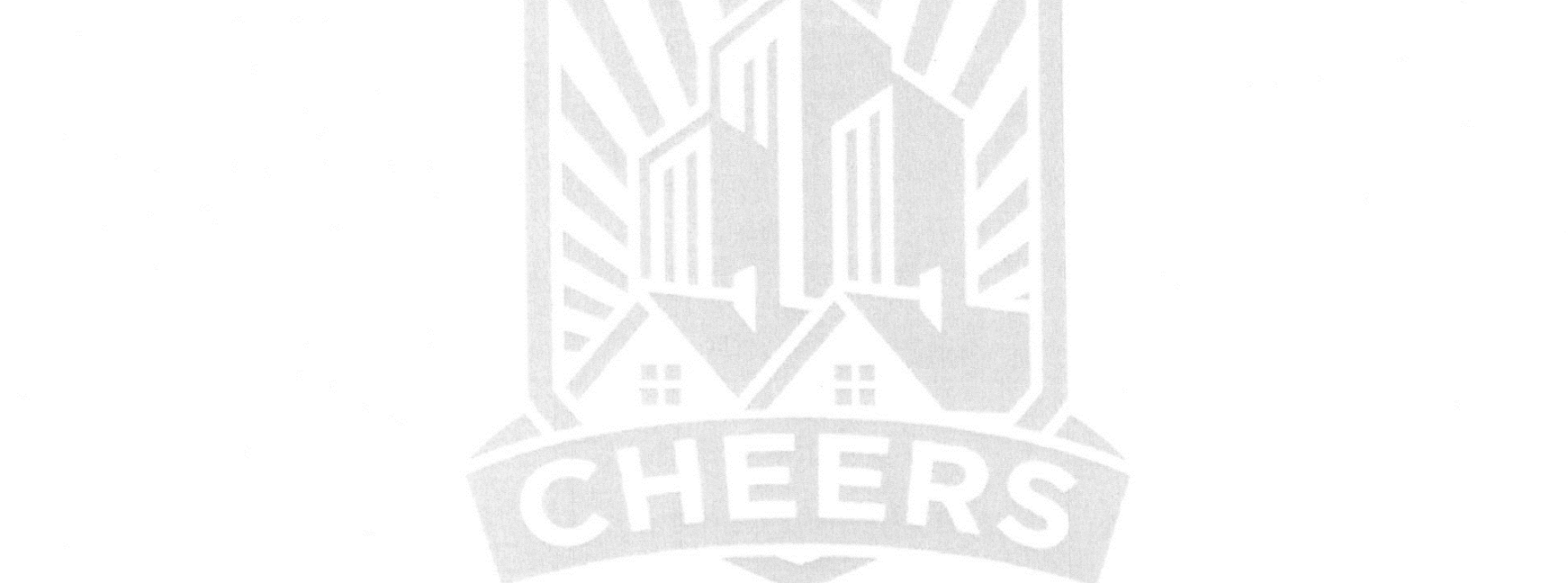
Table with 6 columns: Item ID, Existing Area (ft2), Addition Area (ft2), Total Area (ft2), Existing Bedrooms, Addition Bedrooms, Total Bedrooms. Shows area breakdown for the project.

Table with 8 columns: Zone Name, Existing Area (ft2), ADU Area (ft2), Total Area (ft2), Existing Bedrooms, Addition Bedrooms, Total Bedrooms, Attached vs. Detached. Shows details for the GARAGE TO BE LIVING AREA.

Registration Number: 424-P010322797A-000-000-0000000-0000
Registration Date/Time: 12/20/2024 14:24
HERS Provider: CHEERS
NOTE: This document has been generated by California Home Energy Efficiency Rating Services (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: GARAGE TO BE CONVERTED INTO A.D.U.
Calculation Date/Time: 2024-12-20T14:24:08-08:00
Calculation Description: Title 24 Analysis

Table with 3 columns: Item ID and Description. Compliance results showing building complies with computer performance and features that require field testing.



Registration Number: 424-P010322797A-000-000-0000000-0000
Registration Date/Time: 12/20/2024 14:24
HERS Provider: CHEERS
NOTE: This document has been generated by California Home Energy Efficiency Rating Services (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: GARAGE TO BE CONVERTED INTO A.D.U.
Calculation Date/Time: 2024-12-20T14:24:08-08:00
Calculation Description: Title 24 Analysis

Table with 7 columns: Energy Use, Standard Design Source Energy (EDR1), Standard Design TDV Energy (EDR2), Proposed Design Source Energy (EDR1), Proposed Design TDV Energy (EDR2), Compliance Margin (EDR1), Compliance Margin (EDR2). Lists energy uses like Space Heating, Space Cooling, IAQ Ventilation, etc.

Registration Number: 424-P010322797A-000-000-0000000-0000
Registration Date/Time: 12/20/2024 14:24
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Project Name: GARAGE TO BE CONVERTED INTO A.D.U.
Calculation Date/Time: 2024-12-20T14:24:08-08:00
Calculation Description: Title 24 Analysis

Table with 5 columns: Item ID, Standard Design (kBtu/ft2-yr), Proposed Design (kBtu/ft2-yr), Margin (kBtu/ft2-yr), Margin Percentage. Shows energy intensity metrics for Gross EUI and Net EUI.

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.

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
- Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)

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

Table with 7 columns: Zone Name, Zone Type, HVAC System Name, Zone Floor Area (ft2), Avg. Ceiling Height, Water Heating System 1, Status. Shows details for the GARAGE TO BE LIVING AREA.

Registration Number: 424-P010322797A-000-000-0000000-0000
Registration Date/Time: 12/20/2024 14:24
HERS Provider: CHEERS
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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: GARAGE TO BE CONVERTED INTO A.D.U.
Calculation Date/Time: 2024-12-20T14:24:08-08:00
Calculation Description: Title 24 Analysis

Table with 10 columns: Item ID, Name, Zone, Construction, Azimuth, Orientation, Gross Area (ft2), Window and Door Area (ft2), Tilt (deg), Wall Exceptions, Status. Lists opaque surfaces like WEST WALL, EAST WALL, NORTH WALL, SOUTH WALL, and R-30 Roof.

Table with 8 columns: Item ID, Name, Construction, Type, Roof Rise (in 12), Roof Reflectance, Roof Emittance, Radiant Barrier, Cool Roof. Lists attic details for GARAGE TO BE LIVING AREA.

Table with 14 columns: Item ID, Name, Type, Surface, Orientation, Azimuth, Width (ft), Height (ft), Mult., Area (ft2), U-factor, U-factor Source, SHGC, SHGC Source, Exterior Shading. Lists fenestration/glazing details for WINDOWS 1, 2, and 3.

Registration Number: 424-P010322797A-000-000-0000000-0000
Registration Date/Time: 12/20/2024 14:24
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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: GARAGE TO BE CONVERTED INTO A.D.U.
Calculation Date/Time: 2024-12-20T14:24:08-08:00
Calculation Description: Title 24 Analysis

Table with 8 columns: Item ID, Name, Zone, Area (ft2), Perimeter (ft), Edge Insul. R-value and Depth, Edge Insul. R-value and Depth, Carpeted Fraction, Heated. Lists slab floor details for Covered Slab.

Table with 8 columns: Construction Name, Surface Type, Construction Type, Framing, Total Cavity R-value, Interior / Exterior Continuous R-value, U-factor, Assembly Layers. Lists opaque surface construction details for R-15 Wall, Attic Roof, and R-30 Roof Attic.

Table with 5 columns: Item ID, Quality Insulation Installation (QII), High R-value Spray Foam Insulation, Building Envelope Air Leakage, CFM50. Lists building envelope verification details.

Registration Number: 424-P010322797A-000-000-0000000-0000
Registration Date/Time: 12/20/2024 14:24
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PERFECT DESIGN & MANAGEMENT INC.
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GARAGE TO BE CONVERTED INTO A.D.U.
130 S. MAIN ST.
LAKE ELSINORE, CA 92530

Date 12/20/2024
Scale
Drawn
Job # R24-9230-1
Sheet 1
RESIDENTIAL T24 SHEET
Of 3 Sheets



FOR USE

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: GARAGE TO BE CONVERTED INTO A.D.U. Calculation Date/Time: 2024-12-20T14:24:08-08:00 Input File Name: R24-9230-1.rbd22x

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Table with 9 columns: 01-09. Headers: Name, System Type, Distribution Type, Water Heater Name, Number of Units, Solar Heating System, Compact Distribution, HERS Verification, Water Heater Name (H). Row 1: DHW Sys 1, Domestic Hot Water (DHW), Standard, DHW Heater 1, 1, n/a, None, n/a, DHW Heater 1 (1).

Table with 13 columns: 01-13. Headers: Name, Heating Element Type, Tank Type, # of Units, Tank Vol. (gal), Heating Efficiency Type, Efficiency, Rated Input Type, Input Rating or Pilot, Tank Insulation R-value (Int/Ext), Standby Loss or Recovery Eff, 1st Hr. Rating or Flow Rate, Tank Location. Row 1: DHW Heater 1, Gas, Consumer Instantaneous, 1, 0, UEF, 0.95, Btu/Hr, 200000, 0, n/a, n/a, n/a.

Table with 7 columns: 01-07. Headers: Name, Pipe Insulation, Parallel Piping, Compact Distribution, Compact Distribution Type, Recirculation Control, Shower Drain Water Heat Recovery. Row 1: DHW Sys 1 - 1/1, Not Required, Not Required, Not Required, None, Not Required, Not Required.

Table with 9 columns: 01-09. Headers: Name, System Type, Heating Unit Name, Heating Equipment Count, Cooling Unit Name, Cooling Equipment Count, Fan Name, Distribution Name, Required Thermostat Type. Row 1: A.D.U.1, Heat pump heating cooling, Heat Pump System 1, 1, Heat Pump System 1, 1, n/a, n/a, Setback.

Registration Number: 424-P010322797A-000-000-0000000-0000 Report Version: 2022.0.000 Schema Version: rev 20220901

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: GARAGE TO BE CONVERTED INTO A.D.U. Calculation Date/Time: 2024-12-20T14:24:08-08:00 Input File Name: R24-9230-1.rbd22x

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Table with 13 columns: 01-13. Headers: Name, System Type, Number of Units, Heating Efficiency Type, HSPF/HSPF2/COP, Cap 47, Cap 17, Cooling Efficiency Type, SEER/SEER2, EER/EER2/CEER, Zonally Controlled, Compressor Type, HERS Verification. Row 1: Heat Pump System 1, VCHP-ductless, 1, HSPF, 9.3, 22000, 13900, EERSEER, 18, 12.5, Not Zonal, Single Speed, Heat Pump System 1-hers-htpump.

Table with 9 columns: 01-09. Headers: Name, Verified Airflow, Airflow Target, Verified EER/SEER2, Verified SEER/SEER2, Verified Refrigerant Charge, Verified HSPF/HSPF2, Verified Heating Cap 47, Verified Heating Cap 17. Row 1: Heat Pump System 1-hers-htpump, Not Required, 0, Required, Required, Yes, Yes, Yes, Yes.

Table with 10 columns: 01-10. Headers: Name, Certified Low-Static VCHP System, Airflow to Habitable Rooms, Ductless Units in Conditioned Space, Wall Mount Thermostat, Air Filter Sizing & Pressure Drop Rating, Low Leakage Ducts in Conditioned Space, Minimum Airflow per RA3.3 & SC3.3.4.1, Certified non-continuous Fan, Indoor Fan not Running Continuously. Row 1: Heat Pump System 1, Not required, Required, Required, Required, Not required, Not required, Not required, Not required, Not required.

Table with 9 columns: 01-09. Headers: Dwelling Unit, Airflow (CFM), Fan Efficiency (W/CFM), IAQ Fan Type, Includes Heat/Energy Recovery?, IAQ Recovery Effectiveness - SRE/ASRE, Includes Fault Indicator Display?, HERS Verification, Status. Row 1: 5Fam ADU IAQVentHpt, 27, 0.35, Exhaust, No, n/a / n/a, No, Yes, n/a.

Registration Number: 424-P010322797A-000-000-0000000-0000 Report Version: 2022.0.000 Schema Version: rev 20220901

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Project Name: GARAGE TO BE CONVERTED INTO A.D.U. Calculation Date/Time: 2024-12-20T14:24:08-08:00 Input File Name: R24-9230-1.rbd22x

CF1R-PRF-01-E (Page 9 of 9)

Documentation Author's Declaration Statement and Responsible Person's Declaration Statement. Includes fields for Name, Signature, Date, Address, and City/State/Zip. Includes a professional seal for Raymond Zhong, Registered Professional Engineer, No. 147635, Exp. 06-30-25.

Registration Number: 424-P010322797A-000-000-0000000-0000 Report Version: 2022.0.000 Schema Version: rev 20220901

RESIDENTIAL MEASURES SUMMARY RMS-1

Project Name: GARAGE TO BE CONVERTED INTO A.D.U. Building Type: Single Family. Date: 12/20/2024. Project Address: 130 S. MAIN ST., LAKE ELSINORE. California Energy Climate Zone: CA Climate Zone 10. Total Cond. Floor Area: 400. Addition: 400. # of Units: 1.

Table with 5 columns: Construction Type, Area (ft²), Cavity, Special Features, Status. Rows include Roof (Wood Framed Attic), Wall (Wood Framed), Slab (Unheated Slab-on-Grade).

Table with 5 columns: Fenestration Orientation, Area (ft²), U-Fac, SHGC, Overhang, Sidesfin, Exterior Shades, Status. Rows include Left (W), Rear (N), Front (S).

Table with 5 columns: HVAC SYSTEMS Qty, Heating, Min. Eff, Cooling, Min. Eff, Thermostat, Status. Row 1: 1 Electric Heat Pump, 9.30 HSPF, Split Heat Pump, 18.0 SEER, Setback, New.

Table with 5 columns: HVAC DISTRIBUTION Location, Heating, Cooling, Duct Location, R-Value, Status. Row 1: A.D.U., Ductless / with Fan, Ductless, n/a, n/a, New.

Table with 5 columns: WATER HEATING Qty, Type, Gallons, Min. Eff, Distribution, Status. Row 1: 1 Small Instantaneous Gas, 1, 0.95, Standard, New.

EnergyPro 9.3 by EnergySoft User Number: 1919 ID: R24-9230-1 Page 12 of 21

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. (04/02/22)

- Building Envelope: § 110.8(a)(1) Air Leakage, Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 1011 S.2/A40-2011. § 110.8(a)(5) Labeling, Fenestration products and exterior doors must have a label meeting the requirements of § 110.11(f). § 110.8(b) Field-fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.8.A, 110.8.B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped. § 110.7: Insulation Certification by Manufacturers, Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS). § 110.8(g): Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8(g). § 110.8(i): Roofing Products Solar Reflectance and Thermal Emittance. The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §110-115 when the installation of a cool roof is completed on the roof. § 110.8(j): Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs. § 110.8(k): Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 8, 9, 10, 11, and 12 shall have a U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling, or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling. § 110.8(l): Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value. § 150.0(a): Wall Insulation. Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have a U-factor assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1.A or B. § 150.0(d): Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.071 maximum U-factor. § 150.0(f): Slab Edge Insulation. Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance, no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed, a part of a finished slab floor, meet the requirements of § 110.8(g). § 150.0(g): Vapor Retarder. In climate zones 1 through 16, the earth floor or unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(g). § 150.0(g)(2): Vapor Retarder. In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation. § 150.0(i): Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45. Fireplaces, Decorative Gas Appliances, and Gas Log: § 110.5(e) Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces. § 150.0(e)(1) Closable Doors. Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox. § 150.0(e)(2) Combustion Intake. Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and light-fitting damper or combustion air control device. § 150.0(e)(3) Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. Space Conditioning, Water Heating, and Plumbing System: § 110.0-§ 110.3: Certification, Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission. § 110.2(a): HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2.A through Table 110.2.N. Controls for Heat Pumps with Supplementary Electric Resistance Heaters. Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone, and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating. § 110.2(c): Thermostats. All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. § 110.3(c)(2): Insulation. Unvented service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating. § 110.3(c)(3): Isolation Valves. Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

2022 Single-Family Residential Mandatory Requirements Summary

- § 110.5: Pilot Light. Continuously burning pilot lights are prohibited for natural gas fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters. § 150.0(h): Cooling and Heating Loads. Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)(2). § 150.0(h)(3A): Clearances. Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer. § 150.0(h)(3B): Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line drier filters if required, as specified by the manufacturer's instructions. § 150.0(i): Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation. All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. § 150.0(j): Insulation Protection. Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by § 120.3(b). Insulation exposed to weather must be water resistant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve. § 150.0(k): Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2 1/2 x 2 1/2 x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2" higher than the base of the water heater. § 150.0(l): Solar Water-heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director. Ducts and Fans: § 110.8(d)(3): Ducts. Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement. CMC Compliance. All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-005-2008 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 725. The combination of mastic and either mesh or tape must be used to seal openings greater than 1/4". If mastic or tape is used, Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts, ducts installed in these spaces must not be compressed. Factory-Fabricated Duct Systems. Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands. § 150.0(m)(2): Field-Fabricated Duct Systems. Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction. § 150.0(m)(3): Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers. § 150.0(m)(4): Gravity Ventilation Dampers. Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers on all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents. § 150.0(m)(5): Protection of Insulation. Insulation must be protected from damage due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water resistant and solar radiation-resistant coating. § 150.0(m)(6): Porous Inner Core Flex Duct. Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier. § 150.0(m)(7): Duct System Sealing and Leakage Test. When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1. § 150.0(m)(12): Air Filtration. Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in § 150.0(m)(12). Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter.

REVISIONS BY table with columns for revision number and date. Date: 12/20/2024. Scale: Drawn: Job #R24-9230-1. Sheet 2 of 3. RESIDENTIAL T24 SHEET. OF 3 Sheets. Vertical text on the right: GARAGE TO BE CONVERTED INTO A.D.U. 130 S. MAIN ST. LAKE ELSINORE, CA 92530. Vertical text on the left: PERFECT DESIGN & MANAGEMENT INC. Design & Consulting air-conditioning, Plumbing, Fire-Sprinkler-System, Electrical, Title 24 Energy Calculation. 2416 W. Valley Blvd. Alhambra, CA 91803. Tel: (626) 289-8808. E-Mail: perfectdesign@gmail.com Fax: (626) 289-4913. Professional seal for Raymond Meng Zhang, Registered Professional Engineer, No. 1427835, Exp. 06-30-25, State of California.



2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(m)13: Space Conditioning System Airflow Rate and Fan Efficacy. Space conditioning systems that use ducts to supply cooling must have a fan for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≥ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 230 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≥ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.4.

Ventilation and Indoor Air Quality:
§ 150.0(o)1: Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1.1.
§ 150.0(o)1B: Central Fan Integrated (CFI) Ventilation Systems. Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per § 150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed and controlled per § 150.0(o)1B(4)(v). CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with § 150.0(o)1C.
§ 150.0(o)1C: Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses. Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1C(4).
§ 150.0(o)1G: Local Mechanical Exhaust. Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of § 150.0(o)1G(i)-(iv). Enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting § 150.0(o)1G(i)-(iv). Airflow must be measured by the installer per § 150.0(o)1G(v), and rated for sound per § 150.0(o)1G(v).

Pool and Spa Systems and Equipment:
§ 110.4(a): Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDS; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.
§ 110.4(b)1: Piping. Any pool or spa heating system or equipment must be installed with at least 3/8 inches of pipe between the filter and the heater, or dedicated section and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2: Covers. Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3: Directional Inlets and Time Switches for Pools. Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5: Pilot Light. Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p): Pool Systems and Equipment Installation. Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.

Lighting:
§ 110.9: Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
§ 150.0(k)1A: Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage floor openers; navigation lighting less than 5 watts; and lighting integral to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(k)1B: Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.
§ 150.0(k)1C: Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.115 must also be met.
§ 150.0(k)1D: Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1E: Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
§ 150.0(k)1F: Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).

5/6/22



2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(k)1G: Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.
§ 150.0(k)1H: Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I: Light Sources in Drawers, Cabinets, and Linen Closets. Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A: Interior Switches and Controls. All forward phase dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B: Interior Switches and Controls. Exhaust fans must be controlled separately from lighting systems.
§ 150.0(k)2C: Accessible Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off.
§ 150.0(k)2D: Multiple Controls. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2E: Mandatory Requirements. Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2F: Energy Management Control Systems. An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k).
§ 150.0(k)2G: Automatic Shutoff Controls. In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
§ 150.0(k)2H: Dimmers. Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2I: Independent controls. Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A: Residential Outdoor Lighting. For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4: Internally illuminated address signs. Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 150.0(k)5: Residential Garages for Eight or More Vehicles. Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:
§ 110.10(a): Single-Family Residences. Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b)-(e).
§ 110.10(b)1A: Minimum Solar Zone Area. The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet.
§ 110.10(b)2: Azimuth. All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.
§ 110.10(b)3A: Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.
§ 110.10(b)3B: Shading. Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.
§ 110.10(b)4: Structural Design Loads on Construction Documents. For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c): Interconnection Pathways. The construction documents must indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system. Documentation. A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(d): Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)1: Main Electrical Service Panel. The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."
§ 110.10(e)2: Electric and Energy Storage Ready.

5/6/22



2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(u): Energy Storage System (ESS) Ready. All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(u) at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment transfer switch within 3' of the main panelboard with openings installed between the panelboard and the switch location to allow the connection of backup power source.
§ 150.0(v): Heat Pump Space Heater Ready. Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(w): Electric Cooktop Ready. Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(x): Electric Clothes Dryer Ready. Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

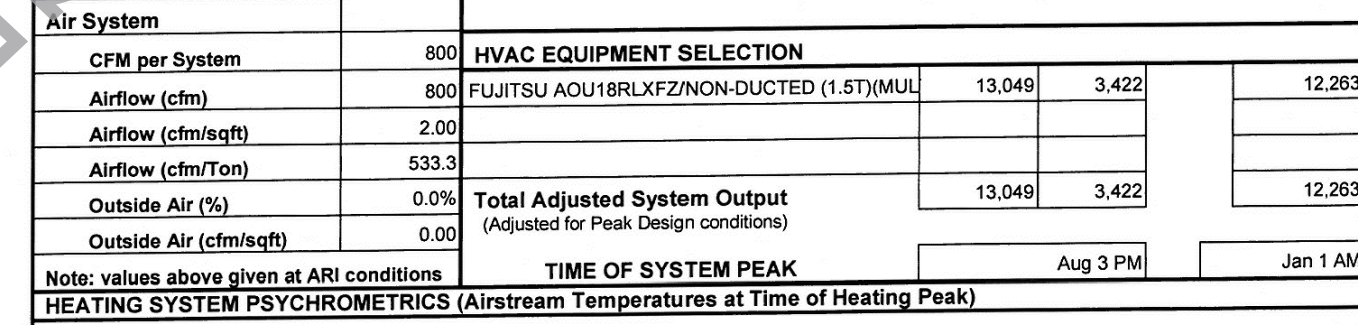
*Exceptions may apply.

5/6/22

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: GARAGE TO BE CONVERTED INTO A.D.U. Date: 12/20/2024
System Name: A.D.U. Floor Area: 400

Table with columns: ENGINEERING CHECK, SYSTEM LOAD, COIL COOLING PEAK, COIL HTG. PEAK. Rows include Heating System, Cooling System, Air System, and HVAC EQUIPMENT SELECTION.



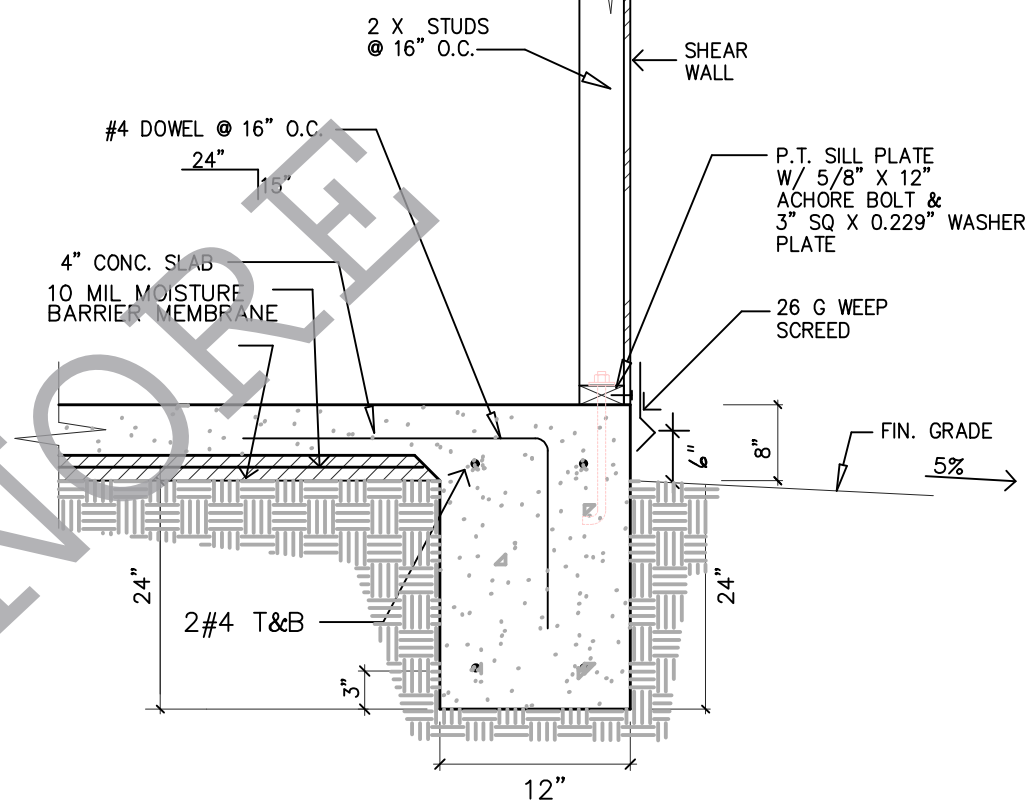
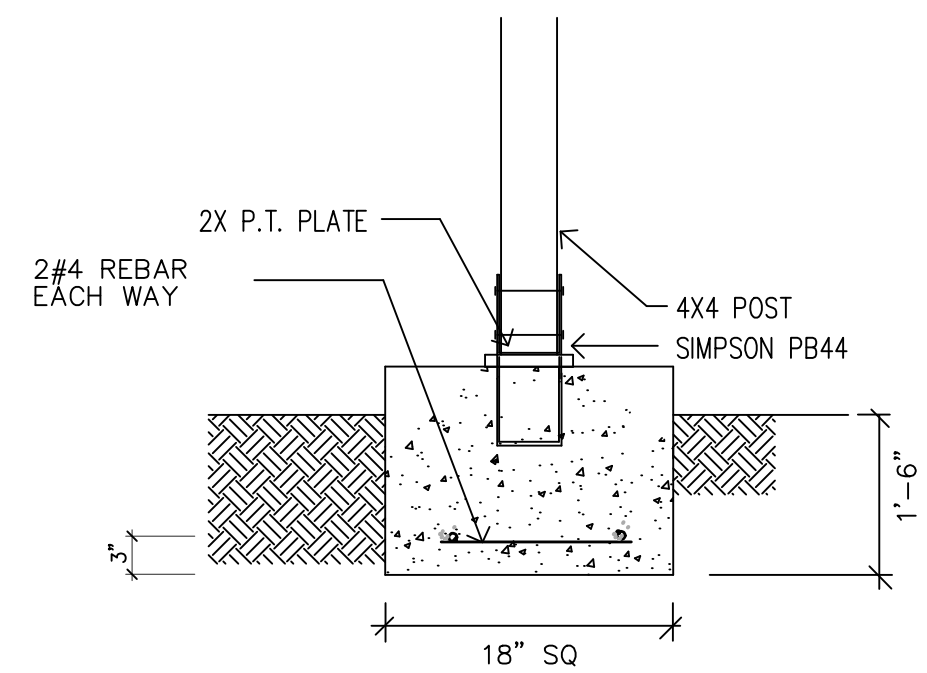
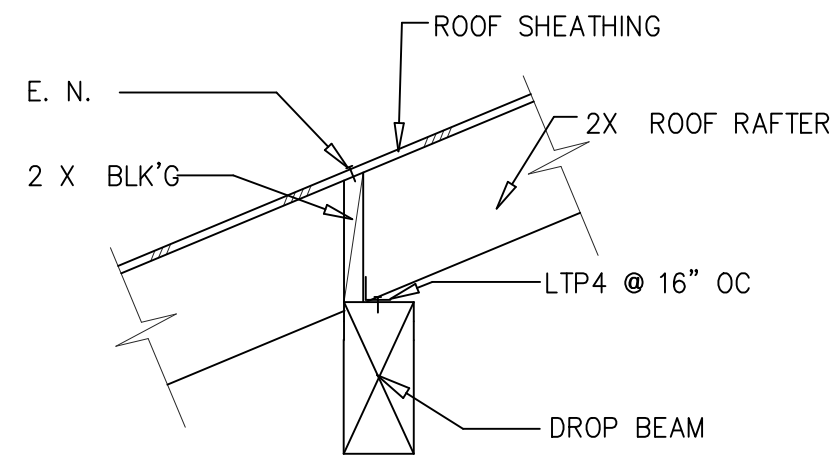
REVISIONS BY table with columns for revision number and author.

PERFECT DESIGN & MANAGEMENT INC.
Design & Consulting
Air-Conditioning, Plumbing, Fire-Sprinkler-System,
Electrical, Title 24 Energy Calculation.
2416 W. Valley Blvd.
Alhambra, CA 91803
Tel: (626) 289-8808
E-Mail: perfectdesign@gmail.com Fax: (626) 289-4913

GARAGE TO BE CONVERTED INTO A.D.U.
130 S. MAIN ST.
LAKE ELSINORE, CA 92550

Date: 12/20/2024
Scale:
Drawn:
Job #: R24-9230-1
Sheet: 3
RESIDENTIAL
T24 SHEET
Of: 3 Sheets





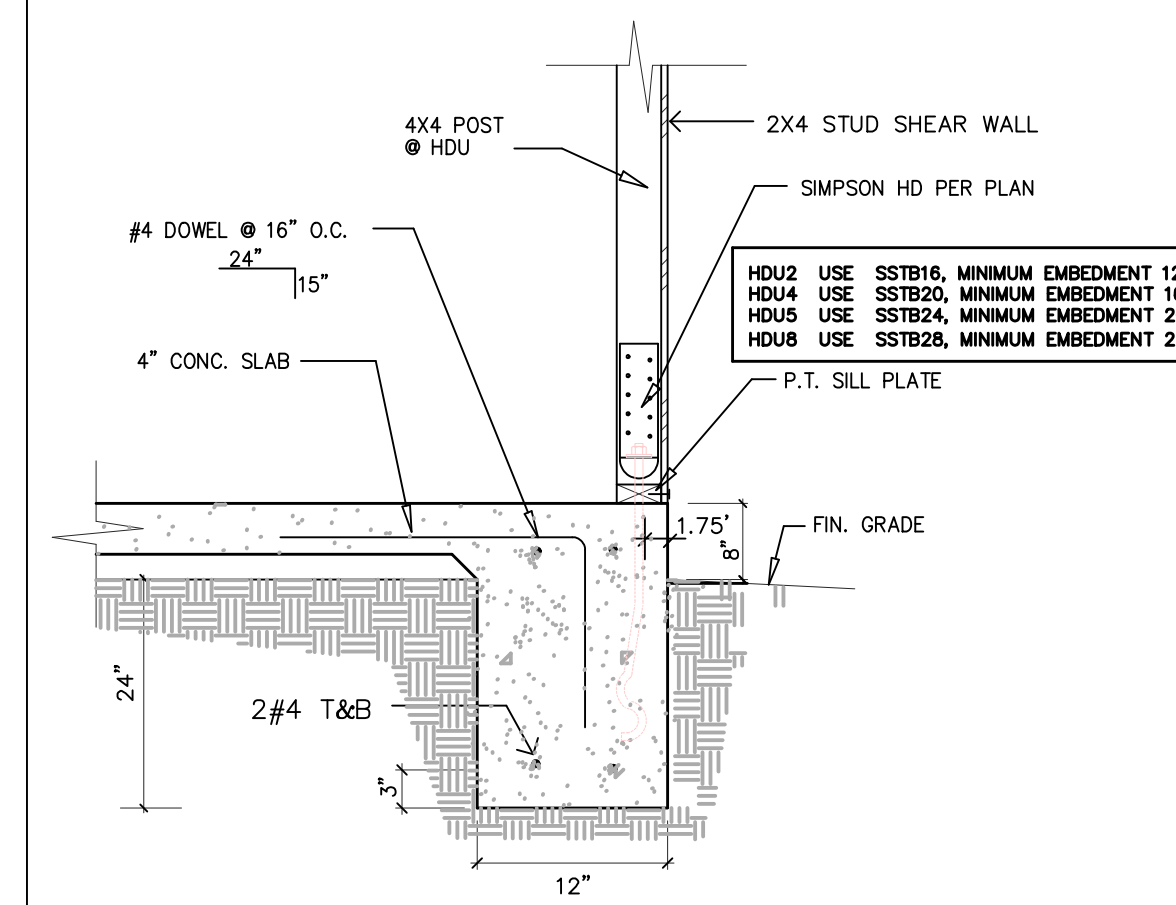
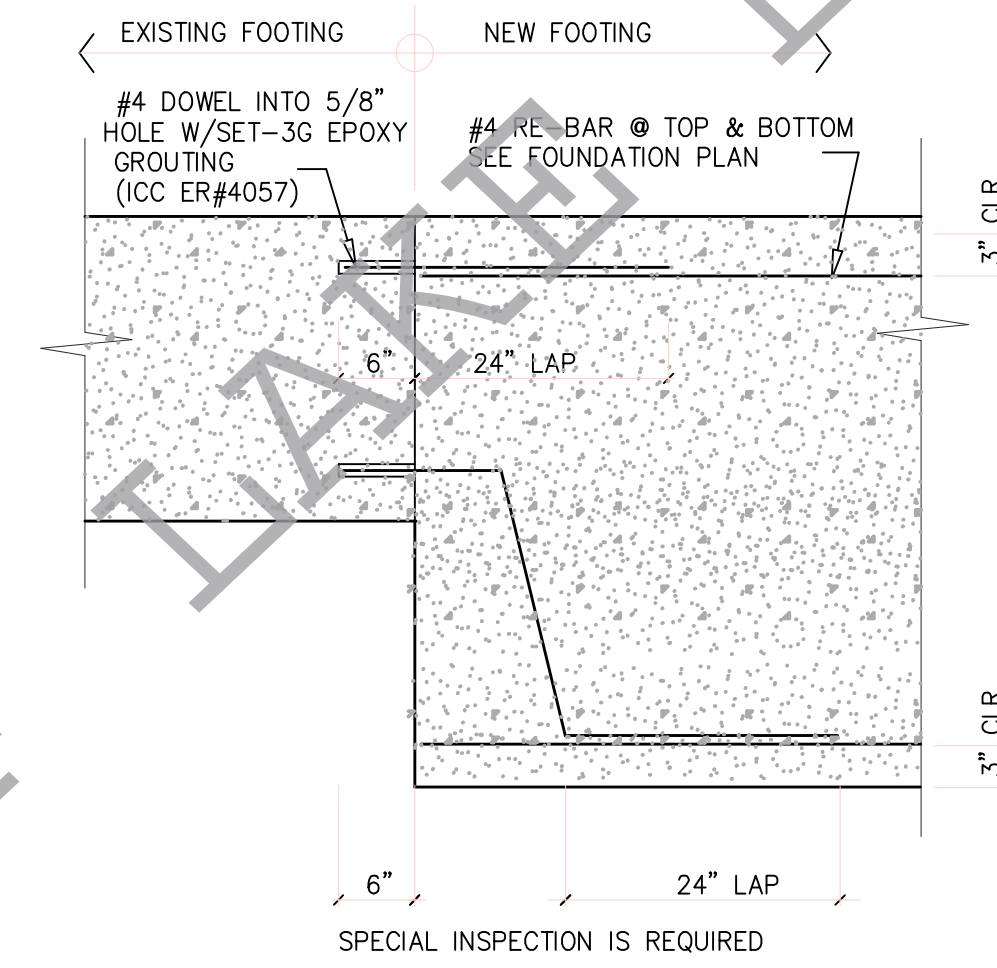
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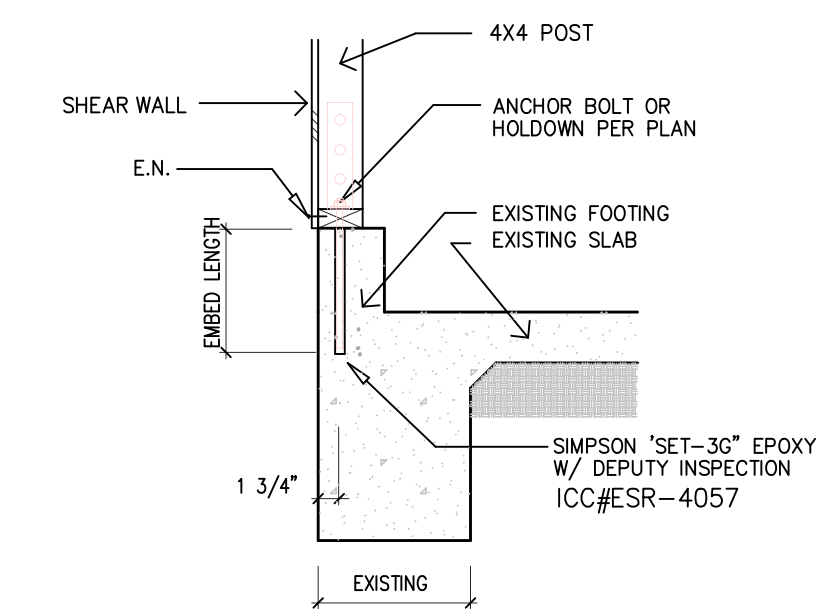
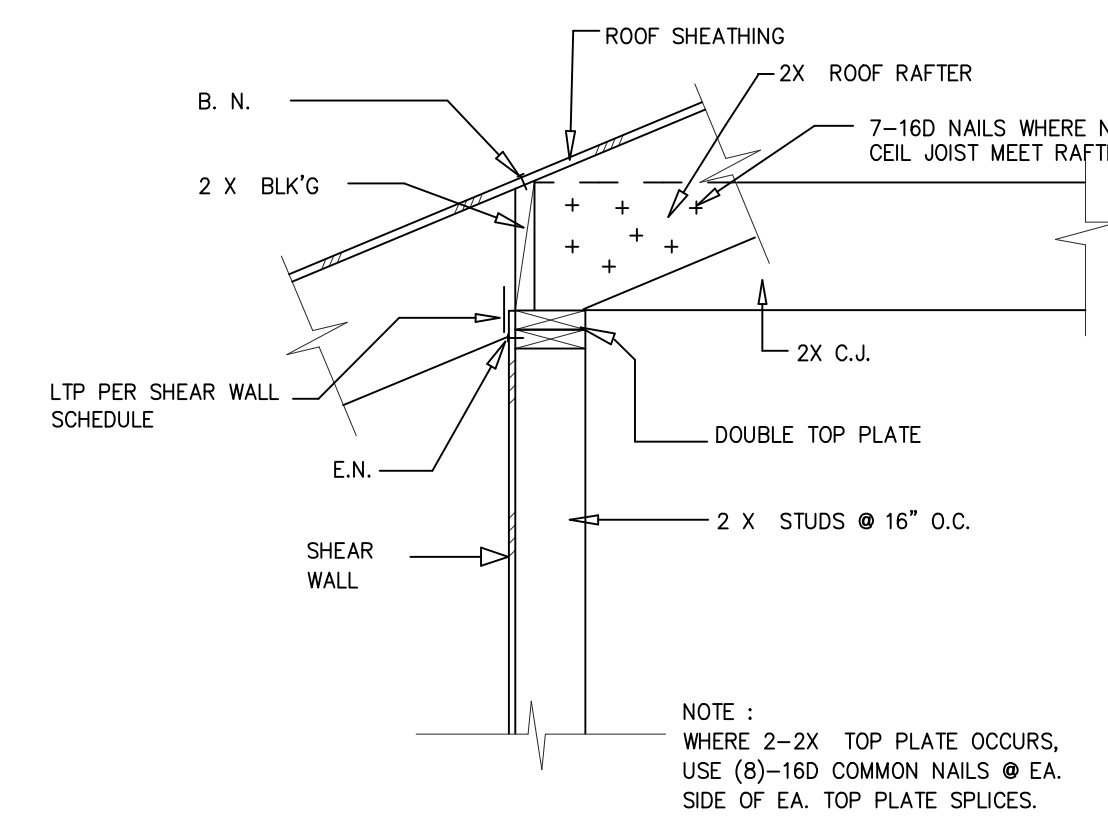
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2



ANCHOR TYPE	A307 THREADED ROD	EMBED. LENGTH
ANCHOR BOLT	5/8" DIA.	7"
HDU2, HDU4, HDU5	5/8" DIA.	10"

NOTE :
WHERE 2-2X TOP PLATE OCCURS,
USE (8)-16D COMMON NAILS @ EA.
SIDE OF EA. TOP PLATE SPICES.

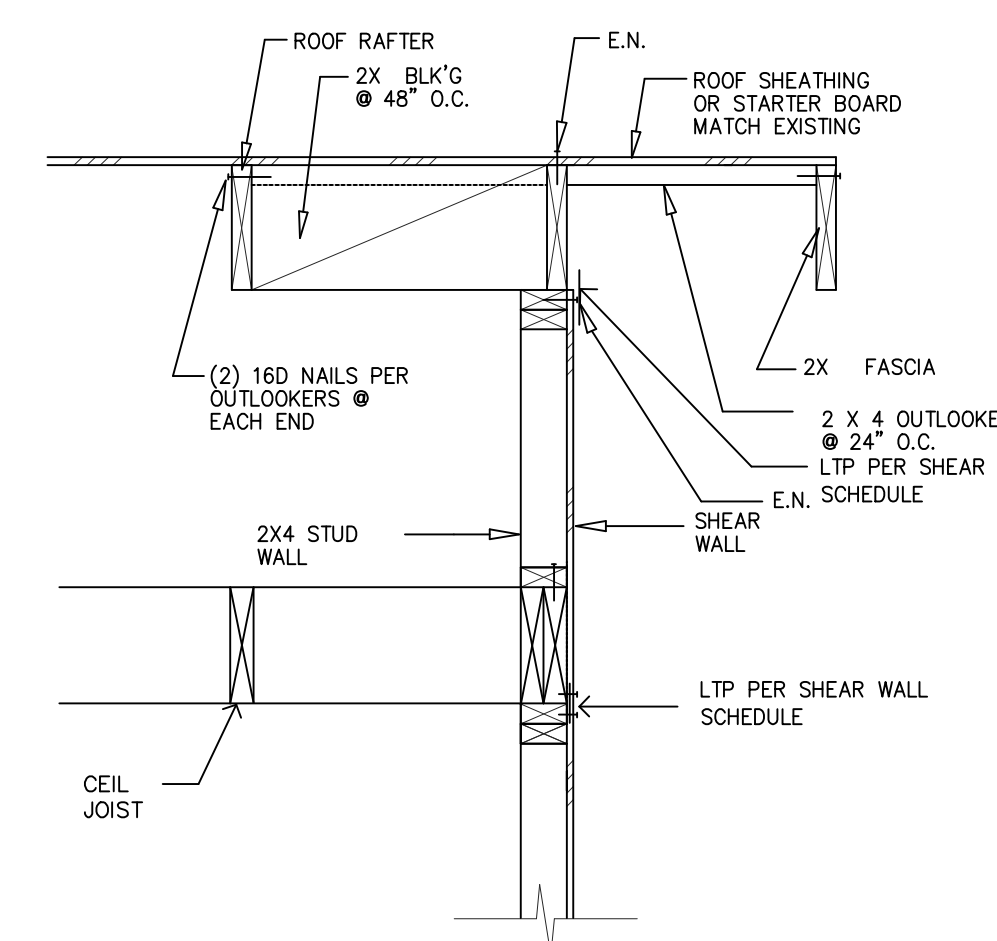
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FOR USE IN THE CITY OF LAKE ELSINORE

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16

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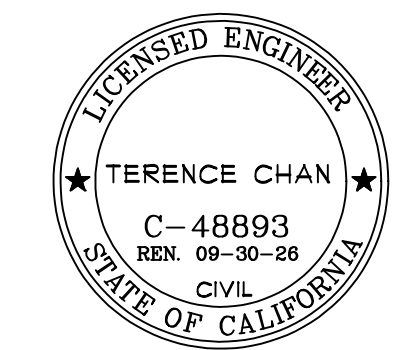
8

CITY APPROVAL STAMP

4

ENGINEERING BY: T CHAN
2232 SAN GABRIEL BLVD.,
ROSEMEAD, CA 91770
(562) 367-8910
tchanpe@gmail.com

GARAGE CONVERT TO ADU
LAKE ELSINORE, CA



Terence Chan

Written dimensions on these drawings shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job, and this office must be notified of all variations from the dimensions and conditions shown by these drawings.

revisions	date

date: 12-24-2024

job no:

drawn:

checked:

scale: N.A.

sheet title:
STRUCTURAL
DETAILS

sheet number: