

FRONT DOOR IS BLACK

NOTE: MAX. ALLOWABLE BUILDING HT. IS 28.5FT.

PROFESSIONAL CONTRICTOR CONTRICTOR CALLED CONTRICTOR CO

 Date
 04/11/2023

 Scale
 1/4" = 1'-0"

 Drawn by
 SRT/ VGT

 Project
 McNUTT

6

LOOKING TOWARD PARK LN. CUL-DE-SAC WITH APN: 001-032-18 BEYOND



LOOKING TOWARD APN: 001-032-19



LOOKING TOWARD APN: 001-032-24



LOOKING TOWARD APN: 001-032-24



LOOKING TOWARD PARK LN. CUL-DE-SAC WITH APN: 001-032-13 BEYOND



LOOKING TOWARD APN: 001-032-40



LOOKING TOWARD APN: 001-032-40

LOOKING TOWARD APN: 001-032-40

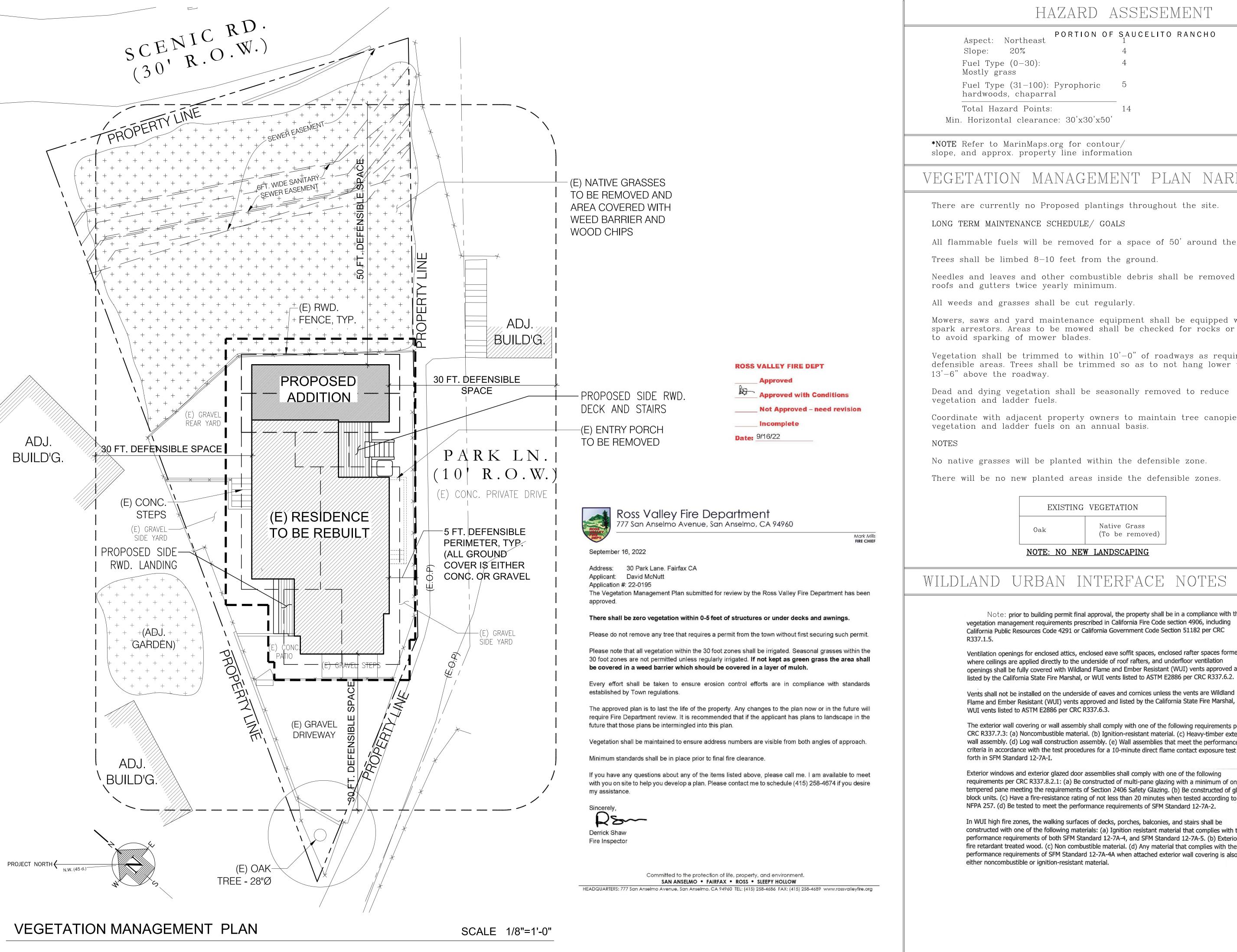
PICTURES OF ADJACENT PARCELS



REVISION

MCNUTT RESIDENCE
30 PARK LANE
FAIRFAX, CALIFORNIA 94930

Date	04/11/202
Scale	1/8" = 1'-0
Drawn by	SRT/ VG
Project	McNUT'



REVISION

VEGETATION MANAGEMENT PLAN NARRATIVE

All flammable fuels will be removed for a space of 50' around the home.

Needles and leaves and other combustible debris shall be removed from

Mowers, saws and yard maintenance equipment shall be equipped with spark arrestors. Areas to be mowed shall be checked for rocks or metal

Vegetation shall be trimmed to within 10'-0" of roadways as required for defensible areas. Trees shall be trimmed so as to not hang lower than

Dead and dying vegetation shall be seasonally removed to reduce

Coordinate with adjacent property owners to maintain tree canopies, vegetation and ladder fuels on an annual basis.

No native grasses will be planted within the defensible zone.

There will be no new planted areas inside the defensible zones.

Note: prior to building permit final approval, the property shall be in a compliance with the vegetation management requirements prescribed in California Fire Code section 4906, including California Public Resources Code 4291 or California Government Code Section 51182 per CRC

Ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation openings shall be fully covered with Wildland Flame and Ember Resistant (WUI) vents approved and listed by the California State Fire Marshal, or WUI vents listed to ASTM E2886 per CRC R337.6.2.

Flame and Ember Resistant (WUI) vents approved and listed by the California State Fire Marshal, or

The exterior wall covering or wall assembly shall comply with one of the following requirements per CRC R337.7.3: (a) Noncombustible material. (b) Ignition-resistant material. (c) Heavy-timber exterior wall assembly. (d) Log wall construction assembly. (e) Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set

Exterior windows and exterior glazed door assemblies shall comply with one of the following requirements per CRC R337.8.2.1: (a) Be constructed of multi-pane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing. (b) Be constructed of glass block units. (c) Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257. (d) Be tested to meet the performance requirements of SFM Standard 12-7A-2.

constructed with one of the following materials: (a) Ignition resistant material that complies with the performance requirements of both SFM Standard 12-7A-4, and SFM Standard 12-7A-5. (b) Exterior fire retardant treated wood. (c) Non combustible material. (d) Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached exterior wall covering is also

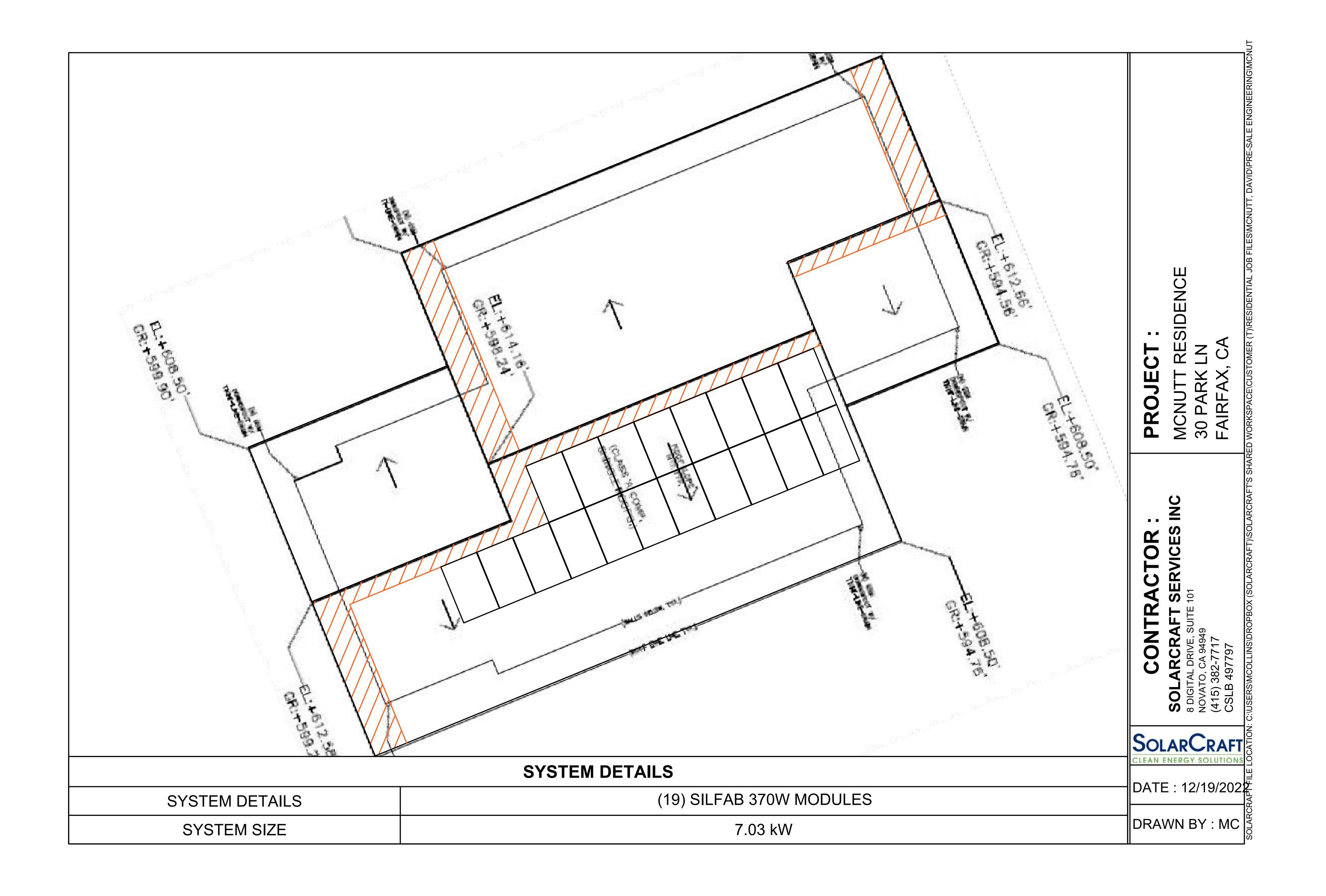
04/11/2023 1/8"=1'-0" SRT/VGT McNUTT

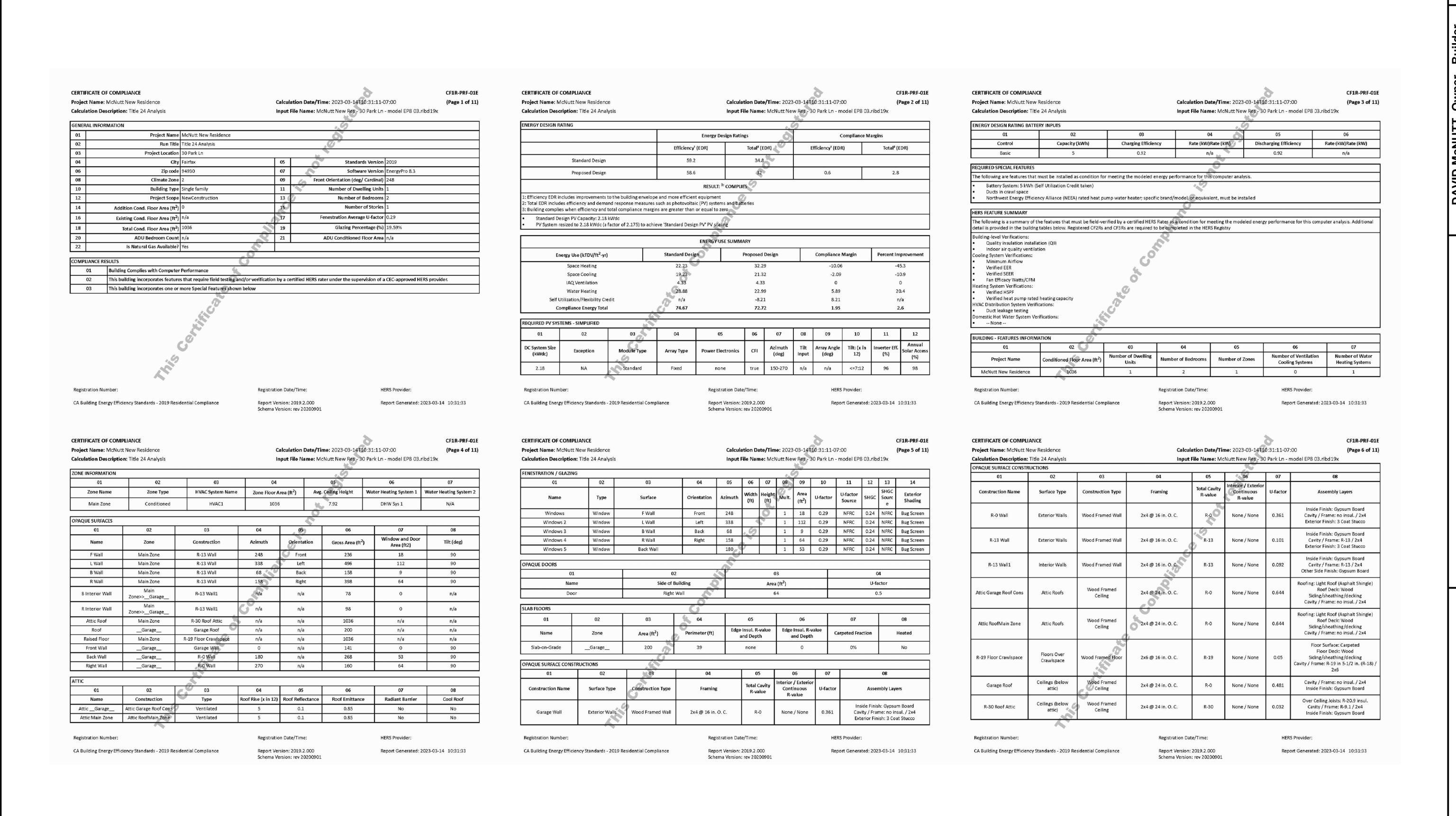
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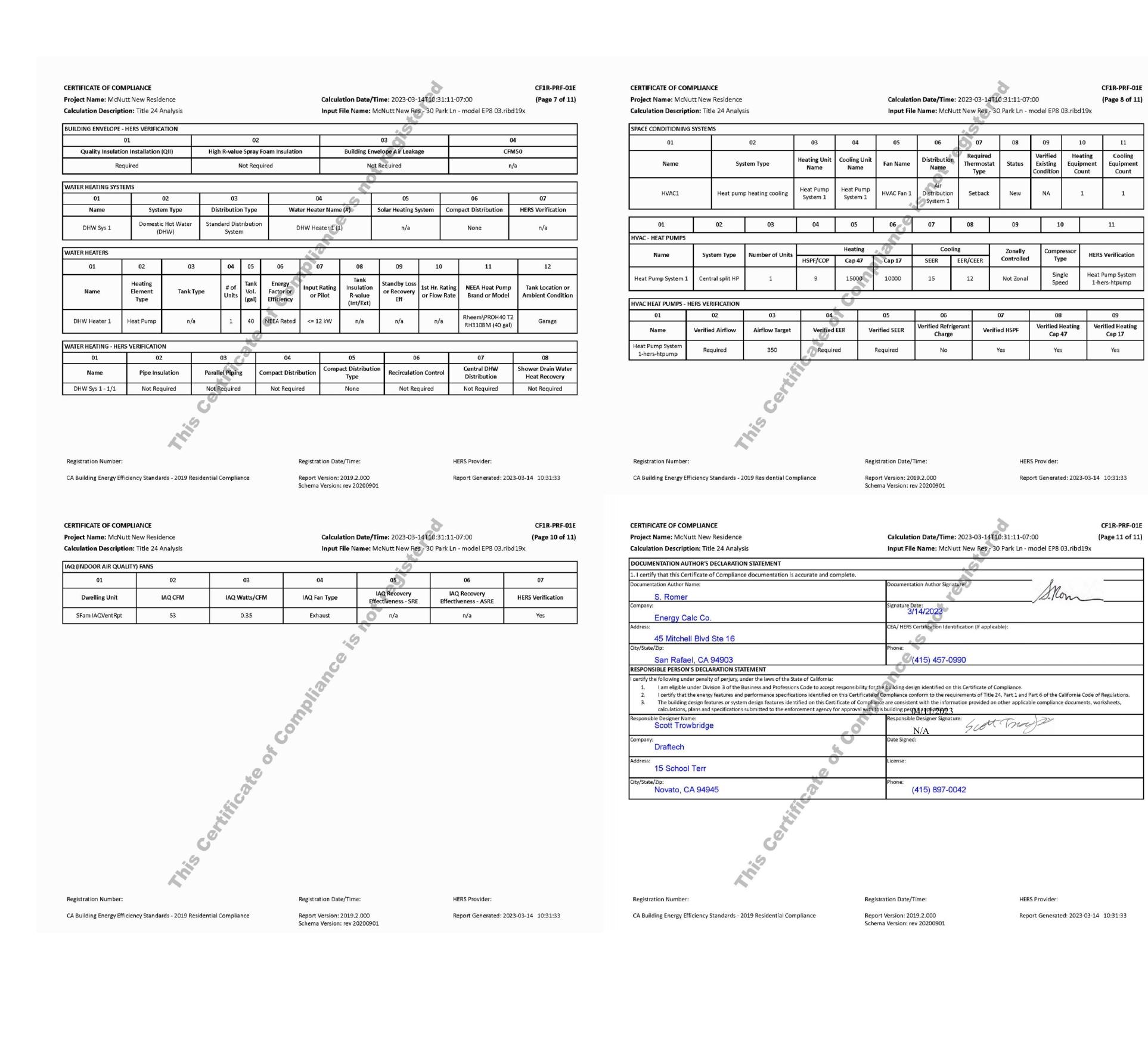
요 첫 PLAN PREPARER

(of Marin County), SCOTT R
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REVISION

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04/11/2023 NO SCALE SRT/VGT McNUTT



ERTIFICATE OF CO	MPLIANCE							8			CF1R-PRF-
roject Name: McN	lutt New Residence				Calcu	lation Date	e/Time: 2023-0	3-14T10:31:11-0	7:00		(Page 9 of
alculation Descrip	tion: Title 24 Analysis				Input	t File Name	: McNutt New	Res - 30 Park Ln -	model EP	8 03.ribd 19x	
IVAC - DISTRIBUTION	N SYSTEMS						. 6)			
01	02	03	04	05	06	07	08	09	10	11	12
-		<u> </u>	Duct Ins	. R-value	Duct Lo	ocation	Surfa	ce Area			_
Name	Туре	Design Typ	oe Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakag	HERS Verificati
Air Distribution System 1	Unconditioned crawl space	Non-Verifie	ed R-6	R-6	Crawl Space	Crawl Space	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distributi System 1-hers-d
VAC DISTRIBUTION	- HERS VERIFICATION					<u> </u>					
01	02	03	04		05		06	07		08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	,	rified Duct Verified Duct Ocation Design		t _{Bui}	Buried Ducts Deeply Buried Ducts		Low-leakage Air Handler		Low Leakage Ducts Entirely Conditioned Space
Air Distribution System 1-hers-dist	Yes 50 N		Not Requ	Not Required Not Required			t Required	Credit not taken	Not Required		No
IVAC - FAN SYSTEMS	•			*		•				•	
01			10	02			03			04	
Name		0	Туре			Fan Power (Watts/CFM)			Name		
	HVAC Fan 1		O	HVAC Fan				0.45		HVAC Fan	1-hers-fan
IVAC FAN SYSTEMS -	HERS VERIFICATION										
	01	_0			02					03	
	Name	C		Verif	ied Fan Watt	Draw		Requ	ired Fan Eff	ficacy (Watts/C	FM)

Registration Date/Time:

Report Version: 2019.2.000

Schema Version: rev 20200901

HERS Provider:

Report Generated: 2023-03-14 10:31:33

	IDENTIAL MEA	ASURES SU	JMMA	\RY						RMS-1
Project Name McNutt New Residence				Building Type ☐ Single Family ☐ Addition Alone ☐ Multi Family ☐ Existing+ Addition/Alteration						
	Address						Total	Cond. Floor Area		# of Units
	rk Ln Fairfax		C	4 Clima	ate Zon	e 02		1,036	n/a	1
	struction Type		Cav	itv	Area (ft²)	S	neci	al Features		Status
Roof	Wood Framed Attic		R 30	ıty	1,036		peci	ar r catares		New
Nali	Wood Framed		R 13		1,261					New
Floor	Wood Framed w/Crawl	Space	R 19		1,036					New
	ESTRATION ntation Area(ft²)	Total Area: U-Fac SI	203 IGC	Glazing Overh	Percentag			New/Altered Ave		0.29 Status
ront (M	V) 18.0	0.290	0.24	none		none		N/A		New
Left (N)	112.0	0.290	0.24	none		none		N/A		New
Rear (E)	9.0	0.290	0.24	none		none		N/A		New
Right (S	64.0	0.290	0.24	none		none		N/A		New
	O OVOTEMO									
	C SYSTEMS	Min. Fff	Coc	olina		Min	ı. Fff	The	ermostat	Status
	C SYSTEMS Heating Split Heat Pump	Min. Eff		oling t Heat Pui	тр		i. Eff	T he	ermostat	Status New
Qty.	Heating				тр					17914
Qty.	Heating Split Heat Pump C DISTRIBUTION		Split				SEER	Setbac		17914
Qty. f HVAC Loca	Heating Split Heat Pump C DISTRIBUTION	9.00 HSPF	Split	Heat Pui		15.0	SEER	Setbac	Duct	New
Qty. 1 HVAC Loca	Heating Split Heat Pump C DISTRIBUTION tion H	9.00 HSPF	Split	Heat Pui	Duc	15.0	SEER	Setbac	buct R-Value	New Status
HVAC Loca	Heating Split Heat Pump C DISTRIBUTION tion H Ducci	9.00 HSPF	Coo Ducte	Heat Pui	Duc Crawls	15.0	ation	Setbac	buct R-Value	New Status
HVAC Loca HVAC	Heating Split Heat Pump C DISTRIBUTION tion H Duc	9.00 HSPF eating ted	Coo Ducte	Heat Pui o ling	Duc Crawls	15.0	ation	Setbac	buct R-Value	Status New
HVAC Loca HVAC WAT Qty.	Heating Split Heat Pump C DISTRIBUTION tion H Duck ER HEATING Type	9.00 HSPF eating ted Galle	Coo Ducte	Dling Min.	Duc Crawls	15.0 t Loca	ation	Setbac	buct R-Value	Status New Status

Registration Number:

CA Building Energy Efficiency Standards - 2019 Residential Compliance

PLAN PREPARER
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15 SCHOOL TERRACE, NOVATO, CA FORMS ES SUMM SOMPLIANCE FIAL MEASURES ENERGY RESIDEN

REVISION

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2019 Low-Rise Residential Mandatory Measures Summary

NOTE_Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach

used. Review the r	sidential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach espective section for more information. *Exceptions may apply.
(01/2020)	22
Building Envelope	e Measures: Air Leakage. Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less
§ 110.6(a)1:	when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	Field fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.*
§ 110.7:	Air Leakage. All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	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 §10-113 when the installation of a cool roof is specified on the CF1R.
§ 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.
§ 150.0(a):	Ceiling and Rafter Roof Insulation. Minimum R-22 insulation in wood-frame ceiling, or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weight ed average U-factor of 0.054 or less in a rafter roof alteration. 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 continuous 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.*
§ 150.0(b):	Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	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 an overall 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 0.037 maximum U-factor.*
§ 150.0(n):	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 as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	Vapor Retarder. In climate zones 1 through 16, the earth floor of 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(d).
§ 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 atics, and unvented attics with air-permeable insulation.
§ 150.0(q):	Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
	ative Gas Appliances, and Gas Log Measures:
§ 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 tight-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 Conditioni	ng, Water Heating, and Plumbing System Measures:
§ 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-Athrough Table 110.2-K.*
§ 110.2(b):	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-off temperature for supplementary heating, and 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)4:	Water Heating Recirculation Loops Serving Multiple Dwelling Units. Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 110.3(c)6:	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.
§ 110.5	Pilot Lights. 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)1:	Building Cooling and Heating Loads. Heating and/or cooling loads are calculated in accordance with the ASHRAE Hancbook, Equipment Volume, Applications Volume, and Fundament als Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual Jusing design conditions specified in § 150.0(h)2.



2019 Low-Rise Residential Mandatory Measures Summary

Requirements f	or 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.
§ 150.0(o)1 C:	Single Family Detached Dwelling Units. 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 provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0 (o) 1C.
§ 150.0(o)1E:	Multifamily Attached Dwelling Units. Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	Multifamily Building Central Ventilation Systems. Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance
§ 150.0(o)1 G:	Kitchen Range Hoods. Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	Field Verification and Diagnostic Testing. Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa S	ystems and Equipment Measures:
§ 110.4(a):	Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermost at 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 36 inches of pipe between the filter and the heater, or dedicated suction 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, flor rate, piping, filters, and valves.*
Lighting Measu	res:
§ 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) 1.A:	Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(k)1B:	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 must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k) 1C.
§ 150.0(k)1D:	Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 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).*
§ 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)11:	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 not 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 cut 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:	Interior Switches and Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	Interior Switches and Controls. Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	Interior Switches and Controls. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	Interior Switches and Controls. Lighting controls must comply with the applicable requirements of § 110.9.



2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)3A:	Clearances. Air conditioner and heat rump out door condensing units must have a clearance of at least five feet from the outlet of any drye
§ 150.0(h)3B:	Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0@1:	Storage Tank Insulation. Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must a mirrimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank
§ 150.0(j)2A:	Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation. All domestic hot water piping mube insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimulinsulation wall thickness of one inch or a minimum insulation R-value of 7.7; the first five feet of cold water pipes from the storage tank; all hwater piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter lethan 3/4 inch that is: associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks; buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0 (j) 3:	Insulation Protection. Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tape Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by 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(n) 1:	Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit break for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the bof the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per h
§ 150.0(n)2:	Redirculating Loops. Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 150.0(n)3:	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 listin 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.
§ 150.0(m)1:	CMC Compliance. All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 604.0, 603.0, 603.0, 604.0, 603.0, 603.0, 604.0, 603.
§ 150.0(m)2:	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)3:	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)7:	Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic damper.
§ 150.0(m)8:	Gravity Ventilation Dampers. Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all operings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	Protection of Insulation. Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exp to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellula foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	Porous Inner Core Flex Duct. Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	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 § 150.0 (m)11 and Reference Residential Appendix RA3.
§ 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. Presidrops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 150.0(m)13:	Space Conditioning System Airflow Rate and Fan Efficacy. Space conditioning systems that use ducts to supply cooling must have a h for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 C per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.59 watt CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-har unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3*



2019 Low-Rise Residential Mandatory Measures Summary

ENERGY COMMISSION	2010 Low-Rise Residential mandatory measures outlinary
§ 150.0(k)2G:	Interior Switches and Controls. An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(e); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	Interior Switches and Controls. A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2l:	Interior Switches and Controls. In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0 (k)2C.
§ 150.0(k)2J:	Interior Switches and Controls. Lumnaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*
§ 150.0(k)2K:	Interior Switches and Controls. Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 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 meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	Residential Outdoor Lighting. For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	Residential Outdoor Lighting. For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	Internally illuminated address signs Internally illuminated address signs must comply with § 140.8, or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 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 Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(k)6A:	Interior Common Areas of Low-rise Multifamily Residential Buildings. In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.3-A and be controlled by an occupant sensor.
§ 150.0(k)6B:	Interior Common Areas of Low-rise Multifamily Residential Buildings. In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must: i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stanwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed palhs of ingress and egress.
Solar Ready Bui	ldings:
§ 110.10(a)1:	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) through § 110.10(e).
§ 110.10(a)2:	Low-rise Multifamily Buildings. Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110,10(b)1:	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. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.*
§ 110.10(b)2:	Azimuth. All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees 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 mourted 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 distance, measured in the horizontal plane, 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.
§ 110.10(d):	Documentation. A copy of the construction documents or a comparable document indicating the information from § 110.10(b) through § 110.10(c) must be provided to the occupant.
§ 110.10(e)1:	Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	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".

MANDATORY

REVISION

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04/11/2023 NO SCALE SRT/VGT McNUTT