

RESIDENTIAL ENERGY REQUIREMENTS:

I .) ALL NEW GLAZING WILL BE INSTALLED WITH CERTIFYING LABEL ATTACHED, SHOWING U-VALUE.

2.) PIPING FOR RECIRCULATING WATER HEATING SYSTEM IS REQUIRED TO INSULATE FOR THE ENTIRE LENGTH REGARDLESS OF LOCATION PER SECTION 150(j)2.

3.) LIGHTING IN KITCHENS SHALL HAVE LAMPS PROVIDING A MIN. OF 40 WATT (NO COMPACT FLUORESCENT). A FIXTURE WHICH IS THE ONLY LIGHTING IN THE KITCHEN WILL BE CONSIDERED GENERAL LIGHTING. GENERAL LIGHTING SHALL BE CONTROLLED BY THE MOST ACCESSABLE SWITCH.

4.) FLUORESCENT FIXTURES SHALL NOT CONTAIN MEDIUM BASE INCANDESCENT LAMP SOCKET AND SHALL BE ON SEPERATE SWITCHES FROM ANY INCANDESCENT LIGHTING.

5.) ALL LIGHTING FIXTURES RECESSED INTO INSULATED CEILINGS SHALL BE APPROVED FOR ZERO CLEARANCE INSULATION COVER AND AIR TIGHT (TYPE IC-AT)

6.) ALL SHADING DEVICES MUST BE INSTALLED PRIOR TO

FINAL INSPECTION. GENERAL NOTES:

I.) UPON COMPLETION OF THE INSULATION, A CARD CERTIFYING THAT THE INSULATION HAS BEEN INSTALLED IN CONFORMANCE WITH THE REQUIREMENTS OF THIS REGULATIONS SHALL BE COMPLETED BY THE INSULATION APPLICATOR AND BY THE BUILDER. POST THIS CERTIFICATE IN A CONSPICUOUS PLACE INSIDE THE DWELLING.

2.) FIXTURES HAVING SLIP JOINT CONNECTIONS SHALL BE PROVIDED WITH AN ACCESS PANEL PER UPC SECTION 904(b)

3.) WHERE ANY 2" VENT RUNS HORIZ. IN WALL, THE MINIMUM STUD SIZE FOR THAT WALL IS TO BE 2x6 FOR THAT PLUMBING WALL

4.) PROVIDE A 1-3/4" THICK SOLID CORE DOOR WITH A SELF CLOSER AT SEPERATION WALL BETWEEN GARAGE AND RESIDENCE.

5.) DRYER DUCT SHALL BE SMOOTH METAL AND SHALL HAVE A

BACK DRAFT DAMPER PER UMC.

6.) WATER HEATER SHALL BE PROVIDED WITH A TEMPERATURE AND PRESSURE

RELIEF VALVE AND DRAIN LINE TO EXTEND TO THE OUTSIDE. 7.) PROVIDE A NON-REMOVABLE BACKFLOW PREVENTION DEVICE ON ALL

EXTERIOR HOSE-BIBS 8.) Showers and shower-tubs shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal

shock protection. [9408.3 CPC] ELECTRICAL SYMBOLS:

- DUPLEX OUTLET WALL MTD. @ 12" ABOVE F.F. GROUND FAULT CIRCUIT INTERRUPTION DUPLEX OUTLET HALF-HOT AS SHOWN 220 v. OUTLET ON DEDICATED CIRCUIT 220 v. OUTLET WITH DISCONNECT
- TELEPHONE OUTLET
- CABLE TELEVISION OUTLET SINGLE POLE SWITCH
- TWO POLE SWITCH DIMMER SWITCH
- DOOR BELL BUTTON
- WALL MOUNTED CHIME ON TRANSFORMER
- WALL MOUNTED LIGHT FIXTURE @ 80"
- CEILING MOUNTED LIGHT FIXTURE
- FAN O PROVIDE METAL BOX TO SUPPORT FAN
- RECESSED CANISTER FIXTURE (ICAT TYPE) -®-
- -OFLED RECESSED CANISTER FIXTURE, LED (ICAT TYPE)
- \odot 110 v SMOKE DETECTOR WITH BATTERY BACK-UP Smoke alarm system and components shall be California State
- Fire Marshal listed and approved. [§ R314.1 CRC] CARBON MONOXIDE DETECTOR

fluorescent 4' FLUORESCENT FIXTURE

ELECTRICAL NOTES

1.) ALUMINUM CONDUCTORS ARE PERMITTEED ONLY IF SIZE 1/0 OR LARGER, AND ONLY TO FEED MAIN OR SUB-PANELS. ALL OTHER CURRENT CARRYING CONDUCTORS SHALL BE COPPER. 2.) PROVIDE AT LEAST TWO 20-AMPERE SMALL APPLIANCE BRANCH CIRCUITS TO SERVE KITCHEN, BREAKFAST ROOM, AND DINING ROOM. SUCH CIRCIUTS

SHALL HAVE NO OTHER OUTLETS. 3.) PROVIDE AT LEAST ONE 20-AMPERE TO SERVE LAUNDRY APPLIANCES SUCH CIRCIUTS SHALL HAVE NO OTHER OUTLETS. 4.) PROVIDE AT LEAST ONE 20-AMPERE BRANCH CIRCUIT TO SERVE BATHROOM RECEPTACLES, SUCH CIRCIUTS SHALL HAVE NO OTHER OUTLETS. 5.) PROVIDE ARC-FAULT CIRCUIT INTERRUPTERS FOR ALL OUTLETS (NOT JUST RECEPTACLES) LOCATED IN ROOMS DESCRIBED IN NEC

210.12(B): FAMILY, LIVING, BEDROOMS, DINING, HALLS, ETC.

PROVIDE 50 CFM, I SONE EXHAUST FANS EXHAUST FANS IN BATHROOMS SHALL BE ENERGY STAR RATED AND CONTROLED BY A HUMIDSTAT CAPABLE OF AN AJDUSTMENT BETWEEN 50% AND 80% HUMIDITY BATHROOM FANS USED INTERMITTENTLY MUST BE 3 SONES OR LESS

- RECESSED FLUORESCENT CAN LIGHT, ICAT RATED I 20V NPF electronic ballast - Energy Star and California T24 requirements (1) quad or triple, 18-Watt compact fluorescent lamp.

-ALL RECEPTACLE OUTLET LOCATIONS WILL COMPLY WITH CEC ARTICLE 210.52(A) -PROVIDE TAMPER RESISTANT RECEPTACLES FOR ALL LOCATIONS DESCRIBED IN 210.52 (ALL LOCATIONS)

FOR WATER HEATERS IN NEW CONSTRI

- A. A 120V receptacles provided within 3ft
 - B. A category III or IV vent, or a straight (without bends) Type B vent
 - C. Condensate drain that is no more than
 - 2 inches higher than the base of the water heate D. Gas supply line with a minimum 200,000 Btu/hr. dedicated capacity for the water heater
- All hot water piping sized 3/4" or larger is required to be insulated as for I" pipe size or less: I'' thick insulation; larger pipe sizes require I-I/ Note: In addition, the 1/2" size hot water pipe to the kitchen sink is re

Insulated. ES 150.0(1)2 Below grade hot water piping is required to be installed in a waterproo sleeve or casing that allows for replacement of both the piping and Insulation. ES 150.0(1)

> SMOKE AND CO ALARM REQUIREMENTS - Required smoke alarms shall receive their primary power from

- the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection. [§R3 | 4.6 CRC]
- —The smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. [§R3 | 4.4 CRC]
- Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Wiring shall be for overcurrent protection. [§R315.5 CRC]
- -Where more than one carbon monoxide alarm is required, the alarm shall be interconnected so that activation of one alarm activates all of the alarms in the individual unit. [9R315.7 CRC]

— All 125-volt, 15-amp, and 20-amp receptacles shall be listed as tamper-resistant receptacles. [§ 406.12 CEC]

> All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas or similar rooms or areas shall be protected by an listed arc-fault circuit interrupter, combination type, installed to provide protection of the branch circuit or by any of the other means described in 210.12(A)(2) through (6)." (CEC §210.12(A)) Please note that this requirement requires protection of the entire branch circuit supplying outlets (luminaires, fans, smoke alarms, etc.) and the devices within dwelling unit.

Modified, replaced, or extended 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas or similar rooms or areas shall be protected by either a listed combination-type AFCI located at the origin of the branch circuit or a listed outlet branch-circuit type AFCI located at the first receptacle outlet of the existing branch circuit. (CEC §210.12(B))

luminaries with interchangeable or screw based sockets may qualify as "high efficacy" if registered to the California Energy Commission and equiped with a properly labeled "JA8" compliant bulb. Recessed luminaires shall not be of a type with screw based sockets. Additionally, all luminaires that are recessed into insulated ceilings are required to be IC \$ AT rated (insulation contact and airtight with air leakage less than 2.0 CF, at 75 pascals when tested in accordance with ASTM [283) and be sealed with a gasket or caulk between the luminaire housing and ceiling, and shall have all air leak paths between conditioned and unconditioned spaces sealed with a gasket or caulk.

In addition to qualifying as high efficacy, outdoor lighting must be equipped with a manual ON and OFF switch that does not override to automatic ON; controlled by a motion sensor not having an override or bypass switch that disables the motion sensor, or controlled by a motion sensor having a temporary override which bypasses the motion sensing function and automatically reactivates the motion sensor within 6 hours; and controlled by either a photo cell, an astronomical time clock or an Energy management system. (California Energy Code §150.0(k) 9) All installed recessed lighting and screw-based lighting complying

with Joint Appendix 8 must be controlled by either a dimmer or vacancy sensor. Indicate on plan the method of switching in compliance with these requirements. (CEC §150.0(k)2K)

> Shower compartments, regardless of shape, shall have a minimum finished interior of 1024 square inches (32" by 32") The Showers and walls above bathtubs with shower heads shall be finished with a nonabsorbent surface to a height not less

than 6 feet above the floor. [§ R307.2 CRC] (2)-Egress doors shall be openable from inside the dwelling

without the use of a key or special knowledge or effort. [§ R3 | 1.2 CRC] (3)-Provide a permanently accessible 12-inch square bathtub trap access or note on plan that a non-slip-joint trap will be used. [9402.11 CPC] (4)-Pad supporting compressor/condenser shall be a minimum of 3" above the grade. [§1106.2 CMC]

- (5)-A one-inch diameter electrical conduit shall be provided for installation of future solar PV energy systems on single family dwellings. The one-inch diameter electrical conduit shall extend from the exterior wall location adjacent to the main electrical service panel and terminate into the attic space. At each location, the conduit shall terminate at a two-gang, electric junction box. Three open spaces shall be provided at the bottom of the buss to accommodate future solar PV systems
- (6)-The EVSE must consist of minimum 1" conduit extending from the main panel to a junction box where the EVSE receptacle will be provided. The main service panel must be sized to accommodate 208/240 Volt, 40 amp dedicated branch circuit. CGC 4.106.4.

	ELECTRICAL LOAD	CALCULATION:	I 25 AMP	L 25 AN UNIT 2 CIR DIST
	1020 sf @ 3 WATTS (GENERAL LIGHTING) (4) APPLIANCE CIRCUITS @ 1500 WATTS (1) FAU's	3,060 watts 6,000 watts 1,600 watts	#6 GRND GAS AND - #6 GRND GAS AND - COLD WATER	
UCTION:	(1) WASHERS	I,000 watts II,660 watts	I 25 AMP UNIT 3 UNIT 3 CIR DIST FOR UNIT	
er	st 0,000 watts @ 00% REMAINDER @ 40%	10,000 watts 664 watts	#G GRND GAS AND	F−#6 GRND COLD WAT
ollows:		10,664 watts	40 AMP = HOUSE PANEL CIR DIST FOR HOUSE PANEL	
⁷ 2" thick insulation. equired to be f and noncrushable	3 tons x 1250 WATTS = 3,750 WATTS	3,750 watts	#6 GRND GAS AND -= COLD WATER	₩ #G GRND COLD WAT
	4,4 4 WATTS <u>= 60 AMPS, 2</u>	/ 240 VOLTS 25 AMPS PROPOSED	UN UNIT 3	



















	GENERAL AND STRUCTURAL NOTES	PLY
	ALL CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE (CBC) OR AS NOTED HEREIN. THE ARCHITECT/ENGINEER (ARCH/ENGR) IS NOT RESPONSIBLE FOR THE LOCATION OF PROPERTY LINES AND/OR EASEMENTS, SOILS CONDITIONS, MECHANICAL AND ELECTRICAL WORK, AND THE PRESENCE OF UTILITIES NOT REPORTED TO HIM IN WRITING BY THE OWNER.	I. STRL WITH SUPF MEM TO U SHAL
ŀ.	THE ENGINEER IS NOT RESPONSIBLE FOR FIELD REVIEW OF CONSTRUCTION UNLESS RETAINED FOR THAT PURPOSE. DRAWINGS SHALL NOT BE SCALED. WRITTEN DIMENSIONS SHALL GOVERN. THE CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCH/ENGR SO CLARIFICATIONS CAN BE MADE. EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AND SHALL BE SUBMITTED TO THE ARCH/ENGR FOR REVIEW PRIOR	5/8
5.	DETAILS OF CONSTRUCTION NOT SHOWN OR NOTED SHALL BE CONSIDERED OF THE SAME CHARACTER SHOWN FOR SIMILAR CONSTRUCTION. SPECIFICATIONS, WHEN PROVIDED, ARE A PART OF THESE DRAWINGS. SEE SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP REQUIREMENTS.	
5. 7.	THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, MATERIAL AND SERVICES NECESSARY FOR THE EXECUTION OF ALL CONSTRUCTION WORK AS SHOWN ON THE DRAWINGS AND AS NOTED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL COMPARE THE DRAWINGS AND NOTIFY THE ARCH/ENGR OF	
3.	ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK. TEMPORARY BRACING AND SHORING NECESSARY TO SUPPORT ANY PORTION OF THE STRUCTURE DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. FOUNDATIONS	
۱.	ASSUMED ALLOWED BEARING PRESSURE IS 1500 PSF AT NEW FOUNDATIONS AND IS NOT CONSIDERED AT EXISTING FOUNDATIONS. INSPECTOR TO VERIFY PLACEMENT OF FILLS & FOUNDATION EXCAVATIONS PRIOR TO PLACEMENT OF CONCRETE FTGS.	
2. 3.	ALL FOUTING EXCAVATIONS STALL DE DUG AS NEAT AND AS CLOSE TO FOUTING DIMENSIONS AS PRACTICABLE. OVEREXCAVATIONS IN DEPTH SHALL BE FILLED WITH CONCRETE. OVEREXCAVATION IN WIDTH MAY BE FILLED WITH CONCRETE OR COMPACTED FILL UNLESS OTHERWISE NOTED. ALL FOUNDATIONS SHALL BEAR ON FIRM UNDISTURBED NATIVE SOILS OR ENGINEERED FILLS AT OR EXCEEDING DEPTHS SHOWN ON THE DRAWINGS. ALL SOILS	
	WORK AND SITE GRADING SHALL BE DONE IN ACCORDANCE WITH CHAPTERS 33 and 18 OF THE CBC, AND WITH THE SPECIFICATIONS AND REQUIREMENTS OF THE SOILS REPORT IF NOTED BELOW. CONCRETE	
1.	CONCRETE SHALL BE 5 SACK, 3/4" AGGREGATE MIX WITH 4" SLUMP. COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE AS FOLLOWS: 2500 PSI FOR SLABS AND FOUNDATIONS 2500 PSI FOR WALLS AND COLUMNS	
۷.	1905 OF THE CBC AND THE SPECIFICATIONS IF ISSUED.	
3.	SLABS, BEAMS WALLS AND OTHER CONCRETE EXPOSED TO THE WEATHER SHALL BE KEPT WET CONTINUOUSLY FOR 48 HOURS AFTER PLACEMENT. BEAMS, WALLS ETC. SHALL BE KEPT DAMP FOR 7 DAYS AFTER PLACEMENT. SLAB SHALL HAVE CURE APPLIED IMMEDIATELY AFTER FINISHING IF OTHER FINISHES ARE NOT AFFECTED.	
4.	ALL CONCRETE SHALL BE REINFORCED, UNLESS OTHERWISE NOTED (U.O.N.). REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM AG I 5 GRADE 60. #4 BARS AND SMALLER MAY BE ASTM GRADE 40.	
э. 6.	MINIMUM. REINFORCING STEEL SHALL CLEAN AND FREE FROM RUST AND SCALE AND SHALL BE PLACED IN AS LONG OF LENGTHS AS PRACTICABLE. SEE STANDARD DETAILS FOR SPLICE AND LAPS.	
Ι.	ALL STRUCTURAL STELL FABRICATION AND ERECTION SHALL CONFORM THE SPECIFICATIONS AS STATED IN THE "MANUAL OF STEEL CONSTRUCTION" BY A.I.S.C. (LATEST EDITION). STRUCTURAL STEEL SHALL MEET THE FOLLOWING MINIMUMS :	
2. 3.	SHAPES / PLATES ASTM A-36 / TUBES ASTM A-500 / PIPE ASTM A-53 GRADE B ALL STEEL MEMBER SHALL BE GIVEN ONE COAT OF RUST INHIBITIVE PRIMER PRIOR TO ERECTION, U.O.N. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-307. BOLT HOLES SHALL	
ŧ.	BE 1/16" LARGER IN DIAMETER THAN THE BOLT, UNLESS OTHERWISE NOTED (U.O.N.) WELDING ELECTRODES SHALL MEET AWS REQUIREMENTS. WELD METAL SHALL MATCH	
	OR EXCEED TENSILE STRENGTH OF PARENT METAL. ELECTRODES SHALL BE E70XX FOR SHIELDED METAL ARC, F7XX - EXXX FOR SUBMERGED ARC, AND E70-X FOR GAS METAL ARC, U.O.N.	
). 5.	ALL STRUCTURAL WELDS SHALL BE CERTIFIED BY A TESTING AGENCY ACCEPTABLE TO THE ARCH/ENGR. CERTIFICATIONS SHALL BE SUBMITTED TO THE ARCH/ENGR AND THE BUILDING OFFICIAL. GROUT UNDER COLUMN BASE PLATES TO BE MASTER BUILDERS MASTERFLOW #928.	
7.	DRILLED CONCRETE ANCHORS ARE RAMSET CORPORATION WHERE NOTED AND SELF DRILLING ANCHORS ARE PHILLIPS RED HEAD. CONCRETE INSERTS, COIL LOOP INSERTS AND FERRULE LOOP INSERTS AS NOTED ON DRAWINGS ARE BY BURKE COMPANY. APPROVED EQUALS MAY BE SUBSTITUTED. WOOD CONSTRUCTION (CARPENTRY)	
	SAWN FRAMING LUMBER TO BE DOUGLAS FIR WITH GRADES AS FOLLOWS: BEAMS AND POST (4 × AND LARGER), #1 JOIST, PLATES AND 2 × 6 STUDS, #2 OR BETTER 2 × 4 STUDS, CONSTRUCTION GRADE OR BETTER OTHER GRADE REQUIREMENTS ARE AS NOTED ON THE DRAWINGS.	
<u>}</u> .	NAILS TO BE COMMON WIRE WHERE NAILING IS SPECIFIED ON THE DRAWINGS. OTHER- WISE BOX NAILS MAY BE USED PER NAILING SCHEDULE. NAILS USED IN EXTERIOR APPLICATIONS TO BE GALVANIZED. REPLACE SPLIT MEMBERS. PREDRILL HOLES WHERE NAILING CAUSES WOOD TO SPLIT	
ł.	METAL FRAMING CLIPS, HANGERS, ETC. INDICATED ON THE DRAWINGS ARE SIMPSON STRONG TIE. NAILING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS WITH A NAIL PROVIDED FOR EACH PUNCHED HOLE. WHERE NAILS ARE TO BE FURNISHED BY THE MANUFACTURER, THEY SHALL BE USED IN PLACE OF COMMON NAILS.	
,. ,	CONFORMING TO ASTM A307. LENGTH OF BOLTS OF SIZES SHOWN ON DRAWINGS CONFORMING TO ASTM A307. LENGTH OF BOLTS SHALL NOT PROJECT LESS THAN I/I 6" OR MORE THAN I/2" PAST THE END OF NUT. BOLT HOLES IN WOOD SHALL BE I/32" DIAMETER LARGER THAN THE BOLT DIAMETER. HOLES IN STEEL SHALL BE I/I 6" DIAMETER LARGER THAN THE BOLT DIAMETER. PROVIDE WASHERS UNDER BOLT HEAD AND NUT WHERE THEY WOULD BEAR ON WOOD. NUTS SHALL BE TIGHTENED WHEN PLACED AND RETIGHTENED REFORE CLOSING IN WALKS OD OTHER CONSTRUCTION	
5.	REACED AND REFIGNTENED DEFORE CLOSING IN WALLS OR OTHER CONSTRUCTION. WOOD AGAINST CONCRETE OR CONCRETE BLOCK SHALL BE PRESSURE TREATED DOUGLAS FIR. WOOD POST EMBEDDED IN CONCRETE OR EARTH SHALL BE PRESSURE TREATED TO THE AWPB LP-22 STANDARD.	

7. STRUCTURAL MEMBERS SHALL NOT BE NOTCHED, CUT OR OTHERWISE ALTERED FOR DUCTS, PIPES, ETC. WITHOUT THE ARCH/ENGR PRIOR APPROVAL. PLYWOOD SHEATHING

STRUCTURAL PLYWOOD SHALL BE AS NOTED ON THE DRAWINGS, BE CONSTI WITH EXTERIOR GLUE, AND BE GRADE STAMPED BY A.P.A.. CONTINUOUSLY SUPPORTED EDGES OF PLYWOOD SHALL ABUT ALONG CENTERLINE OF FRAME MEMBERS. GUN NAILING AND NAILS TO BE APPROVED BY THE ENGINEER PRIO TO USE. PLYWOOD NAILS SHALL BE COMMON WIRE WITH FULL ROUND HEAD SHALL HAVE A MINIMUM NET PENETRATION INTO FRAMING OF 1 1/2" FOR 8a 1 5/8" FOR 1 Od.

FASTENING SCHEDULE

	ELEMENT LOCATION:	FASTENER	LOCATION
	Blocking between ceiling joists, rafters or trusses to	$3 - 8d \text{ common } (2^{1}/_{2}'' \times 0.131'')$ 3-10d box (3"x0.128")	Toenail each end
	top plate or other framing below	$3 - 3'' \times 0.131''$ nails 3 - 3'' 14 gage staples, 7/16" crown 2. 84 crown (2) (" × 0.121")	to and to all and
	blocking between rafters or truss not at the wall top plate, to rafter or truss	2 - 8d common $(2^{7}/_{2}^{"} \times 0.131^{"})$ 2 - 3" × 0.131" nails 2 - 3" 14 gage staples	toenail each end
	plate, to failer of trass	2-16d common (3 ½"x0.162") 3-3"x0.131" nails	end nail
	Flat blocking to truss and	3-3" 14 gage staples 16d common (3 ½"x0.162") @6" o.c.	Face nail
	web filler	3-3"x0.131" nails @ 6" o.c. 3-3" 14 gage staples @ 6" o.c.	Toenail each joist
	Centing joists to top plate	3-10d box 3-3"x0.131" nails	r oenan each joist
	Ceiling joist not attached to	3-3" 14 gage staples, 7/16" crown 3-16d common	Face nail
	parallel rafter, laps over partitions (no thrust)	4-10d box 4-3"x0.131" nails	
	(Table and Section2308.7.3.1) Ceiling joists attached to	Table 2308 7 3 1	Face nail
	parallel rafter (heel joint) (Table and	14010 2308.7.3.1	
	Section2308.7.3.1) Collar tie to rafter	3-10d common	Face nail
		4-10d box 4-3"x0.131" nails 4-3" 14 gage staples 7/16" crown	
	Rafter or roof truss to top plate (Table and section	3-10 common 3-16d box	Toenail ^(c)
	2308.7.5)	4-10d box 4-3"x0.131" nails	
	Roof rafters to ridge valley	4-3" 14 gage staples, 7/16" crown 2-16d common	End nail
	to 2" ridge beam	3-3"x0.131" nails 3-3" 14 gage staples 7/16" crown	
		3-10d common 3-16d box	Toenail
		4-10d box 4-3"x0.131" nails 4-3" 14 gaza stanlag, 7/16" arown	
	Stud to Stud (not at braced	WALL 16d common	24" o.c. face nail
	wall panels)	10d box	16" o.c. face nail
		3"x0.131" nails 3" 14 gage staples, 7/16" crown	1.00
	stud to stud and abutting studs at intersecting wall	16d box	16" o.c. face nail
	panels)	3"x0.131" nails	12" o.c. face nail
	Built-up header	3" 14 gage staples, 7/16" crown 16d common	16" o.c. each edge, face
		16d box	12" o.c. each edge, face
	Continuous header to stud	4-8d common 4-10d box	Toenail
	1 op plate to top plate	100 common 10d box 3"x0.131" nails	10° o.c. face nail 12" o.c. face nail
	Top plate to top plate. at	3" 14 gage staples, 7/16" crown 8-16d common	Each side of end ioint
	end joints	12-10d box 12-3"x0.131" nails	nail (min 24" lap splice length each side of end
	Bottom plate to joist, rim	12-3" 14 gage staples, 7/16" crown 16d common	joint) 16" o.c. face nail
	(not at braced wall panels)	16d box 3"x0 131" nails	12" o.c. face nail
	Bottom plate to joist, rim	3" 14 gage staples, 7/16" crown 2-16d common	16" o.c. face nail
	joist, band joist or blocking at braced wall panels	3-16d box 4-3"x0.131" nails	
	Stud to top or bottom plate	4-3" 14 gage staples, 7/16" crown 4-8d common 4-10d box	Toenail
		4-3"x0.131" nails 4-3" 14 gage staples, 7/16" crown	
		2-16d common 3-10d box	End nail
	Ton or bottom plate to stud	3-3"x0.131" nails 3-3" 14 gage staples, 7/16" crown 2-16d common	End pail
	Top of contoni plate to stud	3-10d box 3-3"x0.131" nails	
	Top plates, laps at corners	3-3" 14 gage staples, 7/16" crown 2-16d common	Face nail
	and intersections	3-10d box 3- 3"x0.131" nails 3-3" 14 gage staples 7/16" crown	
	1" brace to each stud and plate	2-8d common 2-10d box	Face nail
		2- 3"x0.131" nails 2- 3" 14 gage staples, 7/16" crown	
	1"x6" sheathing to each bearing	2-8d common 2-10d box	Face nail
_	to each bearing	3-10d box FLOOR	
	Joist to sill, top plate, or girder	3-8d common 3-10d box	Toenail
	Rim joist hand joist or	3-5"x0.131" nails 3-3" 14 gage staples, 7/16" crown	6" o.c. toenail
	blocking to top plate, sill or other framing below	10d box 3"x0.131" nails	
	1"x6" subfloor or less to	3" 14 gage staples, 7/16" crown 2-8d common	Face nail
	2" subfloor to joist or girder	2-10d box 2-16d common	Face nail
	2" plank Built up girders and beams,	2-16d common 20d common	Each bearing, face nail 32" o.c. face nail at top
	2" lumber layers		bottom staggered on opposite sides
		10d box 3"x0.131" nails 3" 14 gage staples 7/16" crown	24" o.c. face nail at top bottom staggered on
		And 2-20d common	Ends and at each splice face nail
		3-10dbox 3- 3"x0.131" nails	
	Ledger strip supporting	3-3" 14 gage staples, 7/16" crown 3-16d common 4-10d bey	Each joist or rafter, fac
	joists or ratters	4-100 DOX 4-3"x0.131" nails 4-3" 14 gage staples 7/16" crown	
	Joist to band joist or rim joist	3-16d common 4-10d box	End nail
	Bridging of 11 - 1	4-3"x0.131" nails 4-3" 14 gage staples, 7/16" crown	Fach on L to
_	joist, rafter or truss	2-ou common 2-10d box 2 3"x0 131" = 5"15	Each end, toenail
W	OD STRUCTURAL PANS	2-3" 14 gage staples, 7/16" crown SUB FLOOR. ROOF AND INTEPIOP W	ALL SHEATHING TO
	FRAMING AND PAI	TICLEBOARD WALL SHEATHING TO	FRAMING ^(a)
	5/8 -1/2	(subfloor and wall) 8d box or deformed (roof)	12" intermediate suppo
		2 3/8"x0.113" nail (subfloor and wall) 1 ³ / ₄ " 16 gage staple, 7/16" crown	4" edge
		2 3/8" x0.113" nail (roof) 1 ³ /4"16 gage staple, 7/16" crown (roof)	8" intermediate suppor 3" edge
	19/32" –3/4"	8d common	6" intermediate suppor 6" edge
		6d deformed 2 3/8"x0.113 nail 2" 16" gage staple 7/16" grown	4" edge
	7/8" – 1/4"	10d common 8d deformed	6" edge 12" intermediate suppor
	OT 1/2" fiberboard sheathing ^(b)	ER EXTERIOR WALL SHEATHING 1 ½" galvanized roof nail	3" edge
	25/32" fiberboard	1 $\frac{1}{4}$ 16 gage staple with 7/16" or 1" crown 1 $\frac{3}{4}$ " galvanized roof nail	6" intermediate suppor 3" edge
20	STRUCTURAL DANEL	COMBINATION SUBELOOP UNDER	o intermediate suppor
	³ / ₄ " and less	8d common 6d deformed	6" edge 12" intermediate suppo
	7/8"-1"	8d common 8d deformed	6" edge 12" intermediate suppo
_	1 1/8"-1 ¼"	10d common 8d deformed	6" edge 12" intermediate suppo
	¹ / ₂ " or less	6 corrosion-resistant siding	6" edge 12" intermediate surge
		8d corrosion-resistant siding 8d corrosion-resistant casing	6" edge 12" intermediate suppo
	5/8"		l
	5/8" ¼"	INTERSIOR PANELING 4d casing	6" edge
	5/8" 1/4" 3/8"	INTERSIOR PANELING 4d casing 4d finish 6d casing	6" edge 12" intermediate suppo 6" edge
	5/8" 1/4" 3/8"	INTERSIOR PANELING 4d casing 4d finish 6d casing 6d finish	6" edge 12" intermediate suppo 6" edge 12" intermediate suppo
or SI: Nails	5/8" 1/4" 3/8" 1 Inch = 25.4 mm. spaced at 6 Inches at Intermedia Lingl panel and marticlehand	INTERSIOR PANELING 4d casing 4d finish 6d casing 6d finish the supports where spans are 48° or more. For nain phraams and shear walk, refer to Section 2005	6" edge 12" intermediate suppo 6" edge 12" intermediate suppo ling of wood alls for wall

E CONSTRUCTED					Revisions	Ву
		2022 Single-Family Residential Mandatory Requirements Summary		2022 Single-Family Residential Mandatory Requirements Summary		
NEER PRIOR		e-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, recertless of the compliance enormeth		Pilot Lights. Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances		
JND HEADS AND 2" FOR 8d AND	NOTE: Sing used. Revie (04/2022)	withe respective section for more information.	§ 110.5:	(except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.		
	Building En § 110.6(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 101/I.S.2/A440-2011. *	§ 150.0(h)1:	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.		
LOCATION	§ 110.6(a)5	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a). 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 IA4.5 for exterior doors. They must be called and/or weather stripped.	§ 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. Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the		
each end	§ 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.	§ 150.0(h)3B:	manufacturer's instructions. 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. *		
each end	§ 110.8(a): § 110.8(a):	Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS). Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8(a).	\$ 150 0(02-	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 retardant and protected from UV light (no		
	§ 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 or the OFIED.	3 100.00pz.	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.		
i1	§ 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(n)1:	Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and number requirements, beard on the distance between this designated space and the water heater leasting, and a condensate drain ap-		
each joist	\$ 150 0/a)	Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average 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	7.0004000	more than 2' higher than the base of the water heater Solar Water-heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and		
il	3 100.0[4].	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 celling which is sealed to limit infittration and exfittration 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 celling.	§ 150.0(n)3:	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.		
	§ 150.0(b):	Loose-fill Insulation, Loose fill insulation must meet the manufacturer's required density for the labeled R-value. 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	§ 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.		
1	§ 150.0(c):	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.*		CMC Compliance. All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition, Portions of supply-air and return-air ducts and plenums must be insulated to B-6.0 or higher, ducts located entirely in conditioned space are confirmed through field wortfination and diagnostic testing (PA3.1.4.3.8)		
il	§ 150.0(d): § 150.0(f):	Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. 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	\$ 150 0/m)1	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 723.		
(c)	\$ 150 0(0)	physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g). 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 upper retarder. This requirement also applies to controlled worthing to complete a complete to covered with the excent light to accent to the	3 (Bridiny):	The combination of mastic and either mesh or tape must be used to seal openings greater than ¼", it 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		
	3 150.0(9)	§150.0(d). 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	\$ 150 Mm\2	these spaces must not be compressed. * Factory-Fabricated Duct Systems. Factory-fabricated duct systems must comply with applicable requirements for duct construction, construction, and closure is into and compared duct and their compared must at the could with dott back where a decision		
<u> </u>	§ 150.0(g)x	all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation. 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.	§ 150.0(m)2:	duct tapes unless such tape is used in combination with mastic and draw bands. Field-Fabricated Duct Systems. Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes,		
	Fireplaces, § 110.5(e)	Pecorative Gas Appliances, and Gas Log: Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.	§ 150.0(m)3: § 150.0(m)7:	mastics, sealants, and other requirements specified for duct construction. Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.		
	§ 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. Combustion Intake, Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.	§ 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 openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.		
face nail	§ 150.0(e)3	area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device. Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.	§ 150.0(m)9:	Insulation or insulation, insulation must be protected from damage due tostiniight, 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 retardant and solar radiation-resistant coating.		
face nail	Space Conc § 110.0-§ 1	tioning, Water Heating, and Plumbing System: Certification. Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other 10.3: regulated appliances must be certified by the manufacturer to the California Energy Commission.	§ 150.0(m)10:	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. Duct System Sealing and Leakage Test. When space conditioning systems use forced air duct systems to supply conditioned air to an		
face nail	§ 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 beater operation when the heating lead can be met by the heat nume clears	§ 150.0(m)11:	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.		
face nail	§ 110.2(b):	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.	§ 150.0(m)12:	Air Fittration. 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		
each edge, face nail each edge, face nail	§ 110.2(c):	Inermostats. All neating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. Insulation. Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank		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. *		
face nail	<u>§ 110.3(c)</u> 3	surface heat loss rating. Isolation Valves. Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose hiths or other fittings on both cold and het water lines to allow for fluching the water because of the state of the stat			ů Ž	
face nail	310300	insee share or ourse manys on own cord and not water lines to allow for ilusting the water heater when the valves are closed.	5/6/00			
de of end joint, face n 24" lap splice ach side of end	5/6/22		0/0/22			
face nail		2022 Single-Family Residential Mandatory Requirements Summary	<u>(@)</u>	2022 Single-Family Residential Mandatory Requirements Summary		5
		Space Conditioning System Airflow Rate and Fan Efficacy. Space conditioning systems that use ducts to supply cooling must have	§ 150.0(k)1G;	Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. * Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JA8	M M M	
	§ 150.0(m)	 a hole 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 ≥ 250 CFM per ton of nominal 	§ 150.0(k)1H:	elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires. Light Sources in Drawers, Cabinets, and Linen Closets. Light sources internal to drawers, cabinetry or linen closets are not required	VE VE	-00
		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. *	§ 150.0(k)11:	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.		
1	Ventilation	nd Indoor Air Quality:	§ 150.0(k)2A; § 150.0(k)2B;	Interior Switches and Controls. All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.		-19 82-
1	§ 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(k)2A:	Accessible Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *		5-2
1	§ 150.0(o)1	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 andcontrolled per §150.0(o)1Biii&iv. CFI	§ 150.0(k)2B: § 150.0(k)2C:	to comply with § 150.0(k). Mandatory Requirements. Lighting controls must comply with the applicable requirements of § 110.9.		595
		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. Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses . Single-family detached dwelling units.	§ 150.0(k)2D:	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 to \$ 150 physical.	NI 8 150 20 20 20	5 0
il	§ 150.0(o)1	and attached dwelling units not sharing cellings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1Ci-iii.	§ 150.0(k)2E:	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		PN:
i1	§ 150.0(o)1	3: 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)1Giii,enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii-iv. Airflow must be measured by the installer per §150.0(o)1Gv, and rated for sound per	§ 150.0(k)2F:	Opaque fronts or doors must have controls that turn the light off when the drawer or door is closed. Dimmers. Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimining controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light	U) ()	A
i1	§ 150.0(o)1	§150.0(o)1Gvi.* Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems. The airflow required per § 150.0(o)1C must be measured by using a flow bood flow grid or other airflow measuring device at the for/s inter or wild terminoletarille are Defenses.	§ 150.0(k)2K:	sources in these spaces must comply with NEMA SSL 7A. 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		Q N
		Residential Appendix RA3.7. Whole-Dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 §7.2 at no less than the minimum airflow rate required by §150.0(o)1C.	§ 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. As ensure management earlier a store that earlier the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch		874
toenail	§ 150.0(o)2	Field Verification and Diagnostic Testing. Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods must be verified per Reference Residential Appendix RA3.7.4.3 to confirm if it is rated by HVI or AHAM to comply with the airflow	P 450 00.14	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. Internally illuminated address signs. Internally illuminated address signs must either comply with § 140.8 or consume no more than 5		5-6
il	Pool and Sr	rates and sound requirements per §150.0(o)1G a Systems and Equipment:	§ 150.0(k)4: § 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.		36
il aring, face nail	§ 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 MAEDbS; 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	Solar Readiness	S: 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 entroved by the enforcement access		60,
face nail at top and staggered on e sides	§ 110.4(b)1	use electric resistance heating.* 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.	2.00.0(d)).	which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b)-(e). Minimum Solar Zone Area. The solar zone must have a minimum total area as described below. The solar zone must comply with persess pathway small sub-		x (7 net
face nail at top and staggered on e sides	§ 110.4(b)2	Covers. Outdoor pools or spas that have a heat pump or gas heater must have a cover. Directional Inlets and Time Switches for Pools. Pools must have directional inlets that adequately mix the pool water, and a time		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		· Fax
d at each splice, I	§ 110.4(b)3 § 110.5:	switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods. Pilot Light. Natural gas pool and spa heaters must not have a continuously burning pilot light. Pool Systems and Equipment Installation. Residential pool systems or equipment must meet the specified requirements for sume	§110.10(b)1A:	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. *		F2 - eriz
st or rafter, face nail	§ 150.0(p): Lighting:	sizing, flow rate, piping, filters, and valves.	§ 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. Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted exigment	N N N N N N N N N N N N N N N N N N N	874 @v
	§ 110.9:	Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*	§ 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 maximum in the variant plane.)ES JES 1 s L	35-2 Ilne
	§ 150.0(k)1	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 door openers; navigation lighting less than 5 watts; and lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.	§ 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.) 36 1.01
d, toenail	§ 150.0(k)1B	Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.* Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must not contain screw based sockets, must be airtight,	§ 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.		60, sigr
EATHING TO	§ 150.0(k)1	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.	§ 110.10(d):	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. Main Electrical Service Panel. The main electrical service panel must have a minimum bushar ration of 200 amos	S N N N N	de de
rmediate supports	§ 150.0(k)1	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.	§ 110.10(e)1: § 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."		ione nail:
mediate supports	§ 150.0(k)1	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).	Electric and Ene	ergy Storage Ready:		乱
mediate supports	5/6/22		5/6/22		\cap	
rmediate supports mediate supports						
rmediate supports				2022 Single-Family Residential Mandatory Requirements Summary		
mediate supports			§ 150.0(s)	equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, <u>or</u> a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s); at least four branch circuits must be identified and have their	DRAWN	
mediate supports Γ TO FRAMING				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	CHECKED	
rmediate supports			§ 150.0/t)	panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source. Heat Pump Space Heater Ready. Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unphstructed 240V branch circuit wiring installed within 3' of the furnaces with circuit excert data to a to a serve individual dwelling units must include: A dedicated	DATE	
rmediate supports				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."	00415	
rmediate supports			§ 150.0(u)	Electric Cooktop Keady. 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 50 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	JUALE	
rmediate supports			§ 150.0(v)	marked as "For Future 240V use." 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 arms with	JOB NUMBER	NE
rmediate supports rmediate supports				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."	SHEET #	
a			*Exceptions may	y apply.		
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the the				Mandatory Measures & General Notes .		
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oject Name: Watson Holdings Unit 1-3-5 gl Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 1 of 14) ilculation Description: Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22	CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD CF1R-PRF-01E Project Name: Watson Holdings Unit 1-3-5 gl Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 2 of 14) Calculation Description: Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22	CERTIFICATE OF COMPLIANT Project Name: Watson Hold Calculation Description:	CE - RESIDENTIAL PERFOR ings Unit 1-3-5 gl	RMANCE COMPLIANCE MET	rHOD Calculation Date/Tim Input File Name: Wat	ne: 2023-11-02T14:16:48-07:00 tson-7120 Palo Alto #1-3-5.ribd	0 d22	CF1R-PRF-01 (Page 3 of 14
ENERAL INFORMATION O 1 Project Name Watson Holdings Unit 1-3-5 gl	ENERGY DESIGN RATINGS Energy Design Ratings Compliance Margins	Energy Use SUMMARY	itandard Design Source	Standard Design TDV Energy	Proposed Design Source	Proposed Design TDV Energy (EDR2) (kTDV/ft ² syr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
02 Run Title 03 Project Location 7120 Palo Alto Unit 1	Source Energy (EDR1) Efficiency ¹ EDR (EDR2efficiency) Total ² EDR (EDR2total) Source Energy (EDR1) Efficiency ¹ EDR (EDR2efficiency) Total ² EDR (EDR2total)	Space Heating	6.7	(EDR2) (K1DV/H -yr) 30.14	3.6	(EDR2) (KTDV/H -yr) 25.78	3.1	4.36
O4 City Yucca Valley, CA O5 Standards Version 2022 O6 Zip code 92284 O7 Software Version CBECC-Res 2022,3.0	Standard Design 41.8 44.2 32.5	Space Cooling	1.5	32,14	1.41	30.86	0.09	1.28
B Climate Zone 14 09 Front Orientation (deg/ Cardinal) All orientations 0 Building Type Single family 11 Number of Dwelling Units 1	Proposed Design	IAQ Ventilation	0.4	4.14	0.4	4.14	0.29	0
Project Scope Newly Constructed 13 Number of Bedrooms 2 Addition Cond. Floor Area (fr ²) 0 15 Number of Stories 1	East Facing 35.1 43.8 30.8 6.7 0.4 1.7	Self	2,40	24.00	2.15	CA.A	0.23	5.50
Existing Cond. Floor Area (ft ²) n/a 17 Fenestration Average U-factor 0.29	South Facing 34.4 40.7 29 7.4 3.5 3.5	Utilization/Flexibility Credit				0		0
Total Cond. Floor Area (ft ²) 1020 19 Glazing Percentage (%) 11.63% ADU Bedroom Count n/a 21 ADU Conditioned Floor Area n/a	West Facing 34.9 43 30.3 6.9 1.2 2.2	North Facing Efficiency Compliance Total	11.08	91.1	7.6	81,88	3.48	9.22
Fuel Type Natural gas 23 No Dwelling Unit: No	³ Efficiency EDR includes improvements like a better building envelope and more efficient equipment	Space Heating	6.7	30.14	3.89	28,19	2.81	1.95
LIANCE RESULTS O1 Building Complies with Computer Performance	² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries ³ Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded	Space Cooling	1.5	32.14	1.65	37.02	-0.15	-4.88
D2 This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider. D3 This building incorporates one or more Special Features shown below	Standard Design PV Capacity: 2.13 kWdc	IAQ Ventilation	2.48	4.14	0.4	4.14	0 31	3.75
	CILLICS	Self		ST.			7	
		Credit						
		Compliance Total	11.08	91.1	8.11	90.28	2.97	0.82
Istration Number: 423-P010199780A-000-000-0000000-0000 Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS E: 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. Therefore, CHEERS is not responsible for, mand guarante, the accuracy or completenees of the information contained in this document. Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-11-02 14:21:02	Registration Number: 423-P010199780A-000-000-0000000-0000 Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS NOTICE: 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. Therefore, CHEERS is not responsible for, and cannot guarantee, the accuracy or completeness of the information contained in this document. CA Building Energy Efficiency Standards - 2022 Residential Compliance	Registration Number: 423-P0 NOTICE: This document has been gen and cannot guarantee, the accuracy o CA Building Energy Efficiency S	10199780A-000-000-000000 erated by California Home Energy completeness of the information Standards - 2022 Residential	3-0000 Efficiency Rating Services (CHEERS) contained in this document. Compliance	Registration Date/Time: 11/02/20 using information uploaded by third pair Report Version: 2022.0.000	023 14:29 HERS Pr thes not affiliated with or related to CHEE Report	Provider: CHEERS ERS. Therefore, CHEERS t Generated: 2023-1:	5 is nat responsible for, 11-02 14:21:02
Schema Version: rev 20220901	Schema Version: rev 20220901	CERTIFICATE OF COMPLIAN	CF - RESIDENTIAL PERFOR		Schema Version: rev 20220901			CE18-DRE-011
Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 5 of 14) Ilation Description: Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22 GY USE INTENSITY Calculation Date/Time: 2023-11-02T14:16:48-07:00	Project Name: Watson Holdings Unit 1-3-5 gl Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 6 of 14) Calculation Description: Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22 REQUIRED PV SYSTEMS Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22	Project Name: Watson Hold Calculation Description: ZONE INFORMATION	ings Unit 1-3-5 gl		Calculation Date/Tim Input File Name: Wat	te: 2023-11-02T14:16:48-07:00 tson-7120 Palo Alto #1-3-5.ribd	0 d22	(Page 7 of 14
Standard Design (kBtu/ft ² - yr) Proposed Design (kBtu/ft ² - yr) Compliance Margin (kBtu/ft ² - yr) Margin Percentage	01 02 03 04 05 06 07 08 09 10 11 12	01 Zone Name	02 Zone Type	03 VAC System Name 7c	04 Dee Floor Area (ft ²) Ave. 0	05 06 Ceiling Height Water Heating	i ng System 1	07 Status
	DC System Size (kWdc) Exception Module Type Array Type Power Electronics CFI (deg) Tilt Array Angle (deg) Tilt: (x in Inverter Eff. (%) (%) (%) (%)	Zone 1	Conditioned	HVAC System 1	1020	8 DHW Syst	stem 1	New
SEDI ² 14.3 7.98 6.32 44.2	2.2 NA Standard (14-17%) Fixed none true 150-270 n/a n/a <=7:12 96 100	OPAQUE SURFACES	40			7		
	REQUIRED SPECIAL FEATURES	01 Name	02 Zone C	03 03 Construction Azir	04 05 muth Orientation	06 Gross Area (ft ²) Window	07 ow and Door	08 Tilt (deg)
ss EUI ¹ 27.43 22.92 4.51 16.44	PV System: 2.2 kWdc Insulation below roof deck	z1 front	Zone 1 e	exterior walls	0 Front	389.66	64	90
EUI ² 14.3 8.83 5.47 38.25	 Window overhangs and/or fins Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed 	z1 back z1 left	Zone 1 e Zone 1 e	exterior walls 1 exterior walls	180 Back 90 Left	389,66 80	71.6 0	90 90
27.43 22.36 5.07 18.48	HERS FEATURE SUMMARY	21 right Interior Wall 1 Zo	Zone 1 e	exterior walls 2 Interior walls r	270 Right	256 176	3	90 n/a
JI ² 14.3 8.27 6.03 42.17	Quality insulation installation (QII)	Ceiling (below attic) garage	Garage g	arage ceiling r	n/a n/a	302	n/a	n/a
uul 27.42 27.04 16.04	Indoor air quality ventilation Kitchen range hood Minimum Airflow	Ceiling (below attic) 1 garage front	Zone 1 Garage garag	ceiling r ge exterior walls	1/a n/a 0 Front	1020 112	n/a 70	n/a 90
EUI ² 14.3 8.72 5.58 39.02	Verified SEER/SEER2 Verified Refrigerant Charge	garage back garage L	Garage garag Garage garag	ge exterior walls 1 ge exterior walls	80 Back 90 Left	112 256	0	90 90
Enormy they Total / Apat including BV() / Total Building Area	Fan Efficacy Watts/CFM Verified heat pump rated heating capacity Duct leakage testing	ATTIC					***	
rgy Use Total (including PV) / Total Building Area.	Pipe Insulation, All Lines	01 Name	02 Construction	03 Type Roof Ris	04 05 e (x in 12) Roof Reflectance	06 Roof Emittance Radia	07 ant Barrier	08 Cool Roof
	BUILDING - FEATURES INFORMATION 01 02 03 04 05 06 07	Attic Aspl	halt Shingle Roof	Ventilated	4 0.1	0.85	No	No
	Project Name Conditioned Floor Area (ft ²) Number of Dwelling Units Number of Bedrooms Number of Zones Number of Ventilation Cooling Systems Number of Water Heating Systems							
	Watson Holdings Unit 1-3-5 gl 1020 1 2 1 0 1							
Number: 423-P010199780A-000-00000000-0000 Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS sources that been generated by California Home Energy Efficiency Rating Services (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not responsible for, and the information contained in this document.	Registration Number: 423-P010199780A-000-00000000-0000 Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS NOTICE: 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. Therefore, CHEERS is not responsible for, and cannot guarantee, the accuracy or completeness of the information contained in this document.	Registration Number: 423-P0' NOTICE: This document has been gen and camot guarantee, the accuracy or	10199780A-000-000-0000000 orated by California Home Energy r completeness of the information	3-0000 Efficiency Rating Services (CHEERS) contained in this document.	Registration Date/Time: 11/02/20 using information uploaded by third pai	023 14:29 HERS Pr rties not affiliated with or related to CHEE	Provider: CHEERS ERS. Therefore, CHEERS	S is not responsible for,
Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-11-02 14:21:02 Schema Version: rev 20220901	CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-11-02 14:21:02 Schema Version: rev 20220901	CA Building Energy Efficiency S	standards - 2022 Residential (Compliance	Report Version: 2022.0.000 Schema Version: rev 20220901	Report	t Generated: 2023-1:	11-02 14:21:02
Ce of compliance - Residential Performance compliance method CF1R-PRF-01e Ime: Watson Holdings Unit 1-3-5 gl Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 9 of 14)	CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD CF1R-PRF-01E Project Name: Watson Holdings Unit 1-3-5 gl Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 10 of 14)	CERTIFICATE OF COMPLIANO Project Name: Watson Hold	CE - RESIDENTIAL PERFOR ings Unit 1-3-5 gl	RMANCE COMPLIANCE MET	THOD Calculation Date/Tim	ne: 2023-11-02T14:16:48-07:00	D	CF1R-PRF-01E (Page 11 of 14)
escription: Input File Name: Watson-7120 Palo Alto #1-3-5.rlbd22 ND FINS	Calculation Description: Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22 OPAQUE SURFACE CONSTRUCTIONS	Calculation Description:			Input File Name: Wat	tson-7120 Palo Alto #1-3-5.ribd	d22	3.5 Young 3.5
1 02 03 04 05 06 07 08 09 10 11 12 13 14	01 02 03 04 05 06 07 08	01	02 03	04	05 06	07	08	09
Depth Dist Up Left Extent Flap Ht. Depth Top Up Dist L Bot Up Depth Top Up Dist R Bot Up	Construction Name Surface Type Construction Type Framing Initial Cavity R-value Continuous R-value U-factor Assembly Layers	Name Syste	m Type Distribution T	ype Water Heater Name	Number of Units Solar Hea	ating Compact H Distribution	HERS Verification	Water Heater Name (#)
ister 2 1.33 5 40 0	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x4 Shothing / Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x4	DHW System 1 Dome Water	estic Hot HERS Verified I r (DHW) Insulation cre	Pipe edit Water Heater 1	1 n/a	None	DHW System 1-hers-dhw	Water Heater 1 (1)
r bath 2 1.33 15 33 0 0 0 0 0 0 0 0 0 0 0 0	garage exterior wails exterior wails wood Framed wail 2x4 @ 16 in. 0, C. R-21 None / None / None / None / Siding/sheathing/decking Siding/sheathing/decking Exterior Finish: 3 Coat Stucco	WATER HEATERS - NEEA HEAT I	PUMP					
g 2 1.33 20 24 0 <td>interior walls Interior Walls Wood Framed Wall 2x6 @ 16 in. O. C. R-21 None / None 0.064 Cavity / Frame: R-21 / 2x6</td> <td>01</td> <td>02</td> <td>03 04</td> <td>05</td> <td>06</td> <td>07</td> <td>08</td>	interior walls Interior Walls Wood Framed Wall 2x6 @ 16 in. O. C. R-21 None / None 0.064 Cavity / Frame: R-21 / 2x6	01	02	03 04	05	06	07	08
1.5 5 14 19 0 0 0 0 0 0 0 0 0 0 0 0 0	Other Side Finish: Gypsum Board	Name	# of Units Tank	Vol. (gal) NEEA Heat P Brand	Pump NEEA Heat Pump Model	Tank Location Duct In	nlet Air Source Du	uct Outlet Air Source
	Asphalt Shingle Roof Attic Roofs Wood Framed 2x4 Top Chord of Roof Truss R-13 None / None 0.078 Siding/sheathing/decking	Water Heater 1	1	50 Rheem	XE50T10HD50U1 (50 gal)	TankZone C	Outside	Outside
1 02 03 04 05 06 07 08	Cavity / Frame: R-13.0 / 2x4 Top Chrd Around Roof Joists: R-0.0 insul.	WATER HEATING - HERS VERIFI	ICATION					500, **
Zone Area (ft ²) Perimeter (ft) Rest name Coge name Carpeted Fraction Heated rade garage Garage 303 73 cone 0 cone cone	ceilings (below attic) Wood Framed 2x4 Bottom Chord of Truss R-38 None / None 0.025 Over Ceiling Joists: R-28.9 Insul. Ceiling @ 24 in. 0. C. 0.025 Over Ceiling Joists: R-28.9 Insul.	01 Name	02 Pipe Insulation	03 Parallel Piping Co	04 Compa mpact Distribution	05 06 Int Distribution Recirculation	n Control Showe	07 ver Drain Water Heat
November Sore Sore Sore No n Grade 1 Zone 1 1020 161.32 none 0 80% No	Ceilings (below Wood Framed 2x4 Bottom Chord of Truss Over Ceiling Joists: R-28.9 insul.	DHW System 1 - 1/1	Required	Not Required	Not Required	None Not Requ	uired	Not Required
RFACE CONSTRUCTIONS	garage ceiling attic) Ceiling @ 24 in. O. C. R-38 None / None 0.025 Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board	SPACE CONDITIONING SYSTEM	15					
1 02 03 04 05 06 07 08	BUILDING ENVELOPE - HERS VERIFICATION	01	02 03	04 Heating Equipment	05 06	ipment Fan Name	08 Distribution Name	09 Required
ction Name Surface Type Construction Type Framing Framing Continuous R-value Continuous U-factor Assembly Layers	Quality Insulation (QII) High R-value Spray Foam Insulation Building Envelope Air Leakage CFM50 CFM50	HVAC Sustant 1 Heat	t pump Heat Pump Sys	Count Count	Heat Pump System	t HVAC Fan System	Distribution	Thermostat Type
walls Exterior Walls Wood Framed Wall 2x6 @ 16 in. O. C. R-21 None / None 0.065 Sheathing / Inside Finish: Gypsum Board Siding/sheathing/decking Exterior Finish: 3 Coat Stucco	Required Not Required N/A n/a n/a	heating heating	g cooling 1	<u> </u>	1 1	<u>I</u>	System 1	STELLIGILK
	Registration Number: 423-P010199780A-000-00000000-0000 Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS	Registration Number: 423-P0	10199780A-000-000-0000000	3-0000 Efficiency Rating Services (CLEED)	Registration Date/Time: 11/02/20	023 14:29 HERS Pr	Provider: CHEERS	S is not responsible for
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mber: 423-P010199780A-000-00000000-0000 Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS with as been generated by colliminal Home Energy Efficiency Rating Services (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not responsible for, the accuracy or completeness of the information contained in this document. Report Version: 2022.0.000 gy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-11-02 Schema Version: rev 20220901 Schema Version: rev 20220901 Schema Version: Rev 20220901	and cannot guarantee, the accuracy or completeness of the information contained in this document. CA Building Energy Efficiency Standards - 2022 Residential Compliance Report Version: 2022.0.000 Report Generated: 2023-11-02 14:21:02 Schema Version: rev 20220901	CA Building Energy Efficiency S	standards - 2022 Residential (Compliance	Report Version: 2022.0.000 Schema Version: rev 20220901	Report	t Generated: 2023-11	1-02 14:21:02

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Iculation Description ERGY USE SUMMARY				Inpu	It File Name	e: Watson-	-7120 Palo Alto #	1-3-5.ribd2	2					
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ²	e Standard Design -yr) (EDR2) (kTD	TDV Energy //ft ² -yr)	Propose Energy (E	ed Design Sou DR1) (kBtu/f	urce P t ² -yr)	Proposed Design Ti (EDR2) (kTDV/f	DV Energy t ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)				
Space Heating	6.7	30,1-			3.85		27.92		2.85	2.22				
IAQ Ventilation	0.4	4.14			0.4		4.14		0	0				
Water Heating	2.48	24,6	3		2.17		21,03		0.31	3.65				
Utilization/Flexibility Credit							0			0				
South Facing fficiency Compliance	11.08	91.1			7.81	1	83.9		3.27	7.2				
Space Heating	6.7	30.1	1	170	3.77		27.04		2.93	3.1				
Space Cooling	1.5	32.14		1	1,65		36.21		-0.15	-4.07				
Water Heating	0.4	4.14	3		2.21		4.14		0.27	0 3.48				
Self Itilization/Flexibility						15.8	0			o				
Credit lest Facing Efficiency	(100 a) (100 a) (
Compliance Total	11.08		2		8.03		88.33		3,05	2.51				
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01 02	. 03	04 05	06	07 08	B 09	10	11	12	13	14	>	Ś	82(
Name Typ	e Surface i	Drientation Azimuth	(ft)	(ft) Mu	lt. (ft ²)	U-facto	r Source	SHGC	SHGC Source	Exterior Shading		<u>ت</u> -	4-3	
bed 2 Wind	low 21 front	Front 0	5	4 1	20	0.29	NFRC	0.23	NFRC	Bug Screen			2 0 2	
master Wind	low 21 back	Back 180	5	4 1	20	0.29	NFRC	0.23	NFRC	Bug Screen	C	} I	92 92	
dining Wind	low z1 back low z1 back	Back 180 Back 180	6	1 1 6.6 1	3 39.6	0.29	NFRC NFRC	0.23	NFRC	Bug Screen Bug Screen		GS É	A A	(
kitchen Wind	low 21 back	Back 180	3	3 1	9	0.29	NFRC	0.23	NFRC	Bug Screen	$\top \Delta$		λ, C	(
bath Wind	low z1 right	Right 270	3	1 1	3	0.29	NFRC	0.23	NFRC	Bug Screen			U /	(
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01	02 03	04 05 Overhang	06	07	08	09 Left Fin	9 10	11	12 Right Fin	13 14	Ц)()		
Window	Depth Dist U	p Left Extent Exte	t Flap H	lt. Depti	h Top U	p Dist	t L Bot Up	Depth	Top Up Di	st R Bot Up			c	V
living	7 1.33	7.5 8.5	0	0	0	0	0	5	1.33 8	3.5 0				
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C - HEAT PUMPS	02 03	04 09	06	07	08	09	10	u	12	13			, 2 0, 2 0, 2	4
Name	System Type Number	of Heating	leating		Cooling	Cooling	Zo	nally Cor	npressor	RS Verification		CN GN	2 5 X	470
wente di	Units	Efficiency Type	Cop Cap 47	Cap 17	Efficiency Type	ER2	2/CEER Cont	rolled	Type Ha				е ГОл	
Heat Pump Ce System 1	entral split HP 1	HSPF2 7.	5 20000	20000	EER2SEER2	16	12.48 Not	Zonal	Single Hea Speed 1-	t Pump System hers-htpump				ר ר
C HEAT PUMPS - HERS	S VERIFICATION	03 04	2	05	1	06	07	Î	08	09		₽ [₹]		$\tilde{\mathbf{D}}$
Name Ve	erified Airflow Airflo	w Target Verified El	R/EER2	Verified SEER/SEER2	Verifie	ed Refrigera Charge	ant Verified HSPF/HSP	F2 Ve	rified Heating Cap 47	Verified Heating Cap 17	Ċ		Vall Vall	
at Pump System hers-htpump	Required	350 Not Rec	uired	Required		Yes	No		Yes	Yes		ЦĒ:	44 Ca	
C - DISTRIBUTION SYS	STEMS	7						r						
01	02	03 04 Duct Ins.	05 R-value	06 0 Duct Locatio	07 08 0n Sur	09 rface Area	10		11	12				
Distribution	Inconditioned	Supply	Return S	upply Ret	turn Suppl	ly Retur	m Bypass Di		act cedkage	Distribution	(
System 1	attic	vermed R-8	к-8	Attic At	uc n/a	n/a	No Bypass I	Sea	neo and Tested	System 1-hers-dist				
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Iculation Descrip	son Holdings Unit 1 htion:	-3-5 gl		Calculati Input File	on Date/Time: 202 e Name: Watson-71	3-11-02T14:16:48-07 20 Palo Alto #1-3-5.1	:00 ibd22	(Page 13 of 14)	Project Name: Watson Holdings Unit 1-3-5 gl Calculation Description:	Calculation Date/Time: 2023-11-02T14:16:48-07:00 (Page 14 of Input File Name: Watson-7120 Palo Alto #1-3-5.ribd22
	HERS VERIEICATION								DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
					line				1. I certify that this Certificate of Compliance documentation is accurate	e.and complete.
01	02	03	04	05	06	07	08	Low Leakage	Documentation Author Name: Brian Diebolt	Documentation Author Signature: Brian Diebolt
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Ducts Entirely in Conditioned Space	Company: Design Concepts (Yucca Valley)	Signature Date: 11/02/2023
Distribution	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No	Address: 57445 29 Palms Hwy Suite 304	CEA/ HERS Certification Identification (If applicable):
/stem 1-ners-dist									City/State/Zip: Yucca Valley, CA 92284	Phone: (760) 365-8742
AC - FAN SYSTEMS	i	(j)	<u></u>						RESPONSIBLE PERSON'S DECLARATION STATEMENT	
	01		02	1	Prof.	03		04	I certify the following under penalty of perjury, under the laws of the State of Ca	lifornia:
20	Name	-	Тур	pe	Fan Po	wer (Watts/CFM)	1000 0 000	Name	I am eligible under Division 3 of the Business and Professions Code t I certify that the energy features and performance specifications ide	o accept responsibility for the building design identified on this Certificate of Compliance. ntified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
10 10	HVAC Fan System 1		HVAC	Fan		0,45	HVAC Fan :	system 1-hers-fan	 The building design features or system design features identified on calculations, plans and specifications submitted to the enforcement 	this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, agency for approval with this building permit application.
AC FAN SYSTEMS	HERS VERIFICATION		247	1.1.1					Responsible Designer Name: Brian Diebolt	Responsible Designer Signature:
	01 02				03		Company:	Date Signed:		
	Name Verified Fan Watt Draw			w	Required Fan Efficacy (Watts/CFM)			Design Concepts (Yucca Valley)	11/02/2023	
HV	AC Fan System 1-hers-	fan		Required		0.45			Address:	License:
DOOR AIR QUALIT	Y (IAQ) FANS								57445 29 Palms Hwy Suite 304	
01	02	03	04	05	06	07	08	09	Yucca Valley, CA 92284	(760) 365-8742
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE/ASRE	Includes Fault Indicator Display?	HERS Verification	Status		
Fam IAQVentRpt	52	0.35	Exhaust	No	n/a / n/a	No	Yes			
									Digitally signed by California Home Energy Efficiency Rating Services (CHEER5), 1 this registered document, and in no way implies Registration Provider responsibili	This digital signature is provided in order to secure the content of ty for the accuracy of the information.
gistration Numbe ICE: This document h cannot guarantee, the A Building Energy E	r: 423-P010199780A- as been generated by Calif accuracy or completeness (fficiency Standards - 2	000-000-0000000-000 formia Home Energy Efficie s of the information contail 2022 Residential Comp	0 ncy Rating Services (CHEE) ned in this document. bliance	Registration Date/ RS) using information uplo Report Version: 20 Schema Version: re	Time: 11/02/2023 14:2 aded by third parties not. 22.0.000 au 20220901	9 HEF affiliated with or related to o Rep	S Provider: CHEERS CHEERS: Therefore, CHEER ort Generated: 2023-1	S is not responsible for, 1-02 14:21:02	Registration Number: 423-P010199780A-000-000-00000000-0000 NOTICE: This document has been generated by California Home Energy Efficiency Rat and cannot guarantee, the accuracy or completeness of the information contained in the CA Building Energy Efficiency Standards - 2022 Residential Compliance	Registration Date/Time: 11/02/2023 14:29 HERS Provider: CHEERS ng Services (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not responsible his document. Report Generated: 2023-11-02 14:21:02 Schema Version: rev 2022/0901

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD CFIR-PRF-01E Project Name: Watson Holdings-7120 Palo Alto #2&4 GR Calculation Date/Time: 2023-11-02T14:10:08-07:00 (Page 2 of 14) Calculation Description: Input File Name: Watson 7120 Palo Alto #2&4 gr.ribd22		n.net
ENERGY DESIGN RATINGS Energy Design Ratings Compliance Margins Source Energy Efficiency ¹ EDR Total ² EDR Source Energy Efficiency ¹ EDR	N SEI 90 SEI 92 S284	/4Z - Øveriz
(EDR1) (EDR2efficiency) (EDR2total) (EDR1) (EDR2efficiency) (EDR2total) Standard Design 41.6 43.8 32.3 32.3 5 5		Q-C9
North Facing 33.8 39.6 28.3 7.8 4.2 4 East Facing 34.8 43.4 30.5 6.8 0.4 1.8	B Pal	5 (Vo 51gn.0
South Facing 34.3 40.5 28.8 7.3 3.3 3.5 West Facing 35.2 43.4 30.5 6.4 0.4 1.8	CETING 145 2 ca Val	ne (/(II: de:
¹ Efficiency EDR includes improvements like a better building envelope and more efficient equipment ² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries ³ Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded	DRA 572 Yuco	Ema
Standard Design PV Capacity: 2.13 kWdc		
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	BRIAN T. DIEBOLT CHECKED	ſ
Registration Number: 423-P010199782A-000-000-000000-0000 Registration Date/Time: 11/02/2023 14:31 HERS Provider: CHEERS NOTICE: 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. Therefore, CHEERS is not responsible for, and cannot guarantee, the accuracy or completeness of the information contained in this document.	DATE 5/18/2020	
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RGY USE SUMMARY	loldings-7120 Palo Alto #2&4	GR	Calculation Date/Tin Input File Name: Wa	me: 2023-11-02T14:10:08-07:00 atson 7120 Palo Alto #2&4 gr.rit) id22	(Page 3 of 14)	Project Name: Watson Calculation Description ENERGY USE SUMMARY	n:	GR	Calculation Date/Time Input File Name: Watso	: 2023-11-02T14:10:08-07:0 on 7120 Palo Alto #2&4 gr.ri	0 bd22	(Page 4 of 14)	Calculation Description:	120 Palo Alto #2&4 GR	COMPLIANC	Cale	:ulation Date/Tim ut File Name: Wa	e: 2023-11-02T14:10 son 7120 Palo Alto #	1:08-07:00 2&4 gr.ribd22	(Page 5 of 1
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr	Proposed Design TDV Energy r) (EDR2) (kTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)	Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energ (EDR2) (kTDV/ft ² -yr)	rgy Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)		Standard Design (kBt	u/ft ² - yr) F	Proposed Design (kB	štu/ft ² - γr) Cr	mpliance Margin (kBtr	ı/ft ² - yr)	Margin Percentage
Space Heating	6.7	30.14	3.57	25.48	3.13	4.66	Space Heating	6.7	30.14	3.8	27.67	2.9	2.47	North Facing	27.35		22.03		5.37		19.45
Space Cooling	1.49	31.88	1.38	30.61	0.11	1.27	IAQ Ventilation	0.4	4.14	0,4	4.14	0	0	Net EUI ²	14.23		7.94		6.29		44.2
Vater Heating	2.36	23.85	2.17	21.16	0.19	2.69	Water Heating	2.36	23.85	2.16	20.95	0.2	2.9	East Facing			<u>u ii i</u>		91		
Self ion/Flexibility		NI		0		0	Utilization/Flexibility Credit				0		0	Gross EUI ¹	27.35		22.78		4.57		39
eoit h Facing				-			South Facing Efficiency Compliance	10.95	90.01	7.74	83.15	3.21	6.86	South Facing							যন:
I	10.95	90.01	7.52	81.39	3.43	8.62	Space Heating	6,7	30.14	3.93	28.28	2.77	1.86	Gross EUI ¹	27.35	SI	22.26		5.09		18.61
ling	1.49	31.88	1.68	37.42	-0,19	-5.54	Space Cooling	1.49	31.88	1.63	35.8	-0.14	-3.92	Net EUI ² West Facing	14.23		8.17		6.06	2	42.59
ation	0.4	4.14	0.4	4.14	0	0	Water Heating	2.36	23.85	2.17	20.96	0.19	2.89	Gross EUI ¹	27.35		22.92		4.43		16.2
nug	2.30	23.05	2.17	20.5	0.13	2.55	Self Utilization/Flexibility		C L		0		D	Net EUI ²	14.23		8.82		5.41		38.02
exibility t				0		0	Credit West Facing Efficiency	10.95	90.01	8.13	89.18	2.82	0.83	1, Gross EUI is Energy Use Total (2. Net EUI is Energy Use Total (Ind	at including PV) / Total Build Juding PV) / Total Building A	ling Area, rea.					
tion Number: 423 tis document has been guarantee, the accura ding Energy Efficier	-P010199782A-000-000-000000 generated by California Home Energy ccy or completeness of the information icry Standards - 2022 Residential	-0000 F Efficiency Rating Services (CHEERS) u contained in this document. Compliance R S	legistration Date/Time: 11/02/2 sing information uploaded by third on teport Version: 2022.0.000 chema Version: rev 20220901	2023 14:31 HERS F parties not affiliated with or related to CHE Report	rovider: CHEERS ERS. Therefore, CHEERS Is Generated: 2023-11-0	nat responsible for, 2 14:13:17	Registration Number: 4 NOTICE: This document has be and cannot guarantee, the acc CA Building Energy Effici	23-P010199782A-000-000-0000000 sen generated by California Honie Energy uracy or completeness of the information iency Standards - 2022 Residential	0-0000 Efficiency Rating Services (CHEER contained in this document. Compliance	Registration Date/Time: 11/02/202 RS) using information uploaded by third parts Report Version: 2022.0.000 Schema Version: rev 20220901	3 14:31 HERS es not affiliated with or related to CH Repor	Provider: CHEERS EERS. Therefore, CHEERS t Generated: 2023-11	s nat responsible for; 02 14:13:17	Registration Number: 423-P010199 NOTICE: This document has been generated and cannot guarantee, the accuracy or comp CA Building Energy Efficiency Stand	782A-000-000-0000000-000 by California Home Energy Efficie eteness of the information contai irds - 2022 Residential Comp) ncy Rating Services (C ned in this document. Jliance	Registration I CHEERS) using informati Report Versic Schema Vers	Date/Time: 11/02/21 Ion uploaded by third pa on: 2022.0.000 ilon: rev 20220901	123 14:31 tres not affiliated with or re	HERS Provider: Nated to CHERS. Thered Report Generate	CHEERS fore, CHEERS is not responsible fi ed: 2023-11-02 14:13:17
CATE OF COMPLI Name: Watson H tion Description:	IANCE - RESIDENTIAL PERFO Ioldings-7120 Palo Alto #2&4	MANCE COMPLIANCE METH	10D Calculation Date/Tin Input File Name: Wa	me: 2023-11-02T14:10:08-07:0 atson 7120 Palo Alto #2&4 gr.rit) id22	CF1R-PRF-01E (Page 7 of 14)	CERTIFICATE OF COMP Project Name: Watson Calculation Descriptio	PLIANCE - RESIDENTIAL PERFOR 1 Holdings-7120 Palo Alto #2&4 n:	RMANCE COMPLIANCE M GR	IETHOD Calculation Date/Time Input File Name: Watso	: 2023-11-02T14:10:08-07:0 on 7120 Palo Alto #2&4 gr.ri	0 bd22	CF1R-PRF-01E (Page 8 of 14)	CERTIFICATE OF COMPLIANCE - I Project Name: Watson Holdings- Calculation Description:	ESIDENTIAL PERFORMAI 7120 Palo Alto #2&4 GR	ICE COMPLIANC	CE METHOD Cale	culation Date/Tim out File Name: Wa	e: 2023-11-02T14:10 son 7120 Palo Alto #	1:08-07:00 2&4 gr.ribd22	CF1R-PRF-0 (Page 9 of 1
ORMATION	02	03	04	05 06		07	FENESTRATION / GLAZIN	1G		a7 08 00 1				OVERHANGS AND FINS 01)2 03 04	05	06 07	08	09 10	11 12	2 13 14
Name	Zone Type	HVAC System Name Zor	te Floor Area (ft ²) Avg.	Ceiling Height Water Heatin	g System 1	Status	Name Ty	/pe Surface Orienta	ation Azimuth Width (ft)	Height (ft) Mult. Area (ft ²) U-fa	ctor U-factor SHGC	SHGC Source	Exterior Shading	Window	overha	tent Right	Flap Ht. Dept	Left Fi	n Dist L Bot Up	Depth Top	Right Fin
\$	Conditioned	HVAC System 1	1020	8 DHW SY:	tem 1	New	living Win	idow z1 front Fron	nt 0 6	4 1 24 0.3	29 NFRC 0.23	NFRC	Bug Screen	master	2 1.33 5	40	0 0	0	0 0	0 0	0 0 0
	02	03 04	4 05	06 Windo	07 w and Door	08	bed 2 Win master Win	idow z1 front Front	nt 0 5 :k 180 5	4 1 20 0.3 4 1 20 0.3	29 NFRC 0.23 29 NFRC 0.23	NFRC	Bug Screen Bug Screen	master bath	≥ 1.33 15 2 1.33 20	33	0 0	0	0 0	0 0	
	Zone Zone 1	exterior walls 0	Front	Gross Area (ft ⁴) A 389,66	rea (ft2) 64	90	master bath Win	idow z1 back Bac	:k 180 3	1 1 3 0.:	29 NFRC 0.23	NFRC	Bug Screen	kitchen	2 1.33 30.	5 17	0 0	0	0 0	0 0	0 0 0
	Zone 1 Zone 1	xterior walls 18 xterior walls 27	0 Back 0 Right	389.66 80	71.6 0	90 90	dining Win	ndow z1 back Bac	:k 180 6 :k 180 3	6.6 1 39.6 0.3 3 1 9 0.3	28 NFRC 0.23 29 NFRC 0.23	NFRC	Bug Screen Bug Screen	bath	.5 5 14	19	0 0	0	0 0	0 0	0 0 0
	Zone 1 Garage	sterior walls 90 garage int n/	D Left 'a n/a	256	3	90 n/a	bath Win	idow z1 left Lef	ft 90 3	1 1 3 0.	29 NFRC 0.23	NFRC	Bug Screen	SLAB FLOORS 01 0	2 03		04	05	06	07	08
6	Zone 1>>Garage	nterior walls n/ arage ceiling n/	'a n/a 'a n/a	302	0 n/a	n/a n/a	OPAQUE DOORS	1	02	03		04		Name Zo	ie Area (ft	¹) Peri	imeter (ft)	ige Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fract	tion Heated
	Zone 1 Garage gara	ceiling n/	a n/a Front	1020	n/a 70	n/a 90	Nan	ne	Side of Building	Area (ft²)	U-factor	·	Slab On Grade garage Gar	ge 302		72	none	0	0%	No
t	Garage gara	ge exterior walls 18	0 Back	112	0	90	garage	door	garage front	70		1		OPAQUE SURFACE CONSTRUCTION							100061
	02	03 04	4 05	06	07	08	OVERHANGS AND FINS 01	02 03	04 05	06 07 08	09 10 11	12	13 14	01	02 03		04	05 Total Cavity	06 Interior / Exterior	07	08
1	Construction Asphalt Shingle Roof	Type Roof Rise Ventilated 4	(x in 12) Roof Reflectance 0.1	Roof Emittance Radi 0.85	No	No	Window	C Death Dist Un 14	Overhang	Left Fin	Dict I Bot In Denti	Right Fin	ct P. Bot 1/o	Construction Name Sur	ce Type Constructio	n Type	Framing	R-value	Continuous U R-value	factor	Assembly Layers
							living	7 1.33	8.5 7.5	0 5 1.33	8.5 0 0	0	0 0	exterior walls Exte	ior Walls Wood Fram	ed Wall 2	tx6 @ 16 in. O. C.	R-21	None / None (0.065 Shea	vity / Frame: R-21 / 2x6 athing / Insulation: Wood
							bed 2	2 1.33	6 28	0 0 0	0 0 0	0	0 0							Exter	rior Finish: 3 Coat Stucco
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DF COMPLI Watson H	IANCE - RESIDENTIAL PERFO Holdings-7120 Palo Alto #2&4	MANCE COMPLIANCE METH	IOD Calculation Date/Tir	me: 2023-11-02714:10:08-07:00)	CF1R-PRF-01E (Page 11 of 14)	CERTIFICATE OF COMP Project Name: Watson Calculation Description	PLIANCE - RESIDENTIAL PERFOR h Holdings-7120 Palo Alto #2&4	RMANCE COMPLIANCE M	IETHOD Calculation Date/Time	: 2023-11-02T14:10:08-07:0	0 bd22	CF1R-PRF-01E (Page 12 of 14)	CERTIFICATE OF COMPLIANCE - I Project Name: Watson Holdings-	ESIDENTIAL PERFORMAI 7120 Palo Alto #2&4 GR	NCE COMPLIANC	CE METHOD Calo	culation Date/Tin	e: 2023-11-02T14:10	1:08-07:00	CF1R-PRF-0 (Page 13 of 1
G SYSTEMS							HVAC - HEAT PUMPS		· · ·					HVAC DISTRIBUTION - HERS VERIFIC	ATION					and a second	
	02 03	04 Voe Water Heater Name	05 06	5 07 eating Compact	08 IERS Verification	09 Water Heater	01	02 03	04 05 0 Heating	06 07 08 09 Coolin	10 11 B	12	13	01 02	03	04	05	06	07	08	3 09 Low Leakage
D	omestic Hot HERS Verified	Pipe Water Heater 1	1 n/a	em Distribution '	DHW System W	Name (#)	Name	System Type Number of Units	Heating Efficiency Type Type Cap	p 47 Cap 17 Cooling Efficiency Type	/SE EER/EER ZOnally Controlled	Compressor HE Type	S Verification	Name Duct Leak Verificatio	je Duct Leakage n Target (%)	Verified Duct Location	t Verified Du Design	Ct Buried D	Deeply Bu Ducts	ried Low-leaka Hand	age Air Ducts Entirely in fler Conditioned Space
	Vater (DHW) Insulation cr	art	M/d		1-ners-dhw	1997 - 19	Heat Pump System 1	Central split HP 1	HSPF2 7.5 200	000 20000 EER2SEER2 16	12.48 Not Zonal	Single Hea Speed 1	t Pump System hers-htpump	Distribution System 1-hers-dist Yes	5.0	Not Required	J Not Require	ed Not Reg	ired Credit not t	aken Not Req	quired No
- NEEA HE	02	03 04	05	06	07	08	HVAC HEAT PUMPS - HE	RS VERIFICATION				(7777)		HVAC - FAN SYSTEMS							
_	# of Units Tank	Vol. (gal) NEEA Heat Pu Brand	mp NEEA Heat Pump Model	Tank Location Duct I	nlet Air Source Duct	Dutlet Air Source	01	02 03	04	05 06 Verified Verified Refrig	07 gerant Verified	08 Verified Heating	09 Verified Heating	01 Name		RH	02 Туре		03 Fan Power (Watts/CFf	n)	04 Name
1	1	50 Rheem	XE50T10HD50U1 (50 gal)	TankZone	Dutside	Outside	Heat Pump System	Required 350	Not Required	SEER/SEER2 Charge Required Yes	No No	Cap 47 Yes	Cap 17 Yes	HVAC Fan Syste	n1	н Н	VAC Fan		0.45	H	HVAC Fan System 1-hers-fan
IERS VE	RIFICATION 02	03	04	05 06	Î	07	HVAC - DISTRIBUTION SY	YSTEMS	173					HVAC FAN SYSTEMS - HERS VERIFIC	TION		02			03	i l
	Pipe Insulation	Parallel Piping Con	npact Distribution Comp	Type Recirculation	n Control	rain Water Heat ecovery	01	02 03	04 05	06 07 08	09 10 Pa	11	12	Name HVAC Fan System	L-hers-fan		Verified Fan Wat	it Draw	4	Required Fan Effica	acy (Watts/CFM) 5
L - 1/1	Required	Not Required	Not Required	None Not Rec	uired No	t Required	Name	Type Design Typ	Supply Return	Supply Return Supply Re	Bypass Duct	Duct Leakage	Dictribution	INDOOR AIR QUALITY (IAQ) FANS							ř
	02 03	04	05 06	5 07	08	09	System 1	attic Non-Verifie	ed R-8 R-8	Attic Attic n/a	n/a No Bypass Duct	Sealed and Tested	System 1-hers-dist	01 02	03	04	05 Includes	06 IAQ Recr	07 very	08	3 09
s	ystem Type Heating Unit I	ame Heating Equipment Co	oling Unit Name Cooling Equ	uipment Fan Name D	istribution Name T	Required termostat Type								Dwelling Unit Airflow (Cf	A) Fan Efficacy (W/CFM)	IAQ Fan Type	Heat/Energ	3y Effectiver ? SRE/AS	ess - Includes F RE Indicator Di	play? HERS Verif	ification Status
	neat pump Heat Pump Sy ating cooling 1	tem 1 He	1 1	HVAC Fan System 1	Distribution System 1	Setback								SFam IAQVentRpt 52	0.35	Exhaust	No	n/a / n	/a No	Yes	s
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ERTIFICATE OF COMPL roject Name: Watson I	IANCE - RESIDENTIA Holdings-7120 Palo A	L PERFORMANCE COM Note #2&4 GR	MPLIANCE METHOD	Calculation Date/Tin	me: 2023-11-02T1	4:10:08-07	:00	0	CF1R-PRF-01E (Page 6 of 14)					
EQUIRED PV SYSTEMS			1	nput File Name: Wa	atson 7120 Palo Al	to #2&4 gr.	ribd22]				
01	02	03	04 05	06	07 08	09 Array Anele	10 Tilt: (x in	11 Inverter Eff	12 Annual	-			+	
(kWdc)	xception M	dard (14, 17%)	y Type Power Electr	onics CFI	(deg) Input	(deg)	12)	(%)	Solar Access					
QUIRED SPECIAL FEATU	RES	aand (14-1/%) P	none none	ute 1	50-270 n/a	n/a	<=7,12	00	100]](
e following are features PV System: 2.2 kWd	that must be installed	as condition for meeting	the modeled energy perfo	ormance for this comp	outer analysis.									
Window overhangs Northwest Energy E	of deck and/or fins fficiency Alliance (NEE/	A) rated heat pump wate	r heater; specific brand/m	odel, or equivalent, m	nust be install <mark>e</mark> d									
ERS FEATURE SUMMARY	γ of the features that n	nust be field-verified by	a certified HERS Rater as a	condition for meeting	g the modeled energ	y performan	ce for this con	nputer analysi	s. Additional					
etail is provided in the bu Quality insulation in Indoor air quality ve	uilding tables below. Re Installation (QII) Antilation	gistered CF2Rs and CF3F	ts are required to be comp	leted in the HERS Regi	istry					-0				
Kitchen range hood Minimum Airflow Verified SEER/SEER2	2													
Verified Refrigerant Fan Efficacy Watts/C Verified heat pump	Charge CFM rated heating capacity													
Duct leakage testing Pipe Insulation, All I	3 Lines													
JILDING - FEATURES INF	ORMATION 02		03	04	05	N	06		07					
Project Name Watson Holdings-7120 P	Conditioned Fl	oor Area (ft ²)	Units Number	of Bedrooms Nu	umber of Zones	Number Coolir	or ventilation ng Systems	Numb Heati	ng Systems					
Alto #2&4 GR	102			4	1	(organies			3 1					
egistration Number: 423 ICE: This document has been cannot guarantee, the accur A Building Energy Efficien	3-P010199782A-000-00 n generated by California H acy or completeness of the mcy Standards - 2022 R	00-0000000-0000 one Energy Efficiency Rating information contained in this esidential Compliance	Registrati Services (CHEERS) using infor- document. Report Ve	on Date/Time: 11/02/2 nation uploaded by third p rision: 2022.0.000	2023 14:31 parties not affiliated with	HER or related to C Repo	S Provider: C HEERS. Therefor ort Generated	HEERS e, CHEERS is not 2023-11-02	responsible for, 14:13:17					
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pject Name: Watson i lculation Description	Holdings-7120 Palo A :	Nto #2&4 GR	1	Calculation Date/Tin nput File Name: Wa	me: 2023-11-02T1 atson 7120 Palo Al	4:10:08-07 to #2&4 gr.	:00 ribd22	U	Page 10 of 14	1	0 N			
01	02	03	04	05	06 Interior / Exterior	07		08			L X		N N	
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Continuous R-value	U-factor	2	Assembly Laye	ers	- -	Ш	c c	00	
garage exterior walls	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-21	None / None	0.076	Inside Cavit Sheath	Finish: Gypsu y / Frame: R-2 ing / Insulatio	m Board 1 / 2x4 n: Wood		Σ	, C	- 1 0	
			MI		4.		Sidin Exterio	g/sheathing/c r Finish: 3 Co	lecking at Stucco	C	Õ	LLC /E	N N N N	
interior walls	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Cavit Other Sid	rinish: Gypsu y / Frame: R-2 le Finish: Gyp	m Board 1 / 2x6 sum Board		L C	35 VA V	Υ, Υ	
garage int	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-21	None / None	0.075	Inside Cavit Other Siz	Finish: Gypsu y / Frame: R-2 le Finish: Gyp	m Board 1 / 2x4 sum Board		ITA		ر بر	
379 J.J. 71		Maged Provent	2vd Ten Chandler a	muse			Roofing: Li	ght Roof (Asp oof Deck: Wo	halt Shingle)		Л Л			
Asphalt Shingle Roof	Attic Roofs	Wood Framed Ceiling	2x4 lop Chord of Roof @ 24 in. O. C.	R-13	None / None	0.078	Sidin Cavity / Fra Around	g/sheathing/c me: R-13.0 / Roof Joists: R	lecking 2x4 Top Chrd -0.0 insul.		22 12		4 > /	
ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of T @ 24 in. D. C	russ R-38	None / None	0.025	Over Ce Cavity / Fri	iling Joists: R- ame: R-9.1 / 2	28.9 insul. x4 Btm Chrd		IN'	20 20 20	300	
parana adila-	Ceilings (below	Wood Framed	2x4 Bottom Chord of T	russ	Nanatha	0.025	Inside Over Ce	rinish: Gypsu iling Joists: R-:	28.9 insul.			$\mathbb{A} > \mathbb{A}$	1 U	
garage celling	attic)	Ceiling	@ 24 in. O. C.	к-38	None / None	0.025	Cavity / Fri Inside	inie: R-9.1 / 2 Finish: Gypsu	m Board		и)(J		
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		PE KEY		GI7E	Re	evisions	Ву
		-SCHINUS MOLLE	CALIFORNIA PEPPER TREE	24 BOX			
		-WASHINGTON ROBUSTA	MEXICAN FAN PALM	24 BOX			
		– PROSOPIS GLANDULOSA (VAR GLANDULOSA)	TEXAS HONEY MESQUITE	24 BOX			
2		- Ceridium Floridum	BLUE PALO VERDE	24 BOX			
	★ ★ ★ ★	– FOUQUIERIA APLENDENS – AGAVE DESMETTIANA – HESPERALOE PARVIFLORA	OCOTILLO AGAVE RED YUCCA	6'-8' TALL I GALLON I GALLON			
	*	- HESPERALOE PARVIFLORA	YELLOW YUCCA	I GALLON			
170 m	◎ — ◎ — ◎ — ● ◎ —	– BUXUS SEMPERVIRENS – LANTANA SP NEW GOLD – LANTANA MONTEVIDENSIS – AGAVE AMERICANA	BOXWOOD NEW GOLD LANTANA PURPLE TRAILING LANTANA CENTURY AGAVE	3 GALLON 3 GALLON 3 GALLON 3 GALLON			
998 sf		- NERIUM — CAESALPINIA PULCHERRIMA	OLEANDER HEDGE RED BIRD OF PARADISE	5 GALLON 5 GALLON	OR:		
	**	– BOULDER CLUSTER – NATIVE GROUND COVER	SCALE ON PLAN	VARIES	COMPLEX F	5 LLC AVE • 92284-3820	2-0000
					5 UNIT RENTAL Owner:	VATSON HOLDINGS 7120 PALO ALTO / YUCCA VALLEY, CA	APN: 0595-282-13
	55'59"E) (147.20')				PTS	4 20) 365_8742	1-10-000 (00
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N/A RESPON PARTY	CHAPTER 3 GREEN BUILDING	Y	N/A RESPO	Y 4.106.4.2 New mult When parking is pro
	SECTION 301 GENERAL 301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in			requirements of Sec whole number. A pa space shall count as
	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.		v	for further details.
	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 second area of the addition or alteration.	1	×	than 20 sleeping u The number of dwel this section.
	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 4.106.4.2 may apply to addition of the addition of new parking facilities serving existing multifamily buildings.			1.EV Capable of parking fac EVSE. Electri system, includ
	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.			EVs at all req The service p for future EV
	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.			Exception
	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 datas			1.When E of EV cap
	301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of			2.When E spaces EV cha
	individual sections of CALGreen may apply to either low-rise residential buildings 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			Notes:
	high-rise buildings, no banner will be used.			a.constru future EV
	SECTION 302 MIXED OCCUPANCY BUILDINGS			b.There is EV charge
	shall comply with the specific green building measures applicable to each specific occupancy. Exceptions:			2.EV Ready. Level 2 EV ct dwelling unit
	comply with Chapter 4 and Appendix A4, as applicable. 2. [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			Exception: A
	Chapter 4 and Appendix A4, as applicable. DIVISION 4.1 PLANNING AND DESIGN	0	X	4.106.4.2.2 Multifa sleeping units or g The number of dwe
	ABBREVIATION DEFINITIONS: HCD Department of Housing and Community Development			1.EV Capabl
	DSA-SS Division of the State Architect, Structural Safety OSHPD Office of Statewide Health Planning and Development			EVSE. Electr system, inclu
	HR High Rise AA Additions and Alterations			The service
	CHAPTER 4			Exception parking s
	RESIDENTIAL MANDATORY MEASURES			reduced t
	SECTION 4.102 DEFINITIONS			a.Constru
	The following terms are defined in Chapter 2 (and are included here for reference) FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar			b.There is EV charge
	pervious material used to collect or channel drainage or runoff water. WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials			2.EV Ready. Level 2 EV cl dwelling unit
	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.			Exception
	 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. 			3.EV Charge Where comm area and sha
	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.			When low po an automatic capacity to ea shall have su served by the have a capac
	 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 other method approved by the store store of the store store store. 			capacity to th 4.106.4.2.2.1 Ele Electric vehicle of
	 Compliance with a lawfully enacted storm water management ordinance. Note: Refer to the State Water Resources Control Read for projects which disturb one area of coil, or 			Exception: Elec shall not be rec
	are part of a larger common plan of development which in total disturbs one acre or more of soil.			4.106.4.2.2.1.1
	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.			1.The charg
	water include, but are not limited to, the following:			2. The charg
	 Water collection and disposal systems French drains Water retention gardens 			Exception:
	 Other water measures which keep surface water away from buildings and aid in groundwater recharge. 			4.106.4.2.2
	Exception: Additions and alterations not altering the drainage path.			The charging s
	4.106.4.1 or 4.106.4.2 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the <i>California Electrical Code</i> , Article 625.			2.The minimur
	Exceptions: 1. 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:			3.One in every aisle. A 5-foot 12 feet (3658 r
	 1.1 Where there is no local utility power supply or the local utility is unable to supply adequate power. 1.2 Where there is evidence suitable to the local enforcing agency substantiating that additional 			a.Surface slop percent slope)
	 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 			4.106.4.2.2.1.3 /
	parking facilities.			comply with the spaces and EVC 1109A.
	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			4.106.4.2.3 EV s
	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			circuit. The race originate at the r proximity to the raceway termina
	208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.			have a 40-ampe
	208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device. Exemption: 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 <i>California Electrical Code</i> .			have a 40-ampe installed, or spar Exception: A ra installed in close
	208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device. Exemption: 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 <i>California Electrical Code</i> . 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			have a 40-ampe installed, or spa Exception: A ra installed in clo construction in 2.Multiple EV sr

GREEN BUILDING STANDARDS CODE **DRY MEASURES, SHEET 1** (January 2023)

installed in close proximity to the location or the proposed location of the EV space at the time of original construction in accordance with the California Electrical Code. ly dwellings, hotels and motels and new residential parking facilities. .304 OUTDOOR WATER USE parking spaces for new multifamily dwellings, hotels and motels shall meet the 4.106.4.2.4 Identification. 4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with 4.106.4.2.1 and 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for space served by electric vehicle supply equipment or designed as a future EV charging future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. fficient Landscape Ordinance (MWELO), whichever is more stringent. ast one standard automobile parking space only for the purpose of complying with any ing space requirements established by a local jurisdiction. See Vehicle Code Section 2251 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 1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code Regulations, velopment projects with less than 20 dwelling units; and hotels and motels with less successor(s). r quest rooms. available at: https://www.water.ca.gov/ nits, sleeping units or guest rooms shall be based on all buildings on a project site subject to .106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing nultifamily buildings. DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or (10) percent of the total number of parking spaces on a building site, provided for all types altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or EFFICIENCY shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 altered shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. ad calculations shall demonstrate that the electrical panel service capacity and electrical .406 ENHANCED DURABILITY AND REDUCED MAINTENANCE ny on-site distribution transformer(s), have sufficient capacity to simultaneously charge all Notes: 4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in V spaces at a minimum of 40 amperes. sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such 1.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved EV charging. ging purposes as "EV CAPABLE" in accordance with the California Electrical Code. 2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use. .408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING 408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 DIVISION 4.2 ENERGY EFFICIENCY percent of the non-hazardous construction and demolition waste in accordance with either Section rgers (Level 2 EVSE) are installed in a number equal to or greater than the required number 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste 4.201 GENERAL management ordinance. 4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy rgers (Level 2 EVSE) are installed in a number less than the required number of EV capable Commission will continue to adopt mandatory standards. Exceptions umber of EV capable spaces required may be reduced by a number equal to the number o DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION Excavated soil and land-clearing debris. Alternate waste reduction methods developed by working with local agencies if diversion or 4.303 INDOOR WATER USE recycle facilities capable of compliance with this item do not exist or are not located reasonably 4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and close to the jobsite. documents are intended to demonstrate the project's capability and capacity for facilitating urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, 3. The enforcing agency may make exceptions to the requirements of this section when isolated and 4,303,4,4, jobsites are located in areas beyond the haul boundaries of the diversion facility quirement for EV spaces to be constructed or available until receptacles for EV charging or Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving 408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan installed for use. plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final in conformance with Items 1 through 5. The construction waste management plan shall be updated as completion, certificate of occupancy, or final permit approval by the local building department. See Civil necessary and shall be available during construction for examination by the enforcing agency. nty-five (25) percent of the total number of parking spaces shall be equipped with low power Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential receptacles. For multifamily parking facilities, no more than one receptacle is required per buildings affected and other important enactment dates. 1. Identify the construction and demolition waste materials to be diverted from disposal by recycling, more than one parking space is provided for use by a single dwelling unit. reuse on the project or salvage for future use or sale. 4.303.1.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per Specify if construction and demolition waste materials will be sorted on-site (source separated) or f parking facilities served by parking lifts. flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense bulk mixed (single stream). Specification for Tank-type Toilets. 3. Identify diversion facilities where the construction and demolition waste material collected will be levelopment projects with 20 or more dwelling units, hotels and motels with 20 or more Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume 4. Identify construction methods employed to reduce the amount of construction and demolition waste units, sleeping units or guest rooms shall be based on all buildings on a project site subject to of two reduced flushes and one full flush. 4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush by weight or volume, but not by both. (10) percent of the total number of parking spaces on a building site, provided for all types The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush. shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 .408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the d calculations shall demonstrate that the electrical panel service capacity and electrical 4.303.1.3 Showerheads enforcing agency, which can provide verifiable documentation that the percentage of construction and ny on-site distribution transformer(s), have sufficient capacity to simultaneously charge all demolition waste material diverted from the landfill complies with Section 4.408.1. V spaces at a minimum of 40 amperes. 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. EP. Note: The owner or contractor may make the determination if the construction and demolition waste or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved WaterSense Specification for Showerheads. materials will be diverted by a waste management company ing purposes as "EV CAPABLE" in accordance with the California Electrical Code. 4.303.1.3.2 Multiple showerheads serving one shower. When a shower is served by more than one 408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined n EV chargers (Level 2 EVSE) are installed in a number greater than five (5) percent of showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 required by Section 4.106.4.2.2, Item 3, the number of EV capable spaces required may be a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only imber equal to the number of EV chargers installed over the five (5) percent required. allow one shower outlet to be in operation at a time. Section 4 408 1 4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined Note: A hand-held shower shall be considered a showerhead. weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds focuments shall show locations of future EV spaces 4.303.1.4 Faucets. per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1 quirement for EV spaces to be constructed or available until receptacles for EV charging or 4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall installed for use. not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall 408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates not be less than 0.8 gallons per minute at 20 psi. compliance with Section 4.408.2, items 1 through 5, Section 4.408.3 or Section 4.408.4. y-five (25) percent of the total number of parking spaces shall be equipped with low power 4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lava more than one parking space is provided for use by a single dwelling unit. 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 60 psi. 1. Sample forms found in "A Guide to the California Green Building Standards Code as of parking facilities served by parking lifts. (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in 4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver documenting compliance with this section. ive (5) percent of the total number of parking spaces shall be equipped with Level 2 EVSE. more than 0.2 gallons per cycle. parking is provided, at least one EV charger shall be located in the common use parking Department of Resources Recycling and Recovery (CalRecycle). vailable for use by all residents or quests. 4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons .410 BUILDING MAINTENANCE AND OPERATION per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not evel 2 EV charging receptacles or Level 2 EVSE are installed beyond the minimum required to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per 4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact nanagement system (ALMS) may be used to reduce the maximum required electrical minute at 60 psi. disc, web-based reference or other media acceptable to the enforcing agency which includes all of the pace served by the ALMS. The electrical system and any on-site distribution transformers following shall be placed in the building: capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) Note: Where complying faucets are unavailable, aerators or other means may be used to achieve . The branch circuit shall have a minimum capacity of 40 amperes, and installed EVSE sha 1. Directions to the owner or occupant that the manual shall remain with the building throughout the reduction not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical life cycle of the structure. red EV capable spaces. 4.303.1.4.5 Pre-rinse spray valves. Operation and maintenance instructions for the following: When installed, shall meet the requirements in the California Code of Regulations, Title 20 (Appliance a. Equipment and appliances, including water-saving devices and systems, HVAC systems, vehicle charging stations (EVCS). Efficiency Regulations), Sections 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 photovoltaic systems, electric vehicle chargers, water-heating systems and other major ng stations required by Section 4.106.4.2.2, Item 3, shall comply with Section 4.106.4.2.2.1. (d)(7) and shall be equipped with an integral automatic shutoff. appliances and equipment. b. Roof and yard drainage, including gutters and downspouts. hicle charging stations serving public accommodations, public housing, motels and hotels FOR REFERENCE ONLY: The following table and code section have been reprinted from the California . Space conditioning systems, including condensers and air filters. to comply with this section. See California Building Code, Chapter 11B, for applicable Code of Regulations, Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) and Section d. Landscape irrigation systems. 1605.3 (h)(4)(A). e. Water reuse systems. 3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations. ith at least one of the following options: TABLE H-2 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 pace shall be located adjacent to an accessible parking space meeting the requirements of and what methods an occupant may use to maintain the relative humidity level in that range. ilding Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019 pace shall be located on an accessible route, as defined in the California Building Code, Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation. PRODUCT CLASS 8. Information on required routine maintenance measures, including, but not limited to, caulking, MAXIMUM FLOW RATE (gpm) vehicle charging stations designed and constructed in compliance with the California [spray force in ounce force (ozf)] painting, grading around the building, etc. hapter 11B, are not required to comply with Section 4.106.4.2.2.1.1 and Section Information about state solar energy and incentive programs available. 10. A copy of all special inspections verifications required by the enforcing agency or this code. Product Class 1 (≤ 5.0 ozf) 1.00 11. Information from the Department of Forestry and Fire Protection on maintenance of defensible ric vehicle charging stations (EVCS) dimensions. space around residential structures. s shall be designed to comply with the following: roduct Class 2 (> 5.0 ozf and ≤ 8.0 ozf) 1.20 12. Information and/or drawings identifying the location of grab bar reinforcements. Product Class 3 (> 8.0 ozf) 1.28 th of each EV space shall be 18 feet (5486 mm). 4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a Title 20 Section 1605.3 (h)(4)(A): Commercial prerinse sprav values manufactured on or after January building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the of each EV space shall be 9 feet (2743 mm). 1. 2006, shall have a minimum spray force of not less than 4.0 ounces-force (ozf)[113 grams-force(gf)] epositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, orrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling arging spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum 4.303.2 Submeters for multifamily buildings and dwelling units in mixed-used residential/commercial rdinance, if more restrictive. nm) wide minimum aisle shall be permitted provided the minimum width of the EV space is puildings Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section California Plumbing Code. 42649.82 (a)(2)(A) et seq. are note required to comply with the organic waste portion of this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 this section. 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 sible EV spaces 701.1 of the California Plumbing Code. irements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall DIVISION 4.5 ENVIRONMENTAL QUALITY sibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready multifamily developments shall comply with California Building Code, Chapter 11A, Section SECTION 4.501 GENERAL THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER. 1.501.1 Scope he provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, equirements TABLE - MAXIMUM FIXTURE WATER USE rritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors. puired. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch hall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall SECTION 4.502 DEFINITIONS FIXTURE TYPE FLOW RATE service or subpanel and shall terminate into a listed cabinet, box or enclosure in close 5.102.1 DEFINITIONS in or the proposed location of the EV space. Construction documents shall identify the 1.8 GMP @ 80 PSI SHOWER HEADS (RESIDENTIAL) The following terms are defined in Chapter 2 (and are included here for reference) point, receptacle or charger location, as applicable. The service panel and/ or subpanel shall imum dedicated branch circuit, including branch circuit overcurrent protective device AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 reserved to permit installation of a branch circuit overcurrent protective device. LAVATORY FAUCETS (RESIDENTIAL) cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements. is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is LAVATORY FAUCETS IN COMMON & PUBLIC COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and mity to the location or the proposed location of the EV space, at the time of original 0.5 GPM @ 60 PSI USE AREAS nedium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, dance with the California Electrical Code. structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated 1.8 GPM @ 60 PSI KITCHEN FAUCETS rood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section quired. Construction documents shall indicate the raceway termination point and the 3120.1. future EV spaces, receptacles or EV chargers. Construction documents shall also provide METERING FAUCETS 0.2 GAL/CYCLE ge of installed or future receptacles or EVSE, raceway method(s), wiring schematics and IRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for WATER CLOSET 1.28 GAL/FLUSH ons. Plan design shall be based upon a 40-ampere minimum branch circuit. Required ombustion from the outside atmosphere and discharges all flue gases to the outside atmosphere. omponents that are planned to be installed underground, enclosed, inaccessible or in URINALS 0.125 GAL/FLUSH paces shall be installed at the time of original construction

CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.

a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water

Title 23, Chapter 2.7, Division 2. MWELO and supporting documents, including water budget calculator, are

- 5. Specify that the amount of construction and demolition waste materials diverted shall be calculated

lbs./sq.ft. of the building area shall meet the minimum 65% construction waste reduction requirement in

- 2. Mixed construction and demolition debris (C & D) processors can be located at the California

- 6. Information about water-conserving landscape and irrigation design and controllers which conserve

Cal Green page 1 (Residential)

California 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE **RESIDENTIAL MANDATORY MEASURES, SHEET 2** (January 2023)

			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 weig hundredths of a gram (g O ³ /g ROC). Note: MIR values for individual compounds and hydrocarbon solvents a	ht of compound added, expressed to re specified in CCR, Title 17, Sections 94700		
			and 94701.			
			PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for	r all ingredients in a product subject to this		
			article. The PWMIR is the total product reactivity expressed to hundredt product (excluding container and packaging). Note: PWMIR is calculated according to equations found in CCR, Title 1	hs of a gram of ozone formed per gram of 7, Section 94521 (a).		
			REACTIVE ORGANIC COMPOUND (ROC). Any compound that has th ozone formation in the troposphere.	e potential, once emitted, to contribute to		
			VOC. A volatile organic compound (VOC) broadly defined as a chemica with vapor pressures greater than 0.1 millimeters of mercury at room te hydrogen and may contain oxygen, nitrogen and other elements. See C	I compound based on carbon chains or rings nperature. These compounds typically contain CR Title 17, Section 94508(a).		
	X		4.503 FIREPLACES 4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent set woodstove or pellet stove shall comply with U.S. EPA New Source Perf applicable, and shall have a permanent label indicating they are certified pellet stoves and fireplaces shall also comply with applicable local ordin	aled-combustion type. Any installed ormance Standards (NSPS) emission limits as I to meet the emission limits. Woodstoves, ances.		
X	D	[4.504 POLLUTANT CONTROL 4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECH CONSTRUCTION. At the time of rough installation, during storage on t startup of the heating, cooling and ventilating equipment, all duct and of openings shall be covered with tape, plastic, sheat match or other method	HANICAL EQUIPMENT DURING he construction site and until final her related air distribution component dis acceptable to the enforcing acency to		
¥			reduce the amount of water, dust or debris which may enter the system			
M			4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials	shall comply with this section.		
X			4.504.2.1 Addresives, Sealants and Caulks. Addresives, 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:			
			 Adhesives, adhesive bonding primers, adhesive primer shall comply with local or regional air pollution control of applicable or SCAQMD Rule 1168 VOC limits, as show Such products also shall comply with the Rule 1168 pri compounds (chloroform, ethylene dichloride, methylene tricloroethylene), except for aerosol products, as specili 	s, sealants, sealant primers and caulks or air quality management district rules where rn in Table 4.504.1 or 4.504.2, as applicable, shibition on the use of certain toxic a chloride, perchloroethylene and ied in Subsection 2 below.		
			 Aerosol adhesives, and smaller unit sizes of adhesives units of product, less packaging, which do not weigh m than 16 fluid ounces) shall comply with statewide VOC prohibitions on use of certain toxic compounds, of <i>Calii</i> commencing with section 94507. 	, and sealant or caulking compounds (in ore than 1 pound and do not consist of more standards and other requirements, including fornia Code of Regulations, Title 17,		
X			4.504.2.2 Paints and Coatings. Architectural paints and coating the ARB Architectural Suggested Control Measure, as shown in apply. The VOC content limit for coatings that do not meet the de listed in Table 4.504.3 shall be determined by classifying the coat coating, based on its gloss, as defined in subsections 4.21, 4.36, part Content Content Measure and the subsections 4.21, 4.36.	s shall comply with VOC limits in Table 1 of Table 4.504.3, unless more stringent local limits finitions for the specialty coatings categories ing as a Flat, Nonflat or Nonflat-High Gloss and 4.37 of the 2007 California Air Resources		
_			Board, Suggested Control Measure, and the corresponding Flat, Table 4.504.3 shall apply.	Nonflat of Nonflat-High Gloss VOC limit in		
X		l	4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings for ROC in Section 94522(a)(2) and other requirements, in 2015 (2) and other requirements.	atings shall meet the Product-weighted MIR cluding prohibitions on use of certain toxic		
			Regulations Title 17, commencing with Section 04520' and in an	all if and (i)(i) of callornia code of		
			Quality Management District additionally comply with the percent	VOC by weight of product limits of Regulation		
-			Quality Management District additionally comply with the percent 8, Rule 49.	eas under the jurisdiction of the Bay Area Air VOC by weight of product limits of Regulation		
X	0		 Quality Management District additionally comply with the percent 8, Rule 49. 4.504.2.4 Verification. Verification of compliance with this section enforcing agency. Documentation may include, but is not limited 	as under the jurisdiction of the Bay Area Air VOC by weight of product limits of Regulation on shall be provided at the request of the to, the following:		
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X	0		 Quality Management District additionally comply with the percent 8, Rule 49. 4.504.2.4 Verification. Verification of compliance with this section enforcing agency. Documentation may include, but is not limited 1. Manufacturer's product specification. 2. Field verification of on-site product containers. 	as under the jurisdiction of the Bay Area Air VOC by weight of product limits of Regulation on shall be provided at the request of the to, the following:		
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X			Augustion, The information of compliance of 20 and an Quality Management District additionally comply with the percent 8, Rule 49. 4.504.2.4 Verification. Verification of compliance with this section enforcing agency. Documentation may include, but is not limited 1. Manufacturer's product specification. 2. Field verification of on-site product containers. TABLE 4.504.1 - ADHESIVE VOC LIMIT (Less Water and Less Exempt Compounds in Grams particulation of CARPET ADHESIVES INDOOR CARPET ADHESIVES CARPET PAD ADHESIVES	as under the jurisdiction of the Bay Area Air VOC by weight of product limits of Regulation on shall be provided at the request of the to, the following:		
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(Less Water and Less Exempt Compounds in Gr	rams per Liter)
SEALANTS	VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NON-POROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

BLE 4.504.3 - VOC CONTENT LIMITS FOR	
NUTEOTUDAL CONTINCO	

TAE

GRAMS OF VOC PER LITER OF COATING LESS A	NATER & LESS EXEM	MPT	
COMPOUNDS	INTER & LEGO EXEM	ener j	
COATING CATEGORY	VOC LIMIT		
FLAT COATINGS	50		
NON-FLAT COATINGS	100		
NONFLAT-HIGH GLOSS COATINGS	150		
SPECIALTY COATINGS			
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		
FAUX 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	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 COATINGS	420		
WATERPROOFING MEMBRANES	250		
WOOD COATINGS	275		
WOOD PRESERVATIVES	350		
ZINC-RICH PRIMERS	340	-	

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.

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER TO BE USED ON AN INDIVIDUAL NEEDS. THE END USER TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO BE USED ON AN INDIVIDUAL NEEDS. THE END USER TO BE USED ON AN I

r e	N/A RESPO	N. (Y	N/A	RESPON. PARTY	
		TABLE 4.504.5 - FORMALDEHYDE LIMITS				
		MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION				
		HARDWOOD PLYWOOD VENEER CORE 0.05	X			
		HARDWOOD PLYWOOD COMPOSITE CORE 0.05				
		PARTICLE BOARD 0.09				
		MEDIUM DENSITY FIBERBOARD 0.11				
		THIN MEDIUM DENSITY FIBERBOARD2 0.13				
		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	v			
		WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.	X	C		
		2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).				
<		DIVISION 4.5 ENVIRONMENTAL QUALITY (continued) 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 2017 (Emission testing method for California Specification 01350)				
		See California Department of Public Health's website for certification programs and testing labs.				
		https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.				
4		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 2017 (Emission testing method for California Specification 01350) See California Department of Public Health's website for certification programs and testing labs.				
		https://www.cdph.ca.gov/Programs/CCDPHP/DEQDC/EHLB/IAQ/Pages/VOC.aspx.				
4		4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.				
<		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 2017 (Emission testing method for California Specification 01350)	X	D		
		See California Department of Public Health's website for certification programs and testing labs.				
		hhtps://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.				
ţ		4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the 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				
9		 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: 1. Product certifications and specifications. 				
		 Chain of custody certifications. Product labeled and invoiced 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 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards. Other methods acceptable to the enforcing agency. 				
		4.505 INTERIOR MOISTURE CONTROL 4.505.1 General. Buildings shall meet or exceed the provisions of the California Building Standards Code.				
\$		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.				
Q		4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:				
		 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 curling, 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. 				
ţ		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: 1. Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent 				
		 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 reast three random moisture readings shall be performed on wall and hoor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing. 				
		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.				
4		4.506 INDOOR AIR QUALITY AND EXHAUST 4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:				
		 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. 				
		 a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment. b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in) 				
		Notes:				
		 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 <i>California Energy Code</i>. 				
<		 4.507 ENVIRONMENTAL COMFORT 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: 				
		 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. 				
		Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.				

Y = YES N/A = NOT APPLICABLE RESPON. PARTY = RESPONSIBLE PARTY (In: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

CHAPTER 7 **NSTALLER & SPECIAL INSPECTOR QUALIFICATIONS** 702 QUALIFICATIONS

702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper nstallation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and esponsibility 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:

- State certified apprenticeship programs. Public utility training programs.
- 3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. 4. Programs sponsored by manufacturing organizations.
- 5. Other programs acceptable to the enforcing agency.

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 competence o the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications 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:

- 1. Certification by a national or regional green building program or standard publisher.
- 2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors. 3. Successful completion of a third party apprentice training program in the appropriate trade.
- 4. Other programs acceptable to the enforcing agency.
- 1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code. 2. 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).

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 competence 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 ecognized 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.

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.

703 VERIFICATIONS

Notes:

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

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