



CALIFORNIA
MULTIFAMILY
NEW HOMES

California Multifamily New Homes (CMFNH)

Title 24 Documentation & Architectural Plan Set Resource Guide

For Energy Consultants and
Architects



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Program Contacts

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Handbook: www.cmfnh.com/resource/handbook/

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Enrollment Package – Energy Consultant / Architect Documentation

- ✦ Complete set of construction plans
- ✦ Site plan
- ✦ Title 24 documents and files

To view the application guide for Builders, please follow [this link](#).

Architectural Plan Set - Architect

- ✦ Required plan sets include: architectural, mechanical, plumbing, and lighting (if available).
- ✦ CMFNH accepts plans in PDF format.
- ✦ Site plan with a north facing arrow
- ✦ Landscape and civil plan sections are not required; submit only the elevations and sections that relate to the building energy performance, such as building envelope, HVAC, and domestic hot water (DHW).

Equipment and Materials Documentation

- ✦ The following specification documentation is required for the plan review:
- ✦ Windows, glazed doors, skylights—specification sheet with manufacturer's name that demonstrates U-factor and Solar Heat Gain Coefficient (SHGC).
- ✦ Space heating equipment—specification sheet with manufacturer's name/model number and efficiency rating for each unit.
- ✦ Air conditioner—specification sheet with manufacturer's name/model numbers for condenser/coil match or AHRI reference number for each proposed unit (www.ahridirectory.org).
- ✦ Water heater—specification sheet with manufacturer's name/model number and efficiency rating. If installing a Solar Water Heater, a CF-SR is required.
- ✦ Roofing material—specification sheet which shows emissivity and reflectivity value of product (if taking credit for a cool roof)

Title 24 Documentation - Energy Consultant

- ✦ Compliance output report(s)
 - CF-1R or PERF-1C
 - See examples below
- ✦ 2016 Title 24 energy model(s):
 - CBECC Res 2016 (.ribd/.ribd16x)
 - CBECC-Com (cibd16/.cibdx16)
 - EnergyPro (.bld)
- ✦ CMFNH [Incentive Calculator](#)

Compliance output report examples

CF-IR

These are used for residential compliance or low-rise buildings.

ENERGY DESIGN RATING							
<p>Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to "zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).</p> <p>As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen.</p>							
EDR of Standard Design	EDR of Proposed Design	EDR Value of Proposed PV	Final EDR of Proposed Design				
61.2	58.4	62.0	-3.6				
<input checked="" type="checkbox"/>	Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.						
<input type="checkbox"/>	Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.						
<input checked="" type="checkbox"/>	Design meets Zero Net Energy (ZNE) Design Designation requirement for Multifamily in climate zone C25 (Santa Maria) (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System must be verified.						
ENERGY DESIGN RATING PV SYSTEM INPUTS - DETAILED							
DC System Size (kW)	Module Type	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt (x in 12)	Inverter Eff. (%)
90	Premium	<input type="checkbox"/>	206	deg	5.0	1.0	96
REQUIRED SPECIAL FEATURES							
<p>The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.</p> <ul style="list-style-type: none"> PV System: 90.0 kWdc Ducts with high level of insulation Ceiling has high level of insulation Non-standard duct location (any location other than attic) Slab Edge Insulation 							

PERF-IC

These are used for non-residential compliance or high-rise buildings.

Project Name:		NRCC-PRF-01-E	
Project Address:		Calculation Date/Time:	
Compliance Scope:		Input File Name:	
A. PROJECT GENERAL INFORMATION			
1. Project Location (city)		8. Standards Version	Compliance2016
2. CA Zip Code		9. Compliance Software (version)	CBCEC-Com 2016.3.0 (868)
3. Climate Zone		10. Weather File	
4. Total Conditioned Floor Area in Scope		11. Building Orientation (deg)	
5. Total Unconditioned Floor Area		12. Permitted Scope of Work	
6. Total # of Stories (Habitable Above Grade)		13. Building Type(s)	
7. Total # of dwelling units		14. Gas Type	
B. COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft ² -yr)			
BUILDING COMPLIES			
1. Energy Component	2. Standard Design (TDV)	3. Proposed Design (TDV)	5. Percent Better than Standard
Space Heating	11.06	14.55	-3.49
Space Cooling	22.55	21.60	0.95
Indoor Fans	18.91	5.32	13.59
Heat Rejection	1.89	--	1.89
Pumps & Misc.	4.43	0.88	3.55
Domestic Hot Water	11.54	10.36	1.18
Indoor Lighting	33.82	33.82	--
COMPLIANCE TOTAL	104.20	86.53	17.67
Receptacle	38.07	38.07	0.0
Process	--	--	--
Other Ltg	8.39	8.39	0.0
TOTAL	150.66	132.99	11.7%
CA Building Energy Efficiency Standards- 2016 Compliance			

CMFNH Incentive Calculator

Please follow this [link](#) for the most current version of the CMFNH Program Incentive Calculator.

High-rise example

2016 Code CMFNH Incentive Calculator																		
User Inputs					Calculated Results													
Site Details					Bonus Points			Cash Bonuses						Results				
Climate Zone	Building Name	Number of Units	% Better than code	Orientation	100% LED	ENERGY STAR® Tier II Appliances	High Performance Fenestration	High Performance Wall	Bal. IAQ	ENERGY STAR® Laundry Facility	Number of Laundry Appliances	Drain Water Heat Recovery	Number of Drain Water Heat Recovery Devices	CZ Group	Base Incentive per unit	Total Base Incentive	Cash Bonus	Total Project Incentive
12	Bldg D	1	12.90%	South	No	No	No	No	No	No	0	No	0	Inland	\$160	\$160	\$0	\$160

Low-rise example

2016 Code CMFNH Incentive Calculator																									
User Inputs												Calculated Results													
Site Details							Bonus Points					Cash Bonuses					Results								
Climate Zone	Building Name	Number of Units	Orientation	Standard Design EDR	Proposed Design EDR	Annual Site kWh	Solar Option	100% LED	ENERGY STAR® Tier II Appliances	High Performance Fenestration	High Performance Wall	Bal. IAQ	DOE ZER Home	ENERGY STAR® Laundry Facility	Number of Laundry Appliances	Drain Water Heat Recovery Devices Installed	Number of Drain Water Heat Recovery Devices	2015 Code Home	CZ Group	Bonus EDR Points	Delta EDR	Base Incentive per unit	Total Base Incentive	Cash Bonus	Total Project Incentive
12	Example 1	10	North	64.0	61.0	-1	Installing Solar	No	No	No	No	Yes	Yes	Yes	25	Yes	1	Yes	Inland	0	3	\$135	\$1,350	\$1,075	\$2,425
12	Example 1	10	East	64.0	61.0	0	Installing Solar	No	No	No	Yes	No	No	Yes	50	Yes	2	Yes	Inland	0	3	\$135	\$1,350	\$1,400	\$2,750
12	Example 1	10	South	64.0	53.0	1511	No Solar	No	No	No	No	No	No	No	0	No	0	No	Inland	0	5	\$195	\$1,950	\$0	\$1,950
12	Example 1	10	West	64.0	55.0	1548	No Solar	No	No	No	No	No	No	No	0	No	0	No	Inland	0	9	\$405	\$4,050	\$0	\$4,050