

**Prescriptive Compliance of Additions
2005 California Energy Standards
Package D – Climate Zone 10**

Component	<u>< 100 SF¹</u>	<u>> 100 SF but <1,000 SF</u>	<u>> 1,000 SF</u>
<u>Radiant Barrier</u>	Req.	Req.	Req.
<u>Insulation</u>			
Ceiling	R-30	R-30	R-30
Wall	R-13	R-13	R-13
Heavy Mass Wall ²	(R-2.44)	(R-2.44)	(R-2.44)
Floor	R-19	R-19	R-19
<u>Fenestration</u>			
Max U-Factor ³	0.57	0.57	0.57
% of CFA	≤50SF	20% +removed	20%
Max West Facing		5%	5%
SHGC	0.40	0.40	0.40
<u>Space Heating⁴</u>			
FAU	AFUE 78%	AFUE 78%	AFUE 78%
Wall Heater	See Table 4-2	See Table 4-2	See Table 4-2
Heat Pump ^T . 4-3	7.7 HSPF	7.7 HSPF	7.7 HSPF
<u>Space Cooling</u>			
Table 4-4	SEER 13	SEER 13	SEER 13
Duct Insulation	R-6	R-6	R-6
Sealed Ducts & TXV's ⁵	Req. ⁶	Req. ⁶	Req. ⁶
or			
Alternative			
U-Factor	0.38	0.38	0.38
SHGC	0.31	0.31	0.31
SEER	13	13	13
or Table 8-3			
<u>Water Heating</u>	EF	EF	EF
Replacement			
Gas Storage	0.67	0.67	0.67
Gas Instant	0.62	0.62	0.62
Elec Storage	0.97	0.97	0.97
Elec Instant	0.93	0.93	0.93
Increase			
Gas Stor or Instant	0.58	0.58	0.58
Elec Stor or Instant	0.90	0.90	0.90

¹ This approach does not allow credit for glass removed. Compliance with the requirements for additions <500 SF is allowed, in which case credit for removed glass is allowed.

² The heavy mass wall R-value in parentheses is the minimum R-value for the entire wall assembly if the wall weight exceeds 40 pounds per square foot. Any insulation installed on heavy mass walls must be integral with, or installed on the outside of, the exterior mass. The inside surface of the thermal mass, including plaster or gypsum board in direct contact with the masonry wall, shall be exposed to the room air. The exterior wall used to meet the R-value in parentheses cannot also be used to meet the thermal mass requirement.

³ For addition and alteration compliance only; dual glazed greenhouse windows and dual glazed skylights are assumed to meet this U-Factor.

⁴ No electric resistance heating may be installed.

⁵ New split unit only.

⁶ When adding more than 40' of ducting in unconditioned space.

CERTIFICATE OF COMPLIANCE: RESIDENTIAL		(Page 1 of 5)	CF-1R
Project Title	Date	Building Permit #	
Project Address			
		Plan Check / Date	
Documentation Author	Telephone	Field Check / Date	
Compliance Method (Prescriptive)	Climate Zone		
		Enforcement Agency Use Only	

Alternative Component Package Method: (check one) _____ C _____ D _____ D (Alternative)
 • Package C and Package D choices require HERS rater field verification and/or diagnostic testing (see CF-1R page 3)
 For Package D Alternative see Appendix B Table 151-C Footnotes 7-14

GENERAL INFORMATION

Total Conditioned Floor Area (CFA) _____ ft²

Average Ceiling Height: _____ ft

Maximum Allowed West Facing Fenestration Products Per Table 151-B or 151-C ---- (5% X CFA) _____ ft²

Maximum Allowed Total Fenestration Products Per Table 151-B or 151-C ----(20% X CFA) _____ ft²

Building Type: (check one or more) _____ Single Family _____ Multifamily _____ Addition _____ Alteration
 (If adding fenestration fill out WS-4R, Fenestration Maximum Allowed Area Worksheet and see Section 8.3.2 for Additions and 8.3.3 for Alterations.)

Number of Stories: _____ Number of Dwelling Units: _____

Floor Construction Type: _____ Slab/Raised Floor (circle one or both)

Front Orientation: _____ North / South / East / West / All Orientations (input front orientation in degrees from True North and circle one).

RADIANT BARRIER (required in climate zones 2, 4, 8-15)

OPAQUE SURFACES INCLUDING OPAQUE DOORS

Component Type (Wall, Roof, Floor, Slab Edge, Doors)	Frame Type (Wood or Metal)	Cavity Insulation R-Value	Continuous Insulation R-Value	Assembly U-factor (for wood, metal frame and mass assemblies) ¹	Joint Appendix IV Reference	Roof Radiant Barrier Installed Yes or No	Location Comments (attic, garage, typical, etc.)

1) See Joint Appendix IV in Section IV.2, IV.3 and IV.4, which is the basis for the U-factor criterion. U-factors can not exceed prescriptive value to show equivalence to R-values.

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 2 of 5) CF-1R

<i>Project Title</i>	<i>Date</i>

FENESTRATION PRODUCTS – U-FACTOR AND SHGC

✓ FENESTRATION MAXIMUM ALLOWED AREA WORKSHEET WS-4R –must be included for New Construction, Additions and Alterations.

Fenestration #/Type/Pos. (Front, Left, Rear, Right, Skylight)	Orientation, N, S, E, W ¹	Area (ft ²)	U-factor ²	U-factor Source ³	SHGC ⁴	SHGC Source ⁵	Exterior Shading/Overhangs ^{6,7} ✓ box if WS-3R is included
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>

- 1) Skylights are now included in West-facing fenestration area if the skylights are tilted to the west or tilted in any direction when the pitch is less than 1:12. See §151(f)3C and in Section 3.2.3 of the Residential Manual
- 2) Enter values in this column are either NFRC Rated value or from Standards default Table 116A.
- 3) Indicate source either from NFRC or Table 116A,
- 4) Enter values in this column from NFRC or from Standards Default Table 116B or adjusted SHGC from WS-3R.
- 5) Indicate source either from NFRC or Table 116B.
- 6) Shading Devices are defined in Table 3-3 in the Residential Manual and see WS-3R to calculate Exterior Shading devices.
- 7) See Section 3.2.4 in the Residential Manual.

HVAC SYSTEMS

Heating Equipment Type and Capacity (furnace, heat pump, boiler, etc.)	Minimum Efficiency (AFUE or HSPF)	Distribution Type and Location (ducts, attic, etc.)	Duct or Piping R-Value	Thermostat Type	Configuration (split or package)

Cooling Equipment Type and Capacity (A/C, heat pump, evap. cooling)	Minimum Efficiency (SEER or EER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Configuration (split or package)

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 3 of 5) CF-1R

<i>Project Title</i> _____	<i>Date</i> _____
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SEALED DUCTS and TXVs (or Alternative Measures)

A signed CF-4R Form must be provided to the building department for each home for which the following are required.

<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Sealed Ducts (all climate zones) (Installer testing and certification and HERS rater field verification required.)
<input type="checkbox"/>	TXVs, readily accessible (climate zones 2 and 8-15 only) (Installer testing and certification and HERS Rater field verification required.)
<input type="checkbox"/>	Refrigerant Charge (climate zones 2 and 8-15 only) (Installer testing and certification and HERS Rater field verification required.)

OR

<input type="checkbox"/>	Alternative to Sealed Ducts and Refrigerant Charge /TXVs (See Package D Alternative Package Features for Project Climate Zone in the RM Appendix B Table 151-C, Footnotes 7-14.
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OR

<input type="checkbox"/>	For additions and alterations, duct systems that are not documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Residential ACM Manual and duct systems with more than 40 linear feet in unconditioned spaces shall meet the requirements of Section 150(m) and duct insulation requirements of Package D.
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WATER HEATING SYSTEMS

<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Check box if system meets criteria of a “Standard” system. Standard system is one gas-fired water heater per dwelling unit. If the water heater is a storage type, 50 gallons is the maximum capacity and recirculation system is not allowed.
<input type="checkbox"/>	Check box when using Preapproved Alternative Water Heating table, Table 5-4 in Chapter 5 in the Residential Manual. No water heating calculations are required, and the system complies automatically.
<input type="checkbox"/>	Check box if system does not meet criteria of “Standard” system, and does not comply with the Preapproved Alternative Water Heating table. In this case, the Performance Method must be used and must be included in the submittal.
<input type="checkbox"/>	Check box to verify that a time control is required for a recirculating system pump for a system serving multiple units

Systems serving single dwelling units

Water Heater Type/Fuel Type	Distribution Type	Number in System	Rated Input ¹ (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor ¹ or Thermal Efficiency	Standby ¹ Loss (%)	Tank External Insulation R-Value

System serving multiple dwelling units

Water Heater Type	Distribution Type	Number in System	Rated Input ¹ (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor ¹ or Thermal Efficiency	Standby ¹ Loss (%)	Tank External Insulation R-Value

1) For small gas storage water heaters (rated inputs of less than or equal to 75,000 Btu/hr), electric resistance, and heat pump water heaters, list Energy Factor. For large gas storage water heaters (rated input of greater than 75,000 Btu/hr), list Rated Input, Recovery Efficiency, Thermal Efficiency and Standby Loss. For instantaneous gas water heaters, list Rated Input and Thermal Efficiencies.

Pipe Insulation (kitchen lines $\geq 3/4$ inches) All hot water pipes from the heating source to the kitchen fixtures that are $3/4$ inches or greater in diameter shall be thermally insulated as specified by Section 150 (j) 2 A or 150 (j) 2 B.

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 4 of 5) CF-1R

Project Title _____

Date _____

SPECIAL FEATURES NOT REQUIRING HERS VERIFICATION (add extra sheets if necessary)

Indicate which special features are part of this project. The list below represents special features relevant to the Prescriptive and Performance Method.

<input checked="" type="checkbox"/>	Feature	Required Forms (if applicable)	Description
<input type="checkbox"/>	Metal Framed Walls	CF-1R	
<input type="checkbox"/>	Radiant Barriers	CF-1R	
<input type="checkbox"/>	Exterior Shades	WS-4R	
<input type="checkbox"/>	Cool Roof	N/A; Performance Calculation Required. Attach CRRC Label to Forms.	
<input type="checkbox"/>	Dedicated Hydronic Heating System	Performance Calculation Required; Attach Run to Forms.	
<input type="checkbox"/>	Combined Hydronic System	Performance Calculation Required; Attach Run to Forms.	
<input type="checkbox"/>	Gas Cooling	N/A; Performance Calculation Required.	
<input type="checkbox"/>	Buried Ducts	N/A; Indicate on building plans.	
<input type="checkbox"/>	Kitchen Pipe Insulation	See Section 5.6.2 Distribution Systems in Residential Manual.	
<input type="checkbox"/>	Multiple Water Heaters Per Dwelling Unit	See Table 5-13 or use Performance Calculation and attach Run to Forms.	
<input type="checkbox"/>	Central Water Heating System Serving Multiple Dwellings	Performance Calculation and attach Run to Forms.	
<input type="checkbox"/>	Non-NAECA Large Water Heater	CF-1R	
<input type="checkbox"/>	Indirect Water Heater	See Table 5-13 or use Performance Calculation and attach Run to Forms	
<input type="checkbox"/>	Instantaneous Gas Water Heater	See Table 5-13 or use Performance Calculation and attach Run to Forms	
<input type="checkbox"/>	Solar Water Heating System	See Table 5-13 or use Performance Calculation and attach Run to Forms	
<input type="checkbox"/>	Wood Stove Boiler	Performance Calculation and attach Run to Forms	

SPECIAL FEATURES REQUIRING HERS RATER VERIFICATION

(add extra sheets if necessary) Indicate to the HERS Rater which credits are part of this project and need verification.

<input checked="" type="checkbox"/>	Feature	Required Forms (if applicable)	Description
<input type="checkbox"/>	Duct Sealing	CF-6R part 4 of 12	
<input type="checkbox"/>	Refrigerant Charge	CF-6R part 5 of 12	
<input type="checkbox"/>	Thermostatic Expansion Valve	CF-6R part 6 of 12	

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 5 of 5) CF-1R	
Project Title	Date

COMPLIANCE STATEMENT

This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations, and the administrative regulations to implement them. This certificate has been signed by the individual with overall design responsibility. The undersigned recognizes that compliance using duct design, duct sealing, verification of refrigerant charge and TXVs, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.

Designer or Owner (per Business and Professions Code)	Documentation Author
Name:	Name:
Title/Firm:	Title/Firm:
Address:	Address:
Telephone:	Telephone:
License #:	
(signature) (date)	(signature) (date)

Enforcement Agency

Name: _____ Title _____ Agency: _____ Telephone: _____ _____ (signature / stamp) (date)	Comments: _____ _____ _____ _____ _____ _____
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MANDATORY MEASURES SUMMARY: RESIDENTIAL (Page 1 of 2) MF-1R

Project Title	Date
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Note: Low-rise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. More stringent compliance requirements from the Certificate of Compliance supersede the items marked with an asterisk (*) below. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

Instructions: Check or initial applicable boxes when completed or check NA if not applicable.

DESCRIPTION	NA	Designer	Enforce-ment
Building Envelope Measures:	✓	✓	✓
* §150(a): Minimum R-19 in wood frame ceiling insulation or equivalent U-factor in metal frame ceiling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(b): Loose fill insulation manufacturer's labeled R-Value: _____.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* §150(c): Minimum R-13 wall insulation in wood framed walls or equivalent U-factor in metal frame walls (does not apply to exterior mass walls).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* §150(d): Minimum R-13 raised floor insulation in framed floors or equivalent U-factor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(e): Installation of Fireplaces, Decorative Gas Appliances and Gas Logs.			
1. Masonry and factory-built fireplaces have:			
a. closeable metal or glass door covering the entire opening of the firebox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. outside air intake with damper and control, flue damper and control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. No continuous burning gas pilot lights allowed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(f): Air retarding wrap installed to comply with §151 meets requirements specified in the ACM Residential Manual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(g): Vapor barriers mandatory in Climate Zones 14 and 16 only.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(i): Slab edge insulation - water absorption rate for the insulation material alone without facings no greater than 0.3%, water vapor permeance rate no greater than 2.0 perm/inch.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§118: Insulation specified or installed meets insulation installation quality standards. Indicate type and include CF-6R Form: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§116-17: Fenestration Products, Exterior Doors, and Infiltration/Exfiltration Controls.			
1. Doors and windows between conditioned and unconditioned spaces designed to limit air leakage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Fenestration products (except field-fabricated) have label with certified U-factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration certification.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Exterior doors and windows weatherstripped; all joints and penetrations caulked and sealed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space Conditioning, Water Heating and Plumbing System Measures:			
§110-§113: HVAC equipment, water heaters, showerheads and faucets certified by the Energy Commission.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(h): Heating and/or cooling loads calculated in accordance with ASHRAE, SMACNA or ACCA.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(i): Setback thermostat on all applicable heating and/or cooling systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(j): Water system pipe and tank insulation and cooling systems line insulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Storage gas water heaters rated with an Energy Factor less than 0.58 must be externally wrapped with insulation having an installed thermal resistance of R-12 or greater.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Back-up tanks for solar system, unfired storage tanks, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation and indicated on the exterior of the tank showing the R-value.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The following piping is insulated according to Table 150-A/B or Equation 150-A Insulation Thickness:			
1. First 5 feet of hot and cold water pipes closest to water heater tank, non-recirculating systems, and entire length of recirculating sections of hot water pipes shall be insulated to Table 150B.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Cooling system piping (suction, chilled water, or brine lines), piping insulated between heating source and indirect hot water tank shall be insulated to Table 150-B and Equation 150-A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Steam hydronic heating systems or hot water systems >15 psi, meet requirements of Table 123-A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MANDATORY MEASURES SUMMARY: RESIDENTIAL (Page 2 of 2) MF-1R

Space Conditioning, Water Heating and Plumbing System Measures: (continued)	NA ✓	Designer	Enforce-ment
5. Insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Insulation for chilled water piping and refrigerant suction piping includes a vapor retardant or is enclosed entirely in conditioned space.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Solar water-heating systems/collectors are certified by the Solar Rating and Certification Corporation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* §150(m): Ducts and Fans			
1. All ducts and plenums installed, sealed and insulated to meet the requirement of the CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Exhaust fan systems have back draft or automatic dampers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Protection of Insulation. Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Flexible ducts cannot have porous inner cores.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§114: Pool and Spa Heating Systems and Equipment.			
1. A thermal efficiency that complies with the Appliance Efficiency Regulations, on-off switch mounted outside of the heater, weatherproof operating instructions, no electric resistance heating and no pilot light.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. System is installed with:			
a. at least 36" of pipe between filter and heater for future solar heating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. cover for outdoor pools or outdoor spas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Pool system has directional inlets and a circulation pump time switch.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§115: Gas fired fan-type central furnaces, pool heaters, spa heaters or household cooking appliances have no continuously burning pilot light. (Exception: Non-electrical cooking appliances with pilot < 150 Btu/hr)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§118(i): Cool Roof material meets specified criteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residential Lighting Measures:			
§150(k)1: HIGH EFFICACY LUMINAIRES OTHER THAN OUTDOOR HID: contain only high efficacy lamps as outlined in Table 150-C, and do not contain a medium screw base socket (E24/E26). Ballast for lamps 13 watts or greater are electronic and have an output frequency no less than 20 kHz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)1: HIGH EFFICACY LUMINAIRES - OUTDOOR HID: contain only high efficacy lamps as outlined in Table 150-C, luminaire has factory installed HID ballast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)2: Permanently installed luminaires in kitchens shall be high efficacy luminaires. Up to 50 percent of the wattage, as determined in § 130 (c), of permanently installed luminaires in kitchens may be in luminaires that are not high efficacy luminaires, provided that these luminaires are controlled by switches separate from those controlling the high efficacy luminaires.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)3: Permanently installed luminaires in bathrooms, garages, laundry rooms utility rooms shall be high efficacy luminaires. OR are controlled by an occupant sensor(s) certified to comply with Section 119(d) that does not turn on automatically or have an always on option.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)4: Permanently installed luminaires located other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires (except closets less than 70ft²): OR are controlled by a dimmer switch OR are controlled by an occupant sensor that complies with Section 119(d) that does not turn on automatically or have an always on option.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)5: Luminaires that are recessed into insulated ceilings are approved for zero clearance insulation cover (IC) and are certified airtight to ASTM E283 and labeled as air tight (AT) to less than 2.0 CFM at 75 Pascals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)6: Luminaires providing outdoor lighting and permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy luminaires (not including lighting around swimming pools/water features or other Article 680 locations) OR are controlled by occupant sensors with integral photo control certified to comply with Section 119(d).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)7: Lighting for parking lots for 8 or more vehicles shall have lighting that complies with Sec. 130, 132, and 147. Lighting for parking garages for 8 or more vehicles shall have lighting that complies with Sec. 130, 131, and 146.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
§150(k)8: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires OR are controlled by occupant sensor(s) certified to comply with Section 119(d).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FENESTRATION – MAXIMUM ALLOWED AREA WORKSHEET WS-4R

Project Title _____

Date _____

FENESTRATION PRODUCTS – NEW CONSTRUCTION- NEW BUILDINGS

Use this table for new building construction to account for total building % of fenestration.

A	B	C	D	E	F	G
#/Type/Pos. (Front, Left, Rear, Right, Skylight)	Orientation	Total Fenestration, West Facing Area (ft ²)	Total Fenestration for N, S, E Orientations Area (ft ²)	CFA (ft ²)	Total Percent of West Facing Fenestration ¹ (C/E) x 100%	Total % of Fenestration ² Including West (D/E) x 100% + F
	North					
	South					
	East					
	West					
	Totals					

1) If west facing area exceeds 5% of CFA in climate zones 2, 4, and 7-15, the performance approach must be used.

2) If total percent of fenestration exceeds 20% including West facing orientations then performance approach must be used. West facing area includes skylights tilted to the west or tilted in any direction when the pitch is less than 1:12 for Package D only.

FENESTRATION PRODUCTS – NEW CONSTRUCTION- ADDITIONS

Less than 100 ft², Less than or Equal to 1000 ft², Greater 1000 ft²

A	B	C	D	E	F	G	H
#/Type/Pos. (Front, Left, Rear, Right, Skylight)	Orientation N, S, E, W	Addition's CFA ^{1,2}	Addition's New Fenestration Area (ft ²)	Fenestration Area Removed to make way for Addition (ft ²)	Total Area Fenestration ² (D + E)	Total % of West Facing Fenestration (F/C)x100%	Total % of Fenestration ² (F/C)x100 %
	North						
	South						
	East						
	West ⁴						
					Total		

1) Additions that add less than 50ft² of fenestration area are exempt from the maximum total area limits. See Table 8-2 in RM.

2) If the addition has a floor area equal to or less than 1,000 ft², the maximum allowed fenestration % may be increased to by the amount of glazing removed in the wall that separates the addition from the existing house. See Table 8-2 in RM.

3) If the addition has a floor area greater than to 1,000 ft², must meet Package D requirements. See Table 8-2 in RM.

4) West facing area includes skylights tilted to the west or tilted in any direction when the pitch is less than 1:12 for Package D.

FENESTRATION PRODUCTS: ALTERATIONS

Use this table for alterations to an existing building where fenestrations products (windows) are being removed and/or added.

A	B	C	D	E	F	G	H	I
CFA	Existing Orientation	Existing Area (ft ²)	Removed Orientation	Removed Area (ft ²)	Proposed Installed Orientation	Proposed Installed New Area (ft ²)	Total Net Fenestration (ft ²) (C-E+G)	Total % of Fenestration ^{1,2} H / A Max of 20%
	North		North		North			
	South		South		South			
	East		East		East			
	West		West		West			
	Total		Total		Total			

1) When 50 ft² or more of fenestration area is added to an existing building, then the fenestration must meet the requirements of Package D. The area requirement for the total fenestration area for the whole building, including the added fenestration, must not exceed 20% otherwise the Performance Approach must be used. Note: The 5% west facing limit is exempt. See Section 8.3.3 in the RM for further details.

RESIDENTIAL KITCHEN LIGHTING WORKSHEET

WS-5R

Project Title _____

Date _____

At least 50% of the total rated wattage of permanently installed luminaires in the kitchen must be in luminaires that are high efficacy luminaires as defined in Table 150-C. Luminaires that are not high efficacy must be switched separately.

Kitchen Lighting Schedule. Provide the following information for all luminaires to be installed in kitchens.

Luminaire Type	High Efficacy?	Watts	x	Quantity	=	High Efficacy Watts	or	Other Watts
_____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____	x	_____	=	_____	or	_____
_____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____	x	_____	=	_____	or	_____
_____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____	x	_____	=	_____	or	_____
_____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____	x	_____	=	_____	or	_____
_____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____	x	_____	=	_____	or	_____
Total:						A: _____	B: _____	

COMPLIES IF $A \geq B$

Yes No

Rules for Determining Residential Kitchen Luminaire Wattage

Screw Base Sockets §130(c) 1

(Not containing permanently installed ballasts) The maximum relamping rated wattage of the luminaire, as listed on a permanent factory-installed label (luminaire wattage is not based on type or wattage of lamp that is used).

Permanently or Remotely Installed Ballasts §130(c) 2

The operating input wattage of the rated lamp/ballast combination based on values published in manufacturer's catalogs based on independent testing lab reports.

Line Voltage Track Lighting (90 through 480 volts) §130(c) 3

1. Volt-ampere (VA) rating of the branch circuit(s) feeding the tracks; or
2. The higher of
 - The wattage (or VA) rating of an approved integral current limiter controlling the track system or
 - 15 watts per linear foot of the track; or
3. The higher of
 - 45 W per linear foot of the track or
 - The total wattage of all of the luminaires included in the system.

Low Voltage Track Lighting (less than 90 volts) §130(c) 4

Rated wattage of the transformer feeding the system, as shown on a permanent factory-installed label

Other Lighting §130(c) 5

(Lighting systems that are not addressed in §130 (c) 1-4) The maximum rated wattage, or operating input wattage of the system, listed on a permanent factory installed label, or published in manufacturer's catalogs, based on independent testing lab reports.

EXAMPLE

RESIDENTIAL KITCHEN LIGHTING WORKSHEET

WS-5R

Project Title _____

Date _____

Kitchen Lighting Schedule. Provide the following information for all luminaires to be installed in kitchens.

Luminaire Type	High Efficacy (y/n)	Watts	x	Quantity	=	High Efficacy Watts	or	Other Watts
CFL-1	Yes	26	x	5	=	130	or	
MR-16	No	55	x	2	=		or	110
_____	_____	_____	x	_____	=	_____	or	_____
_____	_____	_____	x	_____	=	_____	or	_____
_____	_____	_____	x	_____	=	_____	or	_____
Total:						A: 130	B: 110	

COMPLIES IF $A \geq B$

Yes No