

# **MANDATORY MEASURES CHECKLIST: RESIDENTIAL (Page 1 of 2) MF-1R**

Note: Lowrise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (\*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. 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 enter N/A if not applicable.

DESCRIPTION	DESIGNER	ENFORCEMENT
<b>Building Envelope Measures:</b>		
* §150(a): Minimum R-19 ceiling insulation.		
§150(b): Loose fill insulation manufacturer's labeled R-Value.		
* §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).		
* §150(d): Minimum R-13 raised floor insulation in framed floors.		
§150(l) : Slab edge insulation - water absorption rate no greater than 0.3%, water vapor transmission rate no greater than 2.0 perm/inch.		
§118: Insulation specified or installed meets insulation quality standards. Indicate type and form.		
§116-17: Fenestration Products, Exterior Doors, and Infiltration/Exfiltration Controls 1. Doors and windows between conditioned and unconditioned spaces designed to limit air leakage. 2. Fenestration products (except field-fabricated) have label with certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration certification. 3. Exterior doors and windows weatherstripped; all joints and penetrations caulked and sealed.		
§150(g): Vapor barriers mandatory in Climate Zones 14 and 16 only.		
§150(f): Special infiltration barrier installed to comply with § 151 meets Commission quality standards.		
§150(e): Installation of Fireplaces, Decorative Gas Appliances and Gas Logs. 1. Masonry and factory-built fireplaces have: a. Closeable metal or glass door b. Outside air intake with damper and control c. Flue damper and control 2. No continuous burning gas pilot lights allowed.		
<b>Space Conditioning, Water Heating and Plumbing System Measures:</b>		
§110-§113: HVAC equipment, water heaters, showerheads and faucets certified by the Commission.		
§150(h): Heating and/or cooling loads calculated in accordance with ASHRAE, SMACNA or ACCA.		
§150(i): Setback thermostat on all applicable heating and/or cooling systems.		
§150(j): Pipe and tank insulation 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. 2. First 5 feet of pipes closest to water heater tank, non-recirculating systems, insulated (R-4 or greater) 3. Back-up tanks for solar system, unfired storage tanks, or other indirect hot water tanks have R-12 external insulation or R-16 combined internal/external insulation. 4. All buried or exposed piping insulated in recirculating sections of hot water systems. 5. Cooling system piping below 55° F insulated. 6. Piping insulated between heating source and indirect hot water tank.		

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DESCRIPTION	DESIGNER	ENFORCEMENT
<b>Space Conditioning, Water Heating and Plumbing System Measures: (continued)</b>		
<p>* §150(m): Ducts and Fans</p> <ol style="list-style-type: none"><li>1. All ducts and plenums installed, sealed and insulated to meet the requirement of the 1998 CMC Sections 601, 603, 604, and Standard 6-3; ducts insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape, aerosol sealant, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B. 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. Building cavities shall not be used for conveying conditioned air. 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 drawbands.</li><li>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.</li><li>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 drawbands.</li><li>4. Exhaust fan systems have back draft or automatic dampers.</li><li>5. Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.</li><li>6. Protection of Insulation. Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind but not limited to the following: Insulation exposed to weather shall be suitable for outdoor service e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover. 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.</li></ol>		
<p>§114: Pool and Spa Heating Systems and Equipment.</p> <ol style="list-style-type: none"><li>1. System is certified with 78% thermal efficiency, on-off switch, weatherproof operating instructions, no electric resistance heating and no pilot light.</li><li>2. System is installed with:<ol style="list-style-type: none"><li>a. At least 36" of pipe between filter and heater for future solar heating.</li><li>b. Cover for outdoor pools or outdoor spas.</li></ol></li><li>3. Pool system has directional inlets and a circulation pump time switch.</li></ol>		
§115: Gas fired 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)		
§118 (f): Cool Roof material meet specified criteria		
<b>Lighting Measures:</b>		
§150(k)1.: Luminaires for general lighting in kitchens shall have lamps with an efficacy of 40 lumens/watt or greater for general lighting in kitchens. This general lighting shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen.		
§150(k)2.: Rooms with a shower or bathtub must have either at least one luminaire with lamps with an efficacy of 40 lumens/watt or greater switched at the entrance to the room or one of the alternatives to this requirement allowed in §150(k)2.; and incandescent recessed ceiling fixtures are IC (insulation cover) approved.		