



## TOWN OF HILLSBOROUGH BUILDING & PLANNING DEPARTMENT

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### Roofing Requirements

The Town of Hillsborough has Residential Design Guidelines (for aesthetic considerations) which are applicable to all home improvements including roofing projects. The specified roofing material should be appropriate for the architectural style of the building and of a quality that is typical of Hillsborough buildings.

**15.10 Energy Code** (The Town of Hillsborough has adopted the 2008 edition of the California Energy Code as incorporated by reference in the California Building Standards Code (California Code of Regulations, Title 24 part 6).

**15.10.060 Subchapter 8** (Low-rise residential buildings—Performance and Prescriptive compliance approaches).

**All roofing products must meet the mandatory requirements of Sect. 118(i) of the 2007 California Energy Code. In order to meet the requirements of Sect. 141, 142, 143(a)1, 149(b)1B, 151(f)12, 152(b)1H, or 152(b)2, a roofing product's thermal emittance and 3-year aged solar reflectance shall be certified and labeled according to the requirements of Sect. 10-113. Roofing products that are not certified according to Sect. 10-113 shall assume the following default aged reflectance/emittance values: 0.08/0.75 for Asphalt Shingles and 0.10/0.75 for All Other Roofing Products.**

#### **NEW ROOF**

Roofing products that are used for compliance with the standards (prescriptive and performance approaches) are required to be tested and labeled by the **COOL ROOF RATING COUNCIL (CRRC)** per section 10-113 and that liquid applied products meet minimum standards for performance and durability per section 118(i)4. The CRRC is the supervisory entity responsible for certifying cool roof products. The CRRC test procedure is documented in CRRC-1, the CRRC Product Rating Program Manual. This test procedure includes tests for both solar reflectance and thermal emittance. The roofing products manufacturer must have its roofing product tested for solar reflectance and thermal emittance, and be listed in the CRRC's Rated Product Directory ( <http://www.coolroofs.org>) and be labeled according to CRRC procedures.

#### **RE-ROOF**

When more than 50% of the exterior surface of the roof or more than 1000 sq.ft. of roof will be replaced, whichever is less, the altered exterior surface area of the existing roofs shall meet the following requirements:

- For alteration to steep-sloped roofs (rise to run greater than 2:12)
  - Roofing products with a density of 5 lbs p/sq.ft. or more, in Climate Zones 1 through 16 shall have a minimum 2-year Aged Solar Reflectance of 0.15 and a minimum Thermal Emittance of 0.75, or a minimum Solar Reflectance Index (SRI) of 10. Solar reflectance is based on the 3-year aged values.  
If the 3-year aged value is not available, then use the following equation:

$$\text{Aged Reflectance}_{\text{calculated}} = (0.2 + 0.7 [ P_{\text{initial}} - 0.21 ])$$

### **Alternatives and Exceptions**

- For steep-sloped roofs (>2:12), the following shall be considered equivalent to (an alternative) the cool roof requirements:
  - Insulation with a thermal resistance of at least 0.85 hr'ft<sup>2</sup>\*F/Btu or at least a ¾" air-space is added to the roof deck over an attic; or
  - Existing ducts in the attic are insulated and sealed according to Section 151(f)10; or
  - Buildings with at least R-30 ceiling insulation; or
  - Buildings with a radiant barrier in the attic meeting the requirements of Section 151(f)2; or
  - Buildings that have no ducts in the attic; or
- For low-sloped roofs (<2:12), buildings with no ducts in the attic are exempt from the cool roof requirements.

**15.04.130 Minimum Roof Classification.** All roof assemblies shall be Class A. All roof assemblies and roof coverings shall be tested in accordance with ASTM E 108 or UL 790. In addition, fire-retardant-treated wood roof coverings shall be tested in accordance with ASTM D 2898. The minimum roof coverings installed on buildings shall comply with the Table 1505.1 as amended. The entire roof covering of every existing structure where more than 50% of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class A.

1. Ladders provided for inspectors must have a minimum rating of 250 lbs., be tied in place and have a minimum of 3 rungs above the roof.
2. If an overlay is planned, a preinspection must be performed. There is a \$30 fee for this inspection, and the permit will not be issued until the preinspection has been performed and approved. The ICBO report must be provided at application.
3. If the roofing material is to change to a heavier material than was originally approved for the home, an engineer's evaluation and report will be required approving the heavier material for the existing roof structure.
4. Job card must be on site at all times and inspections should be called in at least 48 hours in advance.
5. Two inspections are required for roof smaller than 75 squares. The first inspection is an early in progress inspection. The following items shall be completed by the time the inspector arrives:
  - a. Old roofing completely removed and deck swept clean.
  - b. Any decking which is rotten or broken shall be removed and replaced.
  - c. Stucco at wall junctions shall be broken back to expose lathing.
  - d. The first courses of roofing material may be installed to verify class "A" roof assembly requirements

**The second and final inspection is to verify all of the following items have been completed:**

6. Clearance to combustible materials around flue pipes shall be a minimum of 1" for double walled flues, and minimum 6" for single walled flues. Flues shall be strapped or secured in place and shall be a minimum of 12" above the roof deck measured from the high side on roof less than 6:12. (Steeper roof require taller flues). This item to be checked prior to installation of new roofing materials.

7. At roof to wall or chimney junction, when exterior walls are stucco, flashings must be installed under lathing paper. Existing stucco must be broken out to expose lath at tear off inspection.
8. Lathing paper shall be installed with a minimum horizontal lap of 2" and a minimum vertical lap of 6". Wire lathe shall overlap a minimum of 1" horizontal and vertical. Lathing paper shall lap over flashing a minimum of 2".
9. At roof to wall or chimney junction, when exterior walls are wood siding, the flashing must be installed behind siding and paper. If a new section of siding is to be installed, z-bar shall be installed at the horizontal juncture.
10. Crickets shall be required at all flat area larger than 24" behind fireplace chimneys, skylights, mechanical equipment and similar items; they shall be slope a minimum of ¼" per foot.
11. If new plywood is installed, a nailing inspection is required.
  - a. Overdriven nails will not be allowed. These must be replaced.
  - b. When applying plywood over skip sheathing, use minimum 10d nails or ring shank 8d
  - c. Break sheet ends on rafters.
12. If roof slope is less than 4 in 12, and shingles are to be installed, underlayment must be a minimum of 2 layers of 15 lb. Felt, installed shingle fashion with 19" lap horizontally, per Table 15-B-1. Asphalt shingles not permitted at less than 2 in 12 pitch.
13. If there is mechanical equipment on the roof the following requirements must be met:
  - a. Access in the form of a fixed ladder must be provided.
  - b. Condensate drains must go to an approved receptor.
  - c. Conduit and piping must be strapped to approved blocks, masticed to roof.
14. If the roof has parapets, and there is the possibility that water may accumulate more than 2" inches, roof drains and secondary (overflow) drains or scuppers will be required, sized per the plumbing code.
  - a. Overflow drains shall have inlet flow line located 2 inches above the low point of the roof
  - b. Scuppers may be installed in lieu of overflow drains in an adjacent parapet wall. The scupper must be 3 times the size of the roof drain, with a minimum height of 4 inches.
  - c. Overflow drains shall drain to an approved open and obvious location and shall not be connected to the primary roof drain line.
15. All exposed nails are to be sealed with roofing mastic.
16. All ABS vent piping exposed above the roof shall be painted for protection against UV degradation.
17. Attic ventilation will need to meet the code minimum (1/150 of the area being ventilated or 1/300 with high and low ventilation with a ventilator) Verify that ventilation openings have not become blocked, or painted shut.
18. If ceiling insulation has become soaked, it must be replaced.

19. Safety requirements when using an asphalt kettle:
  - a. Provide a minimum 20-B-C fire extinguisher within 30 feet of the kettle when heat source is operating.
  - b. Provide a minimum 20-B-C fire extinguisher on the roof during coating operations.
  - c. Kettle must have a tight fitting cover
  - d. Kettles shall not be located within 20 feet of any combustible material or building surface.
20. When removing old roofing materials or gravel, avoid stockpiling of materials in one area, so as to not overload the roof structure. Also, when loading new materials onto the roof, be sure to evenly distribute them to avoid any concentrated loads.
21. Rusted or damaged flashings, vent caps, roof jacks, and edgings shall be replaced with new materials.
22. All new exposed lumber and newly installed stucco shall be sealed.
23. Electrical service drop anchor must be properly secured at final. PG&E will provide this service at no charge. Owner may contact PG&E at 1-800-743-5000
24. Spark arresters shall be installed at chimney tops on wood burning fireplaces when new roofing is installed. The minimum opening of the spark arrestor must be four times the diameter of the flu pipe. This item will be checked at final.

## **15.20 Fire Code**

**15.20.010** (The Town of Hillsborough has adopted the 2010 California Fire Code (International Fire Code, 2009 Edition as amended by the state of California).

New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted, shall comply with Section **704A.1---Roofing** of the 2010 California Building Code.

For complete information, refer to: ***Section 704A---MATERIALS, SYSTEMS AND METHODS OF CONSTRUCTION of the 2010 CBC.***