



26 Corte Madera Ave., Mill Valley, CA 94941  
Phone: (415) 388-4033

# UNVENTED ROOFS

## One & two family dwellings

### Updated for 2010 CRC

The following language is an excerpt from the Health and Safety Code of the State of California. These are the guidelines the Building Department is **required** to follow when approving alternate materials and methods of construction that do not meet the specific standards prescribed by the California Building Code.

*(e) (1) The provisions of this part are not intended to prevent the use of any manufactured home, mobile home, multiunit manufactured home, material, appliance, installation, device, arrangement, or method of construction not specifically prescribed by the California Building Standards Code or this part, provided that this alternate has been approved by the building department. (2) The building department of any city or county may approve an alternate material, appliance, installation, device, arrangement, method, or work on a case-by-case basis if it finds that the proposed design is satisfactory and that each such material, appliance, installation, device, arrangement, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed in the California Building Standards Code or this part in performance, safety, and for the protection of life and health. (3) The building department of any city or county shall require evidence that any material, appliance, installation, device, arrangement, or method of construction conforms to, or that the proposed alternate is at least equivalent to, the requirements of this part, building standards published in the California Building Standards Code, or the other rules and regulations promulgated pursuant to this part and in order to substantiate claims for alternates, the building department of any city or county may require tests as proof of compliance to be made at the expense of the owner or the owner's agent by an approved testing agency selected by the owner or the owner's agent.*

The requirements for vented roof assemblies have been revised for residential applications in the 2010 California Residential Code. The text applicable to these assemblies, CRC R806.4 is referenced below in bold:

**R806.4 Unvented attic assemblies. Unvented *attic* assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:**

- 1. The unvented *attic* space is completely contained within the *building thermal envelope*.**
- 2. No interior vapor retarders are installed on the ceiling side (*attic floor*) of the unvented *attic* assembly.**
- 3. Where wood shingles or shakes are used, a minimum ¼ inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.**
- 4. In California Climate Zones 14 and 16 any air-impermeable insulation shall be a vapor retarder, coating or covering in direct contact with the underside of the insulation. See Title 24, Part 6, Figure 101-A—California Climate Zones.**

5. Either Items 5.1, 5.2 or 5.3 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing. **No insulation shall be required when roof tiles, wood shingles or wood shakes, or any other roofing system using battens and no continuous underlayment is installed. A continuous layer shall be considered to exist if sheathing, roofing paper or any continuous layer which has a perm rate of no more than one perm under the dry cup method.**

1. **Air-impermeable insulation only.** Insulation shall be applied in direct contact with the underside of the structural roof sheathing.
2. **Air-permeable insulation only.** In addition to the air-permeable *insulation* installed directly below the structural sheathing, rigid board or sheet insulation *with an R-value of R-4* shall be installed directly above the structural roof sheathing for condensation control.
3. **Air-impermeable and air-permeable insulation.** The *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing for condensation control. The air-permeable insulation shall be installed directly under the *air-impermeable insulation*.

Note that the code language is specific as to what is considered “**Unvented attic assemblies**”; i.e., “**spaces between the ceiling joists of the top story and the roof rafters**”. Other conditions, such as an unvented *roof* assembly, that might exist in a vaulted or cathedral ceiling are not addressed.

In order to perform the due diligence mandated by law, the Building Department requires the applicant to submit specific evidence satisfactory to the Building Official that addresses how the proposed material will be equal in performance to Code-prescribed or generally accepted methodologies and standards.

In the case of an unvented roof assembly being proposed as an alternative methodology, the specific issue that must be addressed is the migration of moisture from the conditioned space/prevention of condensation within the assembly. The City of Mill Valley will accept a letter from a design professional (wet-signed and wet-stamped) or from a recognized manufacturer of the alternative material/methodology proposed (on company letterhead, wet-signed by a principal), verifying that the material/methodology prevents the migration of moisture from the conditioned space to the unvented rafter assembly; and that the alternative material/methodology is equal to or greater than the required venting as prescribed in CRC R806.1 **Ventilation Required**. The document shall address the specific issue of moisture migration as noted above. This document will become a part of the permanent building history.

**PLEASE NOTE:**

In any submission for the use of an alternative material/methodology, the Building Official reserves the right to: (a) require additional verification; or, (b) deny use of the material/methodology if, in their opinion, the information provided does not adequately address the issue in question.