

April 21, 2008

Jackalyne Pfannenstiel
California Energy Commission
1516 Ninth Street, MS-25
Sacramento, CA 95814

Dear Chairman:

I have reviewed the 15-day language for the 2008 Title 24 and have a few comments for the Energy Commission to consider. I noted an omission and have several recommendations to clarify several items related to roof design. My comments focus on Section 149 and are outlined below:

- 1) In Section 149, there seems to be an omission for the use of thermal mass over the roof membrane that is shown in Sections 143 and 151. It is recommended that the following be added to Section 149 at the location so noted
Exemption 3 to Section 149 (b)1B: Roof constructions that have thermal mass over the roof membrane with a weight of at least 25 lb/ft².

There is considerable explanation in Section 149 on the exceptions to adding insulation during the installation of a new roof on an existing building. Although some of the points are sound, there are several that do not include preferred roofing techniques or miss key parameters. Below are some recommendations to be included in the standard

- 2) The first item is the flashing termination on parapet walls. The requirement states that an 8-inch termination above the new roof surface must be maintained. Many parapets are designed at a foot or less initially before the roof is even installed for it is only a decoration to the building. At the same time, there are many roofs that only have gravel stops at the roof edge that are kept watertight with good design. The preferred method for flashing a parapet wall is to run the membrane up and over the parapet to assure watertightness (see attachments) with a coping placed over the membrane to finish the

edge. This is generally done on parapets up to 4-feet for this wall has been know to leak allowing water to get behind a flashing termination when done on the parapet wall. It is recommended that the parapet be separated from the penthouse and the follow language used.

EXCEPTION 4 to Section 149(b)1Biv: If adding the required insulation will reduce the base flashing height to less than 8 inches (203 mm) at the parapet walls, the roofing membrane shall be run up over the parapet wall and terminated to the top of the outside wall of the parapet. The parapet is to be finished with a coping metal or other material. However, the insulation being added may be limited to the maximum insulation thickness that will allow a height of 8 inches (203 mm) from the roof membrane surface to the top of the base flashing, provided that the conditions in subsections i through iii apply:

i. The exterior side of the parapet walls are finished with an exterior cladding material that must be removed to terminate the new roof covering membrane on the exterior side; and
ii. For nonresidential buildings, the ratio of the replaced roof area to the linear dimension of affected parapet walls shall be less than 25 square feet per linear foot for climate zones 2 and 10 through 16, and less than 100 square feet per linear foot for climate zones 1, and 3 though 9; and
iii. For high-rise residential buildings, hotels or motels, the ratio of the replaced roof area to the linear dimension of affected penthouse or parapet walls shall be less than 25 square feet per linear foot for all climate zones.

- 3) The next item deals with the 8-inch requirement for flashing terminations as the minimum design for roofing membranes. This is fine to include these design requirements but it is interesting that the standard for energy design is getting into building code design requirements. The standard should reference the California Uniform Building Code or the International Building Code, which ever the state or cities are enforcing, to handle these design items. One could find the two standards at odds with each other. However, if this is to be included in the standard, then the 8 inches is the minimum height for any termination so, when a roofing or general contractor finds that the existing flashing heights for the existing roof are below the 8-inch requirement, then the termination that is below 8 inches shall be raised to meet this 8 inch requirement taking into account the new roof with the added insulation. This should be a requirement and not an exception so it is recommended that the following modification to be included as stated below:

Section 149(b)1Biv. ~~When roofs are exposed to the roof deck or recover boards are exposed in~~For nonresidential buildings, and high-rise residential buildings and hotels and motels, when ~~with~~ low-sloped roofs are exposed to the roof deck or to the recover boards, the exposed area shall be insulated to the levels specified in Table 149-A. If the flashing terminations for penthouses or curbs on the existing roof are not 8 inches or greater from the existing roof surface before that initiation of the new roof installation, the termination heights at penthouse walls and curb heights shall be raised to achieve the 8 inch height taking into account the increase thickness of to the new roof and added insulation.

- 4) The *EXCEPTIONS 1 to Section 149(b)1Biv* that states new insulation is not needed if the existing roof has an R-value of 7 or greater seems out of sorts with the efforts of the addition of insulation to save energy. The 2005 Title 24 had the minimum insulation design at R -11 with a good majority at R – 19. The 2008 requirements has a minimum of an R- 13 with a majority at R – 25. Using the DOE Roof Calculator to give an example, the R-value of 7 versus the R-value of 11 will cost the owner and state 6900 BTU's//ft². Over the 20-year life of the roof, that is 138,000 BTU's/ft². Comparing R – 7 to R – 25, the energy cost would be 278,000 BTU's/ft². To give some scope to this impact, the average roof size we install is 25,000 ft². It is recommended that the exception should be maintained at least at the R – 11 value as originally written.

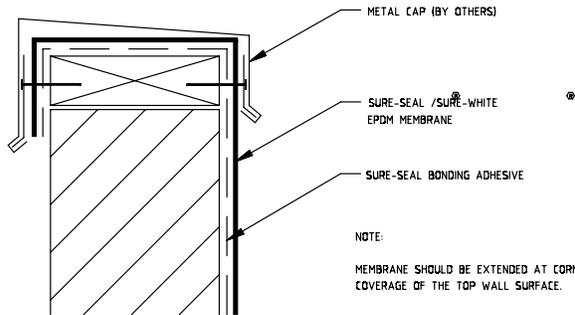
Thank you in advance for your consideration of these recommendations to the 2008 Title 24. This is always a major undertaking but California has shown the leadership to take on the effort to improve energy efficiency.

Best regards,



Richard J. Gillenwater

CC: P. Bozorgchami B. Pennington

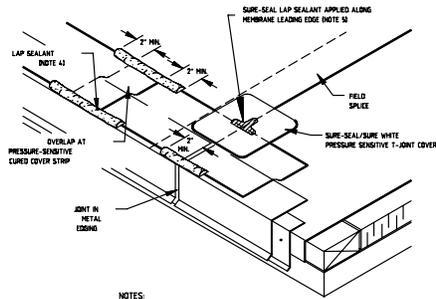
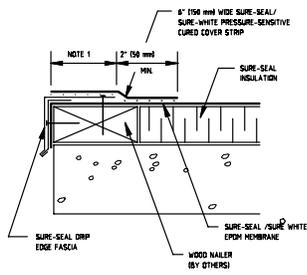


U-9-B
CAP FLASHING TERMINATION



PS-1-A (OPTION #1)

DETAIL NOT FOR USE WITH DESIGN "B" OR "C"

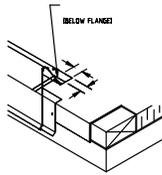
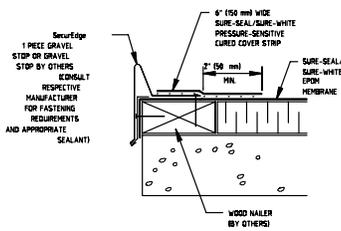


NOTES:

1. DECK FLANGE MUST BE TOTALLY COVERED BY PRESSURE-SENSITIVE FLASHING WITH MINIMUM 2" (50 mm) COVERAGE PAST NAIL HEADS.
2. TO REMOVE FINISHING OILS, SCRUB METAL FLANGE WITH WEATHERED MEMBRANE CLEANER; ALLOW TO DRY PRIOR TO APPLYING PRIMER.
3. APPLY SURE-SEAL PRIMER TO METAL FLANGE AND EPDM MEMBRANE SURFACE PRIOR TO INSTALLING PRESSURE-SENSITIVE FLASHING.
4. LAP SEALANT MUST BE APPLIED AT FLASHING OVERLAPS AND INTERSECTIONS WITH JOINTS IN METAL EDGING.
5. APPLY LAP SEALANT ALONG THE LEADING EDGE OF THE MEMBRANE SPLICE (UNDER THE 6" X 6" T-JOINT COVER) COVERING THE EXPOSED SPLICE TAPE 2" (50 mm) IN ALL DIRECTIONS FROM THE SPLICE INTERSECTION.
6. REFER TO APPLICABLE CARLISLE METAL EDGING INSTALLATION INSTRUCTION MANUAL FOR STEP-BY-STEP INSTALLATION PROCEDURES.

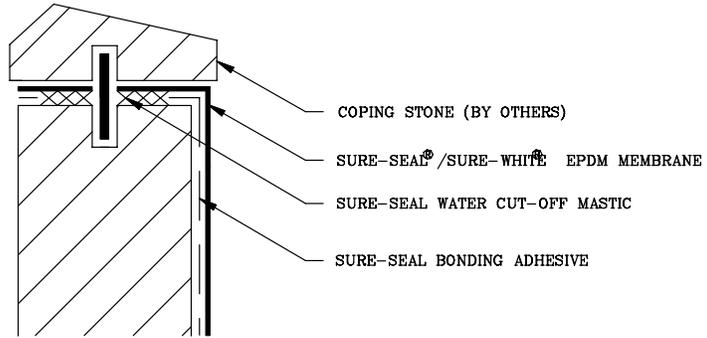
PS-1-A (OPTION #2)

DETAIL NOT FOR USE WITH DESIGN "C"



PS-1-A (OPTION 1 & 2)
METAL EDGE TERMINATION WITH
PRESSURE-SENSITIVE CURED COVER STRIP





U-G-E
COPING STONE TERMINATION

