Henry COMPANY

2 June 2005

Ms Elaine Hebert
California Energy Commission
1516 Ninth Street, MS-25
Sacramento, CA 95814

sent via email: ehebert@energy.state.ca.us

re: Comments on Title 24, Section 118(i) and Table 118-C

Dear Ms Hebert:

Henry Company is a California corporation. Our principal business is manufacturing roof coatings, sealants, and adhesives; we have three manufacturing facilities in California. Henry Company appreciates this opportunity to submit comments on this Section of the California Energy Code.

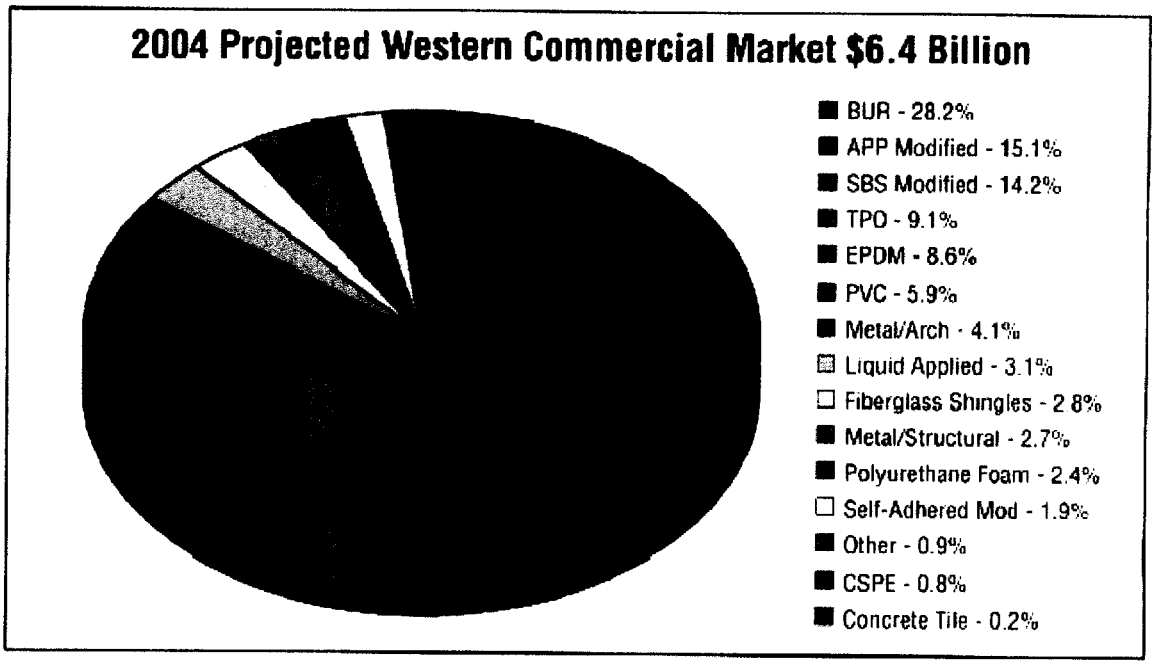
Our principal comment is what we offered two years ago – that the application rate and physical property requirements imposed by Section 118(i) 3 and by Table 118-C are unrelated to the quality, durability, or performance of roof coatings in general, and in many cases effectively mandate products which are inferior for specific applications.

We submit that a sufficient guarantee of the quality of a roof coating is that it is Rated by the CRRC to have the appropriate reflectance and emittance values, and that it is applied at the same rate as was used when producing the samples for the CRRC's Accredited Independent Testing Laboratory.

Since other entities have and will provide comments and testimony about various aspects of Section 118(i) 3 and Table 118-C, this letter will concentrate on only one factor – the mandated requirement for coating elongation – and the fact that different roof substrates require different properties in a successful reflective roof coating.

One roof coating product does not fit all applications. Henry produces about a dozen distinct white coating products, each optimized for performance over a specific substrate. Constraining the design of the coatings to meet the mandates of Section 118(i) restricts these products to a limited range of properties which will provide inferior performance over common roof surfaces.

The first attached Figure, courtesy of *Western Roofing, Insulation, & Siding*, identifies the broad range of low-slope roof technologies to which coatings will be applied. Each of these surfaces presents different challenges to the coating formulator.



Distribution of Low Slope Roofing Technologies in the Western States

from *Western Roofing, Insulation, & Siding*, Nov/Dec 2004, p. 32, with permission

Sprayed polyurethane foam roof systems represent one technical extreme of the roofing market. SPF represents ~2.4% of all commercial roofing in the state. These roofs must be coated immediately to protect the polyurethane from UV. Because foam has an unusually high coefficient of thermal expansion, coatings designed for SPF require substantial elongation even at cold temperatures to minimize the mechanical stresses on the roof system. However, in addition to providing adhesion to polyurethane and the necessary elongation, the coating must be designed to allow successful application under the climate conditions of the work site, and in some cases to provide resistance to specific environmental conditions. To meet these additional requirements, Henry Company provides half a dozen distinct coatings – not counting base coats or color variations – for this one "simple" substrate.

At the other extreme of technical constraints are the asphaltic roof systems – BUR, APP, SBS, and the self-adhered variants. These account for ~60% of the existing roof substrates to be coated. Asphalt presents unique challenges to the formulator, but elongation, especially for glass-reinforced substrates, is not a significant driver.

Achieving high cold-temperature elongation in an acrylic coating generally requires two things – using a very soft polymer as the binder, and reducing the pigment:binder ratio. Both of these design features tend to increase dirt pickup; they also tend to increase asphalt bleed through.

As an example of the latter factor, the second Figure is a photograph of various white acrylics applied over asphalt and subjected to a rapid aging protocol to measure asphalt bleed.

Asphalt Bleed Test Panel

All of the coatings shown were stark white when initially applied. The only difference between the production coating on the left and the next two is that the latter use softer polymers. None of the coatings shown would have met the elongation requirements of Section 118(i).

In conclusion, we would like to reiterate that there are no "generic" white roof coatings. Each product is formulated for use over specific roofing substrates under specific environmental conditions. Requiring a coating to also meet the various mandates in Section 118(i) 3 and Table 118-C over-constrains the design and may result in inferior long-term performance of the product.

If you have any questions, please call me at (323) 908-5279.

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