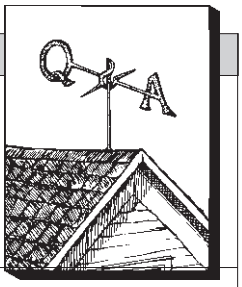
Why Go for Low-E?



by Hank Spies

Explaining Low-E

Q. *How can I explain how "low-e" glass works to the average homeowner?*

A. "Low-e" or low-emissivity glass transmits some wavelengths of light and reflects others. It is made with a special coating on the inside surface of one of the panes of glass in sealed double-glazing units. The coating is a "metal oxide", only a few atoms thick.

In general, a low-e coating reflects back most of the infrared light (invisible heat radiation) that strikes it, while allowing most of the visible light to pass through. The glass bounces radiant heat back to its source, just like a mirror. This saves energy in winter, since radiant heat from inside the house is reflected back inside rather than being lost to the outdoors. In summer, low-e also helps by reflecting a portion of the sun's radiant heat away from the windows, reducing heat gain. Another advantage of low-e is that it reduces the transmission of ultraviolet light, which causes household furnishings to fade.

Stair Finish

Q. *What finish would be most durable for exterior stair treads made of white oak?*

A. If a natural wood appearance is desired, a urethane-based marine varnish would probably be the best choice. Otherwise, a porch and deck paint containing non-slip granules would work well. In either case, the ends and back of the oak should be sealed as well to keep the treads from checking and cupping.

Roof Underlayment

Q. *I wish to use a modified-bitumen roof underlayment (such as W.R. Grace's Ice and Water Shield or GAF's Weather Watch Ice and Water Barrier) over stress-skin panels. Will this cause any problems with the oriented-strand board or plywood skin?*

A. There should be no problems from the modified bitumen on the panel skin. A standard modified-bitumen roofing material can be used, or one of the products specially made for the purpose of protecting against ice damming. The difference is that the specialty products are usually thinner, and they do not have the ultraviolet resistance that is necessary for exposed roofing materials.

Uncollared Cathedral Ceiling

Q. *Can a cathedral ceiling be framed without collar ties? Won't the walls eventually get pushed out?*

A. The only way to frame a cathedral ceiling without some form of trusses or collar ties is to use a structural ridge beam to support the upper ends of the rafters, just as in post-and-beam framing. If the upper ends of the rafters are supported, and the ridge beam is heavy enough to carry the load, there is no thrust against the walls.

Ventilation Obstacles

Q. *I am working on a 150-year old, high-posted Maine cape that needs more ventilation in the attic. I cannot use a ridge vent because the ridge beam is a 4x4 set square to the rafters. And at each gable end there is a chimney set in from the exterior about 10 inches. Can I use a gable-end vent in front of these chimneys? If so, do they need to be oversized to overcome the restricted air flow?*

A. Gable-end vents can be used, and yes, they should be oversized because of the flow restriction. However, there should also be a drip-edge vent, soffit vent, or low roof vent. These are needed to provide airflow in the attic from both convection and wind pressure. If a drip-edge vent is used, the fascia must be installed at least 3/4 inch below the bottom of the roof sheathing to allow space for air to flow. A gutter or snow deflector is recommended to prevent rain and snow infiltration.

Preparing for Licensing

Q. *I live in a state that does not require builder licensing. In light of upcoming legislation, however, I am interested in learning how to prepare for licensing examinations. Are there preparatory books available to the builder?*

A. There are books that outline the licensing requirements and examination in each state that requires an examination. Unfortunately, these usually become available just after the first exam. In the meantime, there are books available from other states that already have such an exam, although the sections on hurricane construction in Florida or seismic construction in California may not apply. These books usually have typical questions and answers, and general information upon which the examination will be based. Often they are issued by the department administering the examination. Sometimes they are available from private publishers or trade unions. The one published by the California Contractors' License Service (Santa Ana, CA) is a good place to start. ■

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