



California standards

California's long planned overhaul of window, U-value standards, along with utility incentive programs, will go into effect this July. An expected labelling program has been postponed to January, though, to coincide with U.S.-wide labelling efforts.

Centre-of-glass prescriptive standards will be replaced by overall U-value performance. Combined with other new residential conservation measures, the changes should result in a 10 percent energy saving over 1988 standards, and a full 80 percent over 1975 levels.

The new standard will call for three levels of minimum U-value, depending on climate zone. Mountainous areas will be required to meet a .60 minimum. North coast, central valley, and desert areas have been set at .65, and the coastal area from San Francisco's Golden Gate Bridge down to Mexico is .75.

The values were set to permit aluminum window manufacturers to remain in the market, says Nehemiah Stone of the Building and Appliance Efficiency Office of the California Energy Commission in Sacramento.

The product descriptor for the .75 minimum allows for a solid aluminum frame with no more than 1.25" of exterior metal, a .5 inch air space, and either low-e or argon gas fill.

A .65 can be either solid aluminum, "with all the bells and whistles you can think of," says Stone, or a thermally-broken frame, plus .5 inch air space. A .60 unit must be thermally-broken, with low-e and argon gas fill.

To comply products must either be under NFRC test procedures or use default tables set in advance to represent the worst case scenario for any different frame material.

State utility incentives have also been revised to reflect the new minimums. The most aggressive being Pacific Gas & Electric with five performance levels ranging from .55 to .30, for which \$1.50-\$3.50/sq.ft. will be offered.

Warm edge is both real and simulatable, concludes Swiss/Canadian research labs

Warm-edge technology is real, and computer programs can accurately simulate it, concludes a January report of a joint measurement and simulation effort by Swiss and Canadian research laboratories.

Six months of U-value testing of four types of specially prepared IG units was carried out by Canada's National Research Council in Ottawa.

Meanwhile, computer simulation of the same units, using Norwegian-developed software called KOBUR 86, was undertaken by EMPA, the Swiss Federal Laboratories for Materials Testing & Research in Dübendorf.

As shown above, units fitted with Super Spacer outperformed all others, which included both metal and thermally-broken metal spacers, as well as Swiggle Strip's corrugated metal product.

Swiss interest in the subject was in part determined by an uncertainty as to how well simulated results would match up with the real thing, says EMPA engineer, Thomas Frank.

"It was also surprising to me that in Canada and the U.S. most of these new spacer types are already on the market," he says, "and so these results are important, especially in Europe, so that our manufacturers become aware that there are solutions to their problems."

With 60 percent of Switzerland's IG market now using low-e, things are well on their way, he says, "but we still have to deal with a lot of surface condensation problems along the glass edge."

While the NRC/EMPA test results came out as many expected, one controversy has arisen over how the Swiggle Strip units were configured. Diagrams in the report indicate that a butyl-filled

space of 1.1 mm was left between the corrugated metal strip and the glass edge, a distance that is some 120 percent greater than appears in regularly manufactured units of this size.

"Our understanding is that there is a .5 mm spacing, and that's the value we always use in our FRAME program," says Al McGowan of Enermodal Engineering, the Waterloo, Ont. developers of this widely-used perimeter-edge software. "In some cases, manufacturers squash the glass down flat, and don't stop until they see the metal," he adds.

This is a point that Edgetech has made many times, says company technical director, Michael Glover, "so the even wider space of 1.1 mm that Swiggle submitted for NRC/EMPA testing is utterly ridiculous."

NRC spokesman, Hakim Elmandy refuses to become embroiled in the discussion, though, saying only that, "What we tested was only what the companies gave us. I'm not in a position to pass judgement on whether one of them spent too much effort in giving us a Cadillac of a unit," he adds. "That's between them and their conscience."

Equibuilt handles 60% humidity challenge

When Equibuilt Window Systems of Edmonton responded to retired engineer, Doug McKim's, request for some 250 sq.ft of high performance windows, last fall, uppermost in the company's mind was

attempting to meet one overriding condition related to his wife's chronic bronchitis and asthma condition.

Not only did the products have to excel thermally in the McKim's newly-renovated, three-bedroom bungalow, they had to remain condensation-free at indoor-humidity levels of 60 standard requirement would be.

To meet the challenge, Equibuilt fabricated two versions of its triple-paned, vinyl-framed units. Using Super Spacer throughout, those destined for the home's north side were fitted with twin low-e coatings and double argon gas-fill, while those planned for the south had only one combination of low-e and argon.

Thermally, the problem was licked. This would be a cosy home no matter what, but when it came



guaranteeing condensation-free performance, the Edgetech spacer alone was going to have to deliver on its warm-edge promise, "And it did."

"Absolutely none," is Equibuilt design consultant Jacques Boulet's, description of the winter's events, even on the coldest days, which more

than once dipped down to -30 C in the Alberta capital.

Even when pushed to the extreme, one window's exposure to steam-like conditions emanating from a nearby shower momentarily showed a very light bottom-edge mist, says Boulet. It promptly disappeared, however, as soon as a door was opened.

Thoroughly impressed with both product performance and company service, homeowner McKim, who had spent considerable time and effort sounding out various firms, enthusiasm in a fashion all companies appreciate.

"Our decision to have Equibuilt fabricate and install all the window needs in our 1967 Perry built home has proved to have been the RIGHT DECISION without equivocation."

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