



by MARGARET WEBB

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# 25 years of proof

**F**inally, the validation is here. It was a long process, but rewarding. Now we have the documentation that proves that higher levels of testing and certification in fact result in better performing insulating glass units when tested and certified. The IGMA 25-Year Field Correlation Study brings real-world performance and results to further establish a case for quality, tested and certified insulating glass units.

The purpose of the project was to determine the correlation of actual, in-service, IG unit failures to the ASTM E 773 Test Method and the E 774 Specification for Classes C, CB, and CBA.

IG units are unique in the realm of manufactured products and the IGMA 25-Year Field Correlation Study established baseline and ongoing quantitative statistics on long-term performance. IG units are a large product with a hermetic seal and are installed in harsh environments subject to ultraviolet rays, water, extreme temperature changes and even oscillating loads. IG units can also be exposed to organic adhesive materials and are often fixed in place by an unknown framing material. Comparisons can be difficult as these units are commonly installed in different environments and under numerous other conditions (frames, locations and facing different directions).

IGMA, which was the Sealed Insulating Glass Manufacturers Association (SIGMA) when the study was first initiated, now has the quantitative results that prove sealed IG units tested and certified to the most stringent industry standards carry better in-the-field performance than those that are not. The study was an ambitious project that examined in-service insulating glass units in specific residential and commercial buildings in various locations across the United States. It

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IGMA

was begun in 1980 with reports issued at the 10, 15 and finally, 25-year marks. The study was based on long-term analysis of in-the-field building performance and examined in-service insulating glass units in specific residential and commercial buildings located in all regions of the U.S. Almost all the units studied faced south or southwest. Visual inspections were completed eight times during the first 10 years and again at the 15- and 25-year points.

Although applications were wide-ranging, actual performance varied little from hot to cold or wet to dry climates, or from sea level to mountain exposures. Eighty per cent of the buildings had no insulating glass failures after 25 years. Glazing systems that held water at or near the edge sealant had accelerated 60 per cent of the failures that did occur in the remaining buildings. The importance of managing water in the glazing cavity is a critical factor in the performance and longevity of certified insulating glass units. Water held at or near the edge seal of an insulating glass unit will result in premature failure, cause structural damage to the glazing system and may result in the formation of mold. The formation of mold and its effect on the occupants of a structure continues to be a prime health and safety concern for architects when designing buildings.

Based on the information obtained from the 25-year data, it is estimated that the failure rate of C and CB units is in excess of 20 per cent, due to the number of buildings re-glazed and known systems that were not properly performing to keep water away from the insulating glass edge. In addition, the number of C and CB units demonstrating failure in the 25-year study (14 per cent) had approximately three to four times the number of failures of the CBA units (3.6 per cent). This clearly demonstrates that those units that achieved the CBA or the highest level of certification outperformed the units that had only achieved the C or CB level of certification.

IGMA's recommendation: IG units should be certified to the ASTM E 2190 Standard (replacing the ASTM E 774 and CGSB 12.8 Standards) for improved long-term durability against failure and including glazing of units in accordance with IGMA standards. Look for the visible "seal of approval": a marking on the window spacer between the glass or etched directly on the glass identifying the manufacturer, plant location, certification program and date of manufacture. •