

IG Repair Company Debuts Repair Process; Raises Industry Concern

Glas-Weld Systems and Crystal Clear Window Works (CCWW) have developed a strategic partnership under which the two companies will jointly market their glass-scratch removal and failed insulating glass (IG) repair services through an authorized dealer network.

Canadian-based Crystal Clear plans to appoint 250 dealerships in the United States over the next 12 months, and will offer its repair services for failed IG units as well as Glas-Weld's Scratch-Weld glass scratch removal system.

Glas-Weld will provide training services for dealers in a new 3,000-square-foot facility at its headquarters in Bend, Ore. Together, the two companies will market the business opportunity for authorized CCWW dealerships and provide training and certification in the new Glas-Weld facility.

The Process

The CCWW IG repair process is designed to eliminate the moisture and subsequent fogging that occurs in defective thermal-pane windows with the ability to restore both optical clarity and R-value. According to CCWW, repair prices are generally half the cost of replacement for an IG unit.

"With more than 250 million failed units in the United States annually, the market potential ... is huge. By repairing windows rather than replacing them, we hope to keep as many windows out of our landfills as possible and reduce the out-of-pocket costs to consumers by 50 percent," stated Mike Boyle, president of Glas-Weld Systems Inc. "We

are so confident in the process that the work is guaranteed for 20 years."

The Crystal Clear process involves the installation of a patented Defogger valve. Sunlight increases pressure in the window by evaporating water droplets and the pressure expels water vapor through the valve, drying out the window. Once the water is gone, the Defogger valve becomes dormant, sealing the enclosed air space. In this state, the thermal R-value of the window is identical to any other window. The final product is a vented window that the company guarantees to not fail.

The Concerns

Not everyone, though, is confident about the new process. CCWW made a presentation before the Insulating Glass Manufacturers Alliance (IGMA) at the group's meeting last year in Kissimmee, Fla. Margaret Webb, IGMA executive director, said that there are "some concerns" about the process.

"There is no technical information on which to assess it, and it doesn't investigate the original cause of the failure," she said.

John Hennessy, president and chief executive officer of CCWW acknowledged that at the present time the company has not performed any independent laboratory testing, but said it does have technical information and proprietary laboratory testing based on simple scientific principles and formulas.

"This test data and our in-field observations



(above and right) The CCWW process begins with an assessment of the IG. The process is designed to remove moisture and fogging from failed IG units.



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allow [us] to substantiate our claims," Hennessy said, but added that the testing was not done in an accredited IGU testing lab or in compliance with current ASTM procedures.

Though the process certainly may be able to eliminate fog in a failed IGU unit, there may also be concern the fog may return or the unit may fail for other reasons if the original cause of the failure is not corrected.

"Some units fail because they are poorly glazed and the resulting stress can cause failures to occur; some fail because the unit is poorly installed; some fail because the weep holes are blocked and it is standing in water," said Webb. "Without investigating what the cause of the unit failure was, it would be more difficult to say it won't fail again in the future."

Hennessy disagrees.

"CCWW does investigate the cause of seal failure ... [our company] is developing a significant database and knowledge base in that regard, and we are tracking the type of windows and IGUs by manufacturer, construction methods and seal failure," he said. "Unfortunately, we see evidence of poor manufacturing and quality control procedures, incompatible or insufficient adhesives and seals, mishandling during transportation, poor installation of an IGU within a window system, open capillary tubes, clogged weep holes and hollow spacers void of desiccants, etc."

He explained that his company's process re-engineers an IGU ... by eliminating the mechanical conditions that created the seal failure in the first place, such as a breach in the seals or diffusion of moisture through progressively weakened seals.



The CCWW process is applied to failed IGU units (right) to remove fogging that may have occurred (above).



"This process [prevents] an IGU from creating positive or negative deflection of the lites due to atmospheric and/or temperate changes that appear to be the primary reason for moisture ingress into the IGU. We have eliminated the most prevalent reason of IGU failure and the occurrence of re-fogging is virtually eliminated," he added.

Testing Procedures

Another concern, according to Webb, is that repaired units are not tested to comply with the ASTM E 2190 standard.

Hennessy explained that CCWW has committed to independent technical evaluation and the results are expected this fall. The following will be included as part of the evaluations:

- **Laboratory accelerated performance assessment:** Accelerated testing to the accepted North American (ASTM E 2190) sealed, insulating glass unit performance standards and the European Union (EN-1279-2) standards;
- **Windload performance assessment:** Testing to accepted North American (ASTM E 997) glass wind load test standards;
- **Thermal performance assessment:** Thermal performance assessment via infra-red thermography (ASTM C 1155) and guarded hot box method (ASTM C 1199); and

- **Controlled outdoor exposure performance assessment:** Laboratory controlled outdoor exposure testing with real time exposure and data collection to monitor performance.

Other Issues

Questions about the process have also been raised because holes are drilled into the top and bottom of the unit, making the top hole a vent, and allowing for the loss of gas.

"CCWW concedes that if we access an IGU by drilling the glass, which has gas in it, the gas will obviously escape and any potential benefit of the gas will be lost," said Hennessy. "However, it stands to reason that if the seal has failed the gas is gone or diluted well before any condensation or damage was evidenced. Furthermore, CCWW maintains that there is no reliable or economical 'in field' test method to determine if gas is indeed present and what concentration of gas remains in the unit; we simply do not know how much (if any) gas remains in the unit."

He continued, "For the most part consumers and commercial property managers are less concerned about gas escaping than they are about removing the condensation and chemical fogging in the window. They simply want to be able to see out of the window."

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