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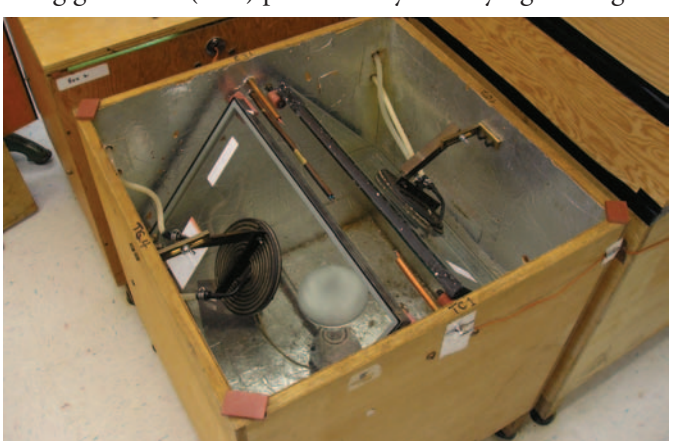
Certification FOR DUMMIES

How to Certify an Insulating Glass Unit and Why You Should

by Margaret Webb

The Insulating Glass Manufacturers Alliance (IGMA) Certification Program for the ASTM E 2190 standard, the Harmonized Insulating Glass Standard—HIGS as it is known in the industry—was developed over a two-year period. Included in this development were reviews of existing insulating glass certification programs, stakeholder consultation and pilot testing to ensure that the final program met industry needs. Launched in February 2003, this program continues to evolve and grow.

Why do insulating glass manufacturers certify their products? As a general statement, irrespective of industry affiliation, manufacturers who certify their products demonstrate commitment to their customers and their products. Certification provides assurance to customers, whether they are window and door manufacturers, building code officials, architects and specifiers or home buyers, that the insulating glass unit (IGU) product they are buying is designed to meet or exceed the applicable code or standard.



The volatile fogging box is one of the tests for IG certification.

As more and more states are adopting the new energy codes there is an increased demand for thermal performance certification. Hand in hand with that is longevity. That is what IG certification is all about—testing the durability of the edge seal system.

Both Simple and Complex

In simple terms, products are certified to the applicable standard by testing specimens, conducting on-going inspection of production facilities and testing samples periodically to ensure that products conform to the standard, the certification program requirements and the manufacturer's specifications.

The actual administration and maintenance of the program can be quite complex. Administering the program requires a variety of forms, determination of re-certification, noting changes in the product line configuration that require re-certification and which ones are considered equivalent, gas filling, maintenance of the program documents and database and coordination of all the information.

While certification programs may vary slightly in the use of forms or program requirements, overall four parties are involved in the process: the program administrator, the auditor or inspector, approved laboratory test facilities and, the driving force behind the creation of any certification program, the manufacturer.

Areas of Certification

The certification cycle typically consists of three areas, all under the mandate and coordination of an administrator:

- Manufacturers produce insulating glass units;
- Auditors inspect units to ensure conformity to the manufacturer's specifications and program requirements; and

In accordance with ASTM E2190, IG units must undergo weather cycling in a testing chamber.

existing product undergoing re-certification, the auditor contacts the manufacturer to arrange a mutually convenient date and time. The manufacturer is responsible for packaging and shipping their test units to an approved laboratory. A copy of the completed audit form accompanies the test samples so that the laboratory can verify that the samples received are those that were fabricated and witnessed by the auditor.

Under the ASTM E 2190 standard, 12 or 14 (minimum) fabricated test units are required for testing. The auditor verifies that the test specimens are as specified under section 5.0 of ASTM E 2190 and fully representative of the manufacturer's standard production units with regard to design and construction.

The administrator receives and records the information issued by the laboratory such as initial acknowledgement of receipt of the test specimens, initial test reports recording dew points, data summary sheets and the final test report indicating whether the test units have passed or failed the testing criteria. These reports show the results of testing for the weather-cycling, high humidity, volatile fogging and (if applicable) percentage of initial gas fill.

Completing the Tests

The test procedure takes 139 days to complete. An initial dew point determination is done on all 12 units when first received. Test units undergoing initial fill certification are sampled after the initial dew point is determined. The remainder of the testing is conducted on eight of the 12 samples, selected at random. Six units are tested for initial high humidity for 14 days, followed by 63 days of weather cycling. Two different units undergo the volatile fogging box procedure. An intermediate dew point is determined at the end of these tests. The units then undergo a second exposure to high humidity for an additional 28 days. A final dew point is taken at the end of this cycle and a final gas fill is also recorded for those units under the IGMA certification program.

Once certification has been achieved, unannounced periodic inspections are carried out in order to ensure the continued compliance of the certified product. For each product line, the administrator will compare the information recorded by the auditor against the product database. Changes in the plant contact person, change of component supplier or in the components are all recorded in the database. The administrator contacts the manufacturer regarding changes that require re-certification. The Insulating Glass Certification Council (IGCC) "Always and Never Guidelines" were adopted by IGMA in February 2003. These guidelines provide guidance to manufacturers in determining equivalent and non-equivalent product line changes. If the auditor has noted an area of non-compliance, they will contact the manufacturer detailing the area of non-compliance and indicating the maximum time period available to the manufacturer to correct the problem.

Product certification is a requirement for membership in IGMA; however, the reverse is not true. IGMA welcomes participation from all insulating glass manufacturers regardless of their membership status.

Effective January 1, 2005, the IGMA Certification Program is being administered by IGCC; however, IGMA also recognizes the IGCC, ALI and NAMI certification programs as meeting the requirements for membership in IGMA. Further information on the IGMA program can be obtained by contacting the IGMA or IGCC administrative offices. ■

the author

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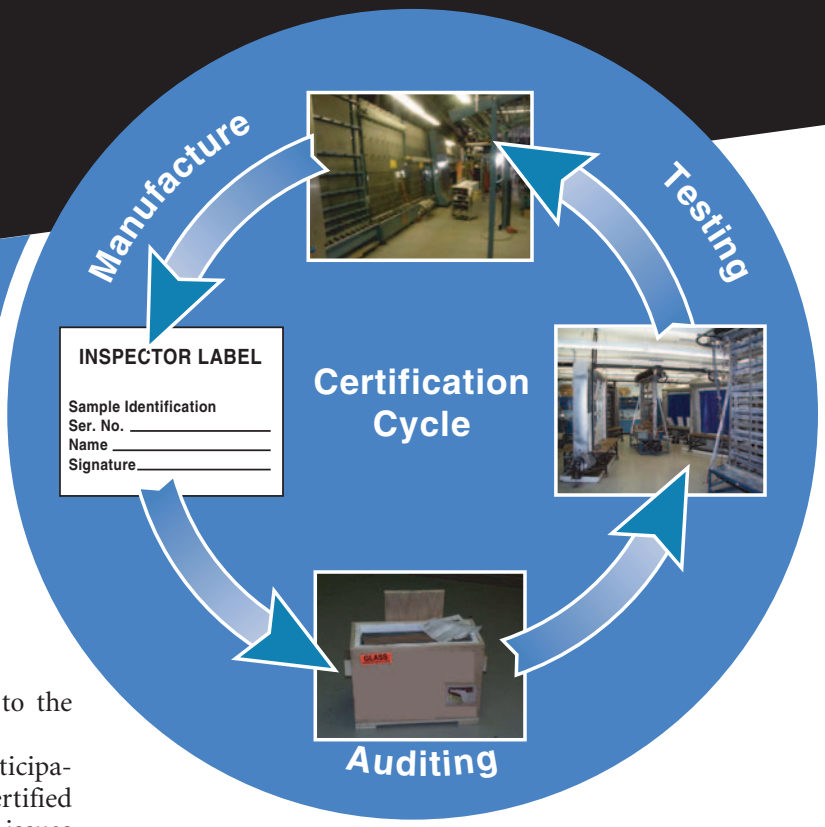

- Approved test laboratories ensure conformance to the applicable test standard.

The administrator accepts new applications for participation, issues periodic audit report forms for new and certified products, records non-compliances to the program, issues or withdraws certification, manages appeals and acts as a liaison to supporting committees and governing bodies.

The two most commonly used forms are the certification program application form and the certification program audit report. The application form provides the administrator with the company information as well as the specific product configuration to be certified such as type of connector, spacer, desiccant and sealant system plus, if applicable, gas filling. Information on coatings and glazing is also requested under the IGMA certification program. This information is entered into the audit report form and sent to the designated field auditor who will witness the fabrication of test specimens to be submitted for testing. For an existing certified product, the audit form contains this information as well as information recorded previously during prior audits. The auditor compares the information from the program database to the manufacturer's actual production to ensure compliance to the program. The auditor also verifies that the manufacturer is in compliance with the program's quality assurance requirements, which vary from program to program. Under the IGMA program, 16 of the 20 elements necessary for ISO 9000 certification are required.

ASTM E 2190-02 (HIGS)
DATA SUMMARY
IGMA Certification No.: xxxxx

Company Name *XYZ Manufacturer Ltd.*
Address 1 *123 Main Street*
Address 2 *Some City, Province / State*
Address 3 *Postal / Zip Code*
Attention: *Plant Contact Person*
Septum Plug: N/A / Not Used / Snap Fit Plug Used

Set Number: *Lab ID #*
Manufactured:
Report No.:
Report Date:

Unit		Initial Dew Point (°C) *		Initial Gas Content **		Initial High Humidity (14 Days) ASTM E 2188-02	Weather Cycling (63 Days) ASTM E 2188-02 /Fog Test	Intermediate Dew Point (°C) *		Final High Humidity (28 Days) ASTM E 2188-02	Final Dew Point (°C) *		Final Gas Content**		Comments
No	Auditor's No.	A Side	B Side	A Side	B Side			A Side	B Side		A Side	B Side	A Side	B Side	
1						Pass/Fail	WCT								
2						Pass/Fail	WCT								
3						Pass/Fail	WCT								
4						Pass/Fail	WCT								
5						Pass/Fail	Fog Test								
6						Pass/Fail	Fog Test								
7						Pass/Fail	WCT								
8						Pass/Fail	WCT								
9															
10															
11															
12															
		Average:									Average:				

*NF = No visible fog or deposit at -73°C
V = Visible deposit when viewed from angle
SL = Septum Leak (septum application problems)
# = No pass/fail criteria
NLD = No leak detected
WPC = Water Present in Cavity
** = CGSB-12.8-97 (Avg. ≥ 90% v/v Required)
NC = Not completed at request of manufacturer

The chart above is an example of a HIGS data summary.

Quality Assurance

A formal quality assurance program gives manufacturers control over the supply chain, whether it is a receipt of materials, component testing, control of production processes, control of non-conforming product, inspection of final units or customer inquiries.

Certification programs require that fabrication of test samples be witnessed by independent auditors prior to the actual physical testing at approved laboratories. Upon successful completion of testing and fulfillment of the program requirements, the product is certified.

For a facility audit, whether it is a new or

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