




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ID-155 IGCC®/IGMA® Certification Program Requirements Summary

Testing to ASTM E 2190 (as of 1/17/18)

		IGCC/IGMA Certification	
Standard Sample Fabrication Requirements	Double Pane	Triple Pane	
	<ul style="list-style-type: none"> 13 units minimum, 14 x 20 inches (G.6) When testing Internal components, 3 units must include IC 4mm (5/32-in.) glass with 12mm (1/2-in.) airspace or 5mm (3/16-in.) glass with 6mm (1/4-in.) airspace 	<ul style="list-style-type: none"> 15 units minimum, 14 X 20 inches; (G.6) When testing Internal components, 5 units must include IC <ul style="list-style-type: none"> 4mm (5/32-in.) glass and 6mm (1/4-in.) airspace When testing IC, coated glass, the 10 non-IC units shall have the coated glass on the interior lite (3 or 4 surface), and the 5 IC units shall have coated glass on at least one outboard lite 	
	<ul style="list-style-type: none"> Glass and/or airspace thickness(es) may increase from these standard size constructions but this may result in a more rigorous test Glass thickness tolerance shall be per ASTM C1036; airspace tolerance shall be $\pm 0.8\text{mm}$ (1/32-in.) <ul style="list-style-type: none"> When testing for gas content, all units must be fabricated with gas 		
Frequency of testing	After initial certification (Prototype) testing, ASTM E2190 testing shall occur annually for the first 2 years of certification. If no failures occur, then testing may occur once every 2 years, at the discretion of the participant.		
Quality Assurance Requirements	Participating company QA systems shall comply with IGMA TM-4000 which establishes requirements for the following:		
	Quality System Manual	Calibration	Field Service
	Designated Contact for QA	Non-Conforming Products and Corrective Action	Internal Quality Audits
	Process Control Procedures	Storage and Handling	Documented Training
	Inspection and Testing for: connector/spacer, primary seal, secondary seal, desiccant, glass, gas filling, finished product	Expiration Dates	Statistical Techniques
Finished Product Labeling Requirements	<ul style="list-style-type: none"> Company Identification Plant Identification (only if multiple locations) <ul style="list-style-type: none"> IGCC®/IGMA® certification mark Date code (Year of manufacture ± 3 months) 		<p>EXAMPLE</p> <p>ABC Glass plant 123 IGCC®/IGMA® 2018</p>

Corners and Connectors	The maximum number of mechanical connectors (MC) shall be tested. Once certified, corners or connections may be changed from mechanical connections (MC) to bent-uncut corners (BC), using the same IGCC®/IGMA® number.
Coated Glass Test Requirements	(G.19) Test units shall include one lite of coated glass per test sample. Only the highest volume coated product need be tested. Testing of sputter coated non-edge deleted (C3) will cover sputter coated edge deleted (C2), Pyrolytic (C1) and uncoated (clear). Testing of sputter coated edge deleted (C2) will cover Pyrolytic (C1) and uncoated (clear). Testing of Pyrolytic (C1) will cover Pyrolytic and uncoated (clear). Testing uncoated (clear) will only cover uncoated (clear).
Internal Components (Grills, Muntins, Other)	 <p>(G.8) Minimum of 3 of 13 test units to include IC at the time of durability fabrication (muntins in 3 X 3 configuration or #) Units with IC are used for FOG testing. For Triple Pane Units...5 of 15 units shall include IC THESE UNITS ARE NOT SUBJECT TO GAS CONTENT CERTIFICATION PROGRAM REQUIREMENTS</p>
Multiple Air Space Units (Triple Pane)	(G. 15) Multiple Air Spaces - Multiple air space units may be certified with the same certification number as single air space units, provided that the construction of each space complies with the guidelines for single space units; pressure communication of spaces is permitted, but not required. For all new certified products and currently certified products after 1/1/09 testing of multiple air space units shall be performed initially and in lieu of single air space unit testing at least once each four (4) years.
Aperture Plug (gas filling provisions)	(G.27) Construction of annual test units shall include any provisions for gas filling of units for durability testing. At the option of the mfr, units may or may not include gas if only testing for durability. If also gas content testing, then all units must contain gas.
Capillary Tubes	(G.0) Initial test only
Breather Tubes	(G.1) Not required to test
No. of test units that can be fabricated	<p>(G.6) No more than 4 additional test units shall be labeled by the auditor for testing (13 units required for double pane and 15 units required for triple pane). When gas content testing (GCIA), ship the additional auditor “labeled” units to the testing laboratory.</p> <p>Make-up of these 4 additional is at the discretion of the manufacturer and may contain internal components or not, in any combination. The manufacturer may send in only the minimum 13 for dual, or 15 for triples, regardless of extra labeled units being fabricated.</p>
Gas Content, Initial and After Weathering (GCIA)	
Requirement	Voluntary if gas content units will not use “IGMA/IGCC” marked spacer. Mandatory if “IGMA/IGCC” marked spacer will be used for gas content units
Listing	Compliance with Gas Content requirements will result in listing in the Certified Products Directory (CPD) as “GCIA” (Gas Content Initial and After Weathering)
% Minimum gas content Passing	90% or greater average initial gas content (10 units), 80% or greater average gas content (6 units) after weathering*. Each of the tested specimens shall have an argon gas concentration of 50% or greater (Testing with Argon only **)
Gas Fill Test method	Testing during normal durability test with Spark Emission Spectrograph (SES) (Test 10 test size units for initial gas content, test the 6 weathered test units for after weathering gas content)
Glass for Gas Fill Testing	If Low-E used then must contain Low-E When testing IC, coated glass, and gas test, the 10 non-IC units shall have the coated glass on the interior lite(2 or 3 surface for duals) (3 or 4 surface for triples), and the IC units shall have coated glass on at least one outboard lite

* It is recognized that actual production units may not necessarily be 90% or greater gas content but shall meet the manufacturer's stated gas content values.

** Gas content certification and testing of argon will cover other gases providing the same gas filling process is used. Special arrangements need to be made if regulatory compliance is required for gas content other than argon (see certification guideline A.GC.1).

NOTE: This document is intended to summarize certification requirements. A full description of program guidelines and requirements are available in the IGCC/IGMA procedural guide available on line at www.igcc.org or by contacting the administrative office. Additional guidance is also available for unit attributes such as multiple airspaces, airspace materials (IC), capillary and breather tubes.

What Should an IGCC/IGMA Program Participant Expect/Prepare for During an IG Sample Fabrication and Audit?

In order to expedite test sample fabrication for an upcoming IGCC/IGMA fabrication and audit, please note the following.

Prior to IGCC/IGMA auditor arrival:

- Review past inspection forms and this document. Review IGCC/IGMA website or directory or contact IGCC/IGMA if you have any questions.
- **You may cut glass, prepare spacer and muntins (IC) prior to the auditors arrival**
- Have glass cut for min. 13 IG units (26 pcs. for dual pane) 14x20". Up to max of 17 IG units (34 pcs for dual pane) 14x20" may be produced for auditor sample labeling. For triple pane min. 15 IG units (45 pcs) 14x20". Up to max.19 IG units (57 pcs) 14x20".
- If certification with coated (**low-e**) glass is desired, test units shall include one lite of coated glass per test sample. Note coated glass requirements. When testing IC, coated glass, and gas test, the 10 non-IC units shall have the coated glass on the interior lite (2 or 3 surface for duals) and (3 or 4 surface for triples), and the IC units shall have coated glass on at least one outboard lite
- Spacers cut or bent, ready for desiccant filling, if necessary
- Muntins should be prepared, at least 3 of 13 units for doubles, 5 of 15 units for triples to have muntins for certification (muntins in 3 X 3 configuration), ready for desiccant-filling, if necessary.

During IGCC/IGMA audit and fabrication:

1. **HAVE QUALITY MANUAL AND RECORDS AVAILABLE** - Auditor will verify that quality assurance requirements are met and review quality records. Have Quality Manual available and ensure records are up-to-date.
2. **PRODUCE TEST SAMPLES** - For fabrication, auditor will witness desiccant-filling, if necessary. Auditor will place sample identification labels between the glass as IG units are fabricated. Auditor will witness sealant(s) application. Auditor will note the following:
 - Spacer type, size and manufacturer;

- Application of desiccant and number of spacer sides filled with desiccant, if necessary;
- Corner construction (square cut corners, bent corners, corner keys or fasteners, etc);
- Glass thickness and size (14x20”);
- Primary sealant type and manufacturer;
- Secondary sealant type and manufacturer (if dual seal);
- Desiccant type and manufacturer;
- Muntin type and manufacturer and
- Finished product labeling for IGCC/IGMA requirements.
- If gas content initial and after weathering (GCIA) certification is desired, auditor will witness gas operation of 14x20” test units.
- When GCIA, all IG units shall include gas, minimum 90% initial gas content, except muntin units are not subject to gas content testing, only fog testing.

After IGCC/IGMA audit and fabrication:

- 1) Ship the IG test samples to the designated lab in a timely manner. Samples must be shipped within (4) four weeks:
- 2) Review audit documents for accuracy
- 3) Promptly address any noted corrective actions
- 4) Contact the IGCC/IGMA Administrative Office if you have any questions or need any assistance