

**MINUTES OF SEVENTY-FIRST (71<sup>st</sup>) MEETING OF THE CERTIFICATION COMMITTEE**  
**May 3<sup>rd</sup> - 4<sup>th</sup>, 2022**  
*The Westin Tampa Waterside*  
*Tampa, FL*

(X = Vote)

**Dates and Votes Present**

<b>Member by Virtue of Being a Public Interest (PI) Participant</b>		<b>5/3/2022</b>	<b>5/4/2022</b>
Morrison Hershfield Limited	Yvon Chiasson	Absent	Absent
Homeowners Association	Elaine Rodman	X	X
Raths, Raths & Johnson	Dennis Johnson	X	X
Wiss, Janney, Elstner Associates, Inc	Bruce Kaskel	X	X
East Central Ohio Building Authority	Nicholas Montan	X	Present
Skidmore, Owings & Merrill	Max Wolf	Present	X

<b>Member by Virtue of Being a Licensee with a Certified Product</b>		<b>5/3/2022</b>	<b>5/4/2022</b>
Associated Materials	Seth Green	X	X
Andersen Corporation	Michael Johnson	X	X
Andersen Corporation	Drew Pavlacky	Present	Present
Cardinal IG	Michelle Phan	X	X
Cardinal IG	Robert Grommesh	Present	Present
Intigral	Adina Dobre	Present	X
Intigral	Mark Hutchinson	X	Present
Intigral	Mike Greci	Virtual	Virtual
ODL, Inc.	Jim Allardyce	Virtual	Virtual
ODL, Inc.	Todd Schauder	X	X
Oldcastle BuildingEnvelope	Rick Wright	X	X
Pella Corporation	Matt Waldren	X	X
Trulite Glass and Aluminum Solutions, LLC	Jeffery Haberer	X	X
Viracon	Mike Schettler	X	X
Vitro Architectural Glass	Bill Davis	X	X

<b>Member by Virtue of Being a Supplier Participant</b>		<b>5/3/2022</b>	<b>5/4/2022</b>
Allmetal, Inc	Jon DeVoogd	X	X
Dow Inc.	Steve Altum	X	X
FDR Design Inc.	Dan Haglin	X	X
GE Silicones / Momentive Performance Materials	Abel Macias	X	X
GED Integrated Solutions	Bill Briese	Virtual	Virtual
Glasslam	Gerhard Reichert	X	X
H.B. Fuller Company	Brian White	X	Virtual
H.B. Fuller Company	Lena Chernyak	Virtual	Virtual
PDS IG Equipment	Michael Rapp	Virtual	Virtual
Quanex Building Products	Joe Erb	X	X
Technoform	Helen Sanders	X	X
<b>Total Votes Present</b>		<b>22</b>	<b>21</b>

<b>Guest, Laboratories, Legal Counsel and Staff</b>		<b>5/3/2022</b>	<b>5/4/2021</b>
AMS, Inc.	Andrew Mosley	Virtual	Virtual
AMS, Inc.	Alicia Deveau	Present	Present
AMS, Inc.	Erin Contryman	Virtual	Virtual
AMS, Inc.	John Kent	Present	Present
AMS, Inc.	Katrina Stafford	Virtual	Virtual
AMS, Inc.	Mitchell Majewski	Present	Present
Architectural Testing Inc. (an Intertek Company)	Jose Colon	Present	Present
Architectural Testing Inc. (an Intertek Company)	Kenny White	Present	Present
Architectural Testing Inc. (an Intertek Company)	Kathleen Rutt	Present	Present
Argon Filling Systems, Inc	Rich Brevik	Present	Present
Billco Manufacturing	Tracy Rogers	Present	Present
Element Materials Technology	Michael Barrera	Present	Present
Fenestration and Glazing Industry Alliance (FGIA)	Amy Roberts	Present	Present
DJ Cooper Consulting	David Cooper	Present	Present
IGCC Legal Counsel	Leland Badger	Present	Present
GCI Consultants	Dan Johnson	Present	Present
Lingnell Consulting Services	Bill Lingnell	Present	Present
Molimo	Nathaniel Young	Present	Present
NGA	Urmilla Sowell	Present	Present
PRI Construction Materials Tech. Consultant	Tim Efaw Chuck Pergler	Present Present	Present Present
<b>Total Present</b>		44	44
<b>Total Present (including Virtual)</b>		53	52

**Attendance Key**

X In Attendance with voting rights  
Present In Attendance  
Absent Not Present  
Virtual Online listen in only

## MOTIONS

Agenda Item #	Ref #	Moved	Second	Motion	Vote A/N/A	P/F														
3 Minutes	5.3.22.1	Dave Cooper	Mark Hutchinson	Motion to approve minutes of the May 2021 virtual Certification Committee meeting.	22/0/0 UA	P														
4 SubComm	5.3.22.2	Todd Schauder	Michelle Phan	<p>Motion to appoint the slate of Appeals Committee Members as presented for a 2-year term.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">IGCC President</td> <td>Dennis Johnson (PI)</td> </tr> <tr> <td>FGIA Glass Council Chair or Representative</td> <td>Helen Sanders (Technoform)</td> </tr> <tr> <td>Certification Committee Chair</td> <td>Joe Erb (Quanex)</td> </tr> <tr> <td>US Public Interest (2yr term)</td> <td>Bruce Kaskel (PI)</td> </tr> <tr> <td>US Laboratory Representative (2yr term)</td> <td>Lance Cunningham (Molimo)</td> </tr> <tr> <td>Canadian Public Interest (2yr term)</td> <td>Yvon Chiasson (PI)</td> </tr> <tr> <td>Canadian Laboratory Representative (2yr term)</td> <td>Jordan Church (Element)</td> </tr> </table>	IGCC President	Dennis Johnson (PI)	FGIA Glass Council Chair or Representative	Helen Sanders (Technoform)	Certification Committee Chair	Joe Erb (Quanex)	US Public Interest (2yr term)	Bruce Kaskel (PI)	US Laboratory Representative (2yr term)	Lance Cunningham (Molimo)	Canadian Public Interest (2yr term)	Yvon Chiasson (PI)	Canadian Laboratory Representative (2yr term)	Jordan Church (Element)	22/0/0 UA	P
IGCC President	Dennis Johnson (PI)																			
FGIA Glass Council Chair or Representative	Helen Sanders (Technoform)																			
Certification Committee Chair	Joe Erb (Quanex)																			
US Public Interest (2yr term)	Bruce Kaskel (PI)																			
US Laboratory Representative (2yr term)	Lance Cunningham (Molimo)																			
Canadian Public Interest (2yr term)	Yvon Chiasson (PI)																			
Canadian Laboratory Representative (2yr term)	Jordan Church (Element)																			
8 RAC	5.3.22.3	Helen Sanders	Rick Wright	With the knowledge and disclosure of the risk of potential for acceptance criteria drift, begin to accept orders for RAC.	20/0/2	P														
10A Lab Approval	5.4.22.1	Matt Waldren	Jeffery Haberer	Motion to approve PRI Construction and add them to the IGCC list of ‘Approved Testing Laboratories’ once all steps listed are completed.	22/0/0 UA	P														
10B Lab Manual	5.4.22.2	Todd Schauder	Jeff Haberer	<p>Motion to approve the revisions to the Laboratory Manual as written below:</p> <p><i>C.22 Failure During Testing- If a unit, or set of units, is deemed to be a failure prior to the completion of testing, the laboratory shall notify IGCC®, at which point the participant will be notified and provide guidance on whether testing should continue or be stopped. The laboratory should continue the testing of failed units unless directed otherwise by IGCC®.</i></p> <p><i>C.23 Equipment Status- (This includes equipment operational status, capacity) If any of the weathering equipment involved in ASTM E2190 testing (Accelerated Weathering chamber, Fog Box, High Humidity Chamber, etc.) experiences downtime greater than 2 weeks, or equipment capacity is reduced, the laboratory shall notify IGCC® within 2 working days.</i></p>	22/0/0 UA	P														
10C Interactive Animation	5.4.22.3	Michelle Phan	Seth Green	Motion to approve starting in 2022 all technicians either signing IGCC/IGMA test reports, or performing IGCC/IGMA testing, are required to take & pass the IGCC Laboratory Interactive Animation Training exam annually (Test Result = 100%).	22/0/0 UA	P														
11 HA Units	5.4.22.4	Dave Cooper	Adina Dobre	Motion to approve the new CPC system and guideline as presented by the Sub-Committee for high altitude gas content certification.	21/0/1	P														

12A Reviewed List	5.4.22.5	Gerhard Reichert	Matt Waldren	Motion to approve option 2 as written below:  <i>Modify wording “<del>whenever possible of unless some restrictions exists (i.e. lack of fabrication equipment)</del>; test sample fabrication shall be by a Licensee fabricator <b>or a component supplier.</b>”</i>	7/10/5	F
12A Reviewed List	5.4.22.6	Bruce Kaskel	Dave Cooper	Motion to approve option 2 as written below:  <i>Modify wording “<del>whenever possible of unless some restrictions exists (i.e. lack of fabrication equipment)</del>; test sample fabrication shall be by a Licensee fabricator, <b>or a component supplier under auditor witness.</b>”</i>	16/3/3	P
12B Guideline	5.4.22.7	Todd Schauder	Max Wolf	Motion to approve additional clarification and wording regarding plant relocation as written below:  <i>G.21 Transfer</i>  <i>If a licensee manufactures the same model using the same technology at a different location, an IGCC®/IGMA® number with a temporary status will be issued provided that testing (durability and/or gas content) of the model is initiated at the next scheduled testing audit. (Modified 05/04/2022)</i> <ul style="list-style-type: none"> <li>• <i>This guideline <u>may not</u> be applied to products for which certification has been previously removed due to test failure.</i></li> <li>• <i><u>This guideline may be used when a plant relocates (physical relocation) under existing Ownership (IGCC <del>should</del> shall be notified prior to plant’s physical relocation).</u></i></li> <li>• <i><u>This guideline may be used if valid compliant test report(s) are within 12 months (one year) of the report date.</u></i></li> </ul>	22/0/0 UA	P

## ASSIGNMENTS (Action Items)

No.	Assigned	Assignment	Due Date
10B Lab Manual	Lab Subcommittee	Lab Subcommittee assignments: a) How to report Frost Point readings (°F/°C) b) Deeper look at lab performance c) Auto trigger d) E.06 Gas validation coupons	Summer 2022
11 High Altitude	AMS	Joe Erb as the Chair of the Certification Committee dissolved this Sub-Committee as a result of the scope being met.	ASAP
13 New Business	CPD Guidelines & Equivalency Committee	VIG - Have the Guideline Subcommittee review the VIG & HVIG CPD Guidelines And Equivalency	2022
13 New Business	CPD Guidelines & Equivalency Committee	Have the Guideline Subcommittee review the Low MVT & slow moisture adsorption rate IGU's	2022
	All	<b>Next Meeting</b> –San Antonio TX (May 2-3, 2023)	

**Attachments are included with initial meeting material or attached hereto if changed during the meeting.**

### Certification Committee Meeting Agenda

1. Call to order and self-introduction of all present: Call to Order 1:05 pm by Chairman Joe Erb
2. Determination of quorum, committee voting rights, responsibilities and eligibility
3. Approval of minutes of last meeting
4. Sub-committee list
5. Standing Reports
  - A. Legal report and anti-trust review – Lee Badger  
Lee Badger reviewed fiduciary duties: Care, Obedience, Loyalty  
Reviewed Anti-Trust policy – referenced Certification committee was given time to read “IGCC Antitrust Compliance Program Guidelines”
  - B. IGCC BOG review – Dennis Johnson
  - C. Administrative report
  - D. Certification Appeals Committee Report
  - E. FGIA report – Amy Roberts
  - F. ASTM report – Jeff Haberer
6. IGCC Current Status/Remote Audits
7. IGCC/IGMA & IGMAC Certification Normalization
8. Advanced Testing (RAC) Sub-Committee – John Kent/Mitch Majewski  
*IGCC Annual Participants’ Meeting – see formal minutes*  
Day 2 - Call to Order 8:03am
9. Materials Sub-Committee
10. Laboratory and Inspection Sub-Committee
  - A. Lab Status

- B. Lab Manual
  - C. Interactive Lab Training
  - D. IGMA TM-4000/4500
11. High Altitude Units
  12. Guidelines and Equivalency
    - A. Reviewed List Criteria
    - B. Plant Relocation
  13. Old/New business
  14. Next meeting – San Antonio TX (May 2-3, 2023)
  15. Adjournment at 11:30 am by Chairman Joe Erb



# 2022 IGCC CERTIFICATION COMMITTEE MEETING

IGCC®/IGMA® Certification Program

ASTM E2190

May 3-4, 2022

# HYBRID OF A HYBRID



- We have some people **Listening** into the meeting virtually
- Listening only – no voting
- For those listening in: raise hand or type a comment to staff and staff will relay your message to the group.



# AGENDA

Call to Order – IGCC Certification Committee Mr. Joe Erb (Quanex) - Chair

1. Call to order and introduction
2. Determination of quorum, committee voting rights
3. Approval of minutes
4. Sub-committee list
5. Standing reports
6. IGCC Current Status/Remote Audits
7. IGCC/IGMA and IGMAC Normalization
8. Advanced Testing (RAC) Sub-Committee



3:00 Eastern



4:00 Eastern

End Day 1 - Participants Meeting

9. Materials Sub-Committee
10. Laboratory and Inspection Sub-Committee
11. High Altitude Units
12. Guidelines and Equivalency Sub-Committee
13. Old/New business
14. Next meeting
15. Adjournment

# STAFF INTRODUCTIONS



**John Kent**  
IGCC Administrative Manager



**Terry Schaefer**  
AMS Quality Management System



**Katrina Stafford**  
Program Manager  
[kstafford@amscert.com](mailto:kstafford@amscert.com)



**Alicia Deveau**  
Initial Inquiries  
Accounts Receivable  
Program Questions  
[Adeveau@amscert.com](mailto:Adeveau@amscert.com)



**Andrew Mosley**  
Routine Audits  
Material & Components  
Guidelines & Equivalency  
Appeals  
Auditor  
[Amosley@amscert.com](mailto:Amosley@amscert.com)



**Erin Contryman**  
Program Questions  
Initial Inquiries  
Routine Audits  
Testing reports  
[econtryman@amscert.com](mailto:econtryman@amscert.com)



**Olivia Aubin**  
Initial Inquiries  
Routine Audits  
Testing reports  
Laboratory Liaison  
Lab Audits  
[Oaubin@amscert.com](mailto:Oaubin@amscert.com)



**Mitch Majewski**  
Lab Audits  
Interactive Animation  
RAC  
Auditor  
[Mmajewski@amscert.com](mailto:Mmajewski@amscert.com)

# 2 – DETERMINATION OF QUORUM, VOTING RIGHTS

## Purpose of IGCC

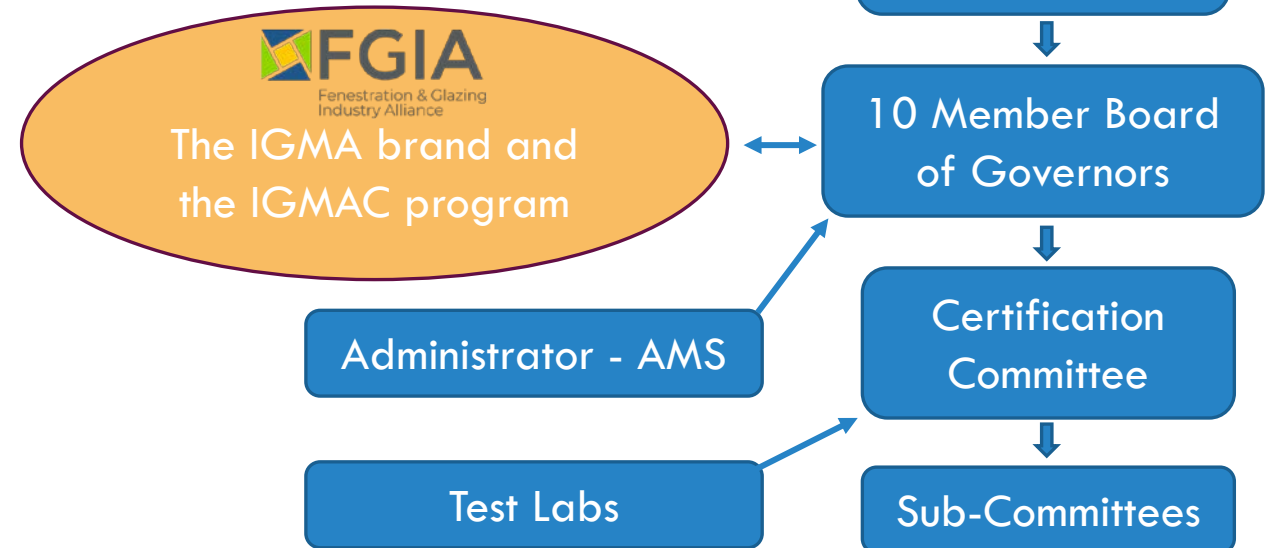
1. To **promote public benefit** by encouraging maintenance of the highest standards of excellence in the manufacture of insulating glass.
2. To encourage and **cooperate in developing standards** related to performance characteristics of insulating glass products.
3. To plan, organize, direct, coordinate and **sponsor a certification program** for insulating glass manufacturers to assure that their products meet applicable standards and/or performance requirements, adopted or approved by the Council.

## Certification Committee Voting Rights

- Board members
- Licensees (Certified Companies) (IGCC or IGMA)
- Suppliers (IGCC or IGMA)

## Quorum

- 12 Certification Committee members



## 2 – DETERMINATION OF QUORUM, VOTING RIGHTS



\*SC = Subcommittee

# 3 – APPROVAL OF MINUTES – MAY 2021, VIRTUAL

## MOTIONS

Agenda Item #	Ref #	Moved	Second	Motion	Vote A/N/A	P/F
3 Minutes	5.4.21.1	Todd Schauder	Michelle Phan	Motion to approve minutes of the May 2020 virtual Certification Committee meeting	UA	P
5F ASTM	5.4.21.2	Mark Hutchinson	Jeffery Haberer	Motion to adopt the ASTM E2649-2020 for testing in the IGCC®/IGMA® certification program	UA	P
7 Normal-ization	5.4.21.3	Rick Wright	Mark Hutchinson	Pending FGIA (IGMAC) acceptance, legal review, and IGCC Board of Governors approval, support the IGCC/IGMA and IGMAC proposed certification normalization effort as described. (See attached slide #22)	19/1/4	P
10A Lab Approval	5.4.21.4	Gerhard Reichert	Eric Rall	Motion to re-approve the current list of 'Approved Testing Laboratories' as listed in the attached document (slide #31)	UA	P
10B Lab Manual	5.4.21.6	Randi Ernst	Michelle Phan	Motion to approve the revisions to the Laboratory Manual as written below (slide #32):  <i>C.21 <u>Laboratory Technician Training-</u> Per the minutes of the 9/26/2018 Certification Committee meeting, as of January 1, 2019 it was mandated that any technicians signing IGCC/IGMA test reports are required to complete and pass (100%) the IGCC Laboratory Interactive Animation Training exam. Annual participation in this training is required.</i>	UA	P

# 3 – APPROVAL OF MINUTES – MAY 2021, VIRTUAL

## ASSIGNMENTS

No.	Assigned	Assignment	Due Date
8 RAC SC		Straw Poll: Are we heading in the right direction of Implantation of the RAC chamber for Provisional Certification (PC) (79% / 3% / 18%) (slide #25)	
9 Desiccant		Sub-committee suggested developing a common industry quality control test for fabricators to perform to determine desiccant characteristics. To be discussed at next sub-committee call. (slide #29)	
11-3 RAC Guideline		Straw Poll: Support the Sub-Committee and Board of Governors effort to continue development of RAC and PC guidelines. (88% / 0% / 13%) (slide #40)	
12 HA		In the absence of specific direction, general support to reactivate the High-Altitude Gas Content Sub-Committee to continue efforts of finalizing High Altitude Guidelines (slide #46)	
	All	<b>Next Meeting</b> –Tampa, FL Downtown/Near the water (May 3-4, 2022)	

**Proposed Motion:** Motion to approve minutes of the May 2021 virtual Certification Committee meeting

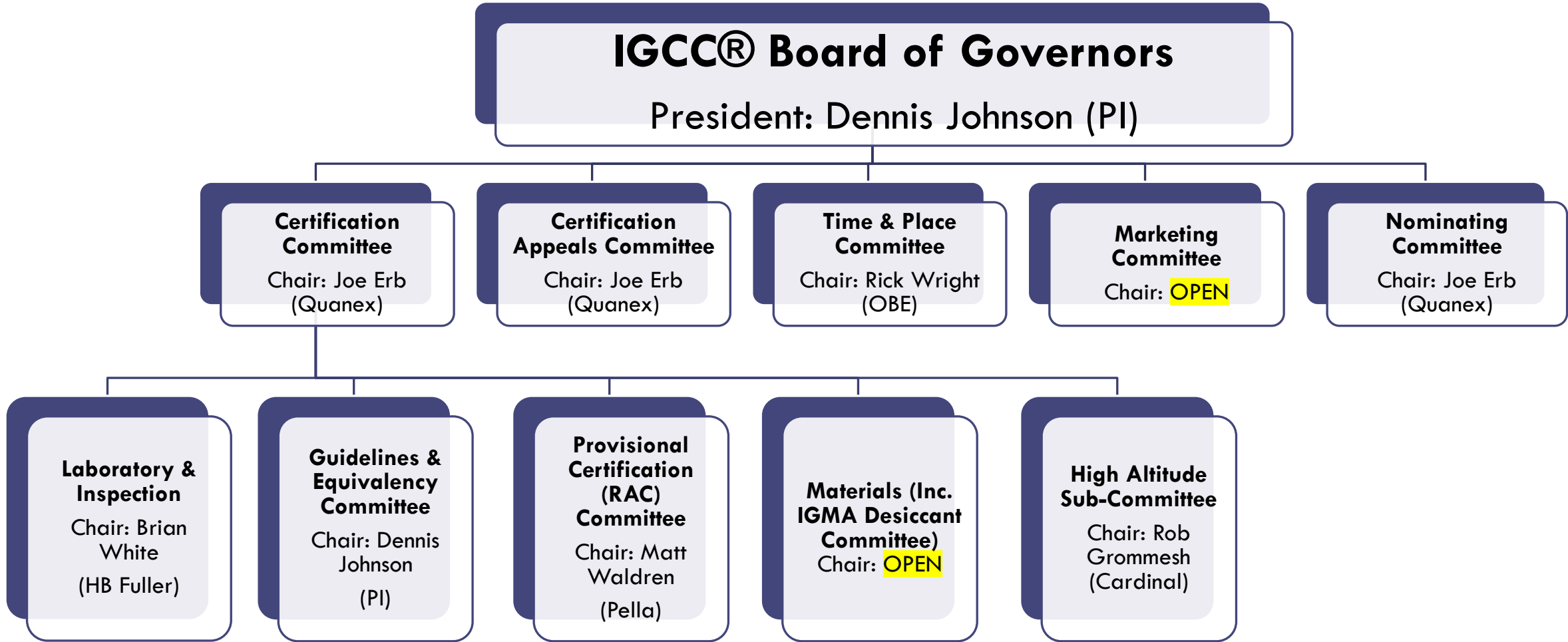
Motion  
 1<sup>st</sup>:.     Dave C    .  
 2<sup>nd</sup>:.     Mark H    .  
 Vote: UA  
 22/0/0 **UA (x)P/( )F**

PDF of Meeting Minutes:



Adobe Acrobat Document

# 4 – SUB COMMITTEE LISTS





# 4 – SUB COMMITTEE LISTS – REAPPROVAL / REPLACEMENT

Committee: Certification Committee	Chair: Joe Erb (Quanex) (appointed 3/31/2022) Vice Chair: Rick Wright (OBE)
Staff Contact: John Kent	
Scope: Operation of the IGCC/IGMA certification program	
Members: The IGCC President shall appoint the chair of the committee for one two-year term. Voting privileges shall extend to 1) IGCC Board members, 2) IGCC and IGMA participant licensees, 3) IGCC and IGMA participant suppliers, 4) appointed public interest participant's	

Committee: Certification Appeals Committee	Chair: Joe Erb (Quanex)
Scope: Resolution of any issue, appeal or request for review that can not be dealt with by the administrator, or is beyond the guidance provided to the Administrator or for which the Administrator has rendered a decision that is not acceptable by the appellant.	
Members: By 2-year appointment by Cert. Comm. as of <del>5/7/2019</del> 5/3/2022	
IGCC President or Representative	Dennis Johnson (PI)
FGIA Glass Council Chair or Representative	Helen Sanders (Technoform)
Certification Committee Chair	Joe Erb (Quanex)
US Public Interest (2yr term)	Bruce Kaskel (PI)
US Laboratory Representative (2yr term)	Lance Cunningham (Molimo)
Canadian Public Interest (2yr term)	Yvon Chiasson (PI)
Canadian Laboratory Representative (2yr term)	Jordan Church (Element)

**\*Need** a new US Laboratory Representative

**Proposed Motion:** Motion to appoint the slate of Appeals Committee Members as presented for a 2-year term.

Motion
1 <sup>st</sup> :. <u>Todd</u> .
2 <sup>nd</sup> :. <u>Michelle</u>
Vote: UA
22/0/0 UA (x)P/( )F



# 5A – LEGAL REPORT

## Mr. Leland Badger – IGCC Antitrust Compliance Program Guidelines

- A. It is the policy of IGCC to comply fully with the antitrust laws applicable to not-for-profit membership corporation activities involving competitors. The federal Sherman Antitrust Act, the Federal Trade Commission Act, and other applicable antitrust laws are intended to promote vigorous competition and to combat various types of restraints of trade. IGCC is a not-for-profit organization incorporated under, and governed by, the Illinois Not-for-Profit Corporation Act.
- B. In furtherance of this policy, IGCC legal counsel shall either attend all IGCC meetings or be available (on call) for such meetings.
- C. Each person who is a participate member of IGCC or who is employed by a corporate participant member of IGCC and who participates in IGCC activities has a responsibility to his/her employer, to himself/herself and his/her family, and to IGCC to avoid any improper conduct from an antitrust standpoint. The following guidelines will assist in meeting this responsibility:
  1. IGCC meetings and open due-process discussions are held pursuant to notice and stated agendas and governed by the IGCC Corporate Bylaws and parliamentary principles. IGCC meetings are held solely to manage and operate the IGCC not-for-profit corporation and its industry certification program in accordance with the IGCC Bylaws and as described in the IGCC “Certified Products Directory” (most current edition), which also includes printed “Guidelines and Interpretations” utilized by IGCC in administering the certification program.
  2. In view of antitrust considerations (both civil and criminal) and to avoid any possible unlawful restraints on competition, the following legally-sensitive subjects as to a given company or its competitors must be avoided during any discussion between competitors during IGCC meetings:
    - a. Future marketing plans of specific competitors should not be discussed between competitors;
    - b. Any complaints or business plans relating to specific customers, specific suppliers, specific geographic markets or specific products should not be discussed between competitors; agreements between competitors to allocate markets (customers or products) are illegal under the antitrust laws; agreements between competitors to refuse to deal with a supplier or a customer are illegal under the antitrust laws;
    - c. Purchasing plans or bidding plans should not be discussed (except privately between two parties with a vertical commercial relationship such as supplier and customer);
    - d. Current and future price information and pricing plans, bidding plans, refund or rebate plans, discount plans, credit plans, specific product costs, profit margin information and terms of sale should not be discussed between competitors. All of the above are elements of competition.
    - e. Any question regarding the legality of a discussion topic or business practice should be brought to the attention of IGCC legal counsel or a company’s own legal counsel for advice.

# 5B – IGCC BOARD OF GOVERNORS

President – Dennis Johnson

1. Review Status of the Board and Officers – Nominees presented at the Participants meeting
2. Financial and Insurance matters
3. Reviewing request for an Administrative Fee Increase
4. “**Anonymous**” Testing results – (held strictly confidential at the Board level)
5. Accreditation
6. RAC
7. Review decisions of the Certification Committee



# 5C — ADMINISTRATIVE REPORT

## A. Certified Products Directory (CPD)

February = Hard copy printed and mailed, electronic copy distribution and posted to website

August = Electronic copy distribution, and posted to website

## B. IGCC®/IGMA® Participation

	May 2016	March 2017	January 2018	Sept. 2018	May 2019	May 2020	May 2021	May 2022
<b>Licensees</b>	191	210	215	226	234	242	257	285
<b>Total IGCC®/IGMA® Plants</b>	301	320	324	331	337	348	360	363
<b>Total IGCC®/IGMA® Products</b>	680	717	762	814	838	831	821	817
<b>Plants with Prototypes</b>	75	85	82	80	78	85	81	70
<b>Prototype Products in Test</b>	120	136	133	108	75	73	60	75

## C. IGMAC® Participation

	March 2020	May 2021	May 2022
<b>Total IGMAC® Plants</b>	93	97	86
<b>Total IGMAC® Products</b>	149	154	145
<b>Plants with Prototypes</b>	7	9	12
<b>Prototype Products in Test</b>	9	12	20
<b>Plants in both IGCC®/IGMA® &amp; IGMAC®</b>	8	8	9

# 5C – ADMINISTRATIVE REPORT

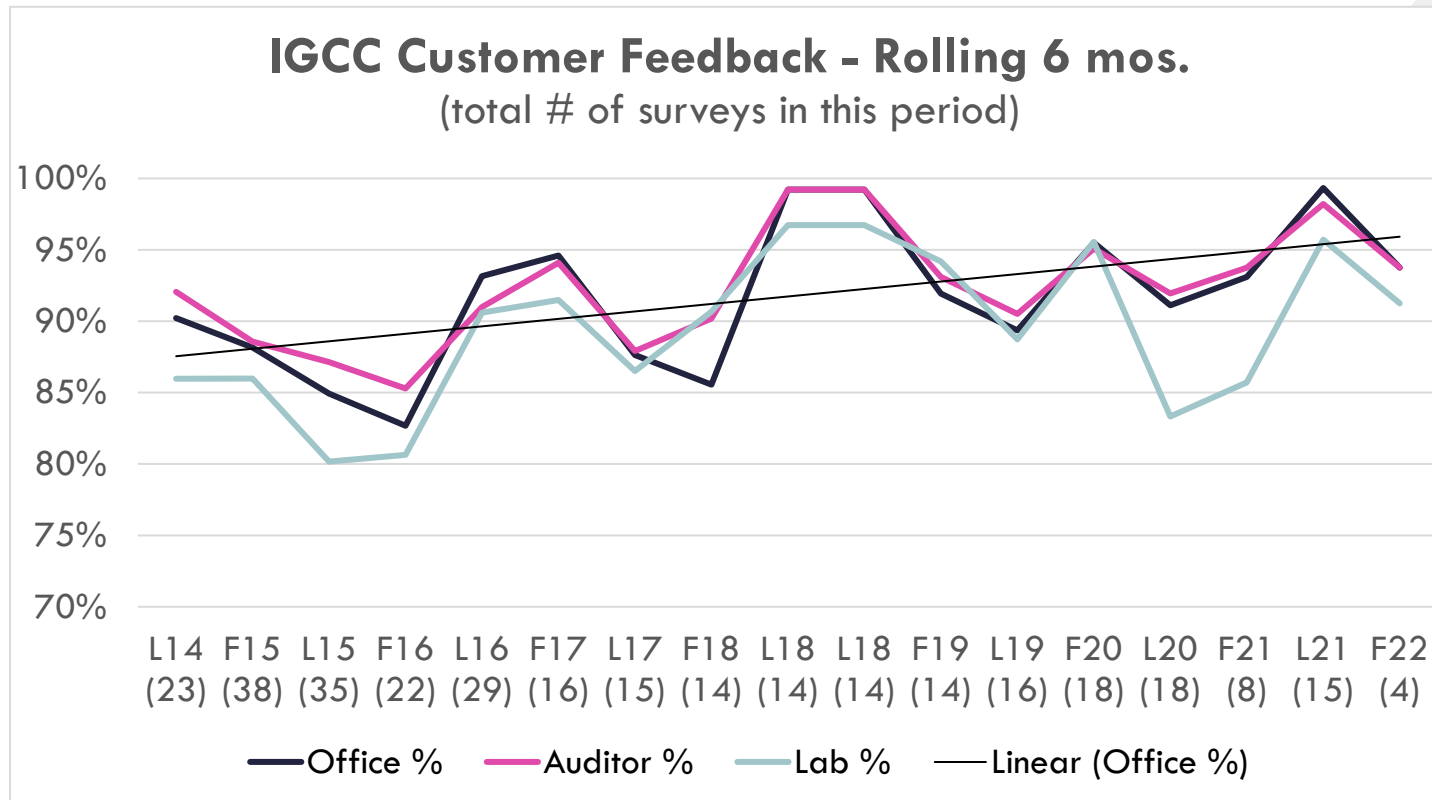
## D. Testing Laboratories Activity

Average Testing Times for each Approved Laboratory (Duration of testing in weeks from 4 weeks from date fabricated to report date) 2021 Testing			
	Number of Reports	Range (weeks)	Average (weeks)
195 – Intertek/ATI, Kent	20	22 – 40	29
175 – Intertek/ATI, Plano	20	21 – 43	26
100 – Intertek/ATI, York	20	19 – 52	40
125 – Intertek/ATI, Fresno	20	17 – 29	19
150 – Intertek/ATI, St. Paul	20	18 – 28	21
50 – Element (fka Exova)	20	17 - 25	22
55 - China National	20	18 – 28	23
60 - Can Best	20	17 – 37	25
800 - NCTL, York	20	19 – 26	21
285 - FTL - Medley	20	17 – 34	25
80 - SQI - China	20	20 – 32	26
911 – Molimo	20	16 – 20	17
925 – Intertek, Shenzhen	13	25 – 47	36

Based on the above testing activity									
		May 2016	March 2017	January 2018	August 2018	May 2019	May 2020	May 2021	May 2022
<b>Duration of Testing</b>	Avg.	22	21	24	22	20	26	26	25
	Range	16-44	16-39	17-36	16-38	16-26	16-43	16-46	16-52
<b>Wks to Pay Invoice (Fab date to test authorization date)</b>	Avg.	5	6	6	7	6	7	6	6

# 5C — ADMINISTRATIVE REPORT

## E. Customer Satisfaction



“Lab is excellent ...” 11-2-2021

“The last samples we sent sat on their dock for several weeks and I was told we never sent them. Eventually they were found” 4-7-2021

# 5D – CERTIFICATION APPEALS COMMITTEE REPORT

<b>Committee: Certification Appeals Committee</b>		<b>Chair: Joe Erb (Quanex)</b>
Staff Contact: Andrew Mosley		
Scope: Resolution of any issue, appeal or request for review that can not be dealt with by the administrator, or is beyond the guidance provided to the Administrator or for which the Administrator has rendered a decision that is not acceptable by the appellant.		
Members: By 2-year appointment by Cert. Comm. as of 5/7/2019		
IGCC President or Representative		Dennis Johnson (PI)
FGIA Glass Council Chair or Representative		Helen Sanders (Technoform)
Certification Committee Chair		Joe Erb (Quanex)
US Public Interest		Bruce Kaskel (PI)
US Laboratory Representative		Dan Johnson (Intertek)
Canadian Public Interest		Yvon Chiasson (PI)
Canadian Laboratory Representative		Jordan Church (Element)

## G.22 Clarification of Due Process Appeal Process under License Agreement, Paragraph A.11:

A Licensee's appeal from a final adverse decision by the **Administrator**, under License Agreement Paragraph A.11, shall in the first instance be to the **Certification Appeals Subcommittee** of the Certification Committee, which acts as an executive committee for the Certification Committee in order to provide a prompt hearing for the Licensee and to act on the Licensee's appeal as quickly as possible. A decision by the Certification Appeals Subcommittee favorable to the Licensee shall be a final decision. A decision by the Certification Appeals Subcommittee adverse to the Licensee may be appealed to the **full Certification Committee** for a due process review and hearing. Such an appeal to the Certification Committee must be made in writing within 30 days of an adverse decision by the Certification Appeals Subcommittee and this appeal will be heard at the next meeting of the Certification Committee. Pending a hearing by the Certification Committee on such an appeal, the Licensee may maintain certification for the product at issue.

### Committee rule to clarify guideline G.22 as adopted by the Certification Committee at minute 10.31.12.10

The Chairman of the Certification Committee may call for a special meeting of the Committee (with notice provided in the same way as for a special meeting of the Board of Governors under the Bylaws), and the Committee may conduct a special meeting (at the physical location identified in the notice or by use of conference telephone or other communication equipment by means of which all persons participating in the meeting can communicate with each other), with such special meeting to be at a date and time other than the next regularly scheduled meeting of the Committee, and at which special meeting any proper business of the Committee, including business under Procedural Guideline G.22, may be conducted. (Modified 10/31/12)

Date	Issue	Outcome
5/2021	Fabricator appealed durability failure due to test units being <b>clamped</b> within the durability testing chamber in a fashion that caused sealant displacement. This appeared to cause the spacer and glass to have direct contact.	Testing for this test set was <b>voided</b> . Administrator addressed the topic of clamping with the laboratory to prevent future occurrences.

# 5D – CERTIFICATION APPEALS COMMITTEE REPORT

Date	Issue	Outcome
6/2021	Fabricator appealed durability failure results due to the use of <b>tape</b> on the units, in a manner that possibly interfered with proper testing of the units.	Testing for this set was <b>voided</b> . Administrator addressed the topics of appeal with the laboratory to prevent future occurrences.
7/2021	Fabricator appealed durability failure results due to the use of <b>tape</b> on the units, in a manner that possibly interfered with proper testing of the units.	Testing for this set was <b>voided</b> . Administrator addressed the topics of appeal with the laboratory to prevent future occurrences.
9/2021	Fabricator appealed fog failure with the claim that the units were non-compliant with the ASTM E2189 fog test due to over- <b>compression</b> of the units, experienced at the laboratory.	Testing was <b>not voided</b> , and testing results remained as a non-compliance. This is due to the test units not experiencing compression during the ASTM E2189 testing process.
9/2021	Fabricator appealed durability failure due to over <b>compression</b> experienced during the high humidity phase of the ASTM E2188 test.	Testing was <b>not voided</b> , and the test results remained as a non-compliance. This is due to the test units not experiencing compression during this phase of the ASTM E2188 testing process.
1/2022	Supplier appealed requirement for test reports to be placed on the <b>"reviewed" list</b> . Matter referred to the Certification Appeals Committee.	4/6/2022 – The IGCC/IGMA/IGMAC appeals committee agreed to <b>maintain current wording</b> but ask for further discussion at the May IGCC meeting. <b>Topic to be reviewed under Agenda item C12.A</b> of this meeting
4/2022	Fabricator appealed test results and <b>ASTM Acceptance criteria</b> . Matter referred to the Certification Appeals Committee.	4/6/2022 – The IGCC/IGMA/IGMAC appeals committee voted that this matter is <b>outside the scope</b> of IGCC and should be presented to ASTM. Fabricator may wish further discussion.

4/2022

Fabricator appealed test results and **ASTM Acceptance criteria**.  
Matter referred to the Certification Appeals Committee.4/6/2022 – The IGCC/IGMA/IGMAC appeals committee voted that this matter is **outside the scope** of IGCC and should be presented to ASTM. Fabricator may wish further discussion.

## Low MVT and slow moisture adsorption rate IGU's

1. Does ASTM properly evaluate **IGUs with low MVT and slow moisture adsorption** rate?
2. Is the **EU moisture penetration test the correct test** for IGUs with low MVT and slow moisture adsorption rate?
3. **Should IGCC be flexible** and adapt pass/fail test criteria procedures to recognize new technology products that require different test procedures to properly evaluate them?
4. Historically IGCC has interpreted, supplemented, and clarified ASTM but **not deviated** from the standard?
  - a. What might IGCC do?
    1. **Delay test start** date from date of IGU production.
    2. Frost point testing: per ASTM E2188

“...one measurement is sufficient, but multiple measurements may be taken over the next 6 days (that is, within 7 days of specimen removal from the test chamber)

NOTE 2—Different IG desiccating systems may take longer to adsorb moisture than others. To accommodate this, multiple frost/dew points are allowed to be taken up to 7 days after removal from the test chamber as indicated above.). “

The 7 day allowance was permitted to cover the slow moisture adsorption rate of all spacer/desiccant systems known at the time of the writing of the standard. But new technology spacer systems have slower moisture adsorption rates and thus **may need special consideration** till the ASTM standard can be updated.

3. **Allow third retest**; helpful but does not address the main issue.
4. Allow **EU moisture penetration test** which fairly addresses new technology spacer systems with slow moisture adsorption rates.
5. For units passing argon test, **hold decision** until frost points are taken 8 weeks after testing completed (to permit the known slow adsorption rate).
6. **Hire a consultant** to evaluate the issue.



# FGIA UPDATE TO IGCC



IGCC 2022 Spring Certification Committee Meeting | **May 3<sup>rd</sup>-4<sup>th</sup> 2022**

## FGIA Glass Products Council (formerly IGMA)

### Marketing and Education

#### Final Approval to Education Steering

IG Fabricator Workshop  
Preventing IG Failures  
Do's & Don'ts of Safety

#### Final Approval to Marketing & Engagement Steering Marketing Activities

### IGMA Certification

#### Final Approval to Technical Steering

Desiccant  
Design Considerations for Over-  
Sized Units  
IG Manufacturing Quality  
Procedure  
IG Sealant  
Vacuum Insulating Glass  
Quality Assurance for IG Spacers

#### Final Approval to Innovation Steering

IG Durability Testing re: Edge  
Seal System

### IG Technical Services

#### Final Approval to Technical Steering

Dimensional Tolerances  
Glazing Guidelines  
Glazing Infill for Hurricane Prods.  
IG Cavity Compensation  
Impact of Solar Reflectance  
PIB Migration  
Multiple Cavity IGU's  
Thermal Stress  
Visual Quality

#### Final Approval to Code Action Steering

Glass Strength Design

### GPC Research

#### Final Approval to Innovation Steering

Advanced Fenestration Testing  
Gas Measurement Validation  
Glass Research Fund

#### Reports to Sustainability Steering

Processed Glass PCR

#### Final Approval to Technical Steering

ASTM E2190 Field Correlation  
Edge Pressure  
Laser Absorption Spectroscopy

Revised: 2021-12-16

# Technical Services Committee Task Groups

## **Design Considerations for IG Cavity Compensation (IGMA TM-3200)**

- Changes to pressure inside IGU cavity due to environmental factors
- Published in 2021

## **Design Considerations for Multiple Cavity IGU's (IGMA TM-1300)**

- New Task Group in 2022, to consider adding VIG

## **Dimensional Tolerances (IGMA TB-1200)**

- New Task Group in 2022, updating applicable standards

## **Glazing Guidelines (IGMA TM-3000)**

- In ballot resolution at IG Tech Committee

## **PIB Migration (joint with NGA)**

- In Ballot resolution

## **Effects of Cavity Width Variability Post Fabrication Webpage**

- Going to Technical Steering Committee for final ballot

## **Glass Strength Design (Joint with Fen BC, Fen-Can, AVFQ)**

- Submit a code change request a) focus on aspect ratio for the 2025 code cycle and b) develop full tables for the 2030 code cycle

# GPC Research Task Groups

## Edge Pressure of IGU's

- 3 responses to RFP

## ASTM E2190 Field Correlation Study Pilot Program

- Final measurements April, 2022

## Gas Content Measurement and Validation

- Verification of SES (GasGlass) device
- Develop precision and bias statement for device

## Laser Absorption Spectroscopy

- To be started on the completion of the SES validation

## Advanced Fenestrations Testing (joint with IGCC)

- Develop advanced screening and test methodologies to expedite testing

## Processed Glass PCR

- To maintain the currently used PCR (developed jointly with NGA)



# IGMA Certification Committee Task Groups

## **Desiccant (IGMA TM-2100) (Joint with IGCC)**

- Suggestion to develop a common industry quality control test for fabricators to perform to determine desiccant characteristics

## **Fabricator Considerations for Large Glass Products (joint with NGA)**

- Reviewing negative ballots

## **Durability Testing of Internal Components**

- To identify and determine if an IG units' internal elements that contact the edge seal system affect the durability of the IG unit.
- Develop and validate a durability testing methodology.

## **Quality Management System (IGMA TM-4000/4100)**

- Currently revising, restructuring and updating the document

## **Moisture Vapor Transmission (MVTR) (IGMA TB-2701)**

- New group 2022 – to evaluate and revise the guideline

## **Quality Assurance for IG Spacers**

- New group 2022 – review and revise as necessary

## **Vacuum Insulating Glass (VIG) (TB-2600)**

- Develop a technical bulletin to act as a primer to the industry on VIG. (completed)
- Develop a test / standard specification for VIG. (in process at ISO)
- **Develop Certification Program guidelines to certify VIG.**
- Develop glazing guidelines for VIG

# GPC Marketing and Education

## **Do's and Don'ts of Glass Safety (IGMA TM-5000)**

- In final review – will be published in 2022

## **IG Fabricator Workshop In Person**

## **IG Fabricator Workshop Video Series**

## **Preventing IG Failures Video Series**

## **Leadership Development Program**

# 2022 IG Fabricator Workshop (In Person)

- Hands on, participatory event
- Addresses most important aspects of fabricating and testing IG units
- Next in-person session tentatively scheduled for November 1-3 or 9-11 2022!



## Typical Modules for the Workshop

- Station 1: Glass Cutting & Washing
- Station 2: Spacer and IG Fabrication
- Station 3: Sealants/Hot Melt Sealant/Sealant Adhesion & Butterfly Test
- Station 4: Volatile Fog
- Station 5: Gas Filling and Measurement
- Station 6: Desiccants and Desiccant Matrix
- Station 7: Forensic Investigation of IGU Failures
- Station 8: Frost Point

**NEW**

# IG Fabricator Workshop – Video Series

**FGIA now offers both in-person and a video series option for this workshop.**

## **Video Series Workshop**

- This series has been under development throughout 2021 and offers a condensed version of the workshop in ten 20–30-minute segments. It is now available for purchase in the FGIA Online Store.



**VIDEO SERIES REGISTRATION**



# IG Fabricator Workshop – Video Series

This video series is an excellent option for those who are unable to travel to our IG Fabricators In-Person Workshop held each November in Plano, TX

Now, individuals or entire teams can learn the basics of glass safety responsibilities, insulating glass design, forensic testing and more from their comfort of their homes or offices.

Since its launch in 2016, the IG Fabricators Workshop has hosted more than 300 practitioners of the insulating glass industry, leading them through the most important aspects of fabricating and testing IG units. The video series, led by industry experts, is now available to industry professionals in an online format.



**VIDEO SERIES**  
**REGISTRATION**

# Preventing Insulating Glass (IG) Failures (IGMA TM-4100) Video Modules

- Content developed by industry experts
- Topic-specific sessions offering best practices for manufacturing quality IG units
- Six-month unlimited access to streaming videos and PDF handouts
- 13 video modules
  - **Complimentary Sessions**
    1. Program Introduction, Evaluation and Overview *(Video length: 28:29)*
    2. Product Certification to the ASTM E2190 Standard *(Video length: 26:42)*
    3. Handling Glass Safely *(Video length: 21:00)*
- Contact [education@fgiaonline.org](mailto:education@fgiaonline.org) to learn more



# Leadership Development Program



The Leadership Development Program focuses on the soft skills a leader needs to achieve his or her full potential. Everyone in the workforce develops hard skills required to be employed in the fenestration and glazing industry, but developing soft skills (communicating effectively with people, recognizing a company's culture and effectively aligning with that culture, understanding accountability in the workplace, etc.) provides the necessary intangibles to become a great leader. See what previous program participants are saying about the program.

## New Participant Training Format

- Eight monthly sessions via Zoom beginning April 13
- Sessions include: four foundation topics and four leadership core content
- 50-60-minute live presentations
- 15-20 minutes for live Q&A
- Contact [education@fgiaonline.org](mailto:education@fgiaonline.org) for registration inquiries

# Upcoming FGIA Events

[2022 FGIA Virtual Summer Conference](#) | June 6-9, 2022 | An Online Event


[2022 FGIA Fall Conference](#) | September 25-28, 2022 | Fairmont Chicago (Millennium Park),  
Chicago, IL

[GlassBuild America](#) | October 18-20, 2022 | Las Vegas, NV

U.S. Headquarters: 1900 E. Golf Rd. Suite 1250, Schaumburg, IL 60173 | Phone: (847) 303-5859

Canadian Office: 1769 St. Laurent Blvd. Suite 104, Ottawa, ON, Canada K1G 5X7 | Phone: (613) 233-1510

# 5F — ASTM REPORT



**E2188-19**

**E2189-19**

**E2190-19**

**E2269-21**

**E2649-20**

**E2649-20**

**ASTM**  
**INTERNATIONAL**  
Standards Worldwide

**ASTM Update**  
**IGCC Meeting**  
**May 4, 2022**  
**Jeff Haberer**



# E06.22 || .05 Sealed Insulating Glass

ASTM April 2022 Committee Week Update

**No active revision changes**

**Long List of Projects**

➤ **UV Team:**

- Define UV output for E2188 and 2189
- new lamp?
- UV meters and calibration description
- Bulb orientation and geometry with specimens, E2188
- Remove specific supplier (Osram) E2189 bulb (?)

➤ **Internal Components Team**

- Assess durability effects

➤ **Fog Viewing Team**

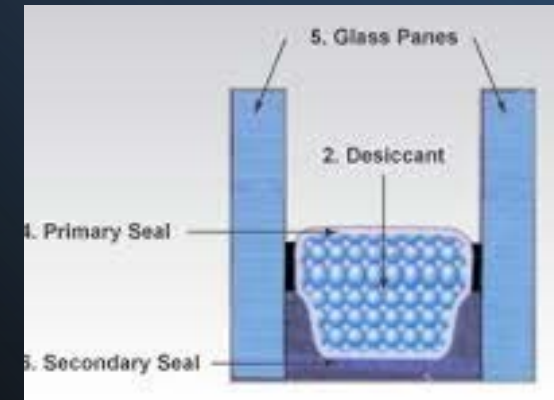
- Review improvements

➤ **Cooling plate description**

- Plate/glass temperature verification

➤ **Other longer term items**

- %RH and introduction method of H<sub>2</sub>O , (NIST concern)
- <50% argon measurements in triples
- E2188 Round Robin testing
- Phasing in higher fog box temperature
- Higher Temp Tests for Spandrel and High Absorptive Glasses
- Test for IG used in structural glazing
- Moisture penetration measurement (using iTiG, LOI)
- Tiered performance/classification for IG durability
- Non-Desiccated unit testing



# E06.22 | | .02 Gas Filling

ASTM April 2022 Committee Week Update

-Drafted language for Verification Procedure

## Verification Procedure Outline

Proposed methods

(60%, 80%, 90% Ar levels)

Coupons:

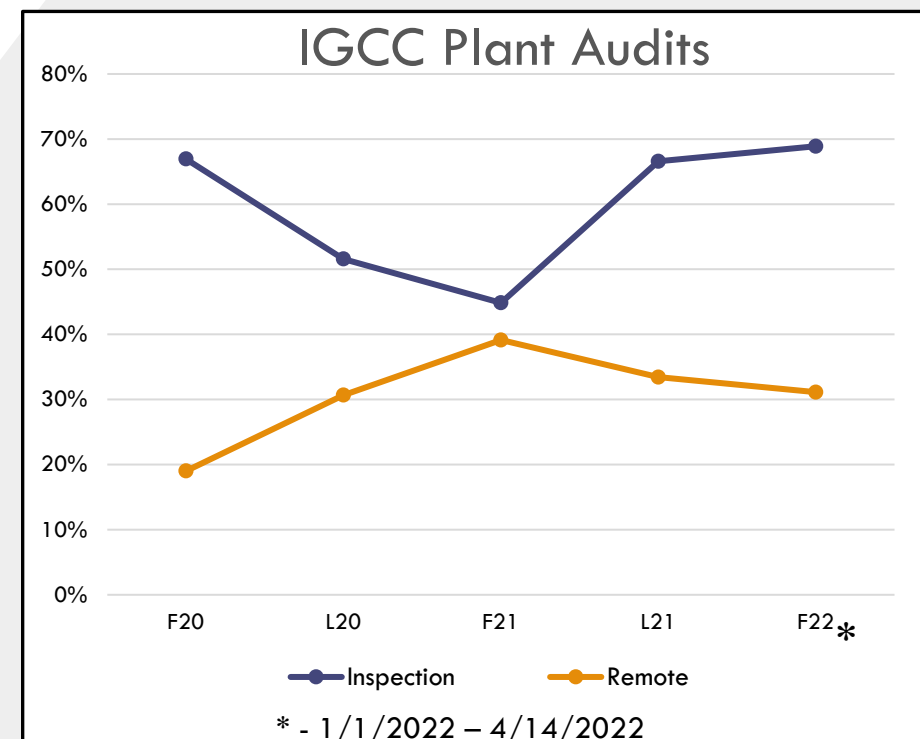
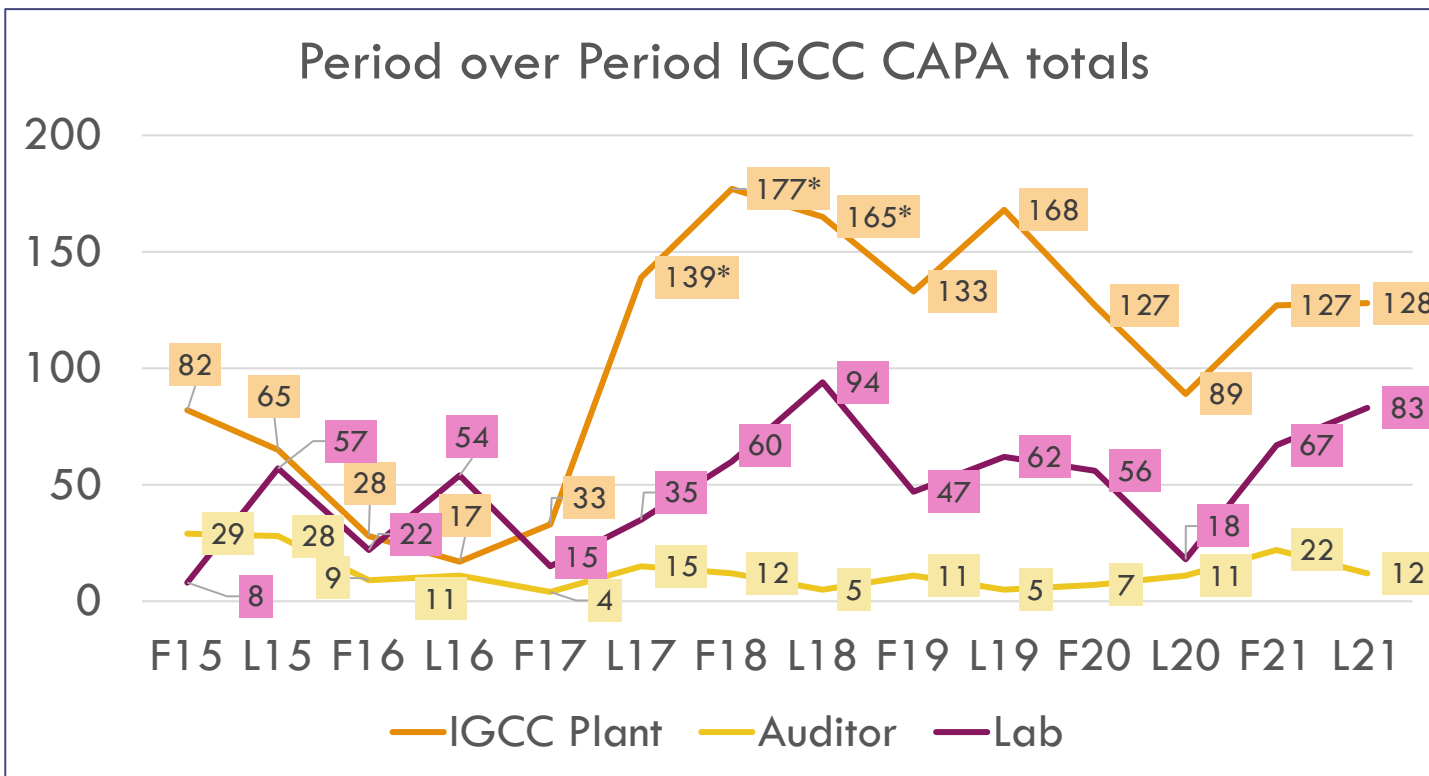
- 1) left open, flood with certified mixture, % Ar
- 2) sealed (certified % Ar)

Create gas mixtures, from certified Ar ( $\approx 100\%$ ) + breathable air

SparkLike Laser Standard



# 6 – IGCC CURRENT STATUS / REMOTE AUDITS



## Wording from CPD

### 3.0 How the Certification Program Works

Audits are performed by a representative of the administrator. At the discretion of the Administrator, **one audit** each year may be performed virtually (more frequent virtual audits may be deemed necessary in consideration of external factors, i.e. public health conditions). (2/2021)



# 7 – IGCC/IGMA (ASTM E2190) & IGMAC (CAN/CGSB 12.8) CERTIFICATION NORMALIZATION

IGCC Review Committee Dennis Johnson (PI), Bruce Kaskel (PI), Jeff Haberer (Trulite), Todd Schauder (ODL), Mark Hutchinson (Intigral)

## A. Why:

- 1) The closer US and Canadian requirements are, the more cross border customer and IG fabricator-vendor acceptance, and the less IG market-weakening, IG customer confusion and IG fabricator-vendor confusion in the IG marketplace. Less confusion = more trust = better experience for the buyer (public)
- 2) If certification processes and administration can be harmonized, it will be easier to control certification cost to the fabricator
- 3) Laboratory approval and support can be better coordinated, and
- 4) The North American position would also be improved in the International arena

## B. The Proposed Concept

Initially a hybrid solution is proposed. While IGCC/IGMA and IGMAC would remain separate programs, normalization and commonality will be maximized whenever and wherever possible with the intent of creating a single program in the future. The IGCC Certification Committee would take the lead to establish requirements for both programs that IGMAC (FGIA) could either adopt or decline. Agreements would be revised to define the relationship.


# 7 – NORMALIZATION (CONTINUED)

## C. The Proposal Details

1. Current (but different) **fees** will be maintained for each program (exclusive of any normal fee increases due to economic conditions)
2. **Test standards and test** invoicing/ownership practices shall be maintained for each program.
  - a. IGCC/IGMA will test to ASTM E2190 and test invoicing will remain through the certification program. In effect, when test samples are fabricated, they become the property of the certification program. IGCC/IGMA is the test laboratories client. IGCC has maintained this practice as it is viewed to simulate the process of a fabricator “selling” units to a consumer “buyer”.
  - b. IGMAC will test to CAN/CGSB 12.8 and report issuance and test invoicing will be from the testing laboratory to the participating fabricator Licensee. Test reports are then furnished to the certification program to gain/maintain certification.
3. **Test frequency** for BOTH programs will be modified to require Prototype and 1<sup>st</sup> year certified test, then once each 2-year testing, even if failure – existing participants in the IGMAC program will be Grandfathered (remain on 2-year testing) for existing product lines.

	<b>Prototype (to achieve Certification)</b>	<b>1st Year Certified</b>	<b>2<sup>nd</sup> Year</b>	<b>3<sup>rd</sup> Year</b>	<b>4<sup>th</sup> Year</b>
<b>Proposed Test Requirement</b>	Test	Test	No Test	Test	No Test
<b>IGMAC Current</b>	Test	No Test	Test	No Test	Test
<b>IGCC Current</b>	Test	Test	Test	No Test	Test


4. A single **Procedural Guide** (Program Manual) will be used for both programs. Exclusive of the exceptions noted, common procedures and guidelines (How to certify triples, coated glass, etc.) will be implemented.
5. An **increase in definition** and available guidance for IGMAC



August 2020

Administrative Management Systems, Inc.  
Administrative Office  
PO Box 730, 205 West Main  
Sackets Harbor, NY 13685  
Phone: (315) 646-2234  
E-mail: igcc@ams-cert.com

[Link to Document](#)



**PROCEDURAL GUIDE**

(IGCC® Document ID-07)

INSULATING GLASS CERTIFICATION COUNCIL AND INSULATING GLASS  
MANUFACTURERS ALLIANCE IGCC®/IGMA® AND THE IGMAC  
CERTIFICATION PROGRAMS FOR SEALED INSULATING GLASS

# 7 – NORMALIZATION (CONTINUED)

## D. Status

**2021 May – IGCC Certification Committee** Motion: Pending FGIA (IGMAC) acceptance, legal review, and IGCC Board of Governors approval, support the IGCC/IGMA and IGMAC proposed certification normalization effort as described **Vote: 19/1/4**

**2021 May – IGCC Board** Motion: Approve ratify the actions of the Certification Committee **Vote: UA**

**2021 June – FGIA IGMA Certification Committee** Motion: Pending financial analysis, administration strategy, and written agreement for co-management of the final approved draft of the procedural guide, to recommend to the FGIA Board of Directors to accept the IGCC-IGMA/IGMAC certification program standardization plan as presented, **passed by unanimous voice vote.**

## E. Open issues

1. Agree upon fees between FGIA and AMS
2. Agree to structure of required agreements
3. Legal review and development of documents and agreements

## F. Timeline

Approval by IGCC – CC and Board	May 2021
Approval by FGIA - CC	June 2021
Approval by FGIA Board	???
Document revisions	July to December 2022
Implementation	January 1, 2023

# 8 – ADVANCED TESTING (RAC) SUB-COMMITTEE

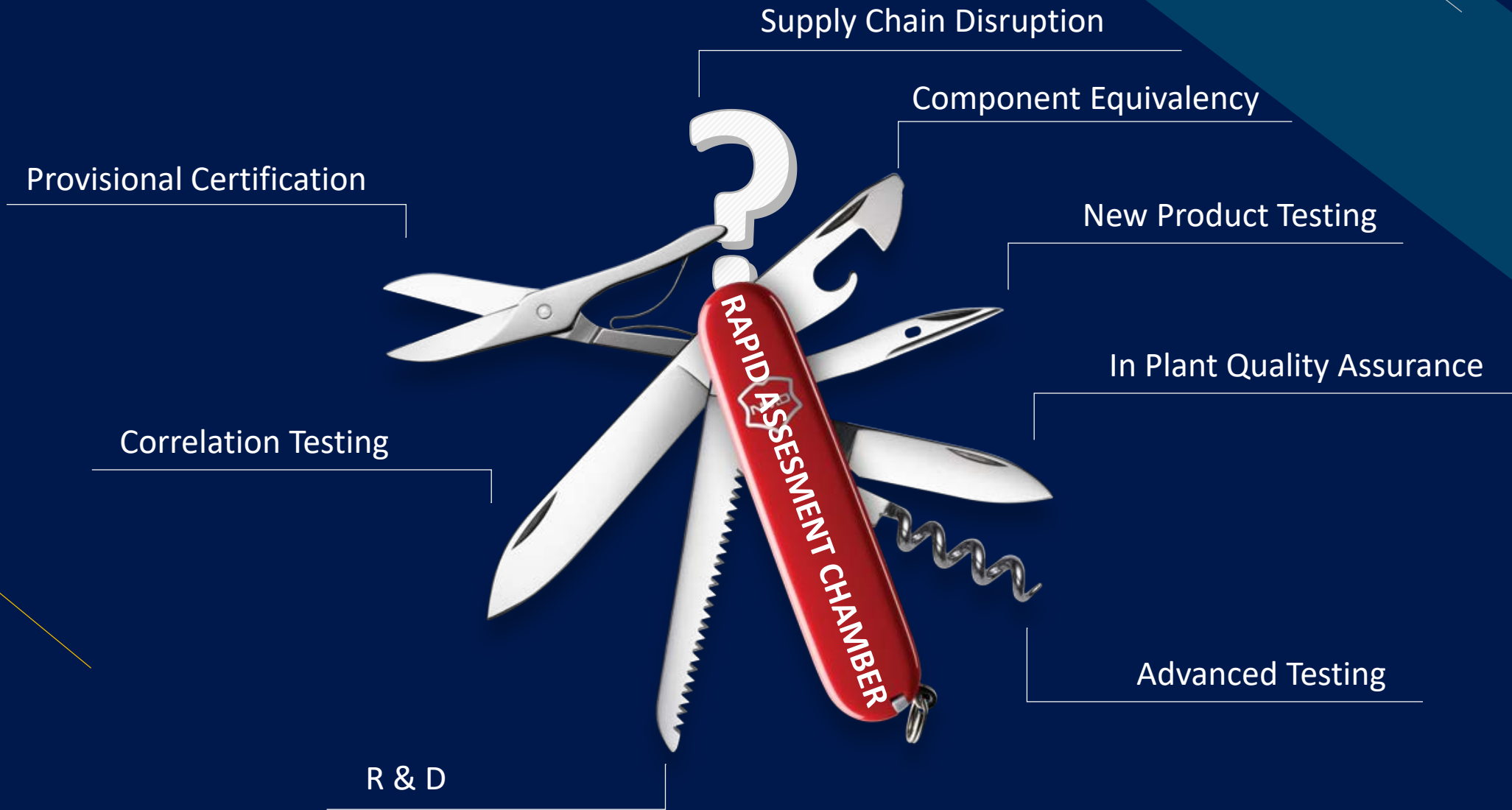
Committee: Provisional Certification and Advanced Testing (Includes combined IGCC and IGMA Committee)		Chair: Matt Waldren (Pella)
Staff Contact: Mitch Majewski		
Scope: Continued development of the PC certification approach and facilitate any studies or R&D and implementation, to include oversight of alternate testing approaches.		
Members		
Roger Eberwein (GED)		Jeff Haberer (Trulite)
William Davis (Vitro)		Mike Rapp (PDS)
Rick Wright (Oldcastle)		Seth Green (Associated Materials)
Joe Erb (Quanex)		Brian White (HB Fuller)
Michelle Phan (Cardinal)		Dan Haglin (FDR)
Amy Roberts (FGIA)		Dan Johnson (Intertek)
Joe Saad (Fenzi)		Helen Sanders (Technoform)
Nathan Young (Molimo)		Dennis Johnson (Public Interest)

**RAC**  
Provisional Certification

**RAC Update:**  
IGCC Certification Meeting  
May 3<sup>rd</sup>, 2022

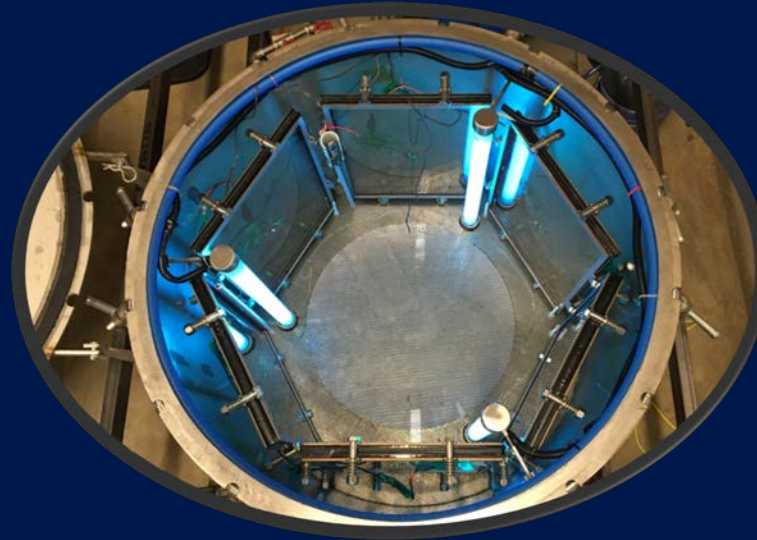
**THE GOAL OF RAC**  
Test IG units to determine if defects are present  
(workmanship, materials, design, other)  
Within 14 Days.

# What will the RAC do?





# A look at the RAC



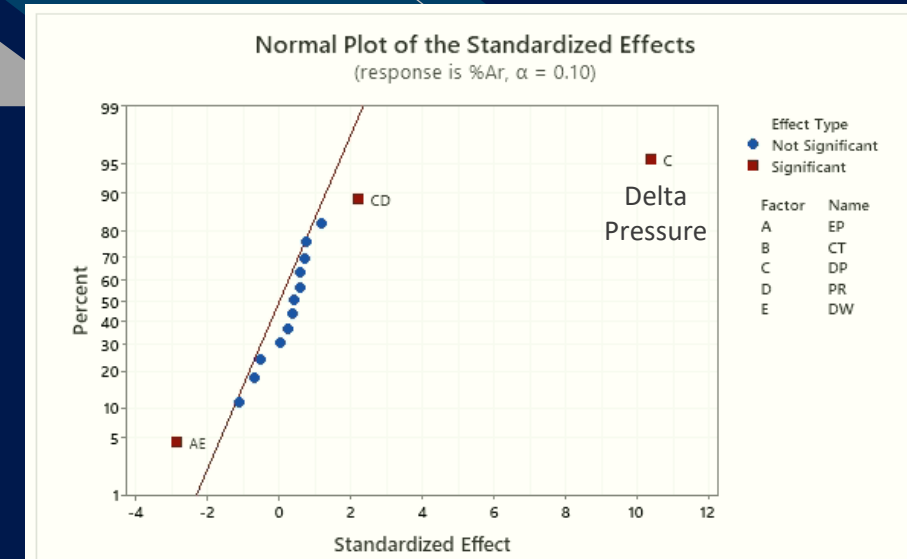


## Timeline since last meeting

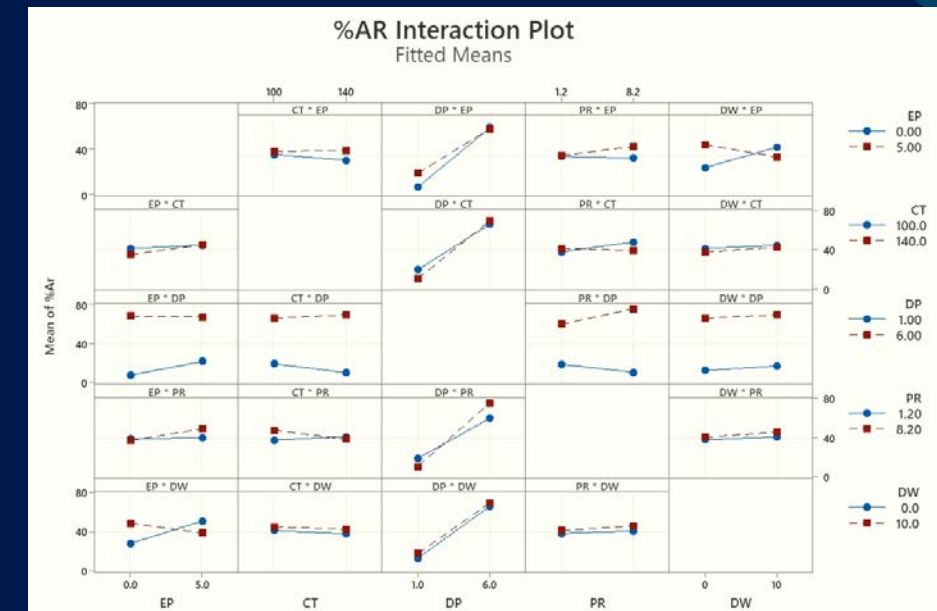
DOE Started	October 2020
RAC 2 Begins Testing	February 2021
2021 Annual Certification Meeting	May 2021
DOE Completed	October 2021
Subcommittee Approval of RAC for PC	November 2021
Board Approval of RAC for PC	January 2022
Validation Testing Begins	January 2022
2022 Annual Certification Meeting	May 2022
RAC Ordering Begins	PENDING May 2022

# DOE Phase 1 Completed

- 19 / 19 runs completed
  - Data has been analyzed by statistician
  - Ran additional Center Point Run for Validation
  - Delta Pressure is the most influential factor
- “Mildest” – DOE Run 4
- 0 Edge Pressure
  - 100°F Chamber Temp
  - ± 0.5 Delta Pressure
  - 8.2 Pressurization Rate
  - 0 Minute Dwell
- “Harshesht” – DOE Run 7
- 0 Edge Pressure
  - 140°F Chamber Temp
  - ± 3 Delta Pressure
  - 1.2 Pressurization Rate
  - 10 Minute Dwell



Our Relationship is non-linear



Determined interaction relationships of all factors

Edge Pressure  
Chamber Temp  
Delta Pressure  
Pressure Rate  
Dwell Time

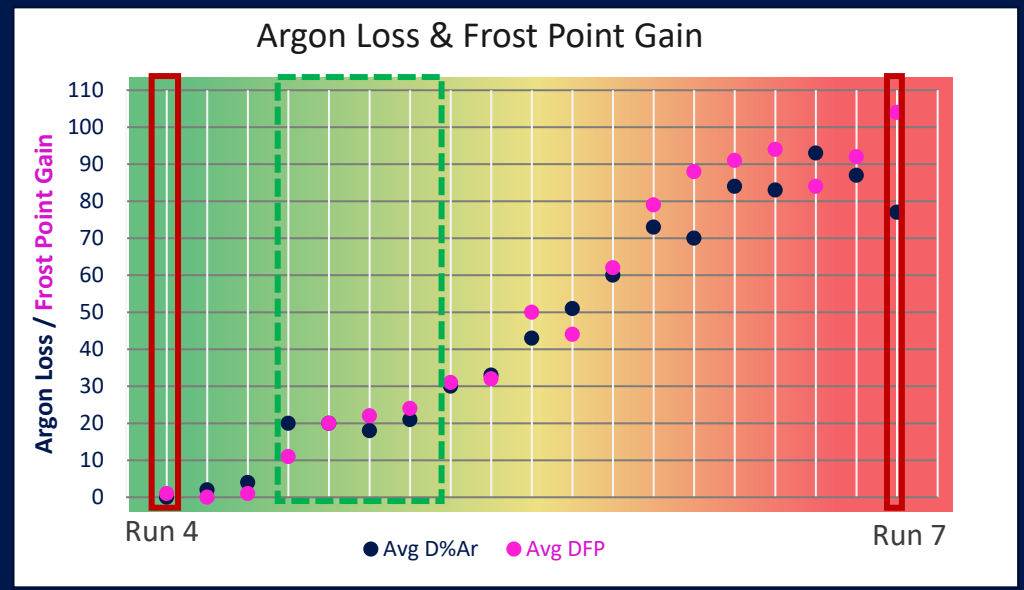
# Δ Argon Loss

# Δ Frost Point Gain

Sorted by  
Sum of  
results

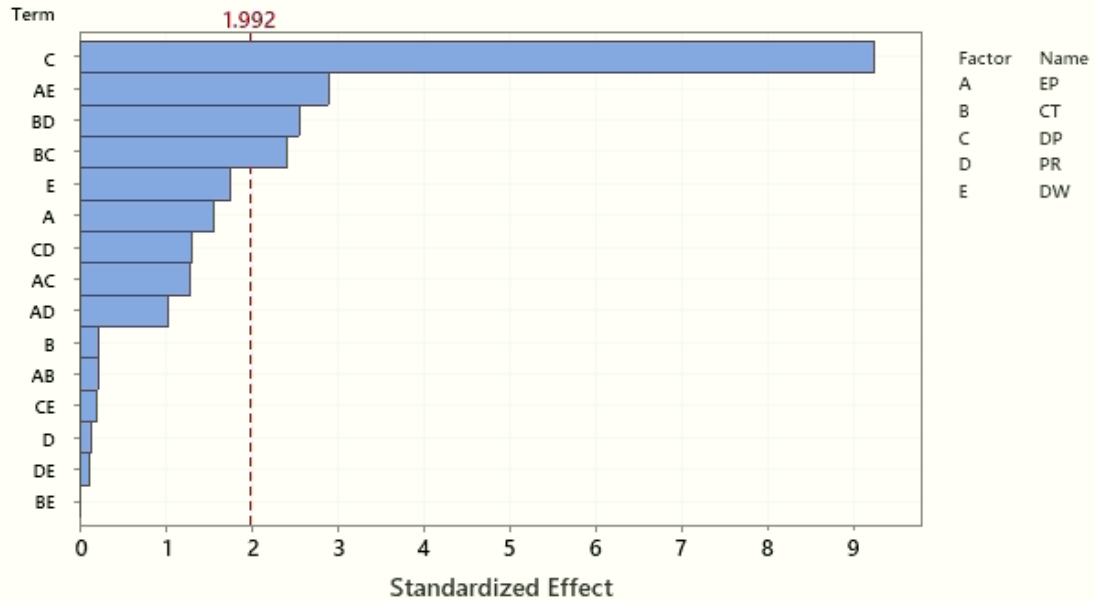
DOE #	EP	CT	DP	PR	DW	T1U1%Ar	T1U2%Ar	T1U3%Ar	T1U4%Ar	T1U5%Ar	T1U6%Ar	T1U1FP	T1U2FP	T1U3FP	T1U4FP	T1U5FP	T1U6FP	Avg D%Ar	Avg DFP	Sum	MFG
4	0	100	1	8.2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	1	C
20	0	140	1	1.2	0	2	5	1	2	0	0	0	0	0	0	0	0	2	0	2	A
12	0	140	1	8.2	10	2	5	2	5	4	0	1	0	1	2	0	0	4	1	4	D
14	5	140	1	8.2	0	7	91	4	7	3	8	1	65	1	0	0	0	20	11	31	E
8	5	140	1	1.2	10	7	76	2	0	12	8	9	96	7	8	6	7	18	22	40	D
9	5	100	1	8.2	10	19	6	84	7	8	3	80	6	49	3	3	3	21	24	45	D
1	5	100	1	1.2	0	93	88	0	0	0	1	88	96	0	0	0	0	30	31	61	C
10	0	100	1	1.2	10	76	5	17	10	6	86	45	0	56	27	0	64	33	32	65	D
17	5	100	6	1.2	10	4	1	80	83	2	89	3	3	92	100	3	99	43	50	93	C
19	0	100	6	1.2	0	0	0	30	28	0	94	97	-1	-1	65	96	7	51	44	95	B
5	0	140	6	8.2	0	1	0	98	80	0	0	0	0	92	92	0	0	60	62	121	C
18	5	140	6	8.2	10	0	87	80	43	90	64	92	91	41	91	92	67	73	79	152	B
6	5	140	6	1.2	0	92	90	0	0	28	0	90	92	100	69	92	0	70	88	159	C
13	2.5	120	3.5	4.7	5	80	88	0	49	91	0	95	94	0	82	95	0	77	91	168	A/B
15	5	100	6	8.2	0	88	91	93	90	95	50	88	93	86	92	94	92	84	91	175	C
21	2.5	120	3.5	4.7	5	88	82	80	73	0	92	94	94	94	94	94	94	83	94	177	E
13	2.5	120	3.5	4.7	5	93	91	92	97	93	95	94	58	94	71	94	95	93	84	178	A
16	0	100	6	8.2	10	85	91	96	77	85	85	81	90	99	96	90	95	87	92	179	C
7	0	140	6	1.2	10	31	89	94	91	83	71	104	104	103	104	104	103	77	104	180	D

- Yellow Bands are center points
- White Cells Sensors / Units compromised; data still usable in DOE Analysis
- Delta Pressure Clearly effected based on High or Low setpoint
- How influential is Edge Pressure? Top 3 and Bottom 2
- Chamber Temperature: 4/5 runs with least effect were 140F



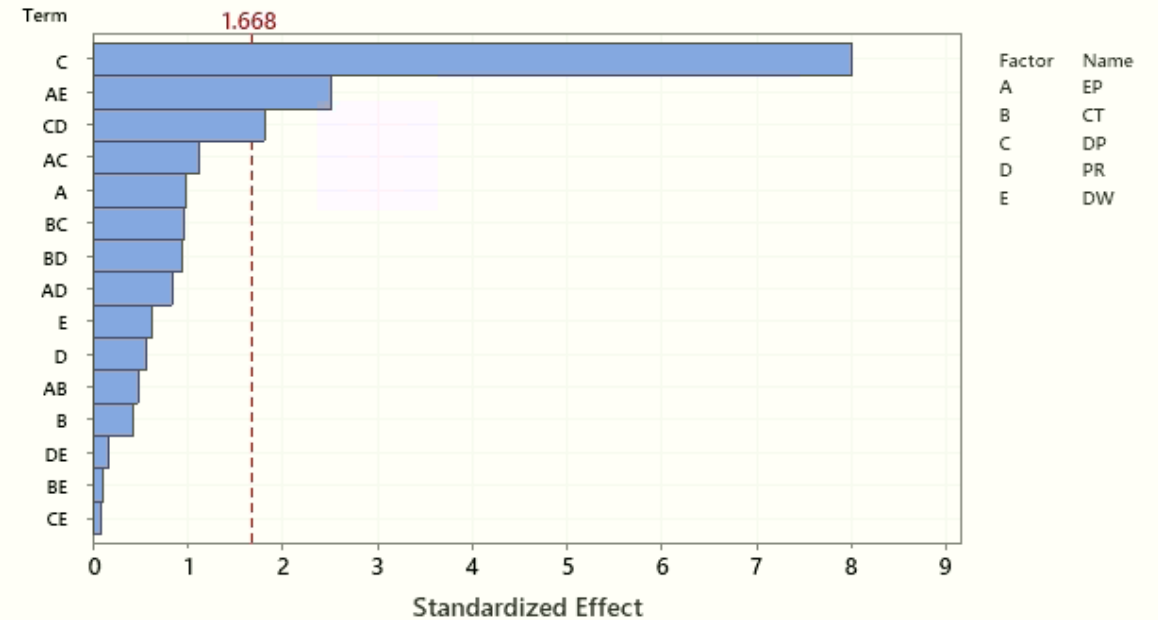
## How does each factor effect Frost Point Gain

Pareto Chart of the Standardized Effects  
(response is FPchange,  $\alpha = 0.05$ )



## How does each factor effect Argon Loss

Pareto Chart of the Standardized Effects  
(response is %Ar,  $\alpha = 0.1$ )



- Note factor C (Delta Pressure) has strongest effect on test results
- Individual Factors B (Chamber Temp) and D (Pressure Rate) had the least effect on results

- Worth noting:
  - Dwell and Edge pressure combination for both FP and AR were statistically significant
  - Delta Pressure alone had a greater effect than the following 3 strongest factors combined

# Subcommittee Recommendation

RAC

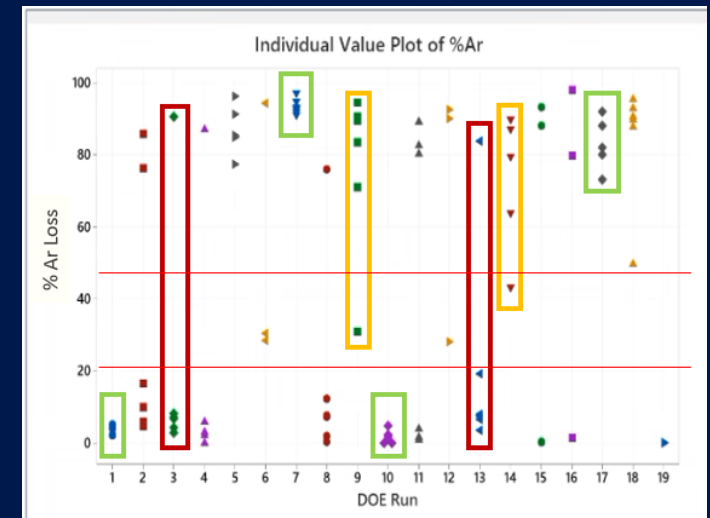
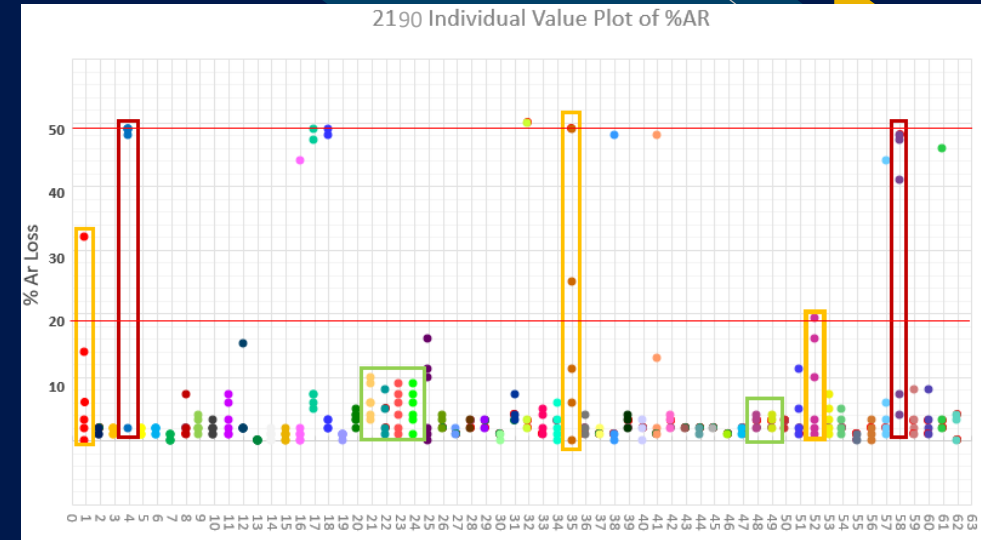
11/12/2021 Motion

Motion made to support Option 2, and forward to the IGCC Board for approval.

## Educated Decision & Live 2190 Correlation

### Option 2:

Based on the Phase 1 testing and the DOE results, the Provisional Certification and Advanced Testing Subcommittee agreed upon set points for Provisional Certification (PC) in the RAC. AMS will validate the parameters on additional types of units during the production of an initial run of RAC's. PC to begin in spring 2022 and allow for direct (live) correlation to 2190 results.



# Board Approval:

Motion: ... Approve additional funding ... and implement Sub-Committee option 2 including launch of Provisional Certification and use for equivalency issues, with exclusive License to AMS to build and supply RAC's initially (<5 years) ...

**Finalized January 28<sup>th</sup>, 2022**

“... additional validation testing will occur before any chambers are actually ordered or any significant funds spent.”



# Validation Testing

- We have > 6 types of units.
  - ✓ So far tested: T1- T2- T3- T4- T5- T6
- We have a borrowed SES Device.
  - ✓ Testing units without iTiG's
  - ✓ Get Argon values for units with Argon Sensor issues

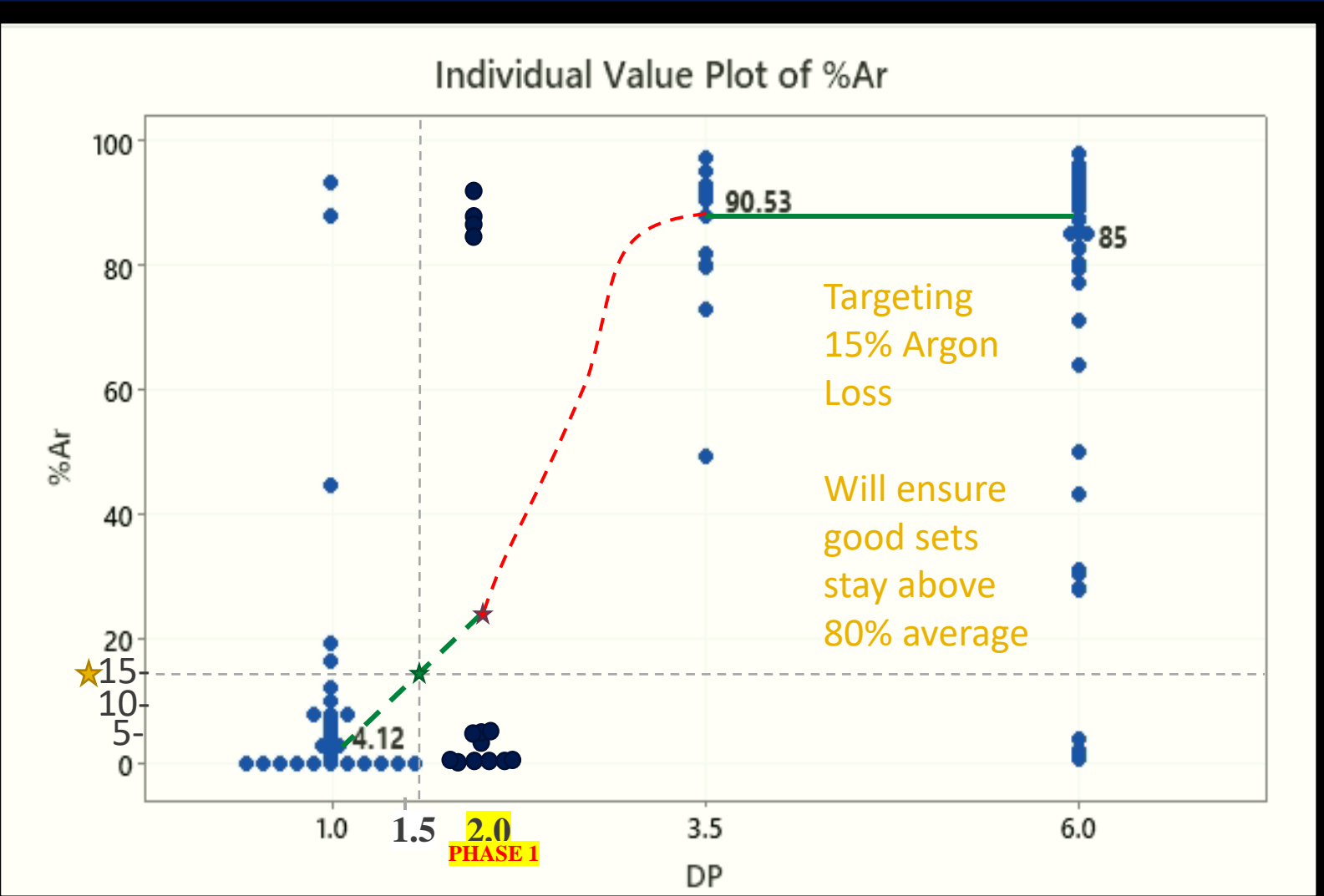


~66 Tested Prior

RAC 1	72	84	96	108	120	132	144	156	168	180
RAC 2	78	90	102	114	126	138	150	162	174	186

Total Number Validation Tested

# Validation Testing Conditions



Factor	Provisional Certification
Edge Pressure (lbf/in )	0
Chamber Temperature (Fahrenheit)	140
Chamber Pressurization Δ (PSI)	1.6 PSI (+/- .8 PSI)
Pressure Rate of Change (psi/min)	3 (.75/15s)
Pressure Dwell Time (Seconds)	5 Minutes

# Validation Testing (Final Conditions)

Total Validation Units: **190** (Type 1 - 2 - 3 - 4 - 5 - 6)

Total # of units tested in DOE: **132** (Type 1)

Total # of units tested in Phase 1: **102** (Type 1 - 2 - 3)

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**TOTAL-TOTAL: 424 Units (70 Sets)**

3 / 9 / 2017

**IGCC sets tested:**

PC - 21

VEC - 13

HBF - 11

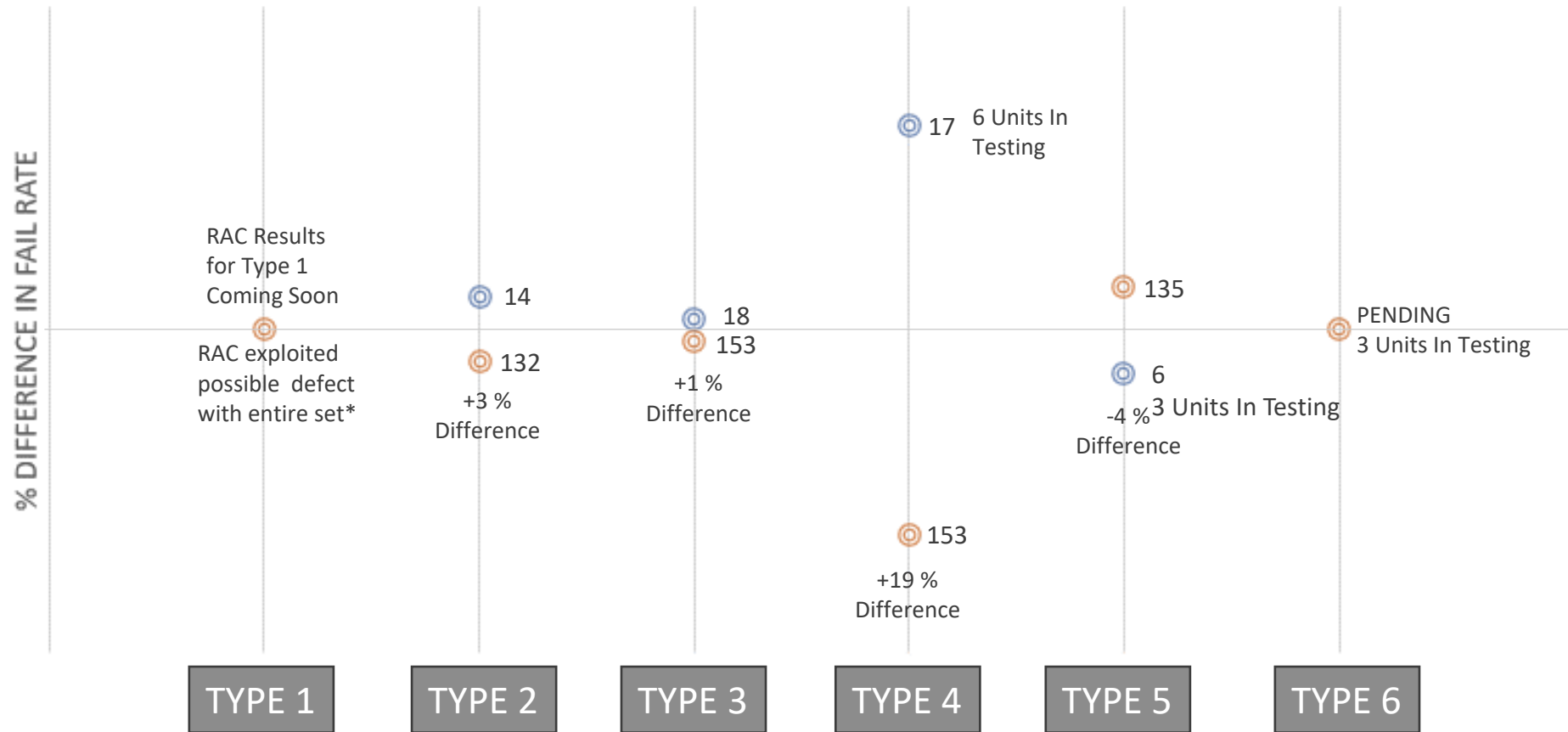
**Total Units For Testing:**

- Type 1: 24 (+)
- Type 2: 48
- Type 3: 42
- Type 4: 40
- Type 5: 21
- Type 6: 15

All 2190 Data is for GCIA sets

### Individual Unit Failure Rate: RAC vs 2190

● RAC Results ● 2190 Results



Comparing individual RAC Pass/Fail Rate to individual Pass/Fail Rate of 2190

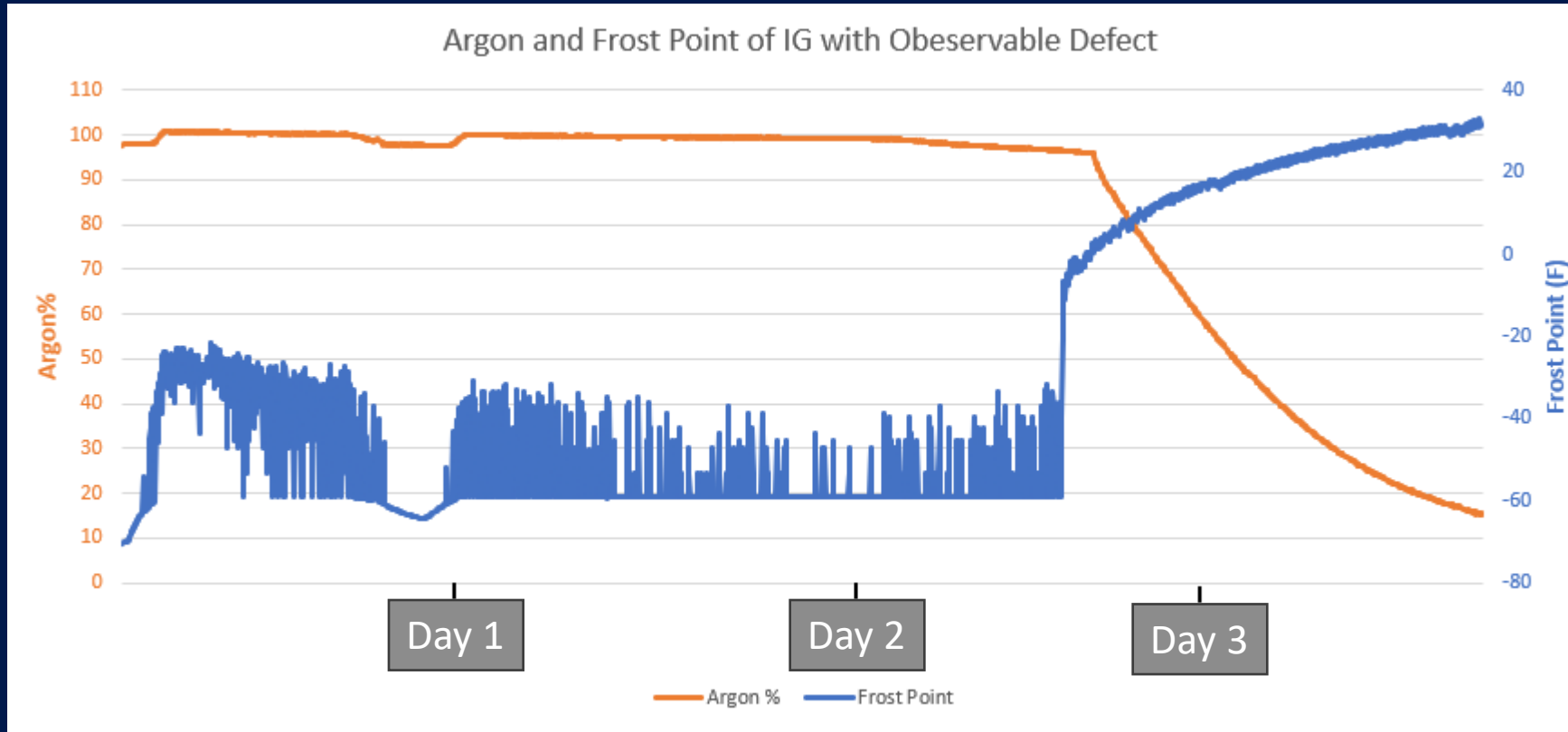
**RAC is showing to be a little harder on IG Units !!!!**

We want Blue (RAC) above Orange (2190)

The closer they are to the center line the better.

\* Units being formally evaluated for mode of failure

# RAC Evaluation of Units with Defects



Set of all 6 units failed in RAC within <5 days

Failure mode of the samples was the same

Upon investigation there was a contaminant in the seal system of the IGU

RAC Exposed defect consistently in all 6 units

# RAC Fabrication and Ordering

Fabrication of the first set of RAC's could begin May 2022

Price not finalized due to inflated market costs

Set to be under \$30k

Motion: With the knowledge and disclosure of the risk of potential for acceptance criteria drift, begin to accept orders for RAC.

Motion

1<sup>st</sup>: Helen Sanders

2<sup>nd</sup>: Rick Wright

Vote: 20/0/2 (x)P/( )F



## May 2022 Ordering Begins

AMS Receives Order from Customer

AMS Orders Subassembly's / Materials / Vessel / Electrical & Controls

Fabricate RAC

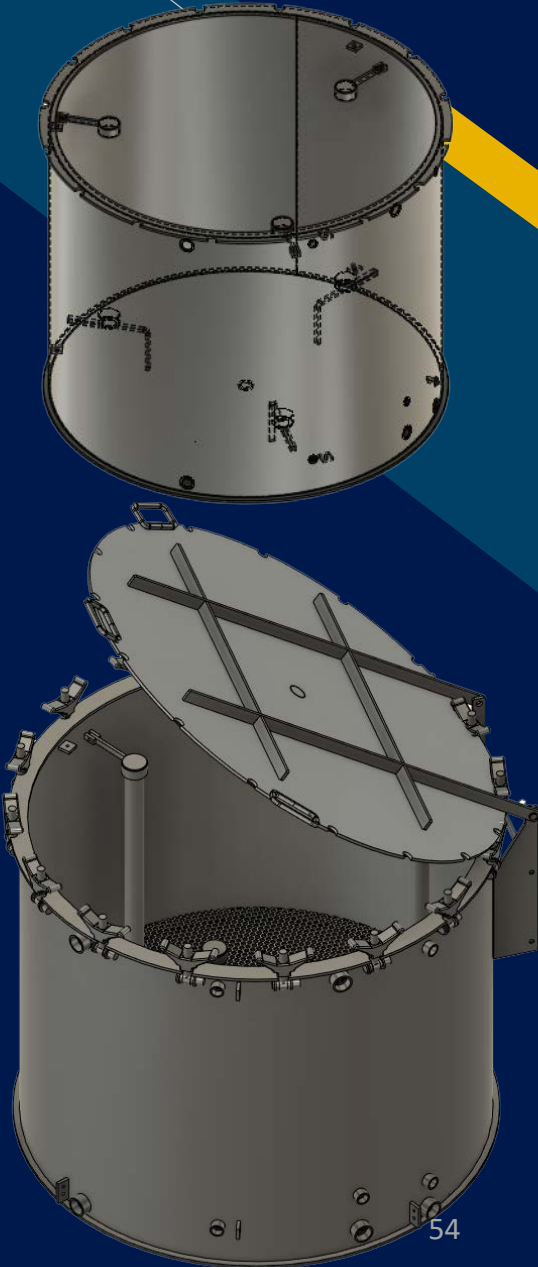
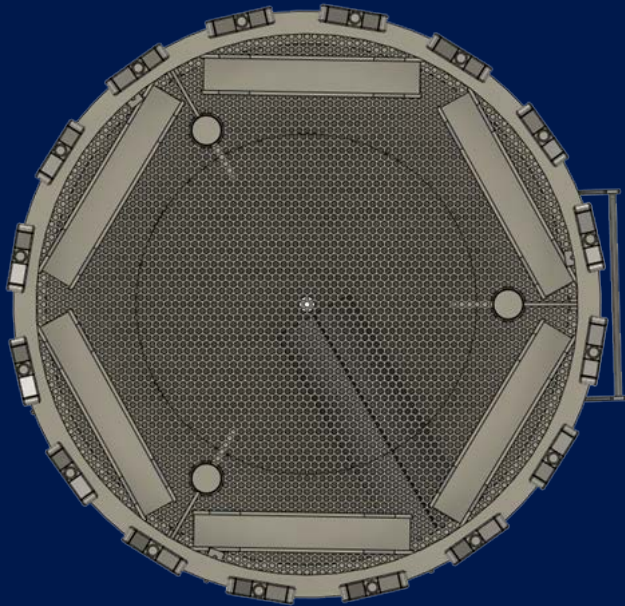
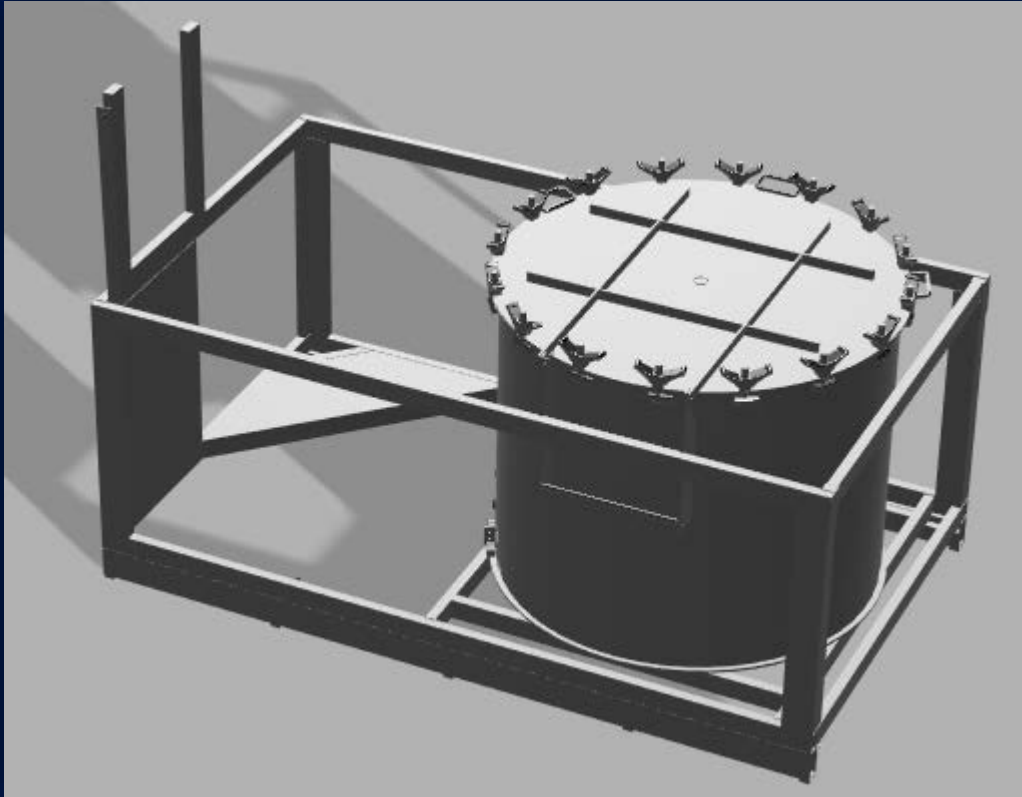
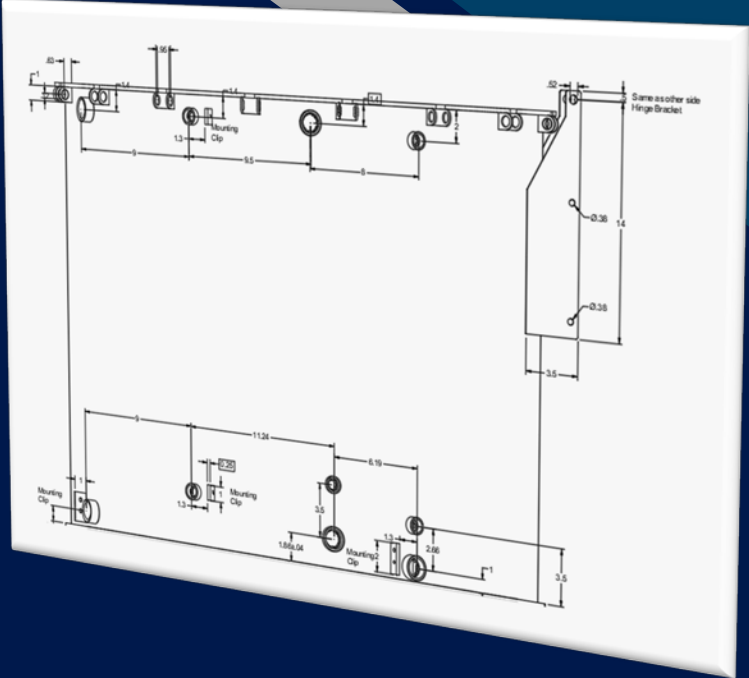
Assemble Controls / Vessel / Frame / RAC

QA Test of RAC

Shipping

Installation

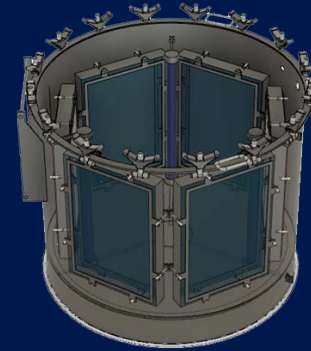
# RAC 3D Model & Drawings



# Running the RAC

## What is required:

- (3x) 20 AMP | (1x) 15 AMP Power outlets
- 6' x 4' space to operate the chamber (RAC assembly can be moved with a pallet jack)
- Water Source & Drain (only uses ~10 gallons / month)
- A single test operator, the RAC was designed with ease of operation in mind



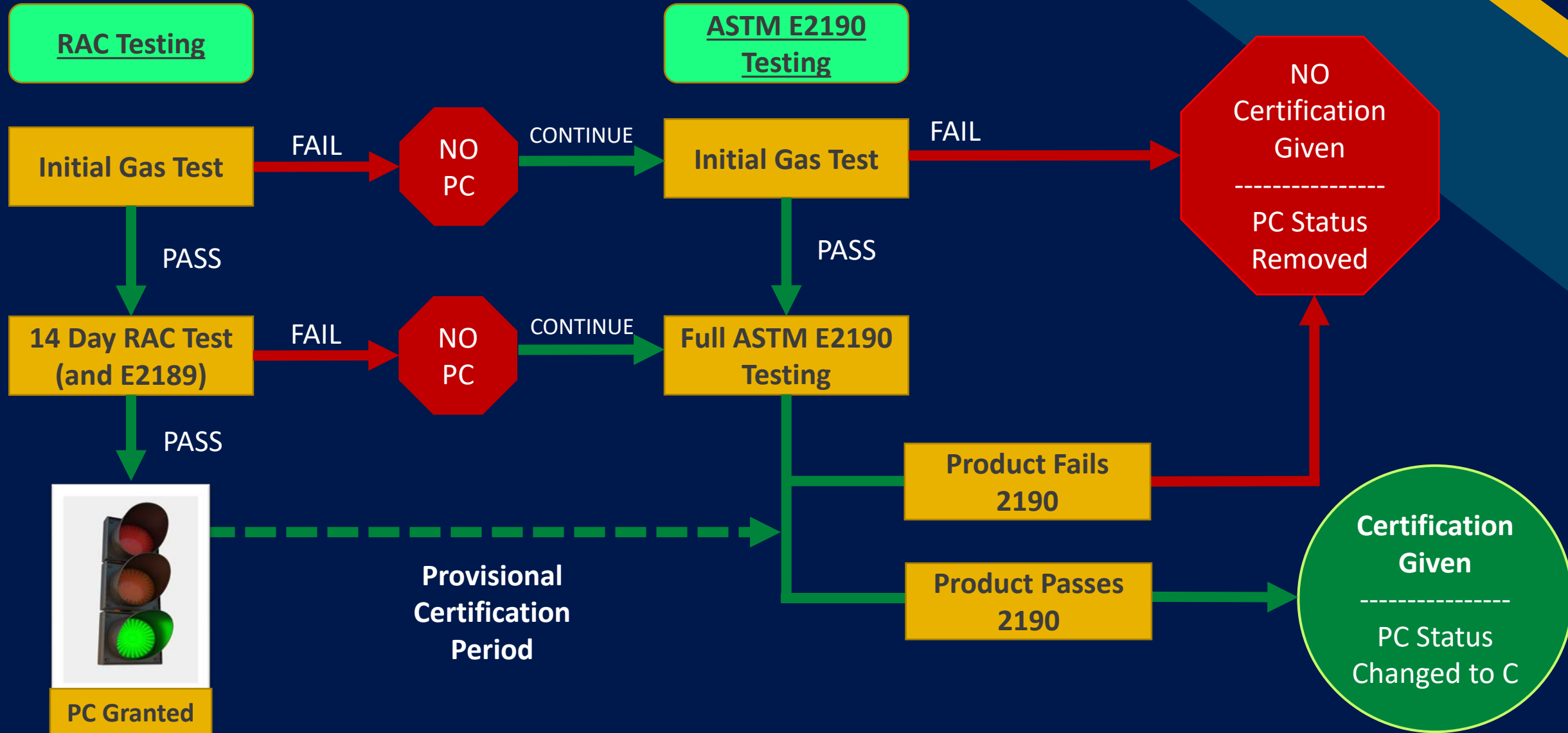
## Operating Conditions:

Factor	Provisional Certification
Edge Pressure (lbf/in )	0
Chamber Temperature (Fahrenheit)	140
Chamber Pressurization $\Delta$ (PSI)	1.6 PSI (+/- .8 PSI)
Pressure Rate of Change (psi/min)	3 (.75/15s)
Pressure Dwell Time (Seconds)	5 Minutes



# Provisional Certification Workflow for New Products

RAC



INSULATING GLASS  
**IGCC**<sup>®</sup>  
CERTIFICATION COUNCIL

**Administrative Office**  
PO Box 730, 205 West Main  
Sackets Harbor, NY 13685  
Phone: (315) 646-2234  
Fax: (315) 646-2297  
E-mail: [staff@amscert.com](mailto:staff@amscert.com)

**IGMA** INSULATING  
GLASS  
MANUFACTURERS  
ALLIANCE

**Certification Notes**  
(CN IG1010)

**Interim Provisional Certification (PC)**

**1. General:** IGCC/IGMA require as one of the conditions of certification, a passing test report for the specific model to be certified. The total IG unit testing is intended to 1) demonstrate performance of materials and components, 2) ensure compatibility of the assembled components as a system, and 3) ensure operator skill and workmanship is adequate to successfully fabricate the IG unit. With the adoption of IG certification requirements by NFRC and ~~possibly~~ others, IG certification is becoming more mandatory and less voluntary. With ever increasing frequency a company, ~~typically a residential window company, can not~~ sell a window/door/skylight/other, without IG certification. Many IG designs lend themselves to allow a fabricator to purchase a small quantity of a new component or material to fabricate initial test units. A decision on final production and certification may be delayed until completion of testing (approximately 6 months). Other designs require capital investment, small or large, before test samples can be made. If IG certification is needed to sell the window product, in these situations, the production equipment would sit dormant for the 6-month test period.

The intent of this Certification Note and interpretation is to provide ~~two options for~~ relief to this potential delay in production while still ensuring an adequate level of product/production research and development is performed.

**2. Current Guideline:** (excerpt from IGCC/IGMA Procedural Guide/CPD)

How Can You Become a Licensee?

The following steps must be accomplished before IGCC<sup>®</sup>/IGMA<sup>®</sup> can authorize a manufacturer to use the IGCC<sup>®</sup>/IGMA<sup>®</sup> permanent label:

~~1) 4)~~The manufacturer must present a passing prototype report from an approved IGCC<sup>®</sup>/IGMA<sup>®</sup> testing laboratory to the office of certification (see also IGCC Certification Note CN IG1010 – Provisional Certification). Fabrication of prototype test samples shall be witnessed by the Administrators representative during a plant audit, ...

Plan to revise Certification Note IG1010

Change from Interim Certification to Provisional Certification

Adding second option to use RAC for provisional certification



### 3. IGCC/IGMA Options and Interpretation

In cases where a fabricator wishes to initially certify a new IG construction (model) at a specific fabrication location and guideline G.21 may not be applied, the following may be considered to possibly achieve certification sooner than full ASTM E2190 testing;

Option 1- Supplier Assistance: IGCC/IGMA shall permit portions of the test sample fabrication process to be performed at a supplier location (equipment, material, component). This fabrication does not need to be under auditor witness. A product development plan must be submitted and approved by the Administrator which will address as a minimum 1) schedule 2) personnel training on the new product process 3) any changes to the quality system as a result of the new product 4) general description of product R&D.

Fabrication at the intended certification location must be maximized. The resulting report of testing may be presented for Provisional Certification (PC) and “Interim” certification granted prior to completion of the final production process. Re-testing must be performed at the first certification audit within 45 days after completion of the final production process.

Option 2 – Rapid Assessment Chamber (RAC): Through an extensive research and development process IGCC has developed the Rapid Assessment Chamber (RAC). The RAC was developed to accelerate and simulate the most detrimental long-term conditions an insulating glass unit might be exposed to. By encapsulating the test units in a UV rich, highly humid environment with elevated temperatures, and then oscillating pressure over a 14-day period, the units are durability tested to determine if defects (workmanship, materials, design, other) are present.

IGCC/IGMA shall permit fabrication of prototype test samples under auditor witness as normal except that a minimum of six (6) additional 14 X 20-inch test units shall be fabricated. The standard minimum number of IG units shall be submitted for full ASTM E2190 testing at an IGCC®/IGMA® Approved Testing Laboratory. The six (6) additional IG units shall be submitted for RAC testing at the same IGCC/IGMA Approved Testing Laboratory. Upon initial gas testing (if applicable) and passing ASTM E2189 and RAC testing of the six (6) additional units, provisional certification (PC) may be granted prior to completion of the final ASTM E2190 testing.

~~With successful completion of testing of units fully fabricated at the final production process location, full certification shall be granted. If this testing fails, (ASTM E2190 for Option 1 supplier assist, RAC for Option 2) authorization to certify this product will not be offered, be removed. If a product gains PC by RAC for a period of time, but then fails the parallel E2190 testing, the product will be decertified. PC may be attempted again after process adjustments.~~

### 4. Certification Listing:

~~If certified under either option 1 or option 2, normal product certification labelling may occur (authorization to label) but all certification listings (CPD, Website) and paperwork shall bare the “PC” designation until full auditor witness of test sample fabrication at the certified production facility and successful ASTM E2190 testing is completed.~~

### 5. Specific Examples:

A) Option 1: Intercept/Intercept Ultra – The equipment supplier may provide bent (dry) spacer that then could be used by the intended certification location to fabricate test units utilizing existing equipment for the remainder of the fabrication process.

B) Option 1: Thermal Plastic Spacer – Plant personnel could travel to an equipment supplier to build IG test units on like equipment under training conditions

C) Option 2: Fabricator wishes to switch to a different generic type of sealant or spacer and has the capability to fabricate with the new material



## 13.5 CLASS III - EQUIVALENCY

### G.5 Gray Area

Situations that are not included in the "Always" or "Never" or General categories listed above, fall into the gray area. ~~The gray area situation is covered by Minutes item 10.10.77.10 and is repeated here.~~

When there is a change and the licensee desires to use the same IGCC@/IGMA@ certification number, or desires to establish equivalency to a certified model, the licensee shall immediately notify the administrator with all details of the change and also satisfy either 1, 2 or 3 below:

- 1) Establish equivalency by passing the same level of ASTM test as certified to by:
  - ~~a) having specimens tested at an approved IGCC@/IGMA@ independent testing laboratory, or Witness of test sample fabrication is not required but specimens must be fabricated and submitted to the laboratory within two weeks after notification of the administrator. During the test period, the licensee may temporarily use the certification label on an interim basis.~~
  - ~~b) having specimens tested at an in-house (licensee) facility, testing done in-house by a licensee must be done under the surveillance of the administrator. Specimens must be fabricated and submitted to the laboratory within two weeks after notification of the administrator. During the test period, the licensee may temporarily use the certification label on a provisional basis or:~~
- 2) With approval by the administrator, establish equivalency by passing Rapid Assessment Chamber (RAC) testing. Witness of test sample fabrication is not required. Testing shall be at an approved independent testing laboratory.
- 3) Demonstrate the equivalency of the change to the satisfaction of the Certification Committee or a subcommittee. (Specimens not required.)

# QUESTIONS?

## Old and New Business?

### 5/4/2021 Certification Committee

8 RAC SC		Straw Poll: Are we heading in the right direction of Implantation of the RAC chamber for Provisional Certification (PC) (79% / 3% / 18%) (slide #25)
11-3 RAC Guideline		Straw Poll: Support the Sub-Committee and Board of Governors effort to continue development of RAC and PC guidelines. (88% / 0% / 13%) (slide #40)

11/12/2021 Sub Committee approval to move RAC and PC forward

1/28/2022 Board funding and approval to move RAC and PC forward

# IGCC ANNUAL PARTICIPANTS' MEETING

Tuesday May 3<sup>rd</sup>, 2022 - 4:49 – 4:50 PM

## Section 1. ANNUAL MEETING (From the IGCC By-Laws)

An annual meeting of the Participants shall be held each calendar year on a date to be designated by the Board of Governors for the purpose of electing members of the Board of Governors (but not officers) and for the transaction of such other business as may come before the meeting ...

1. IGCC President Dennis Johnson call the meeting to order @ 4:49 PM
2. Roll Call - Since this meeting immediately follows the certification committee meeting and attendees were the same for both meetings, minutes of the certification committee should be referenced for attendance.
3. Review Reports – Treasurers Report, Legal Counsel’s Report, and Board of Governors Report
4. IGCC President Dennis Johnson present slate of Board of Governors for nomination:  
Further nominations requested, Call the vote:

5. Old / New Business

**Proposed Motion:** Motion to accept the slate of BOG presented.

6. Meeting Adjourned @ 4:50 PM

<u>Business Community</u>	<u>Public Interest</u>
Bill Davis (Vitro)	Dennis Johnson
Michelle Phan (Cardinal)	Elaine Rodman
Joe Erb (Quanex)	Bruce Kaskel
Todd Schauder (ODL)	Yvon Chiasson
Adina Dobre (Intigral)	Max Wolf

Motion  
1<sup>st</sup>: Helen Sanders  
2<sup>nd</sup>: Gerhard Reichert  
Vote: 22/0/0 UA (x)P/( )F



End Day 1

# AGENDA

Call to Order – IGCC Certification Committee Mr. Joe Erb (Quanex) - Chair

- ~~1. Call to order and introduction~~
- ~~2. Determination of quorum, committee voting rights~~
- ~~3. Approval of minutes~~
- ~~4. Sub-committee list~~
- ~~5. Standing reports~~
- ~~6. IGCC Current Status/Remote Audits~~
- ~~7. IGCC/IGMA and IGMAAC Normalization~~
- ~~8. Advanced Testing (RAC) Sub-Committee~~
- ~~End Day 1 Participants Meeting~~

## 9. Materials Sub-Committee

← Day 2

10. Laboratory and Inspection Sub-Committee
11. High Altitude Units
12. Guidelines and Equivalency Sub-Committee
13. Old/New business
14. Next meeting
15. Adjournment



# 9 – MATERIALS SUB-COMMITTEE

Committee: Materials (Includes the IGMA Desiccant Committee)		Chair: Open
Staff Contact: Andrew Mosley		
Scope: Formulate process to integrate material fingerprint concept into the IGCC/IGMA certification program.		
Members		
Bill Lingnell (FGIA)	Gerhard Reichert (Glasslam)	Observer - Eric Rall (Chemsource)**
Jeff Haberer (Trulite)	Brian White (HB Fuller) (IGMA Chair)	Helen Sanders (Technoform)
Mike Burk (Sparklike)*	Randi Ernst (FDR)	Observer - Michelle Phan (Cardinal)
Joe Erb (Quanex)	Paul Chackery (QB Group)*	Observer – Michael Speicher – (HB Fuller)
Amy Roberts (FGIA)	Observer – Shulin Cui (SilicaStar)	Robert Grommesh (Cardinal)
* Members of IGMA Desiccant sub-committee not already on IGCC Sub-committee ** Leading desiccant effort		

## A. Desiccant Testing




# 9A - DESICCANT

Sub-committee suggested developing a common industry quality control test for fabricators to perform in-house testing to determine desiccant characteristics.

- Propose revising IGMA TM-2100 – *In House Testing Procedure*
  - Temp Rise test,
  - Methods found in the EN-1279-4
    - Gas desorption test
    - Dust
- Tentative Desiccant workshop **in conjunction with FGIA correlation study (May 2022?)**
- Following workshop present the Draft In-house Testing Procedure to the Sub-Committee for review.

SIGMA Recommended Voluntary In-Plant Test Methods and Performance Criteria for Desiccants for Sealed Insulating Glass Units



TM-2100-78 (81)  
TECHNICAL MANUAL

**INTRODUCTION & SCOPE**

The Sealed Insulating Glass Manufacturers Association ("SIGMA") is a voluntary non-profit international association whose members include insulating glass manufacturers and suppliers of related equipment, services and materials. Under SIGMA's by-laws, membership in SIGMA is open to all qualifying firms and persons, and SIGMA's stated purposes include establishing voluntary quality performance standards for the industry. SIGMA's **RECOMMENDED VOLUNTARY IN-PLANT TEST METHODS AND PERFORMANCE CRITERIA FOR DESICCANTS FOR SEALED INSULATING GLASS UNITS** are voluntary advisory guidelines only, to assist in achieving high quality performance of sealed insulating glass units. These test methods and performance criteria are for the voluntary consideration and use of manufacturers of sealed insulating glass units in their own independent business judgment, and SIGMA disclaims any liability for the use, application or adaptation of these voluntary test methods and performance criteria. The test method and performance criteria guidelines are not a specification. The voluntary test methods and performance criteria are provided as a service to the industry by SIGMA, and reflect the collective experiences and consensus views of sealed insulating glass manufacturers, design engineers, and persons and firms experienced in successful manufacturing techniques. These voluntary test methods and performance criteria should assist in attaining successful performance of sealed insulating glass units.

These voluntary test methods and performance criteria have been developed in accordance with SIGMA due process procedures to help assure the reasonableness of the guidelines. The guidelines have been reviewed by the SIGMA Component Quality and Performance Committee, Technical Policy Committee, and SIGMA's Board of Directors. The voluntary test methods and performance criteria are the result of open and expert discussions within SIGMA to help assure the fairness and completeness of the guidelines. The voluntary test methods and performance criteria reflect presently existing technology and are subject to periodic review and change.

The voluntary test methods and performance criteria are not intended to exclude other possible test methods and performance criteria. The practices included in the voluntary test methods and performance criteria, however, reflect practices, which have been associated over the years with obtaining successful field performance of sealed insulating glass units.

SIGMA does not provide interpretations of these voluntary test methods and performance criteria as to any suppliers or manufacturer's specific products or services. No person has authority in the name of SIGMA to issue any such interpretations.

Insulating Glass Manufacturers Alliance  
UNITED STATES: 27 N. Wacker Drive, Suite 365, Chicago, IL, 60606-2800  
CANADA: 1500 Bank Street, Suite 300, Ottawa, ON, K1H 1B8  
ph: 813.233.1510  
fax: 813.482.9436  
[www.igmaonline.org](http://www.igmaonline.org)

**IGMA** INSULATING GLASS MANUFACTURERS ALLIANCE

# 10 – IGCC AND IGMA LABORATORY APPROVAL STATUS

Committee: Laboratory and Inspection Committee		Chair: Brian White (HB Fuller)
Staff Contact: Mitch Majewski/Olivia Aubin		
Scope: Address and resolve concerns related to the interrelationship between the laboratories, the administrator, and IGCC/IGMA participants. Maintenance of the laboratory testing manual.		
<b>Members</b>		
Jeff Haberer (Trulite)	Dan Haglin (FDR)	Bill Lingnell (FGIA)
Seth Green (Associated Materials)	Joe Erb (Quanex)	Helen Sanders (Technoform)
Randi Ernst (FDR)	Michelle Phan (Cardinal)	Mark Hutchinson (Intigral)
		Ron Michalzuk (RPM)

- A. Lab Status
  - New Lab
  - Lab Performance
- B. Lab Manual
- C. Interactive Lab Training Exam
- D. IGMA TM-4000/4500

# 10A – IGCC AND IGMA LABORATORY APPROVAL STATUS

Company	Location	Date of Last Inspection	Signed Agmt (date)	Capacity (Sets of units)	Approved by Program	17025 issued date	Accredited to ISO/IEC 17025 Agency	No. of C Plants
Intertek / ATI	Fresno, CA	Pending 8/2022	11/13/2015	18	5/4/2021	5/14/2020	IAS TL-264	24
	Kent, WA	Pending 8/2022	11/13/2015	18	5/4/2021	11/2/2020	IAS TL-330	27
	Plano, TX	11/3/2021	11/13/2015	20	5/4/2021	7/15/2020	IAS TL-331	37
	Fridley, MN	11/1/2021	11/13/2015	44	5/4/2021	6/23/2020	IAS TL-285	41
	Guangzhou, China	10/12/2021 V	8/27/2018	4	5/4/2021	5/11/2021	IAS TL-395	7
Canadian Building Envelope Science and Technology (CAN-BEST)	Brampton, ON	Pending 7/2022	10/13/2015	18	5/4/2021	11/22/2019	SCC #222	33
China National Safety Glass & Quartz Glass Test Center	Beijing, China	9/1/2021 V	10/9/2015	24	5/4/2021	10/14/2020	CNAS L0690	45
Element Toronto (Formerly Exova)	Mississauga, ON	Pending 7/2022	10/13/2015	20	5/4/2021	12/14/2020	IAS TL-407	20
QAI Laboratories, Inc.	Medley, FL	11/17/2021	10/27/2015	22	5/4/2021	9/11/2020	IAS TL-948	35
National Certified Testing Laboratories, Inc.	York, PA	6/8/2021	10/16/2015	24	5/4/2021	12/22/2020	A2LA #3054.01	47
Molimo Architectural Product Testing	York, PA	6/7/2021	8/8/2019	18	5/4/2021	10/1/2020	IAS TL-678	17
Shanghai Institute of Quality Inspection and Technical Research (SQI)	Shanghai, China	10/20/2021 V	10/12/2015	24	5/4/2021	11/16/2020	CNAS L0128	41
PRI Construction Materials Tech	Tampa, FL	Pending 5/2022	4/4/2022					

\*New Lab\* - Requesting approval

# 10A –NEW IGCC®/IGMA® LABORATORY INQUIRY

## PRI Construction Materials Technologies

6412 Badger Drive  
Tampa, FL 33610

<https://www.pri-group.com/>

**Proposed Motion:** Motion to approve PRI Construction and add them to the IGCC list of 'Approved Testing Laboratories' once all steps listed are completed

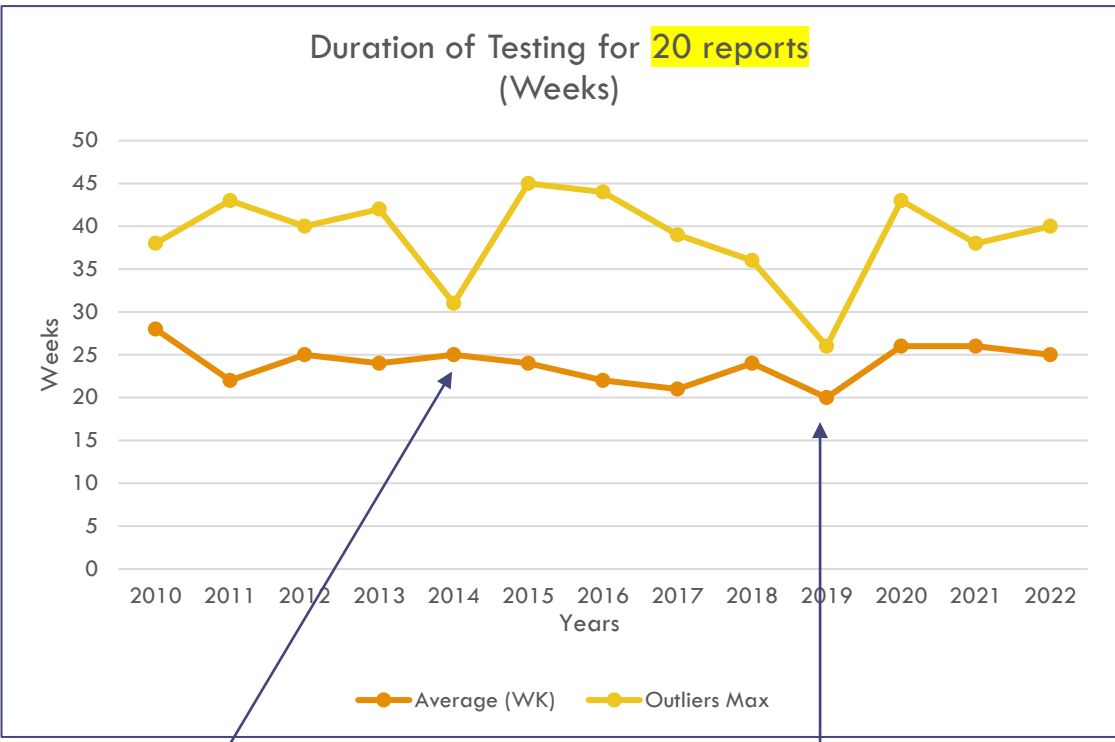
Motion  
1<sup>st</sup>:.     Matt Waldren     .  
2<sup>nd</sup>:.     Jeff Haberer     .  
Vote: UA  
22/0/0 **UA ( x )P / ( )F**

Done	Lab Approval Checklist	Completed/Date
✓	Complete Lab License agreement	<i>Done - Signed 4/5/2022</i>
🔄	Initial Survey of Laboratory	<i>In process – Virtual performed by Mitch Majewski on 4/15/2022 In person Scheduled for 5/2/2022</i>
🔄	Resolution of any Lab Corrective Actions	<i>In process</i>
✓	Receive 5 Letters of Intent	<i>Done - <u>4/5/2022</u></i>
✓	ISO Guide 17025 Compliance	<i>Done – Effective 10/7/2021</i>
	Pay Invoice	<i>Following in-person event an invoice will be sent to the lab</i>
	<b>Request IGCC Committee Approval</b>	

# 10A – IGCC LAB PERFORMANCE

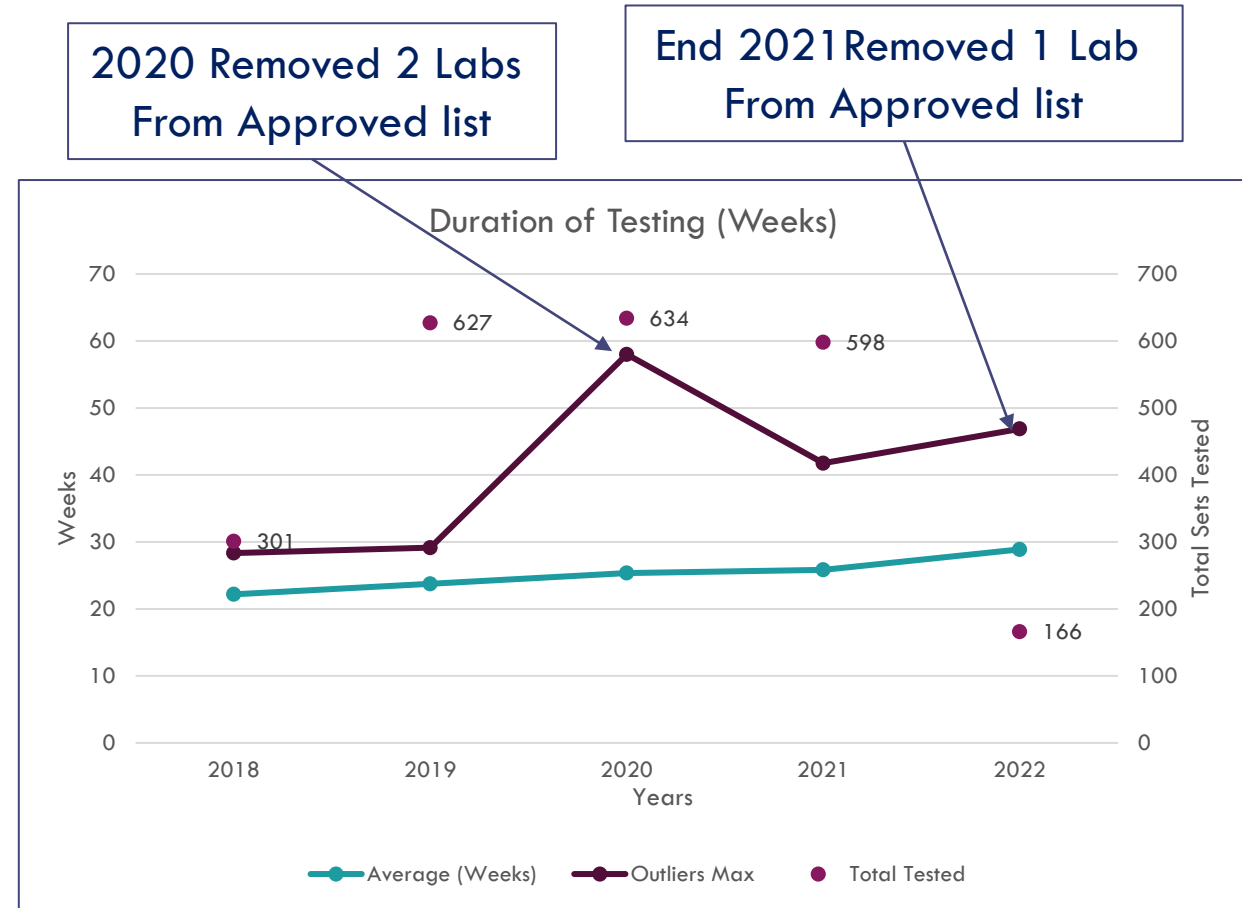
## Heightened Awareness – Closely Monitoring Laboratories

- Overall average btw 25-27 weeks ...but outliers getting close to 43 weeks max
- Do we need to do *something more?* And what?



2014 Hosted Lab Workshop

2019 Roll out of Lab IA Training

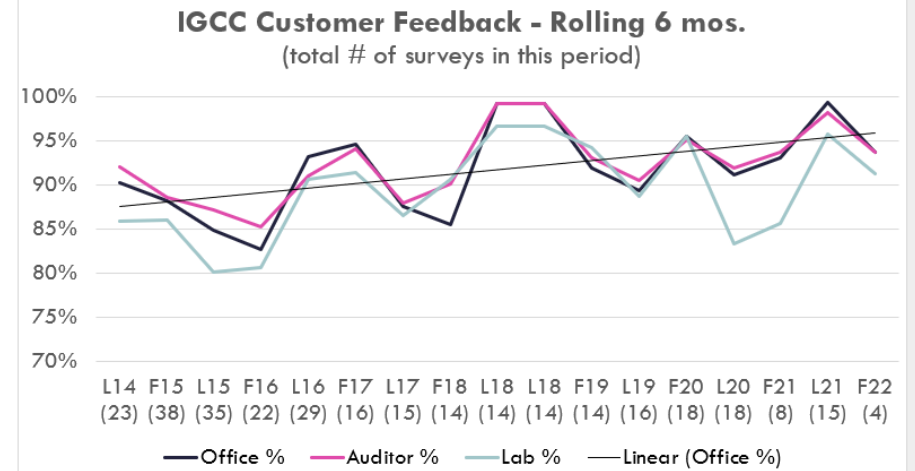


Total tested = all sets tested that year >10 weeks testing duration

# 10A — IGCC LAB PERFORMANCE

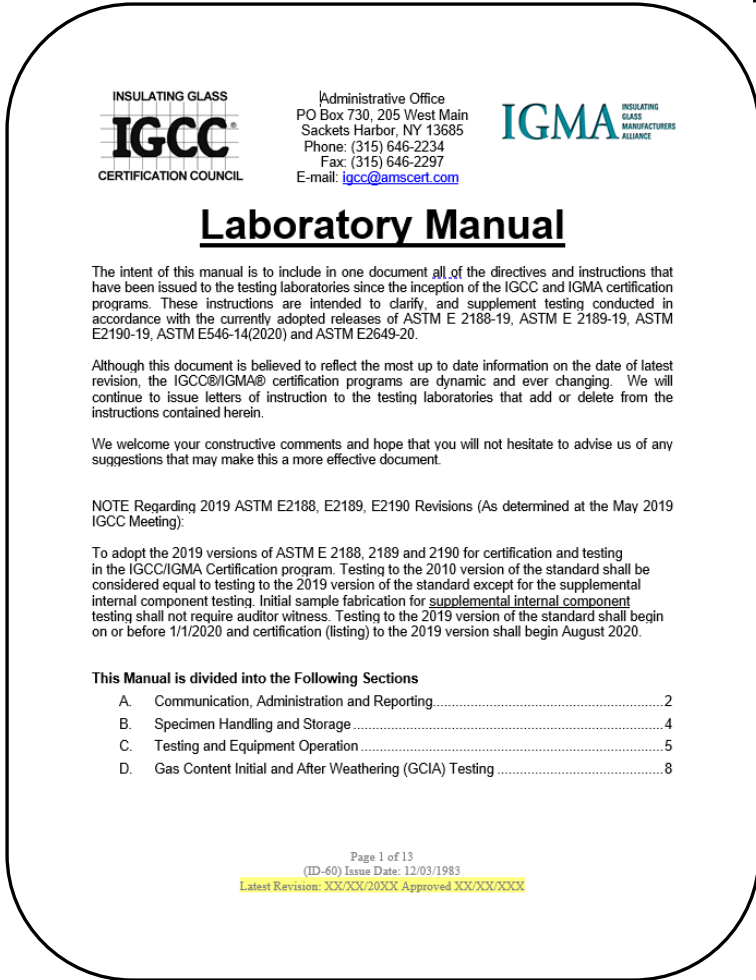
- Bring awareness to the group
- Lab Manual & Lab Agreement state '*Laboratory will maintain a maximum ten-month turn around period from time of receipt of test units*'
- Lab Agreement States "Laboratory may be subject to temporary Approved Testing suspension when deemed by the IGCC Administrator or the IGCC Certification Committee or the Certification Appeals Subcommittee that the laboratory performance is grossly negligent"
  - Should we define negligent?
  - Pull together Lab Committee meetings? When each lab reaches this point?
  - What do Clients think about Laboratories at the moment?
- **Do we require ALL Laboratory staff to take IA training?** Not just the technician signing the test reports?
- Would Fabricators like to see Avg turn around time (TAT) per lab posted in the CIP? Or on the Public Website?
- Are we in need of another Lab Workshop?

## E. Customer Satisfaction





## 1. Proposed Changes:



### • Proposed **New Guideline**

**C.22 Failure During Testing-** If a unit, or set of units, is deemed to be a failure prior to the completion of testing, the laboratory shall notify IGCC®, at which point the participant will be notified and provide guidance on whether testing should continue or be stopped. The laboratory should continue the testing of failed units unless directed otherwise by IGCC®.

When reporting final FP of a failed unit report actual FP at least to ~~(suggested 20-degree bracketing)~~

**C.23 Equipment Status-** (This includes equipment operational status, capacity) If any of the weathering equipment involved in ASTM E2190 testing (Accelerated Weathering chamber, Fog Box, High Humidity Chamber, etc.) experiences downtime greater than 2 weeks, or equipment capacity is reduced, the laboratory shall notify IGCC® within 2 working days.

## 2. Updated the attachments:

- Notification of Test Specimen Fabrication form
- Monthly Status Report form
- IGCC/IGMA Guidance Summary Sheet – Include fields that need to be filled out on the MSR, gas reading between phases, reference to the ASTM standard where needed

**Proposed Motion:** *Motion to approve the revisions to the Laboratory Manual as written above in red, and updates to the attachment.*

Motion	
1 <sup>st</sup> :	<u>Todd Schauder</u> .
2 <sup>nd</sup> :	<u>Jeff Haberer</u> .
Vote:	UA
22/0/0	UA ( x ) P / ( ) F

# 10C – LABORATORY INTERACTIVE TRAINING

8C	9.26.18.2	Brian White	Christian Cirino	Mandate starting 1/1/2019 any technicians signing IGCC/IGMA test reports are required to take and pass the IGCC Laboratory Interactive Animation Training exam (Test Result = 100%).	UA	P
----	-----------	-------------	------------------	--	----	---

Completed Exams with 100% Correct

2 Technicians 2022  
 31 Technicians 2021  
 30 Technicians 2020  
 28 Technicians 2019

## 2022 IGCC/IGMA Lab Training Released

Provided an anonymous survey to the laboratories on the effectiveness and quality of the training.

### Questions Added 2022:

- “Discontinuity in Testing”
- “Unit Stabilization”
- “Maximum Turn Around Time”
- “Notification of Specimen Receipt”
- “MSR Update Requirements”

Q: Are you finding that taking the training annually is helpful?

“Yes. I hope it can be open always for the lab technician.”

4-10-2022

“It is definitely a good tool to aid in the training of new technicians involved with glass testing.”

4-11-2022

Q: Do you think others at your laboratory would benefit from taking this training?

“Yes. Our director and new operator need this training.”

4-10-2022

**Proposed Motion:** Motion starting in 2022 all technicians either signing IGCC/IGMA test reports, or performing IGCC/IGMA testing, are required to take and pass the IGCC Laboratory Interactive Animation Training exam annually (Test Result = 100%).

Motion

1<sup>st</sup>.: Michelle Phan

2<sup>nd</sup>.: Seth Green

Vote:

22/0/0 UA ( x ) P / ( ) F

# 10D – IGMA TM-4000/4500

- Last meeting April 8<sup>th</sup>, 2022 – assignments for reviewing document sections and content
- Next schedule meeting tentative May 2022

## 10.0 QUALITY ASSURANCE PROGRAM (pg 69 CPD)

IGCC®/IGMA® require licensees to have a working quality assurance program for the fabrication of insulating glass. As a minimum, the licensee's quality assurance system must comply with the general requirements of IGMA TM-4000-02(07) "Insulating Glass Manufacturing Quality Procedures Manual" which established 1) general requirements for quality systems and 2) provides practical solutions for implementing such a system. IGCC®/IGMA® requires compliance to these general requirements of IGMA TM-4000-02(07) "Insulating Glass Manufacturing Quality Procedures Manual" but does not define the specifics of the quality assurance system which should be appropriate for the type, range and volume of work performed.

What IGCC/IGMA Currently Audit to

TM-4000-02(07)

QP-S100	QUALITY PROGRAM REVIEW	1.5	1/22/02	4	1
QP-S200	PROCESS CONTROL	1.4	1/22/02	16	5
QP-S201	CALIBRATION	1.3	2/22/01	6	21
QP-S202	INSPECTION AND TESTING				27
	a.) COMPONENTS AND RAW MATERIALS	1.5	10/18/07	6	27
	b.) FINISHED PRODUCT INSPECTION	1.3	10/18/07	6	33
QP-S203	NON-CONFORMING PRODUCT AND CORRECTIVE ACTION	1.5	1/22/02	4	39
QP-S204	STORAGE AND HANDLING	1.4	1/22/02	4	43
QP-S205	FIELD SERVICE (205a Forms)	1.3	2/22/01	8	47
QP-S206	QUALITY AUDITS	1.3	2/26/01	10	55
QP-S207	QUALITY CONTROL FORMS	1.3	10/18/07	8	65
QP-S208	TRAINING	1.3	2/19/01	4	73
QP-S209	STATISTICAL TECHNIQUES	1.3	2/22/01	4	77
QP-S210	REFERENCE DOCUMENTS	1.4	1/22/02	2	81

DRAFT TM-4000-02(XX)

Assignment of sections for review (from Table of Contents)

Section	Title
1	Quality Program Overview
2	Definitions & References
3	Calibration
4	Process Control
5	Inspection & Testing
6	Storage & Handling
7	Training
8	Quality Audits
9	Statistical Techniques
10	Installation Instructions
11	Field Service
APPX A	Component Codes
APPX B	Manufacturing Recommendations
APPX C	Quality Control Forms
APPX D	Sample Procedure for Handling Aftermarket Cases
APPX E	Quality Audit Checklist

What does this mean for IGCC/IGMA Quality System?

# 11 – HIGH ALTITUDE UNITS

<b>Committee: High Altitude Gas Content</b>		<b>Chair: Rob Grommesh (Cardinal)</b>
Staff Contact: John Kent		
Scope: Review generic design alternatives for providing IG gas content at high altitude and determine if current certification and testing direction is adequate.		
Members		
Dan Johnson (Intertek)		David McDonald (Marvin)
Mike Rapp (PDS)		Randy Ernst (FDR)
Seth Green (Associated Materials)		Dan Haglin – FDR
Drew Pavlacky (Andersen)		Bill Lingnell (FGIA)
Matt Waldren (Pella)		Marg Webb (FGIA)
Ryan McHugh (Integrated Automation Systems)		Amy Roberts (FGIA)

## Proposed guideline

Add to Product Key (**Certification listing per each individual type of CPC system**)

### Cavity Pressure Compensation (CPC) Systems

TI = **Tubes Inserted** (TI units intended to be closed at some point after fabrication may be certified (durability and GCIA) if passing results are achieved. TI units intended to be left open, with no additional gas capture, shall not be GCIA certified.)

HR = **Holes Resealed** (Holes into the sealed airspace, created either in the field or at the factory, that are permanently sealed in the field for the purpose of cavity pressure compensation)

PA = **Pressure Adjusted** (Units initially made with a positive or negative preset)

RS = **Relief System** (Bladder or diaphragm)

PF = **Post Fabrication** (Designs requiring a secondary fabrication process at or near the installed altitude. Example, closing of a valve)

OT = **Other** (uncategorized)

# 11 – HIGH ALTITUDE UNITS

## 1.) DEFINITIONS

Breather Tube - Tube inserted into the I.G. spacer **that is** intended to be permanently sealed at some point either prior to final glazing of the unit **or by access to the end of the breather tube after glazing.** This sealing is generally intended to **be done after the unit is at or near its final installation elevation.**

Capillary Tube - Tube inserted into the I.G. spacer and intended to be left permanently open.

Cavity Pressure Compensation Systems (CPC) - Any IG unit component or process which is designed to manage the cavity pressure of an IG unit.

Capillary Tube CPC and How It Is Related to Membrane - IGCC®/IGMA® observes that organically sealed insulating glass units are not actually hermetically sealed, but rather are composed of sealing systems which demonstrate sufficiently low water and gas transmission rates as to pass the accelerated weathering conditions imposed in ASTM standard(s). We acknowledge that certain cavity pressure compensation system capillary tube designs may also control the passage of water and gases in such a manner as to allow breathing but still demonstrate the ability to pass the test conditions.

# 11 – HIGH ALTITUDE UNITS

## 2) CPC Systems

An I.G. construction incorporating a CPC system ~~permanently open capillary tube~~ will be certified ~~considered~~ and listed (durability and gas content) as equivalent to a previously IGCC®/IGMA® program ~~durability~~ certified I.G. model without a CPC system ~~capillary tube~~, provided the following applies: ~~(Modified 10/28/09)~~

- a) Material and construction of the units are identical, except for the inclusion of the CPC system ~~capillary tubes~~.
- b) Both sets of I.G. units pass ~~reach the same performance level~~ when tested according to ASTM standard(s) durability and gas content (GCIA) if applicable. The units with CPC system ~~capillary tubes~~ need only be tested once, but each type of CPC must be tested and will be listed accordingly (see product key).  Tubes Inserted, TI units intended to be closed at some point after fabrication may be certified (durability and GCIA) if passing results are achieved. TI units intended to be left open, with no additional gas capture, shall not be GCIA certified.
- c) The test must be run by an IGCC®/IGMA® approved lab. Unit installation instruction must be supplied to the lab.
- d) Preparation of test specimens must be ~~need not be~~ witnessed to ensure all fabrication steps of the CPC system process are adhered to. Evidence of an SOP shall be provided. Test results shall be submitted to and reviewed and approved by the administrator.



# 11 – HIGH ALTITUDE UNITS

## Sample Listing(s) Example

<u>Cert #</u>	<u>Frame Const.</u>	<u>Substrate</u>	<u>Spacer</u>	<u>Desiccant</u>	<u>Sealant</u>	<u>Int. Comp</u>	<u>GCIA</u>
6543	BC4/PLJ/IC/TI	U/C2	MA	LF	PIB/S2	IC	Yes
7654	BC3/MC1/MT/IC/PA	U/C2/U	FS/FS	IB/IB	RHM	IC	Yes/CPC
8765	BC3/MC1/SS/IC/PF/HR	U/C3	TS	MX	HM	IC	Yes/CPC
*9876	BC3/MC1/SS/IC/TI/RS	U/C3	TS	MX	HM	IC	Yes/CPC (RS only)

## Sub-Committee Direction (11/15/2021)

- Present guideline for vote at May 2022 IGCC Certification Committee meeting
- Any test performed prior to 5/4/2022 shall be grandfathers (i.e. all current capillary tube reports).

**Proposed Motion:** Motion to approve the new CPC system and guideline as presented by the Sub-Committee for high altitude gas content certification.

Motion	
1 <sup>st</sup> :. _____	Dave Cooper _____.
2 <sup>nd</sup> :. _____	Adina Dobre _____.
Vote:	
21/0/1	<input checked="" type="checkbox"/> P / ( <input type="checkbox"/> )F

To dissolve this Sub-Committee as a result of the scope has been met.  
(Chair Directed)

# 12 – GUIDELINES AND EQUIVALENCY

Committee: CPD Guidelines And Equivalency	Chair: Dennis Johnson (PI)
Staff Contact: Andrew Mosley	
Scope: Resolve questions and concerns related to proper designation of new materials and IGU types; revise certification guidelines and interpretations as needed; revise CPD product key.	
Members	
Joe Erb (Quanex)	Gerhard Reichert (Glasslam)
Rick Wright (OBE)	Amy Roberts (FGIA)
Michelle Phan (Cardinal)	Michael Speicher (HB Fuller)
Helen Sanders (Technoform)	

- A. Reviewed List Criteria
- B. New – Plants Moving

## *Criteria for adding components to the reviewed lists*

### Current wording:

*“whenever possible or unless some restriction exists (i.e. lack of fabrication equipment), test sample fabrication shall be by a Licensee fabricator.”*

### History:

- **Aug 2020-** IGMAC Committee upheld wording.
- **March 2021-** IGCC/IGMA Appeals Sub Committee upheld wording.\*Suggested Guidelines and Equivalency Sub Committee review wording.
- **April 2021-** Guidelines and Equivalency Sub Committee further defined a restriction.
  - Fabricator not having a \$100,000 piece of equipment is a significant restriction.
  - Providing a fabricator with a sealant pump is not a significant restriction.
  - “I can’t find a fabricator to fabricant unit” is not a significant restriction.
- **May 2021-** IGCC Certification Committee agreed with Guidelines Committee, wording left as is with defined restriction.
- **April 2022-** IGCC/IGMA Appeals Committee upheld wording, will be brought to the IGCC Certification meeting May 2022.

### Issues: (Multiple Suppliers Involved)

1. Fabricator line time is almost unattainable, COVID restrictions, visitor policies
2. Time needed to fix/set-up/adjust production machinery, purge lines, could take down production for days.
3. With new components, fabricators are unwilling to allow unknown materials in their systems
4. As this is a component qualification process, component suppliers “should” do the test fabrication

### Options:

1. Maintain current wording.
2. Modify wording “~~whenever possible or unless some restriction exists (i.e. lack of fabrication equipment),~~ test sample fabrication shall be by a Licensee fabricator **or a component supplier.**”
3. Other

**Proposed 1<sup>st</sup> Motion:** Motion to approve option 2 above as written.

Motion
1 <sup>st</sup> .. <u>Gerhard</u>
2 <sup>nd</sup> .. <u>Matt W</u> .
Vote:
7/10/5 ( )P/ <input checked="" type="checkbox"/> F

**Proposed 2<sup>nd</sup> Motion:** Motion to approve option 2 above as written, to include “Under auditor witness”.

Motion
1 <sup>st</sup> .. <u>Bruce Kaskel</u>
2 <sup>nd</sup> .. <u>Dave Cooper</u>
Vote:
16/3/3 <input checked="" type="checkbox"/> P/( )F

## Options:

1. Maintain current wording.
2. Modify wording ~~whenever possible or unless some restriction exists (i.e. lack of fabrication equipment)~~, test sample fabrication shall be by a Licensee fabricator, or a component supplier under auditor witness.
3. Other

Questions:

Q: How do you charge for this, who pays for it?

A: Process in place for “special visits” to charge supplier

# 12B — CERTIFIED PLANT(S) RELOCATING

*A few issues have come up lately and we were not able to pull together a SubCommittee call before the meeting.*

In 2017 IGCC defined what steps needed to be taken with a Sale of Plant or Transfer to New Ownership (Guideline G.36). Currently IGCC has no written guidance on what needs to be done when a Certified plant wishes to relocate.

Issues:

1. What does a plant need to do, if they wish to relocate?
2. IGCC is not being notified until after the move

As this topic is becoming **more and more prevalent**, we would like to request a **Guideline for plants** relocating and believe this could be done by modifying the G.21 Transfer guideline.

## G.36 Sale of Plant and Transfer to New Ownership

When a fabrication facility (plant) with a currently certified IGCC/IGMA product, or pending prototype(s), is sold to new owners, the certification may be transferred to the new owners. The following steps shall be followed for the new owners and plant to maintain IGCC®/IGMA® certification: (Adopted 5/4/2017)

- 1) Notify the Administrative Office, in writing, when the sale is to take place or when sale is finalized. Notification shall include a description of any interruptions in production or changes that may affect the status of certification, including product marking.
- 2) A new license agreement shall be signed and returned to Administrative Office, if the new owner is a new licensee.
- 3) The new owner shall be responsible for any outstanding certification and testing fees unpaid.
- 4) While it is encouraged for the new owners to utilize new IGCC/IGMA certification numbers, retention of the same certification number(s) from the prior owner shall be allowed. Regardless of prior testing history, testing will need to be completed during the next regular facility visit.
- 5) The above is only applicable if a majority of plant personnel and fabrication equipment is maintained. New prototype testing may be necessary if significant changes are made.

# 12B – CERTIFIED PLANT(S) RELOCATING



## G.21 Transfer

If a licensee manufactures the same model using the same technology at a different location, an IGCC®/IGMA® number with a temporary status will be issued provided that testing (durability and/or gas content) of the model is initiated at the next scheduled testing audit. (Modified XX/XX/XXXX)

- This guideline may not be applied to products for which certification has been previously removed due to test failure.
- This guideline may be used when a plant relocates (physical relocation) under existing Ownership (IGCC ~~should~~ shall be notified prior to plant's physical relocation).
- This guideline may be used if valid compliant test report(s) are within 12 months (one year) of the report date.

Black = current guideline

Red = Request new wording regarding relocation

**Proposed Motion:** Motion to approve additional clarification and wording regarding plant relocation as written above.

Motion	
1 <sup>st</sup> ..	Todd Schauder .
2 <sup>nd</sup> ..	Max Wolf .
Vote:	UA
22/0/0	UA (x)P/( )F



# 13 – OLD/NEW BUSINESS

<https://igcc.org/documents/412.pdf>



**Administrative Office**  
 PO Box 730, 205 West Main  
 Sackets Harbor, NY 13685  
 Phone: (315) 646-2234  
 Fax: (315) 646-2297  
 E-mail: staff@amscert.com



## Certification Notes

(CN IG 0211)

### **Certification and Testing of Vacuum Insulating Glass (VIG) and Hybrid VIG (HVIG)**

#### **1. Reference:**

At the June 23, 2010 IGCC/IGMA Certification meeting a motion was made that ASTM E2190 may not be the best standard to evaluate Vacuum Insulating Glass (VIG), but in the absence of another more applicable standard, IGCC/IGMA shall allow certification and testing of VIG with a qualifying note. This motion passed.

#### **2. General:**

- A. The IGCC/IGMA certification program encourages new products and technologies and has always attempted to structure guidelines and procedures to be inclusive rather than exclusive. With this in mind, IGCC/IGMA has agreed to offer certification for Vacuum Insulating Glass (VIG), although the ASTM E2190 standard was not written with VIG as a focus and may not give consideration to issues specific to VIG. IGCC/IGMA would encourage the VIG industry to develop a standard specific for VIG. Until such time as there is a specific VIG test, those submitting products for IGCC/IGMA Certification shall provide any additional testing documentation that has been done that would support ASTM E 2190 testing and provide evidence of consistent performance over time.
- B. Sample Fabrication Requirements – It is recognized that some VIG processes may not be able to meet the sample fabrication requirements of ASTM E2190 for glass and cavity thickness. In these situations, testing of the closest normal production practices to ASTM E2190 shall be allowed.
- C. Apertures, Ports, Other - Test specimens shall be constructed utilizing all the components of the VIG system, which are used in the ultimate product.
- D. Guidelines – All IGCC/IGMA certification guidelines shall apply to VIG and HVIG<sup>1</sup>, unless otherwise noted below.

- E. Testing- If the VIG is one component of an IG assembly, the assembly would need to be tested and certified separately (HVIG). Either VIG or HVIG may be initially certified.
  - a. Coated glass – Guideline G.19 shall apply to VIG and HVIG
  - b. HVIG Test sample glass and cavity – The VIG “mate” glass and cavity shall adhere to normal dual pane requirements (glass and cavity thickness), mate glass to be clear if gas content testing.
  - c. Number of samples – 13 units minimum shall be fabricated for VIG or HVIG test, when testing internal components (IC), 3 units must include IC’s.
  - d. HVIG ASTM E2189 (Volatile fog) testing and internal components – Only the “mate” glass and cavity shall be tested per normal dual pane requirements.
  - e. VIG and HVIG frost point and gas testing – All cavities shall be frost point tested. When applicable, only the “mate” cavity shall be gas tested.

#### **3. CPD Listing (sample)**

Example	FRAME CONSTRUCTION	SUBSTRATE	SPACER	DESICCANT	SEALANT	G CIA
VG Unit	VG	U/C	VG	VG	VG	
Hybrid VIG Unit	VG/BC3/MC1/AF	U/U/C	VG/FS	VG/IB	VG/PIB/SI	Yes

U/C = Un-Coated, Coated  
 VG = Vacuum Glazing

#### **4. Definition:**

Hybrid VIG (HVIG) - Consists of 3 (or more) pieces of glass. HVIG utilizes two glass lites constructed into a VIG assembly with a third lite attached to the VIG assembly by usual means of spacer/sealant(s)/desiccant components. The cavity between the VIG and mate lite may be filled with air or other gasses. The mate lite can be clear or coated. Other HVIG combinations are possible, such as a VIG sandwiched between two outer mate lites having two gas cavities, or two VIG units with a single gas cavity between them.

#### **A.GL.4**

Any change in glass type (i.e. tempered, heat strengthened, laminated or patterned glass) from that tested (annealed glass is normally used in all test specimens).

# 13 – OLD/NEW BUSINESS

Low MVT and slow moisture adsorption  
rate IGU's

Consensus to discuss further at CPD  
Guidelines Subcommittee.



Slow Draw Down Systems –  
Reconciling E2190 with Field  
Performance

Brian R. White, Ph.D.

May 4, 2022

**CONFIDENTIAL**

# NEXT MEETING

IGCC® Certification Committee  
Meeting In-Person  
Spring 2023



Committee: Time and Place	Chair: Rick Wright (OBE)
Staff Contact: Kelly Jenness	
Scope: Canvas for scheduled meetings of glass and associated industry meetings; develop a list of possible locations and specific dates for future meetings for submittal to participants for vote.	
Members	
Jon DeVoogd (Almetal)	Elaine Rodman (PI)

Proposed Date: May 2-3, 2023

May 2023						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

## Suggested Cities:

	City	Vote
1.	San Antonio TX	V1: 16 V2: 15
2.	Denver CO	<del>V1: 8</del>
3.	Boston MA	<del>V1: 16 V2: 14</del>
4.		