

air barrier
abaa
association of
america
**CONFERENCE
& TRADE SHOW**

MAY 8-9
2018
SALT LAKE
CITY

**AIR BARRIER EDUCATION TRACKS FOR
THE CONSTRUCTION INDUSTRY**

Industry Updates

Ryan Dalglish

Air Barrier Association of America



Air Barrier Association of America (ABAA) is a Registered Provider with The American Institute of Architects Continuing Education Systems. Credit earned on completion of this program will be reported to CES Records for AIA members. Certificates of Completion for non-AIA members are available on request.

This program is registered with the AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

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Air Barrier Association of America

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**AIR BARRIER EDUCATION TRACKS FOR
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Thank You!



SPECIFICATIONS

STRATEGIC LIAISON

RESEARCH

COMMUNICATION

OUTREACH

TRAINING

STANDARDS

QUALITY ASSURANCE

CERTIFICATION

BUILDING CODES

GUIDELINES

TECHNICAL

MATERIAL EVALUATIONS

EDUCATION

THE VOICE

PUBLICATIONS

INDUSTRY UPDATES

2017 AND 1ST QUARTER 2018

INDUSTRY UPDATES

KEY ITEMS FOR REVIEW

- Research and Identified Research Projects
- Technical Committee Updates
- Education Design Professionals and Industry Stakeholders
- Quality Assurance Program



RESEARCH

REPORTS AND IDENTIFIED PRIORITIES

RESEARCH PROJECTS

KEY ITEMS FOR REVIEW

- Adhesion of Air Barrier materials to the substrate field results over 15 years
- Update to Energy/Moisture Calculator
- Sub-Assembly test for air/water leakage of fasteners and small penetrations
- Other identified Research

RESEARCH PROJECTS

ADHESION OF AIR BARRIERS TO SUBSTRATE

- Determine the adhesion values needed for a material when installed on a substrate
- Current material evaluation requirements for lab testing for manufacturers is a minimum of 16 psi
- What is a realistic performance requirements and how well does it actually have to adhere ?



RESEARCH PROJECTS

ADHESION OF AIR BARRIERS TO SUBSTRATE

- Lab Tests vs. Field Testing
- Many field related low adhesion values are related to a variety of factors:
 - Poor substrate preparation
 - Installation outside parameters of proper installation
 - The type of substrate



RESEARCH PROJECTS

Step 1

Update test method to make it specific to air barriers

Step 2

Review 15 years of audit reports and daily job site records

Step 3

Conduct Research to determine what values should be

RESEARCH PROJECTS

Step 1

Update test method to make it specific to air barriers

COMPLETE

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AVAILABLE FOR DOWNLOAD AT AIRBARRIER.ORG

[WWW.AIRBARRIER.ORG/TECHNICAL-
INFORMATION/ABAA-ARTICLES-STANDARDS/](http://WWW.AIRBARRIER.ORG/TECHNICAL-
INFORMATION/ABAA-ARTICLES-STANDARDS/)

RESEARCH PROJECTS

Step 2

Review 15 years of audit reports and daily job site records and analyze data

COMPLETE

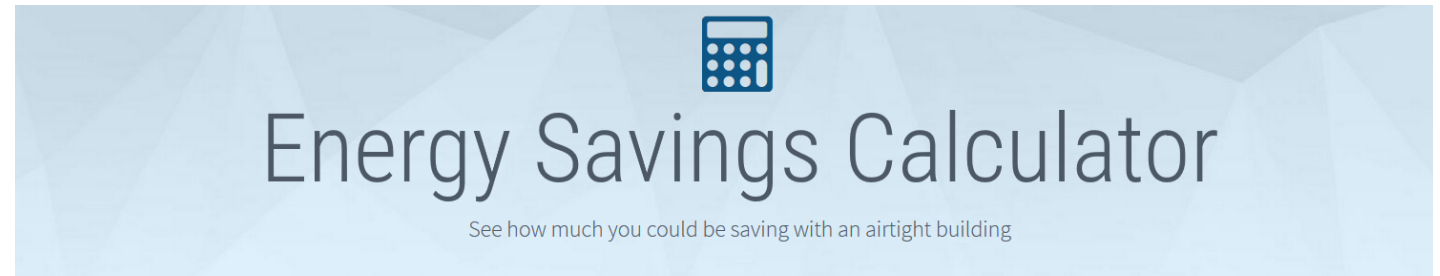
SOME RESULTS

- 3656 records reviewed. Each record could have up to 3 values
- 2393 lines of analysis by material type, manufacturer, substrate.
- A snap shot summary
 - Average PSI: 23.32 Median: 20.10
 - The material type is fairly close in regards to adhesion performance
 - Substrate type makes a difference

RESEARCH PROJECTS

EXPANSION OF ENERGY / MOISTURE CALCULATOR

- Addition of 4 architypes
 - High Rise Apartment
 - Hospital
 - Large Hotel
 - Secondary School
- 60 locations
- 4 levels of airtightness



ABAA Energy Savings Calculator

The Air Barrier Association of America, in conjunction with Oak Ridge National Laboratories (ORNL) and the National Institute of Standards and Technology (NIST) have completed the creation of a web based energy saving calculator for building airtightness.

This new tool is available to everyone and is free!

RESEARCH PROJECTS

UPDATE TO MOISTURE SENSOR FOR RESISTENCE TO WATER PENETRATION

- Round robin testing of sensor on a number of commercial available air barriers – 6 different organizations
- Creation of New Test Method to replace existing AATCC 127
- Intent is to have a much more objective test without subjectivity.

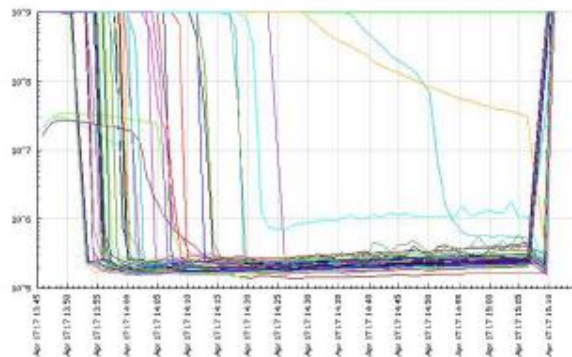


Figure 4: Sensor Analytics Data

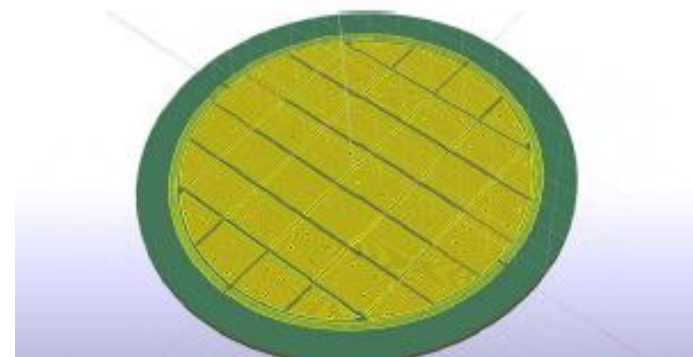


Figure 9: Board 2 Completed Rendering

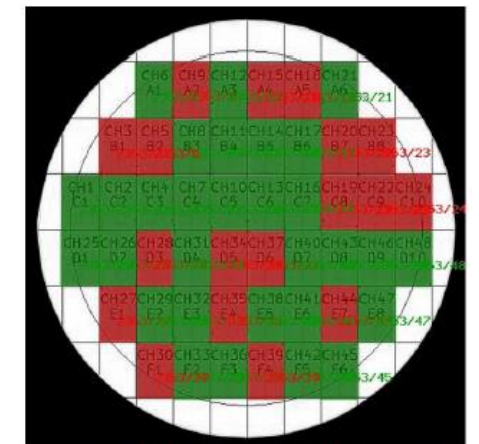


Figure 5: Data Representation of Failed Areas

RESEARCH PROJECTS

AIR/MOISTURE LEAKAGE AT FASTENERS AND PENETRATIONS

- Research Plan put in place in regards to how testing will be conducted.
- Creation of a comprehensive list of screws, cladding attachments, insulation anchors and brick ties.



Penetration Type	Manufacturer	Description
3 units to be tested		
Screws		
#6 self tapping		Set flush
#8 self tapping		Set flush
#10 self tapping		Set flush
#12 self tapping		Set flush
#6 self tapping w/ sealant		Set flush
#8 self tapping w/ sealant		Set flush
#10 self tapping w/ sealant		Set flush
#12 self tapping w/ sealant		Set flush
#6 self tapping w/ gasket		Set flush
#8 self tapping w/ gasket		Set flush
#10 self tapping w/ gasket		Set flush
#12 self tapping w/ gasket		Set flush
Cladding Attachment Device		
Cascadia Clip	Cascadia	Fiberglass Standoff
Cascadia Clip (w/ membrane)		
MPI System	Knight Wall System	Galvanized Metal Standoff with Plastic Shim
MPI System (w/ bed sealant)		
MPI System (w/ bed and head sealant)		
Green Girt Smartol	Advanced Architectural Products	Fiberglass Z-girt
Green Girt Smartol (w/ bed sealant)		
Green Girt Smartol (w/ bed and head sealant)		
Stand-off MPV Bracket	Exo-Tec Manufacturing, Inc.	Adjustable threaded metal stand-off
Stand-off MPV Bracket (w/ bed sealant)		
Stand-off MPV Bracket (w/ bed and head sealant)		
Generic cladding bracket		
Generic cladding bracket (w/ bed sealant)		
Generic cladding bracket (w/ bed and head sealant)		
Stucco lathe		
Insulation Anchors		
Metal Stick Pins (untreated)	Various	perforated metal base plate with metal pin and retaining washer
Metal Stick Pins (w/ bed sealant)	Various	perforated metal base plate with metal pin and retaining washer
Metal Stick Pins (w/ bed and head sealant)	Various	perforated metal base plate with metal pin and retaining washer
Brick Tie		
Model 2401 Adjustable veneer anchor	Wire Bond (and others)	surface mount two piece galvanized brick tie
Model 2401 Adjustable veneer anchor (w/ bed sealant)	Wire Bond (and others)	surface mount two piece galvanized brick tie
Model 2401 Adjustable veneer anchor (w/ bed and head sealant)	Wire Bond (and others)	surface mount two piece galvanized brick tie
Thermal 2 seal wing nut anchor (w/ extruded)	Hohmann and Barnard (and others)	Self tapping brick tie that is installed through the insulation
Thermal 2 seal wing nut anchor (w/ mineral wool)	Hohmann and Barnard (and others)	Self tapping brick tie that is installed through the insulation
Slotted Stud Tie Type I	Fero	Galvanized plate that penetrates through the AwB and GvB, anchored to side of studs
Rain Screen Accessories		
Sheet metal flashing	Various manufacturers/fabricators	
Terminations bars		



TECHNICAL COMMITTEE

UPDATES

TECHNICAL COMMITTEE

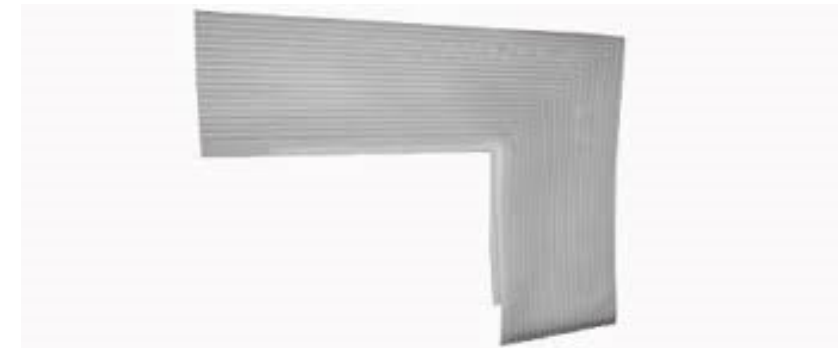
KEY ITEMS FOR REVIEW

- Updating Material Performance Criteria and adding accessories
- Development of Material Specifications
- New Material evaluation published

TECHNICAL COMMITTEE

UPDATING MATERIAL PERFORMANCE CRITERIA

- Review, updates and propose improve material evaluation criteria for 9 materials for:
 - Air residence (fastener sealability, air leakage)
 - Water resistance (absorption, resistance, vapor transmission)
 - Adhesion (peel, lap, pull)
 - Mechanical properties (tensile, compressive, resistance to tearing, puncture)
 - Physical properties (crack bridging, dimensional stability, density)
- Begin to create performance criteria for accessories such as tapes, sealants, transition membranes and other related materials that are part of air barrier assembly



TECHNICAL COMMITTEE

NEW MATERIAL SPECIFICATIONS

- More comprehensive outline for material evaluation process
 - Sampling procedures, sample panels, conditioning, preparation of test specimens,
- Transition all material evaluation criteria into separate standards for each product type

TECHNICAL COMMITTEE

NEW MATERIAL EVALUATION FOR OPEN CELL FOAM

- Published in November of 2017
- Material specification developed and now manufacturer can submit materials to be evaluated under this product type



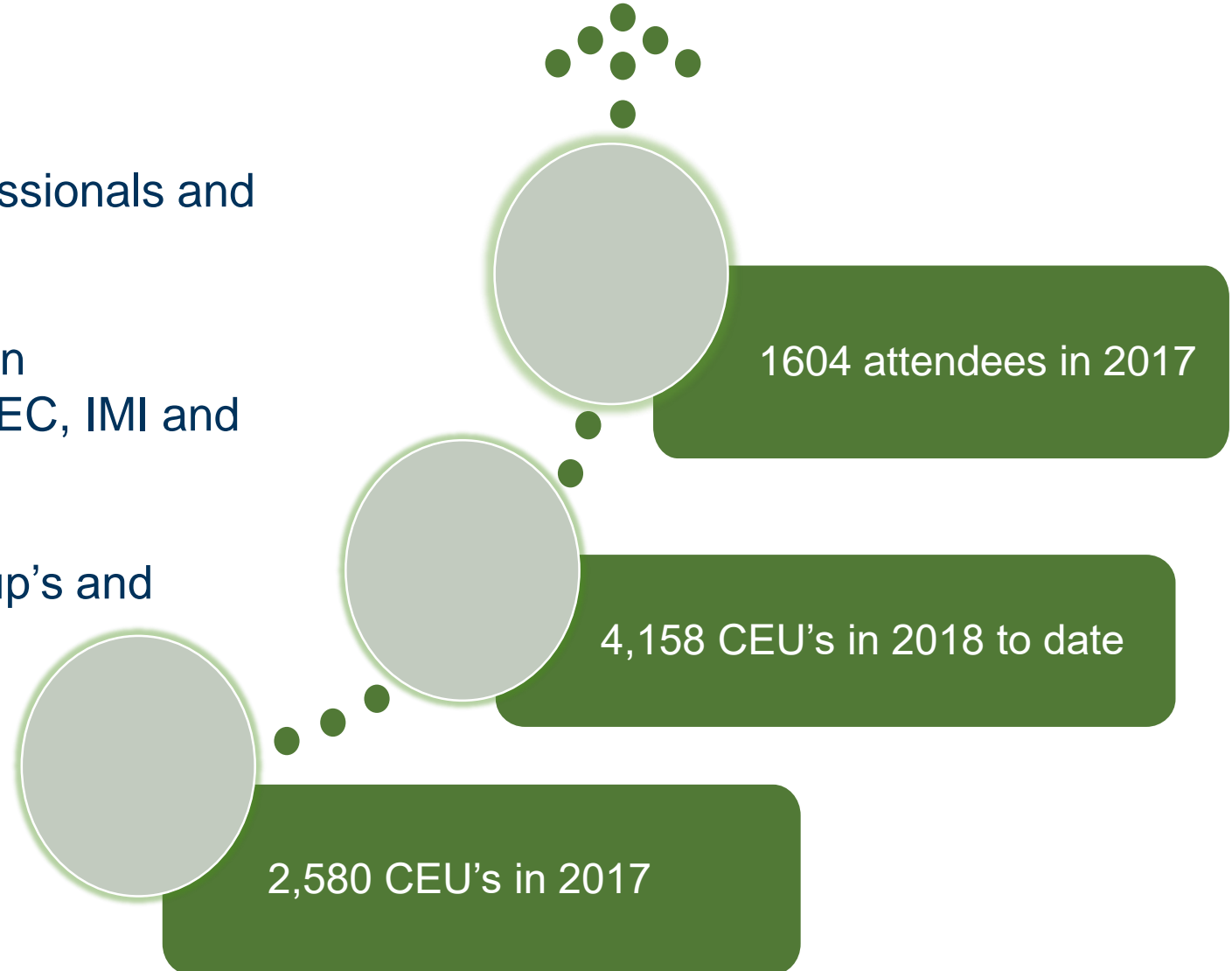


EDUCATION

EDUCATION

KEY ITEMS FOR REVIEW

- New Education for Design Professionals and Industry Stakeholders
 - Full Day Program available in conjunction with AIA, CSI, BEC, IMI and other identified partners
 - ½ Day Program with mock-up's and lecture



EDUCATION



Cleveland, OH - BEC



Philadelphia – BEC/AIA



Tampa – BEC/AIA



Orlando, FL - AIA



San Francisco, CA -AIA



Detroit, MI - BEC

EDUCATION

TESTIMONIALS

I think this might be the best CEU I personally have attended in last 30 years for Architecture and constructions license requirements and AIA CEU's; so I have been probable 350-400 CEU courses varying from 1 hour to 24 hours in 3 days. What a demonstration to ABAA for actually accomplishing and disseminating its educational objective; well done.

Larry Dickie, AIA, CPC
St. Petersburg College
Facilities Project Coordinator

We wanted to thank you and ABAA for hosting a great ABAA Symposium on Tuesday. You **were truly awesome and better than we expected**. We continue to receive complements from our attendees about your symposium. It is awesome for the BECs to have such great support from ABAA. You are a **wonderful asset to the AEC community**; we hope that all of the professional education that you provide will continue to help everyone to better understand building science so they can design and construct higher performing and better energy efficient buildings. Keep up the great work and thank you again for your generosity!

Cheryl Smith AIA, LEED-AP
Principal
Cope Linder Architects

Thank you for an **excellent program today**. Architects **need to get educated on air barriers and many other building science topics**. I sometimes tell people I manage remedial education for architects, helping them to learn things they should have been taught in school but weren't!

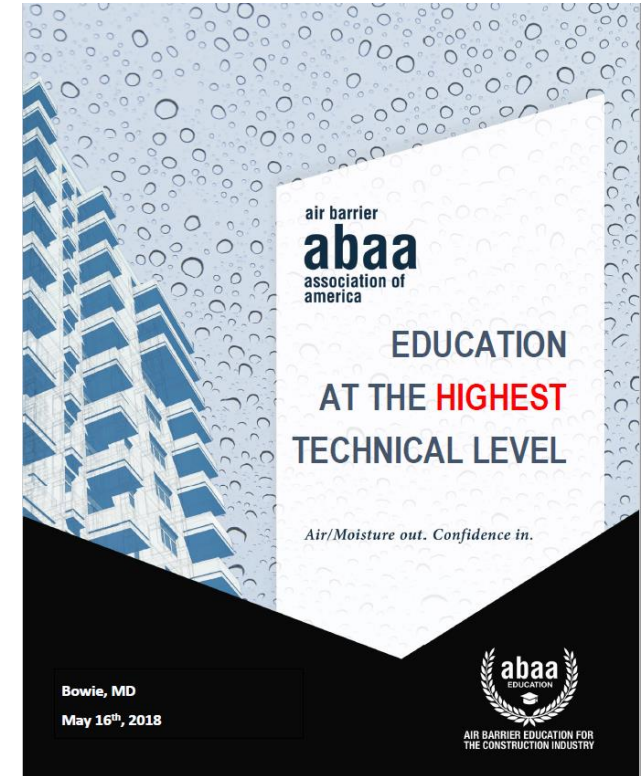
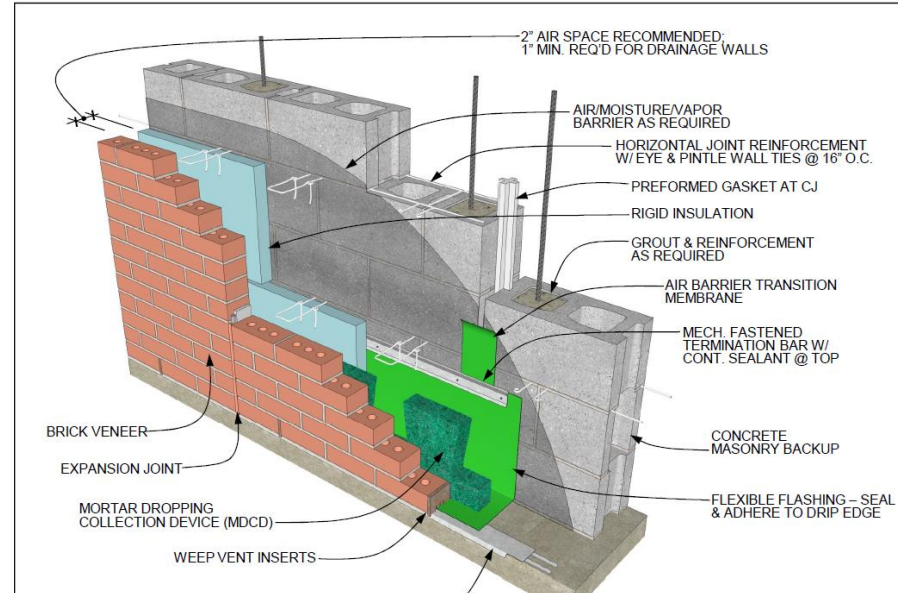
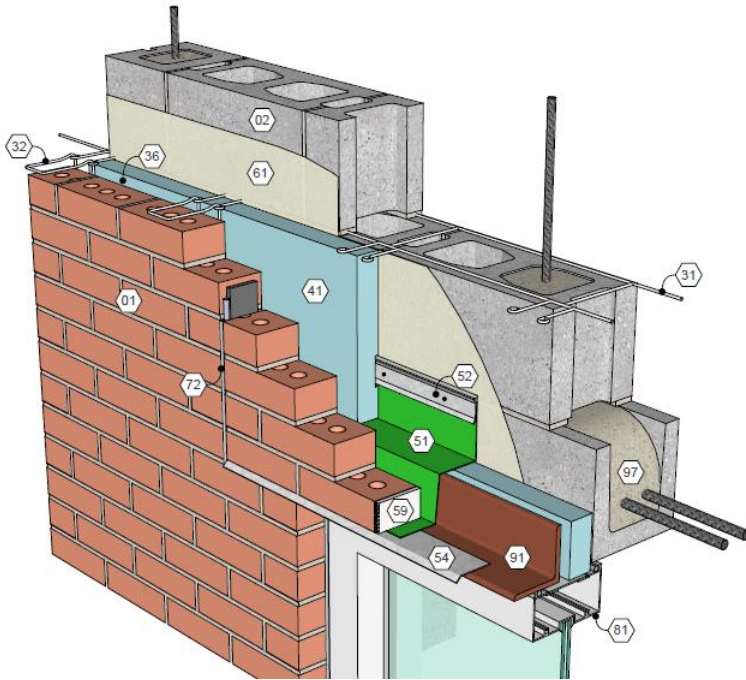
Most importantly, I would like to work with you, AIASF, and AIA California Council to get this information out to design teams in the state. I'm working with AIACC on how to get their members up to speed to meet California's

Thanks again for today's good work.

Bill Burke, Architect, LEED BD&C | Energy Centers Building Enclosure Coordinator
Pacific Gas and Electric Company

EDUCATION

HALF DAY AND FULL DAY WORKSHOPS WITH HAND'S ON AND MOCK UPS



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ABAA SITE QUALITY ASSURANCE PROGRAM



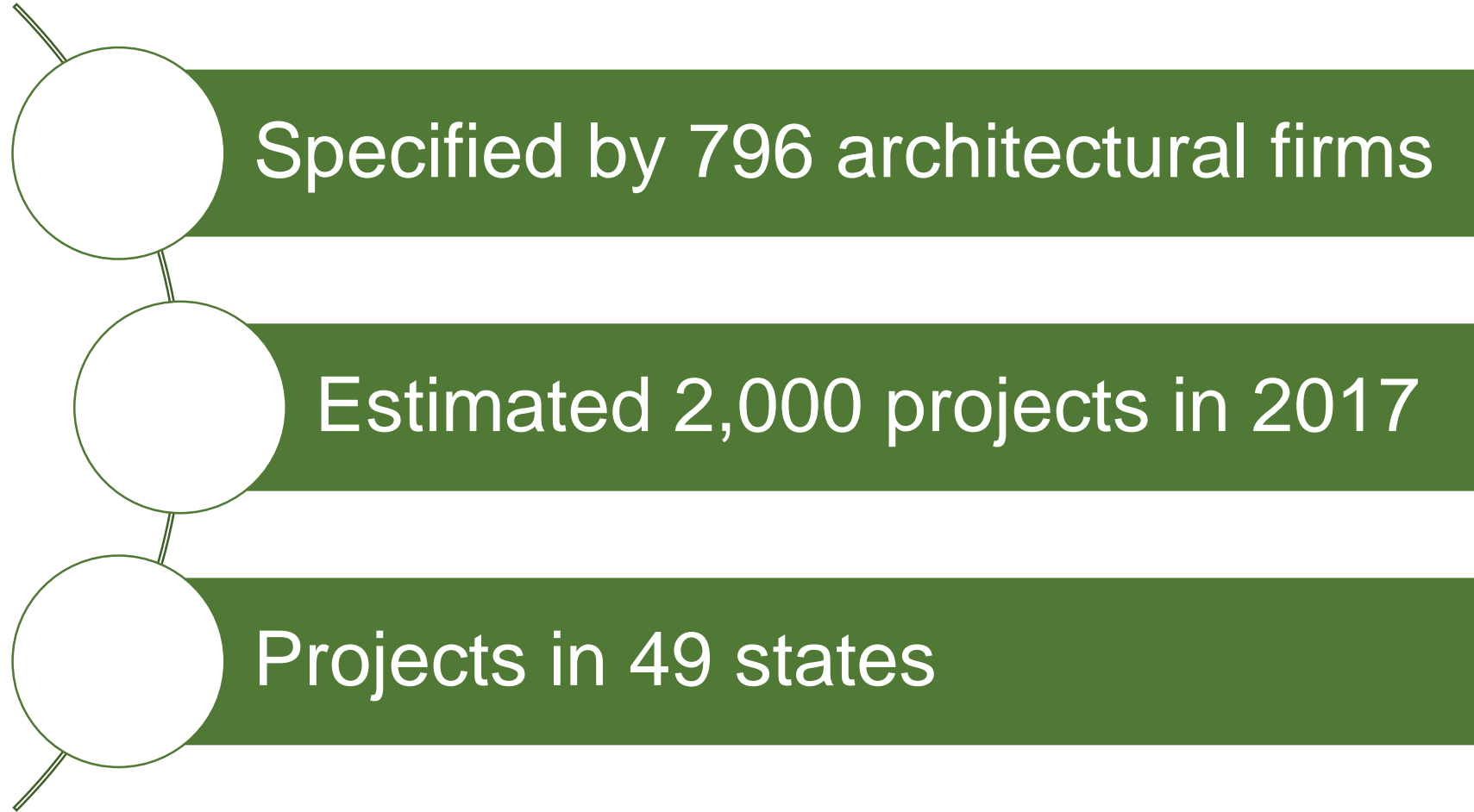
SITE QUALITY ASSURANCE PROGRAM

KEY ITEMS FOR REVIEW

- Statistics for 2017
- Program Updating during 2017
- Updated specifications for Unified Facilities (Army, Navy, Airforce, etc)

SITE QUALITY ASSURANCE PROGRAM

STATISTICS



SITE QUALITY ASSURANCE PROGRAM PROGRAM UPDATING

- Review of Demerit point systems for contractor and installers
- Updating of standardized audit reports
- Updating standards for corrective action based on installation errors and defects

		YES	NO	N/A	POINTS	
					Installer	Contractor
Section 1 - Air Barrier Assembly Materials						
Fluid-Applied Air Barrier Material:						
Manufacturer name:	Henry					
Primary air barrier material trade name:	Air-Bloc 32					
Lot/batch number:	Not available - number not on material					
Is the material being installed one of the materials in the project specifications or has it been approved by the specifier?		X				
Are manufacturers installation instructions on site and in installers possession?		X				
Installed material expiry date within limits?		X				
MSDS sheets on-site and in installers possession?		X				
Transition Material:						
Manufacturer name:	Henry					
Transition material trade name & type (FA or SA):	Blue skin SA / Fiber Mesh Repair Fabric 183					
Transition material lot/batch number:	BH200SA352					
Primer manufacturer:	Henry					
Primer trade name:	Henry 454 Aquatrac P					
Primer lot/batch number:	Material not on site to confirm					
Are manufacturers installation instructions on site and in installers possession?		X				
Installed material expiry date within limits?		X				
MSDS sheets on-site and in installers possession?		X				
Mastic/Sealant:						
Manufacturer:	Henry					
Mastic/sealant name:	925 BES					
Lot/batch number:	C56135					
Are manufacturers installation instructions on site and in installers possession?		X				
Installed material expiry date within limits?		X				
MSDS sheets on-site and in installers possession?		X				
Are all materials being stored on-site at time of audit as per manufacturers specifications?		X				
Section 1 - Air Barrier Assembly Notes						
Observations:						
Specifications call for Air Bloc 215, manufactured by Henry. The Air Bloc 32 was reportedly (by the installer) approved as an alternate.						
Corrections:						
Provide documentation that the installed material is approved by the architect.						
		YES	NO	N/A	POINTS	
					Installer	Contractor
Section 2 - Audit Preparation						
Certified Installer(s):						
On site at time of audit?		X				
Applying air barrier?		X				
Registered Installer(s):						
On site at time of audit?		X				
Applying air barrier?		X				
Are the installer(s) certified by ABAA to install self-adhered and fluid-applied air barrier materials? (see back of installer card for certification(s))		X				
Are daily job site reports on site and in installers possession?		X				
Are daily job site reports complete and accurate?		X				
Do <u>all</u> installers have ABAA photo identification card(s) on site and in installers possession?		X				
Are <u>all</u> installer photo identification card(s) current?		X				
Are the air barrier accessories (ie. transition materials, mastic, primers) used listed by the manufacturer in their master specification?		X				
If no, have they been approved by the manufacturer in writing?				X		
What is <u>project specifications</u> for thickness of the fluid-applied air barrier material (in wet mils)?				90 - 120		
What is <u>manufacturer master specifications</u> for application thickness of the fluid-applied air barrier material (in wet mils)?				75		
What is the percentage of ABAA QAP-specified air barrier assembly installed at time of audit?				80%		
What is the percentage of ABAA QAP-specified <u>installed</u> air barrier assembly available for visual inspection?				100% of installed		
Section 2 - Audit Preparation Observations and Mandatory Corrections						
Observations:						
There was no installation on site on this date. The Level-3 Certified Installer was on site for the audit. The project specifications indicate wet thickness to be 2.25 - 3.0 mm, which translates to 90 - 120 mils.						
Corrections:						
There are no recommendations for this section.						

Date of Issue: 09/11/2012 F-115-090 Rev 0 ABAA Job Site Audit Form FL Page 2 of 6

SITE QUALITY ASSURANCE PROGRAM

UNIFIED FACILITIES SPECIFICATIONS

- Updated during the summer and fall of 2017 - USACE / NAVFAC/ AFCEC / NASA
- Recently releases and now include requirements for ABAA QAP, contractors, manufacturers, installers and audit program.

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*****
USACE / NAVFAC / AFCEC / NASA                                UFGS-07 27 19.01 (May 2017)
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Preparing Activity: NAVFAC                                     New

UNIFIED FACILITIES GUIDE SPECIFICATION

References are in agreement with UMRL dated January 2018
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SECTION TABLE OF CONTENTS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07 27 19.01

SELF-ADHERING AIR BARRIERS

05/17

PART 1 GENERAL
1.1 REFERENCES
1.2 RELATED REQUIREMENTS
1.3 SUBMITTALS
1.4 MISCELLANEOUS REQUIREMENTS
1.4.1 Shop Drawings
1.4.2 Product Data
1.4.3 Mockup
1.4.4 Test Reports
1.5 DELIVERY, STORAGE, AND HANDLING
1.5.1 Delivery
1.5.2 Storage
1.6 FIELD PEEL ADHESION TEST
1.7 AIR BARRIER TESTING
1.8 QUALITY ASSURANCE
1.8.1 Qualifications of Manufacturer
1.8.2 Qualifications of Installer
1.9 PRECONSTRUCTION MEETING
1.10 ENVIRONMENTAL CONDITIONS
1.10.1 Temperature
1.10.2 Exposure to Weather and Ultraviolet Light

PART 2 PRODUCTS
2.1 REDUCED VOLATILE ORGANIC COMPOUND (VOC) CONTENT
2.2 SELF ADHERING AIR BARRIER
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1.8 QUALITY ASSURANCE

1.8.1 Qualifications of Manufacturer

Submit documentation verifying that the manufacturer of the self-adhering air barrier is currently accredited by Air Barrier Association of America (ABAA Accreditation <https://www.airbarrier.org/>) .

1.8.2 Qualifications of Installer

Submit documentation verifying that installers of the self-adhering air barrier are currently certified in accordance with the ABAA QAP Quality Assurance Program (<https://www.airbarrier.org/qap/>) .

WHAT'S HAPPENING IN 2018 ?

- Continued Increase in Education to Industry Stakeholders
- More tools for designers and owners to assess energy savings and moisture impacts due to air leakage
- Continued Research and Technical work to create standards, provide information to improve design, construction and testing.

2019 ANNUAL CONFERENCE

MAY 14 – 16, 2019

NORFOLK, VIRGINIA



SPECIFICATIONS

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