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2ND QUARTER NEWSLETTER

FEATURE TECHNICAL ARTICLE

PARADISE NEEDS AIR BARRIERS MORE THAN THE ARCTIC

by André Desjarlais, Oak Ridge National Laboratory, and
Laverne Dalgleish, Air Barrier Association of America

GREETINGS FROM THE CHAIR

2ND QUARTER NEWSLETTER

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Welcome to the 2019 2nd Quarter ABAA Newsletter. The Air Barrier Association of America was started in 2001 by a few very dedicated individuals who realized our industry was missing a vital part of the enclosure to ensure durable, sustainable and energy efficient buildings. This last May, I was greatly humbled and honored to have been elected as Chair of this amazing organization. I cannot put into words how excited I am to continue and build upon the work of my predecessors and look forward to ABAA continuing to lead and change our industry.

Think about it, our industry now has ASTM test methods dealing with Whole Building Air Tightness Testing – which came from the work of the ABAA Technical Committee. The industry now has a simple to use Air Leakage and Moisture Calculator (www.airbarrier.org/technical-information/energy-savings-and-moisture-transport-calculator), that was led by ABAA's Research Group which worked with Oak Ridge National Labs (ORNL), and the National Institute of Science and Technology (NIST) to develop. **Architects and other professionals have received over 42,950 number of educational credits over the last three years** (2016 – 2018) through ABAA's full day Symposiums, lunch and learns, and yearly Conference, led by our Educational and Marketing Committees. Air Barriers are now in the IBC, IECC and ASHRAE as critical items for a properly constructed building, because of ABAA's Codes Committee. Most importantly, ABAA currently has accredited over 285 air barrier companies and almost 2000 certified and registered installers and 89 certified auditors to ensure one of the most critical parts of the building is being properly installed thanks to our contractors and QAP committees.

As the former Quality Assurance Manager for a national construction company, I became a believer of ABAA after working with one of their accredited companies back in 2004. The certified installers (who were **Specified** and demanded by the Architect – and most importantly whom he refused to "VE" out, because believe me we tried) showed up on my $80 million Health Care project and not only installed the air barrier with extreme precision and professionalism, but they also spoke up in scheduled meetings, noting potential issues and asking questions of the architect to ensure continuity and constructability could be maintained. The following 11 years, while I was still with the construction company, that air barrier company was ***always*** asked to bid our work. What a testament to their training and the ABAA QAP Program which allows for checks and balances to ensure owners are receiving a quality installation at the most critical area of the enclosure.

I have been fortunate to be involved with numerous other enclosure organizations throughout my career and can say without hesitation that ABAA is the most well-rounded association in our industry! Through our main committees (and numerous task groups) ABAA is doing amazing work and continues to move our industry forward. ABAA's committees include: Technical, Research, Contractor, QAP, Nominating, Marketing, Education and Training, and Audit. ABAA accomplishes all this work because we have over 500 companies as members of our association. It is truly astounding to see the volunteer efforts from the individuals within our membership who want to make a difference! I could not be prouder to be part of a group that is honestly moving the needle within our industry. As with any organization, I encourage you, no matter what profession you are in, to get involved. Change cannot happen without people working to make change.

It would be very remiss of me if I did not thank both our 24 member Board of Directors and ABAA's Executive Committee: Vice Chair Andrew Dunlap – Smith Group JJR, Vice Chair Sarah Flock – Raths, Raths and Johnson, Inc., Treasurer Robert Aird – Robert A. Aird, Inc, Secretary Craig Wetmore – York Manufacturing, Director at Large and ABAA Regional Advocate Roy Schauffele - Division 7 Solutions, Inc. – the only CSI and ABAA Fellow in the country, and our past Chair Russell Snow - W.R. Meadows for all their time and effort in making sure ABAA remains the best organization in the building enclosure industry.

Thank you for all your time and work above and beyond the normal work day!

Brian Stroik
Chair ABAA
Tremco Sealants and Waterproofing
Manager: Building Envelope Solutions Team

PARADISE NEEDS AIR BARRIERS MORE THAN THE ARCTIC

by André Desjarlais, Oak Ridge National Laboratory,
and Laverne Dalgleish, Air Barrier Association of America

When you are sitting on the beach with a refreshment in your hand, watching the waves roll in and feeling the breeze on your face, the last thing you think about is an air barrier in your hotel building. If you happen to think about all the poor souls back home in the freezing cold, you may even think that its good that they have an air barrier in their home as they will be warmer.

You pick up a magazine and you read that the most important location to make sure you have a properly installed air barrier system is right where you are. How can that be? The IECC 2018 Section C402.5.1 Exception states "Air barriers are not required in buildings located in Climate Zone 2B". ASHRAE 90.1 2016 narrows the exception down more where it states in Clause 5.4.3.1 Exceptions "Single wythe concrete masonry buildings in Climate Zone 2B".

ABAA commissioned the National Institute of Standards and Technology (NIST) and Oak Ridge National Laboratory (ORNL) to develop a calculator which would be easy to use but would use real weather files for different cites rather than an arbitrary average value that is used for every building in every location for all weather conditions.

The first version of the calculator only dealt with energy savings. NIST developed COMTAM files for 52 cities across the national. These files were then used with Energy Plus to do the calculation of the energy saved by comparing the energy used in a leaky building verses a tight building.

The selection of cities was based on a reasonable distribution of major metropolitan areas throughout the US; therefore, not every state is represented. If the specific city for which you are interested in obtaining results does not appear on the list, the selection of a city that has similar meteorological conditions (wind, temperature, solar radiation, and rain) is recommended. This is not always the city geographically closest to your target city.

In 2018, the calculator was updated to add moisture movement by air leakage. If we know the air leakage rate of the building, we know from the weather files what the atmosphere is outside, the interior atmosphere is basically set for buildings, so we can calculate how much moisture is transported along with the air that is leaking through the building enclosure.

The Air Saving and Moisture Transport Calculator
The updated calculator still gives you the energy savings that an air barrier provides for a building. Now it also tells you move much moisture is carried by that air leakage. To keep it simple and easy to use, it simply calculates how much moisture moves through the holes and cracks. That moisture flow can be going in or out of the building envelope. The calculator also does not try to determine whether any of that water vapor will condense within the building enclosure. If you understand how much moisture is being transported, you will take the proper precautions to manage the moisture.

The online energy savings and moisture transport calculator for commercial buildings (http://www.airbarrier.org/technical-information/energy-savings-and-moisture-transport-calculator/) is described in Figure 1. The calculator includes seven (7) of the sixteen (16) DOE archetypes that are used in Code development.

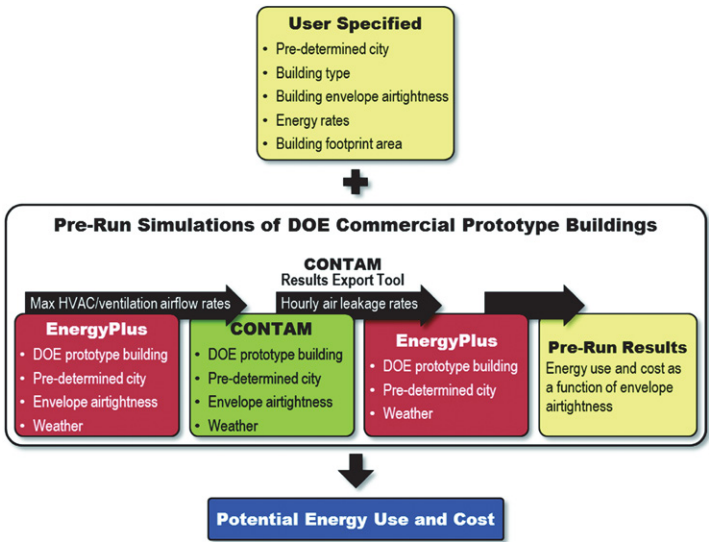


Figure 1: *General procedure to estimate potential energy costs for different levels of envelope airtightness in DOE commercial prototype buildings.*

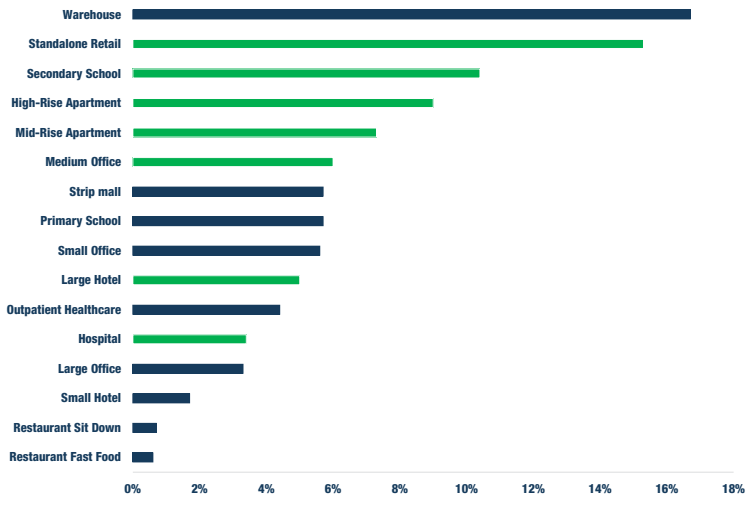


Figure 2: *Prototype buildings as a percentage of total US commercial building floorspace.*

These represent 80% of US commercial building floor area. Figure 2 shows the prototype buildings as a percentage of total US commercial building floorspace. These are depicted in Figure 2 by a solid green-colored bar and represent over 55 percent of US commercial floorspace and represent building types that would typically be temperature-conditioned and benefit from an air barrier system.

Case	Air Leakage Rate at 75 Pa (L/s·m2)	Air Leakage Rate at 75 Pa (CFM/ft2)
Baseline	5.4	1.06
1	2.0	0.39
2	1.25	0.25
3	0.25	0.05

Table 1: *Assumed building envelope airtightness levels for a six-sided envelope (standalone retail building).*

Air leakage data for the four different airtightness levels were curve-fitted for each building type and geographical location. The calculator will interpolate between the baseline 6-sided air leakage and the tightest level of 0.25 L/s·m2 (0.05 CFM/ft2) at 75Pa. Extrapolation should not be used.

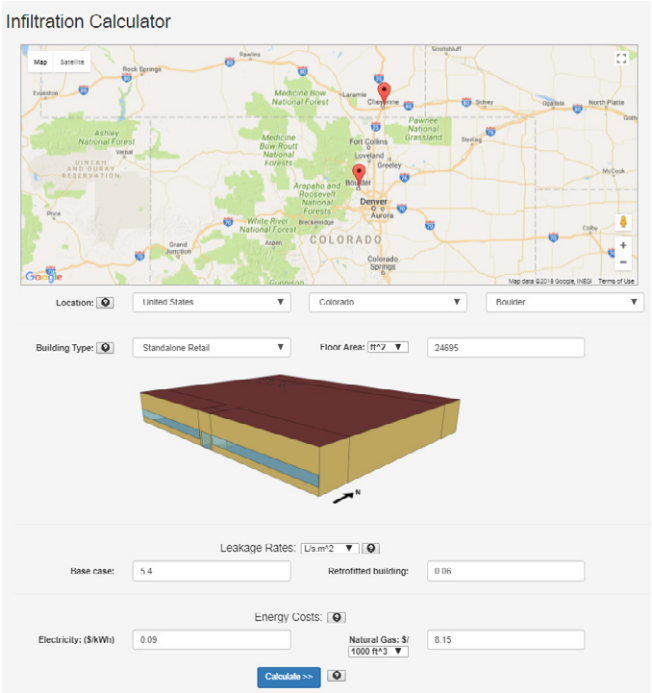


Figure 3: *Input page for the Energy Savings and Moisture Transfer Calculator*

Figure 3 depicts the input page of the Energy Savings and Moisture Transfer Calculator. The user;

1. Decide metric system or traditional IP
2. Select a geographical location - drop-down menus or map screen
3. Selects the commercial building type
4. Enter the footprint size
5. Input two levels of airtightness
6. Accept state energy costs or input your own values
7. Press “Calculate” and…..bingo

The output screen is shown in Figure 4. A summary of the user selections is posted at the top of the page. The calculator determines the Equivalent Leakage Area (ELA) for the baseline case and the improved airtight construction along with the amount of energy saved and the total savings in the appropriate currency. Finally, the calculator computes the total amount of moisture that would be transported through the wall for both the baseline and retrofit cases.

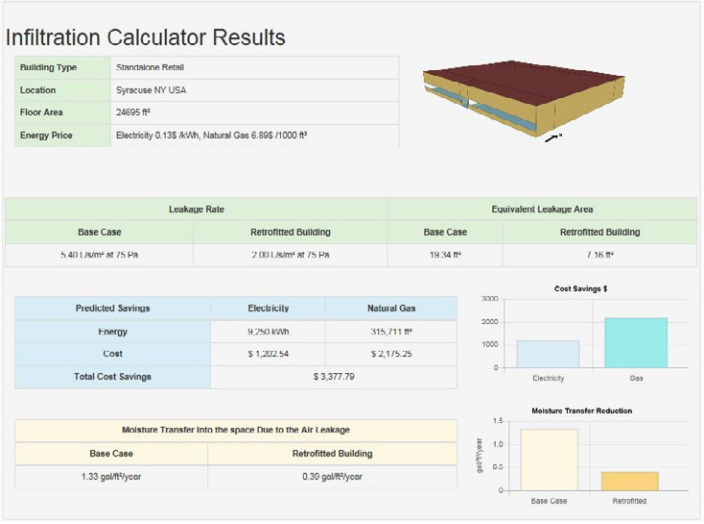


Figure 4: Output page for the Energy Savings and Moisture Transfer Calculator

Why We Did It

An online airtightness calculator was developed to estimate the energy reduction and dollar savings of an air barrier system along to its contribution to reducing the potential moisture load that a wall system must endure. This calculator is different from other common methods used in wall system analysis in that it uses hourly air leakage rates that are estimated by considering key variables such as building leakage rate, weather conditions, and HVAC operation. The calculator provides energy cost estimates as a function of building envelope airtightness for DOE commercial prototype buildings in cities in the United States. The calculator is a powerful, credible, and easy-to-use tool that designers and contractors can utilize to estimate the energy and financial savings that building owners could achieve by reducing the air leakage and the improved durability by reducing the potential. moisture load.

WHEN IS A BUILDING TOO BIG TO TEST?

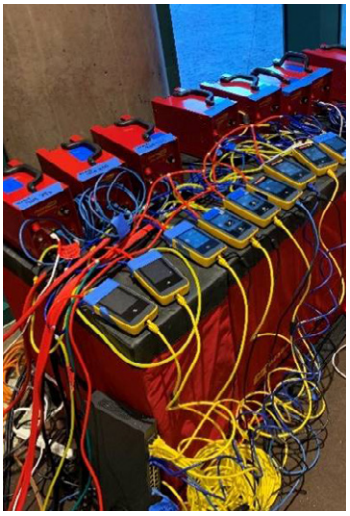
by Mr. Laverne Dalgleish, Air Barrier Association of America

It turns out that we don't know yet. I witnessed a whole building blower door test on a 1,000,000 square foot building that occupied a whole city block in New York, NY. The building was twelve stories high with a footprint of around 90,000 square feet. The surface area of the six sides of the building was approximately 285,000 square feet. It was the largest building I witnessed a whole building test on. This is just a very brief overview of the test and I will ask the organization that was contracted to conduct the test to provide ABAA with an article soon which can include the details of the tests and some of the issues associated with conducting a test on that size of building.

Being an occupied building, the test had to be conducted over the weekend. Work started at the end of the work day for the occupants of the building on Friday and carrier into Saturday to very late into the night. Sunday morning, they were still receiving some data that did not look right and the investigation as to why continued to be carried out Sunday morning. The actual testing started Sunday afternoon. The testing was complete by 5pm Sunday and the building had to be put back into normal operation by 10pm that night.

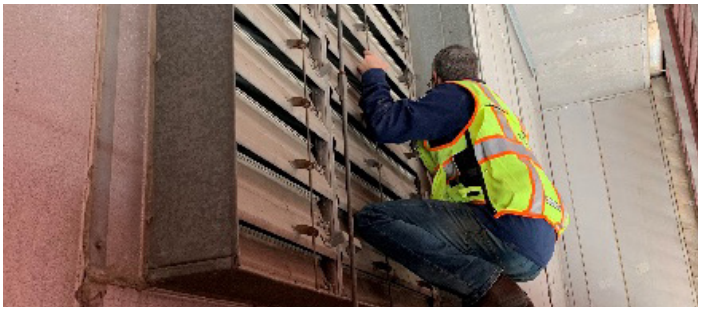
The building was not expected to be a tight building, built with normal construction practices at the time without thought given to air leakage of the building. The shear size of the building also was interesting when seeing how everything connected.

Thirty-one fans were set up. Majority of the fans were in the loading dock with additional fans set up in a second entrance way and then in doors near the roof. They were all connected with Cat5 cable and the control center was somewhat anticlimactic in the fact it was a simple laptop on a simple table. The test was conducted in accordance with ASTM 3158 Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building. There were two values for the building, one on the building fabric and one with the intentional openings unsealed.



So for the first test, sealing the intentional openings were interesting to watch. The good news was that the louvers were so large that you could access them from the inside of the building so nobody was hanging off lifts.

The actual testing started after lunch and it took a few attempts to obtain data that was accurate. The building was depressurized up to 80 Pa with the fan power on hand. When that test was completed, the building was pressurized.



It was also interesting that the initial pressure difference was 30 Pa with all fans off. The day was cool but not super cold and there was not much of a wind.

Look for a comprehensive article in the future...

NEW BOARD MEMBERS

The Air Barrier Association of America is pleased to announce four new board members appointed at ABAA's recent annual general meeting. These new members include:

Amy Baker, Amy Baker Architect
Category: Architect/Specifier

John Chamberlin, Georgia-Pacific Gypsum
Category: Manufacturer

Tim Beavers, Systems Building Envelope Consultants
Category: Consultant

Kevin Nolan, VaproShield
Category: Manufacturer

This brings the board of directors up to 24 individuals from a variety of backgrounds, expertise, experience and industry segments. The mission of the board is to provide policy guidance, leadership and ensure the association continues to undertakes it mission to be the number one resource in air/moisture management.

NEW EXECUTIVE COMMITTEE

After the ABAA Annual General Meeting, the executive committee was appointed by the board members.

A number of existing committee members will continue to form part of and we have had a couple of new members join.

We are happy to announce that **Mr. Brian Stroik** of Tremco will now serve as chairperson of the association (see photo page 2).

New members to the executive include **Ms. Sarah Flock** of Raths, Raths and Johnson and **Andrew Dunlap** of SmithGroup LLC.

Mr. Rob Aird of Robert A. Aird will now serve the function of treasurer.

We want to thank Mr. Clarke Berdan of Owens Corning in his capacity of the Treasurer for a number of the past years on the executive committee. You will be missed !

Also, a big thank you to Russ Snow, our past chairperson. Russ served as the chairperson of ABAA for the past 3 years and has done a wonderful job in providing leadership to the association and it's membership. With moving to the past chair position on the executive committee, Russ will continue to provide the association with his knowledge and his leadership will continue.

To meet some of our other board members, check out our listing on our website:
http://www.airbarrier.org/about/board/

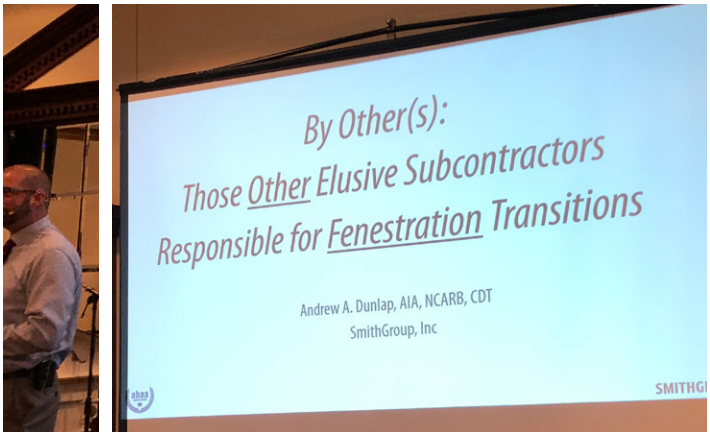
Your 2019/2020 Executive Committee of the board is as follows:

Chair – Mr. Brian Stroik
First vice chair – Mr. Andrew Dunlap
Second vice chair – Ms. Sarah Flock
Treasurer – Mr. Robert Aird
Secretary – Mr. Craig Wetmore
Director at Large – Mr. Roy Schauffele
Immediate past chair – Mr. Russell Snow

INDUSTRY EDUCATION

BEC Detroit

On May 8th, 2019, ABAA in partnership with the Building Enclosure Council (BEC) and American Institute of Architects (AIA) Detroit chapter deliver a full day air barrier education event to 102 people. The presentations covered air barrier connections to curtainwall and store fronts and then 3 presentations focused around air barrier site



Andrew Dunlap of SmithGroup presenting on air barrier connections to curtainwalls and storefronts

inspections, performance mock-up's and the top field related issues and what to look for. The presenters included Ryan Dalgleish of ABAA, Andrew Dunlap of SmithGroup and Robert Jutrus of UL.
Based on a post event survey, 100 % of individuals

Ryan Dalgleish of ABAA and Jerry Carter of SmithGroup LLC, current BEC Detroit Vice Chair

indicated they would recommend it to others and 100 % indicated they would come to another event in the future.

Here are some comments on the event:

"Thought the seminar was excellent."

"Great speakers and practical information about site testing"

BEC Research Triangle

On May 23rd, 2019, ABAA in partnership with the Building Enclosure Council – Research Triangle delivered a full day air barrier event in Raleigh, North Carolina. With over 50 in attendance, the educational event had presentations on properly specifying an air barrier, air barrier connections to curtain wall and storefront, integration of flashings

Laverne Dalgleish of ABAA presenting on how to specify air barriers

into the wall assembly and site quality assurance. The presenters included Laverne Dalgleish of ABAA, Craig Wetmore of York Flashings and Andrew Dunlap of SmithGroup. Based on a post event survey, 100 % of individuals indicated they would recommend it to others and 100 % indicated they would come to another event in the future.

More great feedback from attendees:

"Great seminar with great speakers, keep up the great educational offerings!"

"This symposium is the first one that captured my total and undivided attention. Thank you. I look forward to the next offering!"

FALL 2019 AND EARLY 2020 FULL DAY EDUCATIONAL EVENTS

ABAA is actively working with various Building Enclosure Councils, American Institute of Architects and Construction Specifications Institute chapters in organizing more full day air barrier educational events. Look for ABAA to be in Texas, Oregon, Washington, Minnesota, California, Iowa, Indiana, Colorado, Utah and a number of other locations.

Interested in Hosting an Air Barrier Event ?

ABAA takes the approach of collaboration with other association and industry groups when we deliver education across the country. If your chapter is interested in working with us, you can contact Tamara Honza Foncerrada (email: tamara@airbarrier.org) for more information to discuss the process and get something scheduled!

ABAA Supporting the Industry

Seattle Building Enclosure Event – May 14th, 2019

The Seattle Building Enclosure Council (SeaBEC) hosted a Symposium "Forensics: Turning Hindsight Into Foresight". ABAA was happy to sponsor the event and had a table top display promoting air barrier education and quality assurance. Our very own Jim Porter of Applied Restoration Services (ARI), one of our accredited contractors in the area helped answer questions about ABAA, education and the QAP program.
SeaBEC is a great organization, so if you are in the Seattle area, please consider joining the organization and attending their educational events. For more information, click here: www.seabec.org

Austin BEC Event -May 17th, 2019

ABAA was excited to support the 2019 ATX Building Performance Conference in Austin, TX. What a great job by the local building enclosure council and other supporting organizations that pulled it together. One of our board members (John Posenecker of Terracon) was on hand to present the ABAA QAP and Tom Kita (member and ABAA 3rd party auditor) of BD Hatchman helped out at the ABAA booth. The keynote speaker stopped by the ABAA booth to say hi!

Mr. Tom Kita of BD Hatchman talking at the ABAA Booth.

Mr. Tom Kita, Dr. Joe Lsiburek from Building Science Corporation and Tamara Honza Forerrado from ABAA

TRAINING & EDUCATION UPCOMING EVENTS

abaa EDUCATION

AIR BARRIER EDUCATION FOR THE CONSTRUCTION INDUSTRY

SYMPOSIUMS AND PRESENTATIONS

SEABEC – SEATTLE, WA

June 20, 2019 https://www.seabec.org/event-calendar

TOPIC: All About Air Barriers! - Laverne Dalgleish, ABAA

IIBEC BUILDING ENVELOPE SYMPOSIUM – LOUISVILLE, KY

November 11-12, 2019 www.rci-online.org/building-envelope-edu/be-symposium/

TOPIC: Importance of Air Barrier Material Properties by Material Category – What You Need For Them To Work - Laverne Dalgleish, ABAA

CONSTRUCT SHOW – NATIONAL HARBOUR, MD

October 9, 2019 www.constructshow.com

TOPIC: Oh No! What Did I Miss? How to Properly Specify an Air Barrier System – Ryan Dalgleish, ABAA

UPCOMING INSTALLER TRAINING

SELF-ADHERED & FLUID TRAINING

August 20-22 in Charlotte, NC
September 10-12 in Ennis, TX
September 17-19 in Capitol Heights, MD
October 8-10 in Charlotte, NC
October 15-17 in Portland, OR
November 19-21 in Hayward, CA

SPRAYED POLYURETHANE FOAM INSTALLER TRAINING

June 25-27 in Houston, TX
November 5-7 in Mount Airy, NC

FIELD AUDITOR TRAINING

Fall Course in Texas, date is TBA, check website
http://www.airbarrier.org/education/installer-courses/

*Stay tuned for more details on additional Auditor and SPF Training

COME VISIT US AT

CONSTRUCT SHOW - NATIONAL HARBOUR, MD

October 10-11, 2019 - BOOTH 331 www.constructshow.com

GO TO WWW.AIRBARRIER.ORG TO REGISTER FOR ANY UPCOMING INSTALLER TRAINING OR CONTRACTOR WEBINARS; SEE THE EVENTS TAB.

Have an industry related article you would like to see featured in our newsletter? Submit it to us for review and you could see your work published in the next newsletter! Email it to us at: abaa@airbarrier.org. We would love to hear your feedback on our newsletters and any content you want to see more or less of, contact us at abaa@airbarrier.org and let us know!

INDUSTRY EVENTS

NZ19: The Net Zero Conference & Expo
The Los Angeles Convention Center
October 2 - 4, 2019

Join leaders in green at NZ19, the world's largest net zero building conference and expo. A hub for thought-leaders and industry-shapers in the Energy, Water, Waste, Transit, and Carbon sectors, NZ19 will bring 1,200+ green building pioneers from around the world to Southern California to inspire, educate, and evolve our built environment.

The three-day event will feature exciting keynotes from ILFI CEO Amanda Sturgeon and Architecture 2030 CEO & Founder Ed Mazria, panels and workshops from innovative leaders in sustainability, Los Angeles-area green building tours, premium networking opportunities, and an expo hall featuring 100+ exhibitors.
CEUs will be available for AIA, GBCI, and LFA credential holders.
Visit www.NetZeroConference.com to learn more and register.

Facades+
Empowering the Facade Design Community

The goal of the Facades+ conference is to focus on the design and performance on the next generation of facades. We provide proven insights on how to make your ideas become reality.
We bring together some of the world's most productive building professionals and leading researchers to share insights on how facades ideas are brought to life.

Upcoming conference schedule.

Boston June 25th, Westin Copley Place
Minneapolis July 24th, Hilton Minneapolis
Denver September 12, The Cable Centre
Chicago September 27, venue TBD
Toronto October 11
Los Angeles November 14 & 15
For more information, check out the website:
https://facadesplus.com/