ANDREW ÄSK BUILDING SCIENCE SYMPOSIUM

Kimberly Llewellyn

Ventilation Strategies for Humid Climates

The course explores available data sources and how to use them. Where to find and how to use weather data available for any geographical region. What the data tells us. Quantifying ventilation loads for moisture removal and utilizing it for equipment selection and design considerations. Determining latent gains resulting from compliance with outside air delivery rate requirements.
ASHRAE 62.2 and joining the great ventilation debate; how much is enough? Handling Ventilation Loads with Variable Capacity Systems. Determining the capability of systems to handle latent loads.
Examine how we use variable capacity systems and why.
Use of ERVs and latent load limitations. How energy recovery ventilators work and why they are used. Determining if ERVs can be effective for moisture control strategies. Strategies for low load buildings in humid climates. Best practices for proper ventilation and effective moisture control in hot and humid climates.

Kristof Irwin

Five Principles of IAQ

Health is the new green - this message is seemingly everywhere these days. It's clear that a shift is underway in the way we think about our homes and buildings. A quality building does more than just use energy efficiently, it needs to provide for the occupants. This means recognizing that our clients will spend their time immersed in the air we create for them and that indoor air is a dominant exposure. Now is the time to get clear on how our homes and buildings relate to health, comfort and well-being and, more importantly, what to do about it. There are myriad known and emerging contaminants that negatively impact occupants. This course will break this complex and daunting topic down into 5 clear and actionable principles. The 5 Principles Of A Healthy Home: (1) Start with a good enclosure (2) Minimize indoor emissions (3) Keep it dry (4) Effectively capture particles (5) Ventilate This seminar will cover each step to make it clear why it matters and, more importantly, how to incorporate the benefits of this succinct approach into design and delivery decisions. Once understood, these 5 concepts will help design and construction teams make decisions all along the project life cycle.

You are Invited!

MEET YOUR 2020 AABSS SPEAKERS

Building Science Spring Training Camp

Ultra Aire has invited Andy's guests to enjoy food, drinks and fun with our distinguished speakers at Building Science Spring Training Camp on Wednesday March 25th - Starts immediately after closing of the first day sessions. at Haze Venue.

Visit www.climatezoneone.com for details.

WEDNESDAY 3-25-20 AABSS COURSES

Dr. Joseph Lstiburek

The Non-Problematic Attic

Examines choices of vented or sealed attics and best approaches to both. Comparison of the attributes of each strategy. Examination of attic spaces sealed with closed cell spray foam insulation in hot and humid climates. Examination of attic spaces sealed with open cell spray foam insulation in hot and humid climates.
What is the "ping-pong" effect? Understanding vapor diffusion strategies. Attic spaces equipped with vapor diffusion vents in hot and humid climates. Integrating use of dehumidifiers for sealed attics. A look at the attributes and compatibility of dehumidification equipment in sealed attics.

Crawl Spaces ; In or Out ?

Taken from the pages of Dr. Lstibureks article in the January 2020 ASHRAE Journal "Crawlspaces ; In or Out" . Crawl Spaces have been a building science issue ever since we started air conditioning the space above them. Explore common issues associated with crawl space construction. Establishing proper water control layers in typical wall construction and best practices used in conjunction with air control layers. Proper use and configuration of air control components. Using pressurization or depressurization of crawl spaces. Explore methods of controlling air flow between crawl spaces and outdoors and crawl

Innies, Outies and Tweenies

Explores various glazing designs and compare similarities and differences, window construction and means of heat, air and vapor control. View detailed cross sections of window components and analyze how water and air pressure are managed. Installation techniques for controlling moisture and pressure. How gravity and hydro-static pressure work within installations. Best Practices for installations. Step by step examples of how to prepare window openings for window units installed flush on the inside, flush on the outside and halfway between.

Putting Up Barriers

Keeping the bad stuff out and the good stuff in. Buildings and their occupants are protected by air, thermal and vapor barriers that shield building materials and occupants from unwanted forces from outdoors. Using building science to recognize the difference in the individual performance of air, thermal and vapor barriers versus the result when combined in various assemblies. Review examples of combining various materials in construction and conflicts that should be avoided. How incorrectly configured materials cause failures. How things are intended to wet and dry. Understanding proper uses of air barriers. Examples and uses of thermal barriers. Examples and uses of vapor barriers. Using control layers in Combination.

THURSDAY 3-26-20 AABSS COURSES

Dr. Joseph Lstiburek

Building Science For High Rise Buildings

Examination of forces that drive moisture infiltration in high-rise construction. Identify typical infiltration pathways through multistory buildings. The stack effect ; how buildings stack up. Identify factors that determine the nature and intensity of the stack effect in multistory buildings. Results of stack effect. Understanding Compartmentalization of multistory buildings. Intentional or unintended air movement between spaces and to the outdoors is explained. Best and worst practices for mechanical systems, ventilation and openings to outdoors for high-rise buildings. Considerations for managing whole house and individual compartments of the building.

Towering Infernos

High Rise Fires Around The Globe. Examination of most recent high rise fires in history and what can be learned from the failures that left these buildings vulnerable. Focus is on flammability and design of exterior walls, cladding and fastenings. A look at how other safeguards including Effective Compartmentalization, Detection and Alarm Systems, Sprinkler Systems and Egress played out in the results. Fire at Grenfell Tower, North Kensington, United Kingdom, June, 2017. Fire at Dubai Address Hotel, Dubai, United Arab Emirates January, 2015. Fire at Mermoz Roubaix, France, May 2012. Fire at Tamweel Tower , Dubai, United Arab Emirates November, 2012. Fire at Al Nahda Tower, Sharjah, United Arab Emirates, April, 2012. Fire at Polat Tower, Istanbul, Turkey, July, 2012. Fire at Dubai Torch Tower, Dubai, United Arab Emirates, August, 2017. Fire at Thorn House Hotel, Rostov-on-Don, Grozny, Chechnya, September, 2017. Fire at Marco Polo Apartments, Honolulu, Hawaii, July, 2017. Fire at Trump Tower, New York, New York, April, 2018.

After Disaster

Experiences learned from response to disaster recovery. Overview of post hurricane lessons learned in Louisiana, Texas and Florida. Experiences from Building Science Corporation technical support and aid to building authorities and groups with their post disaster rebuilding efforts. Successful drying and recovery. Examination of how building materials dry after wetting from disaster and what are the priorities to successful recovery. Examination of restoration and renovation pitfalls. Applying building science principles to repairs and renovations to existing buildings to avoid failures after repairs. Use of new technologies and materials for existing structures. Challenges of updating construction from the legacy codes of old buildings to the current codes. Accounting for changes to the building. New materials and systems retrofitted into existing or historic buildings may cause unintended failures and compatibility issues. Code required updates, efficiency and air quality upgrades must be executed so as not to create conflict with existing components.

Dr. Allison Bailes

Juggling IAQ with Efficiency

What consumers want; examples of consumer survey results comparing how consumers value IAQ and efficiency versus other building attributes. Do consumers know what IAQ is? Do consumers embrace synthetic products? How much time do consumers spend indoors? Does the filter provide the protection that people think it does? When IAQ comes to the forefront The cost when things go wrong. IAQ becomes a priority when its bad. Millions of Asthma cases attributed to mold exposure. Human contamination sources and skin flakes. Cooking issues with or without kitchen hood ventilation. Identify contamination sources. IAQ Priorities Identifying trade-offs and resolving conflicts between IAQ and energy efficiency. Things that must be done right include insulation, ducts, humidity controls and indoor pollutants. All electric versus combustion IAQ considerations. Which indoor pollutants matter most? IAQ Strategies Filtration strategies and correct use of high MERV products. Two rules for preventing humidity damage. Strategies for "low-load" buildings. Join the residential ventilation debate. Getting the entire construction team to buy-in to building science.

Duct Works or Doesn't

Design Essentials Preparation for wise decision making. Load Calculation uses and abuses. What calculations can and can't determine. Converting heating and cooling load values to find required air delivery rates. Using data to design duct systems. Understanding available static pressure. Understanding dynamic losses and the "friction rate". Effect of velocity. Merits and compromises of high or low velocity duct designs. What happens when ducts reduce in size? Dynamic losses and best practices for duct lengths and uses of fittings for bends and offsets. Helpful tips for successful design. Duct work fails and the Follies of Flexible ducts. Common mistakes in duct work design and installation. Examples of poor decisions and the results. This that don't fit and making things even worse. Examining performance considerations. Duct best and worse locations for chilled or heated ducts. Duct exposure to heat and moisture. Duct gain and energy loss. Duct condensation issues. Best practices for design and installation.

Gary Nelson

The Blower Door

What is a blower door? What does it actually measure? Single point and multi-point tests. How are the measurements used to determine various airtightness parameters? such as CFM50, ACH50, ELA? What standards are used to specify how a test is done? What standards or codes are used to determine the minimum or maximum required airtightness? What is meant by natural infiltration rate and can it be measured with a blower door? How can I use a blower door to measure how much air is exhausted from a house by a kitchen fan, clothes dryer, or radon fan? How can a blower door measure the leakage between a house and its garage, attic, or crawlspace? How are blower doors used to test multifamily buildings or large commercial buildings? How is a duct tester different from a blower door?