

Course Registration

The course fee is \$1,195 per person (US funds). The course fee includes lunches, coffees, soft drinks, dinner, etc. (The course fee does not include travel, accommodation or dinners not at the summer camp clubhouse).

Please use the registration button to sign up. Register early – and recall that this event is by invitation only so please do not pass on the link. We will close the registration once the event is at capacity.

The course is being held at the Westford Regency Inn & Conference Center, 219 Littleton Road, Westford, MA, 01886. The hotel is located at Exit 32 off I-495, approximately 10 miles south of Lowell, MA. Links to the room blocks at the Westford hotels will be sent to you with your registration receipt. Please reserve your rooms in the room blocks under the name of the registrant. You will also receive additional information about travel, other hotels, and the after party with your registration receipt.



Summer Camp XXIV

Twenty-Fourth Westford Symposium on Building Science

August 1, 2022 to August 3, 2022

I would like to invite you to the twenty-fourth Westford Symposium on Building Science. In continuing with past tradition, “building science summer camp” features intensive discussions on building science in both a formal and informal setting.

Westford XXIV – features numerous presenters/facilitators. Also in keeping with tradition the lead presenter/facilitator for each of the subject areas is one of the foremost practitioners in the subject area.

Course Dates

Monday, August 1 through Wednesday, August 3, 2022.

Course Outline

Presentations begin each day at 8:30 am
Lunch will be provided each day between 12 noon and 1:00 pm
Presentations will end Monday and Tuesday at around 4:00 pm
Symposium will close Wednesday at 2:30 pm

The Westford Health Department has determined that there is no mask or vaccination requirement for this event.

Monday AM Session

8:30 am to 10:00 am

Stephanie Taylor

“Health, Humidity, COVID and Buildings”

Stephanie Taylor received a MD from Harvard Medical School and a Master’s Degree in Architecture from Norwich. She has designed hospitals all over the world. She is a key member of the ASHRAE Epidemic Task Force. She did fundamental research regarding the link between relative humidity and health and focuses on building design, building maintenance and preserving health. She is an active skydiver and loves dogs. To say she is a legend is an understatement.

----- MORNING BREAK 10:00 AM TO 10:30 AM -----

10:30 am to 12:00 noon

William Bahnfleth

“Buildings and Infection Control - before, during and after COVID”

William Bahnfleth is a Professor of Architectural Engineering, The Pennsylvania State University, is a Past President of ASHRAE and chaired the ASHRAE Epidemic Task Force. Bill will discuss how buildings affect indoor disease transmission, what we have learned from COVID, and how building design and operation practices may change in the long term. Aside from being one of the foremost leaders in the field of building science he was an insane cross-country runner – 20 miles a day in his youth. He is still insane but now prefers more age appropriate activities like 100 mile bicycle rides. Thinks sky diving is great – for Stephanie...Likes dogs but is a confirmed cat person.

----- LUNCH 12:00 NOON TO 1:00 PM -----

Monday PM Session

1:00 pm to 2:30 pm

John Straube

“Gaps in Knowledge - Yogi Berra Building Science - in theory there is no difference between theory and practice - in practice there is”

John Straube is one of the foremost building science experts in the world and is known for his “dry” humor. John will examine the physics and practice of how water interacts with gaps and cracks by diving into capillarity, drainage, wicking and weeping as it applies to walls, windows, dimple sheets and coatings. John is a Professor in the Department of Civil and Environmental Engineering and is cross-appointed to the School of Architecture at the University of Waterloo, Ontario, Canada. He collects tractors and loves sheep dogs.

----- AFTERNOON BREAK 2:30 PM TO 3:00 PM -----

3:00 pm to 4:00 pm

Allison Bailes

“The What, Why, and How of the High-MERV Box Fan Air Cleaner”

Good filtration can easily remove the particles floating around in your indoor air. .Yes, even the small particles that can spread COVID-19 or penetrate deeply into your lungs. You can buy a HEPA air cleaner for hundreds of dollars to do that. Or you can make your own air cleaner for less than \$100. All you need is four MERV-13 filters, a box fan, and some cardboard and tape. Allison has built a house, done a lot of HVAC design and is the man behind the curtain at Energy Vanguard.

Tuesday AM Session

8:30 am to 10:00 am

Jeff Berino

“Answers from the Ashes”

Jeff Berino is a firefighter. The real deal. Firefighter I, II & III. He has worked in every position in the fire service from: Wildland Hotshot, to Fire Marshal to Fire Chief with Summit Fire, CO. He was the Colorado Fire Chief of the Year. He currently investigates wildland fires for a forensics firm in the Denver area. He is going to cover how wildfires are investigated for origin and cause using modern forensics. He will discuss how community planning/zoning and building construction are changing the tactics involving wildfire suppression in suburban settings. He will discuss solutions involving reducing structural ignitability.

----- **MORNING BREAK 10:00 AM TO 10:30 AM** -----

10:30 am to 12:00 noon

Claudette Hanks Reichel

“Flood-hardy?...Bon Temps! (good times) Status quo?...Couillon! (stupid, crazy, dumbass)”

Claudette Hanks Reichel is Professor Emeritus, Extension Housing Specialist and founder of LaHouse Resource Center at Louisiana State University. 90 percent of natural disasters in the USA involve flooding. Waiting for flood standards to wise up is just asking for more costly destruction and misery. How “couillon” is that? Professor Reichel will cover how to build and renovate “so the good times can roll even when the floods take hold..”

----- **LUNCH 12:00 NOON TO 1:00 PM** -----

Tuesday PM Session

1:00 pm to 1:45 pm

Lisa White

“Grid-Building Interaction, Microgrids and Passive Buildings”

Lisa White has a Masters in Energy Engineering from the University of Illinois, Chicago and is the Associate Director for Phius. Ms. White will cover grid-building interaction and responsiveness and why buildings have to be efficient for the grid to be reliable providing uninterruptible power supply. Efficient buildings are load flexible, provide flattened peak demands and will be the basis for future networks of renewable energy powered microgrids.

1:45 pm to 2:30 pm

Al Mitchell

“Phased Retrofit of Watergate's "Sister"”

Al Mitchell has degrees in Architectural Engineering and Architecture from Illinois Tech and Ball State and is also with Phius. Mr. Mitchell will cover the approach to retrofit a 250,000 sf condominium while maintaining the historic architectural style and upgrading the aging mechanical systems to all electric utilizing heat pumps, solar and storage.

----- **AFTERNOON BREAK 2:30 PM TO 3:00 PM** -----

3:00 pm to 4:00 pm

Marcy Tyler

“Caulks and Sealants: A Sticky Situation”

Marcy Tyler is the Director of Building Science for Tremco. She has two degrees – in Chemistry and Chemical Engineering. Ms. Tyler will address sealant selection and sealant application – air and water infiltration, thermal management, sound dampening, firestopping, moving joints, transitions, details and aesthetics – how different chemistries affect sealant selection.

Wednesday AM Session

8:30 am to 10:00 am

Jared Rodriguez

Mark Kleinginna

“Resource Efficient Electrification and Grid Impacts of Electrification”

Jared Rodriguez is the founding Principal of Emergent Urban Concepts, a renewable energy consulting company. Mark Kleinginna is a Principal at Integral Energy and teaches at The Pennsylvania State University. Mr. Rodriguez and Mr. Kleinginna are going to focus on the implications of electrifying existing buildings in a logical and resource efficient manner avoiding the grid impacts of unmitigated electrification.

----- **MORNING BREAK 10:00 AM TO 10:30 AM** -----

10:30 am to 12:00 noon

Graham Finch

“Prefabrication and Mass Timber Buildings”

Graham Finch is a Principal with RDH Building Science. He is the most knowledgeable mass timber person around. So, you think it's easy to combine mass timber buildings, extreme levels of energy efficiency and prefabricated façade engineering? And deal with high rise requirements for fire, wind, earthquakes and rain?

----- LUNCH 12:00 NOON TO 1:00 PM -----

Closing Presentation:

1:00 pm to 2:30 pm

Kimberly Llewellyn

Bryan Orr

“Chasing HVAC Unicorns - The Hunt for Mythical Systems, Fantastical Designs and Legendary Tradespeople”

Kimberly Llewellyn is the Emerging Markets, Sr Product Manager for Mitsubishi Electric Trane US. She used to be an energy rater and thinks skilled trades are the most under-engaged key stakeholder in the transition to a more resilient built environment. Bryan Orr is the president and co-founder of Kalos Services, LLC an HVAC company he co-founded with his dad 22 years ago. He is also the host of HVAC School - the best technical resource for mechanical contractors...podcasts and videos for techs by techs. Kimberly and Bryan think that the main source of HVAC problems is a pervasive disconnect from reality.