

ASHRAE TC 9.7 – Educational Facilities

Full Committee Annual Conference Meeting – Minutes

Saturday, June 27th, 2026| 1:00 – 3:00 PM (CDT)

Location: JW Marriott Austin

Room: JW - 305 - L3

Meeting Format: Hybrid

Zoom Provided

1. Call to Order: 1:02

Chair: Raj Setty

2. Review of Scope (Raj Setty)

“TC 9.7 is concerned with the application of heating, ventilating, air-conditioning, refrigeration, life safety, and energy conservation systems for educational facilities, including early childhood education through higher education facilities.”

3. ASHRAE Code of Ethics Commitment (Raj Setty)

ASHRAE Code of Ethics Commitment

“In ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We celebrate diverse and inclusive communities, understanding that doing so fuels better, more creative and more thoughtful ideas, solutions and strategies for the Society and the communities our Society serves. We respect and welcome all.”

See full ASHRAE Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>

4. Introductions – Mark Long

- Sign in (*Physical Sign IN Sheet and Record of online attendance*)
- Determination of a quorum- quorum established

6 of 8 voting members present

VOTING MEMBERS FOR THIS MEETING (Need (4) or ½+1 for a Quorum)

Name	Role	Voting	Name	Role	Voting
Raj Setty	Chair	Yes	Bruce Lindsey	Member	Yes
Catherine Tinkler	Vice Chair	No	Heather Schopplein	Member	Yes

Mark Long	Secretary	Yes	Jacob Edmondson	Member Non Quorum	Yes
Tom Jacknisky	Co-Research Chair	No	Chris Ruch	Webmaster	Yes
Tony Colaneri	Co-Research Chair	Yes			
David Handwork	Standards Chair	No	Keith H will be a voting member if required		
Itzhak Maor	Handbook Chair	Yes			
Catherine Tinkler	Program Chair	No			

5. Chair's Report (Raj Setty) 2:07

- **Approval of prior minutes:** Chris R motion, Steve W 2nd
 - [TC 9.7 Minutes 2026 Winter Conference 260131](#)
- **ASHRAE/USGBC School Air Cleaner Guidance**
 - USGBC published guidance and background on school air cleaners
 - Request to circulate to interested members; comment period technically passed, but feedback still welcomed
 - Coordination with Indoor Air Quality Committees (TC 2.3 & 2.4)
- **Changes to ASHRAE Conferences**
 - Discussion on proposals to consolidate to one annual in-person conference (everything else virtual) starting 2029 at the earliest
 - Concerns expressed from various technical committees (TCs) and standards committees regarding negative impact
 - Survey circulated; strong feedback anticipated
 - No board vote yet; further updates expected
- **ASHRAE Calendar**
 - New official ASHRAE calendar launching July 15, 2026
 - TC chairs can request interim meetings be posted year-round with virtual links
 - Available to all members; canceled meetings to be marked accordingly

6. Liaison Reports

- **Section Head**

- Corey M- not a whole lot (breakfast tomorrow will provide more info and updates)
 - People interaction updates. Training for chairs., info on ashrae guide and future of conferences (2029),
 - Official ASHRAE calendar (July 15th go live). Can put everything in on calendar

- **RAC**

7. Knowledge Share (Open Forum) Time allotted to discuss current events and recent research relevant to TC 9.7.

- **2026-2027 School Air Quality Fellowship – USGBC (Raj)**
 - Equips K–12 public school district staff with the training, peer networks, and resources needed to develop plans for healthier indoor air and energy-efficient systems – Application due by July 10th, 2026
- **Fellowships and Grant Opportunities**
 - ASHRAE Air Quality Fellowship:
 - \$50,000 grants, applications due July 10, 2026.
 - American Lung Association Clean Air School Challenge:
 - Mini grants up to \$9,500/building; up to \$190,000/district. Uptake lower than expected.
 - Contact info to be shared for districts interested.
 - Attune + USGBC Grant Program:
 - Additional funding for district filtration/IAQ improvements.
- **Events & Committees**
 - Conferences:
 - "Undaunted K-12" event in D.C. emphasized deferred maintenance and stakeholder planning.
 - Center for Green Schools HVAC Change Lab:
 - Multi-stakeholder group, including American Lung Association, school districts nationwide
 - TC 9.7 may be solicited for technical input
- **Standards & Testing**
 - AHAM AC-2 Air Cleaner Test Method:
 - Working group formed to update the method (first major update in ~20 years)
 - Focus on acoustic testing, potential applicability beyond portable cleaners, especially for schools. Volunteers sought.
 - Sacramento Sheet Metal Workers Training Center:
 - First ASHRAE student chapter at an HVAC technician training school (Sacramento, CA); excitement for further technician-targeted educational outreach.
- **Committee Sponsored Sessions**
 - Monday 8 AM Seminar:

- Indoor Air Quality Monitors in K-12 Schools, featuring field deployment case studies, sensor technologies
- Other Notable Seminars/Workshops:
 - Net-zero case studies, thermal storage, decarbonization retrofits featured in conference programming
 - Brainstorming future program tracks and speaker recruitment

8. Subcommittee reports

- Programs (Tinkler)
 - Summary of Sub-committee meeting (see attached)
 - The committee's primary sponsored session was Seminar 22: "IAQ Sensors in K-12 School Buildings," which addressed current recommendations, requirements, deployment strategies, and case studies related to indoor air quality monitoring in educational facilities. Presentations covered IAQ sensor recommendations and requirements, sensor types and characteristics, a K-12 deployment case study, and practical strategies for implementation.
 - Other programs of interest to TC 9.7 members:
 - Seminar 5: Scaling Resilience: From High-Performance Facilities to Community Energy Systems
 - Workshop 3: Achieving Healthier Buildings with Lower Cost and Energy Use
 - Additionally, the subcommittee reviewed the conference technical tracks and noted areas relevant to educational facilities, including:
 - Thermal Network Systems & Energy Storage
 - Nexus of Real and AI
 - Decarbonization Retrofits
 - Application Notes in Professional Practice
 - The Program Subcommittee continues identifying topics and developing session proposals that support TC 9.7's focus on educational facilities, healthy learning environments, energy efficiency, resilience, and emerging technologies.
 - Session Planning
 - Pursue case study panels for upcoming Chicago meeting (thermal storage, decarbonization, energy innovation, stakeholder engagement)
 - Encourage cross-discipline session proposals (operations, cost management, planning, etc.)
- Research (Jacknisky & Colaneri) - Tony C (Tom not in attendance)
 - Potential for Research Opportunities Texas A&M University (*see below under Model Language and Assessments for Legislation*)
 - No updates

- MERV 13 report- (more detail below)
 - JuNelle will be presenting the survey results
 - Texas AM- Cathy P- identified opportunity for PHD students to look at practical applications of the work- very provisional
 - Look at an RTar
- Potential
 - Lack of data for UV-C and upper air germicidal applications for early childhood settings—potential for new research project.
 - Outreach to Universities: Ongoing efforts to connect with campuses (University of Texas, Northwestern, Northern Illinois, University of Michigan, etc.) regarding thermal storage, energy innovation, and decarbonization for future conference sessions.
- Handbook (Maor) (*See Below under Project Status Report*)
- Standards (Handwork)
 - No update- David not in attendance
 - Indoor Environmental Quality Standard (ASHRAE 235P):
 - New standard under development; to include makerspaces in future.
 - Goal: Create operational, not just design, standards encompassing air quality, thermal comfort, and acoustics.
 - Estimated timeline: 2–3 years; seed document RFP in process.
 - Cross-committee Coordination:
 - Reminder for cross-TC communication for specialized issues (e.g., makerspaces, laboratory HVAC, IAQ, etc.).

6. Old Business

- Makerspaces and Emerging Design Needs
 - Ongoing debate about which TC should lead on design and safety guidance (TC 9.7, 9.10, 4.3, and IAQ committees all have a claim)
 - Tools and safety requirements (including air quality, VOCs from 3D printing, etc.) noted as poorly standardized—potential RTAR recommended
 - Determine which committee will lead; consider joint RTAR for research addressing safety/design/ventilation needs.

7. New Business

- Leadership Transition
 - Another year, have some time
 - No plan, but want to keep momentum going
- Education & Engagement
 - Technician Chapter Support:
 - Develop educational materials suitable for new ASHRAE technician-focused student chapters (like Sacramento).
 - Solicit ideas for tailored training/lab demonstrations.

7. Project Status Report

- **Design Guidance for Educational Facilities – 4.0** (Raj Setty and Chris Ruch)
 - Survey Overview and Results (Chris)
 - Review Drafted Part 1 (Raj)
 - Purpose
 - Practical resource for facility directors/owners integrating disparate guidance, including ASHRAE and USGBC material
 - Focused on asset management, maintenance, and system documentation—bridging design and operations
 - Emphasis on pragmatic decision-making (tradeoff between first cost, total cost of ownership, performance)
 - Process
 - Table of contents redrafted based on member survey; feedback solicited
 - Volunteer assignments for chapter authorship, reviewers, and graphics production underway
 - Collaboration to continue via Basecamp and sub-meetings before next main committee meeting
 - Volunteers to help Raj- Chris, Katherine, James, Effie Greathouse, JuNelle, Tony, Itzhak. Keith, Ahmed - can email Raj to volunteer. Chris will send out a memo earlier this week.
 - TC 6.1 was very interesting because it is end user-based document
 - Schedule and work assignments (Raj)
- **Working Group on State-Level Policy and Practice –** (JuNelle & Tony)
 - Slide deck presented
 - Survey of Educational Facilities Stakeholders (Filter Survey Results)
 - Informal Survey Results (April 9–May 16, 2026):
 - 147 respondents (skewed towards K-12; strong mix of PEs and FMO managers)
 - 65% reported adoption of MERV 13 in most or all systems; MERV 8 is the primary default where not adopted
 - Drivers: Infectious disease reduction, general air quality, guidance on best practices
 - Barriers/concerns: Reduced airflow, increased filter and energy costs, system wear, filter replacement logistics, filter bypass, and confusion about filter equivalence (e.g., MERV 13 performance variability)
 - Observed gap: PEs are more focused on code/compliance; FMO managers are more concerned with practical operation and cost

- Comments: Issues sourcing filters, adoption regression post-COVID (from MERV 13 back to MERV 8), lack of clear best practices for existing buildings
 - Follow-up
 - Draft full report being written; results to be shared with GAC (Grassroots Government Advocacy Committee).
 - Further focus groups and targeted outreach to FMO managers and PEs planned.
 - Potential for development of draft model language in collaboration with GAC.
 - Research Collaboration with Texas A&M University:
 - Early conversations on expanding study into Texas, including dissertation research by several PhD students
 - Emphasis on identifying research gaps (not duplicating other work like that led by UC Davis)
 - Possible ASHRAE RTAR (Research Topic Acceptance Request) submission discussed but not yet defined
 - Next Steps
 - Releasing report and results
 - Open to new volunteers, Chris can help send out email and engage and loop in interested people
 - Conduct targeted literature review to identify gaps before embarking on new studies
- **Early Childhood Handbook Addition** – (Itzhak Mahor)
 - Status
 - New sections (Childcare, digital Twin) and many updates from Standard 62.1, 24 , 90.1
 - TC 9.7 - Educational facilities - Handbook Chapter update sent out to TC Voting Members for review on 6/3/26
 - Reviewed by all voting members; no comments or objections received
 - Major updates: New sections on Early Childhood and Digital Twins; updated standards and best practices references; expanded VRF, VAV, in-room cleaner content; replaced COVID-19 section with infection control resources; case studies replaced by evergreen web links.
 - Vote to consider approval
 - Sent out via email and is on basecamp, and notices out to all members
 - Possible RTar with 2.2 TC Re daycare and early learning
 - Maker spaces a hot topic and needs more research. 9.7 should not lead either 9.1 or 4.3 or others to lead. We are

requesting (through Raj as Chair) for other committees to look at this and lead

- Vote: approve the chapter 2027
 - Motion- Chris, Raj 2nd
 - Vote yes- (6/6) Mark, Chris, Raj, Tony, Steve, Itzhak.
Not present- Bruce, Heather, Jacob
- Next Steps

Special Acknowledgment

- Itzhak commended for long-term leadership on the Handbook chapter
- Thanks to Janelle and the working group for comprehensive survey/report efforts

9. Next Meeting: 2027 Winter Conference- Chicago

10. Adjournment: 3:06

Join Zoom Meeting

<https://us02web.zoom.us/j/81737734302?pwd=XRAXCSjU4sr2dBDEZUxy39AD0Dji7X.1>

Meeting chat link

<https://us02web.zoom.us/jc/81737734302>

Meeting ID: 817 3773 4302

Passcode: 398670

One tap mobile

+14086380968,,81737734302# US (San Jose)

+16694449171,,81737734302# US

Cindy Michaels

Editor, Special Publications

Michaels, Cindy CMichaels@ashrae.org

Name ↑↓	Voting Status ↑↓	Committee Position
Bruce Lindsay	Voting	Member
Christopher Ruch	Voting	Webmaster
Heather Schopplein	Voting	Member
Itzhak Maor	Voting	Hndbk Subcom Chair
Jacob Edmondson	Voting	Member Non Quorum
Mark Long	Voting	Secretary
Rajnish Setty	Voting	Chair/guidance Document Chair
Steven Winstead	Voting	Member
Tony Colaneri	Voting	Resrch Subcom Chair

Prince Saini 02:04 PM

PS Prince Preet Saini, Mechanical Engineer at Wight & company, Chicago, IL, Corresponding Member

ML " I have been here for a while but do not know if I am corresponding or voting currently. "

Cal you are a CM non-voting

Cal Timmons 02:17 PM

CT Thanks Mark.

2:02

Participants (10)

Find a participant

ML

Mark Long (Me)

CR

Chris Ruch (Host)



Catherine Tinkler

BL

Bruce Lindsay

IM

Itzhak Maor

RS

Raj Setty

More

CT

Cal Timmons

PS

Prince Saini

JH

JuNelle Harris

AC

Anthony Colaneri - Medify Air

2:13

ML	Mark Long (Me)	 
CR	Chris Ruch (Host)	  
	Catherine Tinkler	 
BL	Bruce Lindsay	 
IM	Itzhak Maor	 
RS	Raj Setty	More ▾
CT	Cal Timmons	 
PS	Prince Saini	 
JH	JuNelle Harris	 
K	Keith	 
CB	Carl Bengtsson Siemens	 
	Anthony Colaneri - Medify Air	 

3:14



ASHRAE TC 9.7

Educational Facilities

Program Subcommittee Report

Old Business – Programs at Austin

Monday June 29th

8:00 AM – 9:30 AM CDT

Seminar 22: IAQ Sensors in K-12 School Buildings

JW Marriot Austin (HQ Hotel), L3, Lonestar Ballroom G

Summary:

As the focus on Indoor Air Quality (IAQ) in K-12 schools increases, questions regarding IAQ Sensors have followed. Recommendations and requirements for IAQ sensors (temperature, humidity, carbon dioxide, particulate matter, VOCs, etc.) vary between different sources. This session reviews available recommendations from different sources, and will also consider implications of different implementation strategies for IAQ sensors. Case studies and operational observations will be included.

Chair:

Corey Metzger

- A Summary of IAQ Sensor Recommendations and Requirements
Presenting Author: Anthony Abate, CIAQP, Clean Air Group, Fairfield, CT, USA
- IAQ Sensor Types and Characteristics
Presenting Author: Carl Bengtsson, Siemens Industry, Inc., Buffalo Grove, IL, USA
- A K-12 IAQ Sensor Deployment Case Study
Presenting Author: Rajnish Setty, Setty & Associates International, PLLC, Washington, DC, USA
- K-12 IAQ Sensor Strategies and Recommendations
Presenting Author: Corey Metzger, Resource Consulting Engineers, Ames, IA, USA

Seminar 5: Scaling Resilience: From High-Performance Facilities to Community Energy Systems

Sunday, June 28 8:00 AM – 9:00 AM CDT

JW Marriot Austin (HQ Hotel), L3, Lonestar Ballroom H

Workshop 3: Achieving Healthier Buildings with Lower Cost and Energy Use

Monday, June 29 9:45 AM – 10:45 AM CDT

JW Marriot Austin (HQ Hotel), L3, Lonestar Ballroom F

Overview of Conference Tracks:

FUNDAMENTALS & APPLICATIONS

HVAC&R SYSTEMS & EQUIPMENT

REFRIGERATION & REFRIGERANTS

RESEARCH SUMMIT

RESIDENTIAL HVAC RESEARCH & DEMONSTRATION

THERMAL NETWORK SYSTEMS & ENERGY STORAGE

Thermal network system research investigates the modeling, design, and optimization of interconnected thermal components used to represent heat transfer and energy flows in buildings, industrial processes, and energy systems. Using network-based approaches, researchers simplify complex thermal behavior into nodes and links, enabling efficient simulation of heat storage. This track focuses on applications such as networked building energy modeling, district heating and cooling, and advanced control architecture. Emphasis is placed on accuracy, computational efficiency, parameter identification, and integration with control algorithms to improve energy efficiency

NEXUS OF REAL & AI

The nexus of real and artificial intelligence explores how human insight and AI-enabled HVAC controls work together to elevate building operations. It considers how people and algorithms share decisions, learn from one another, and blend experiential knowledge with data-centric modeling, machine learning, and automation to produce transparent, adaptive systems that improve performance and resilience. Particular attention is directed toward data-center environments, building and campus design strategies, and power-delivery systems.

DECARBONIZATION RETROFITS

Building decarbonization retrofits focus on reducing emissions from existing buildings through improvements, including control modifications, commissioning (could be retrocommissioning), system or equipment replacements, etc. Relevant topics include weatherization and pressurization, heat pumps and other high efficiency HVAC systems, renewable integration, and controls. Programs in this track will focus on implementation process, cost evaluation, performance, occupant impacts, and carbon savings across climates with emphasis on scalable retrofit strategies that lower energy use, improve comfort, and extend building lifespans.

APPLICATION NOTES IN PROFESSIONAL PRACTICES

This track introduces a new option for individual presentations on industry professional-focused applications of technology, design, and implementation. Sessions in this track will support the dissemination of lessons learned, best practices, and practical guidance throughout the HVAC&R industry. In addition to a short oral presentation, speakers

must submit a 3-6 page brief ("Application Note") intended to guide engineers and practitioners in future projects. The Application Note format also serves as valuable documentation for future collaboration and training.

Complexity, Resilience, & Flexibility Converge to Decarbonize USC's Steam System

Presented by Andrea Escalante, Executive Director, Engineering, University of Southern California | David Park, Mechanical Engineer, Glumac | Brian Stern, Director of Energy, Glumac

This session examines University of Southern California's (USC) decarbonization study and phase 1 concept for its incredibly complex campus steam system—six distributed steam plants (serving domestic hot water, comfort heating, and process loads) and six chilled water plants, all networked across 80+ buildings. Learn how USC developed flexible pathways for transitioning to low-temperature hot water, integrated upgrades with capital projects, and maximized heat recovery potential in a new nodal plant embedded within an underground parking structure. You will gain insights into navigating technical complexity, financial uncertainty, and urban constraints during utility plan upgrades while moving the needle toward carbon neutrality.

LEARNING OUTCOMES

1. Integrate resilience and capacity planning into early-phase concepts for utility plant upgrades to build university alignment around the decarbonization plan.
2. Design phased decarbonization strategies for distributed steam systems serving multiple load types, including domestic hot water, process steam loads, and comfort heating.
3. Apply heat recovery and nodal plant design to accelerate carbon reduction within existing campus constraints.
4. Develop flexible implementation pathways that align with capital project sequencing and financial realities.

AIA LU/HSW 1.0 Unit AICP CM 1.0 Unit

Topics: Campus, Landscape, Infrastructure

Taags: Carbon Neutral. Energy Infrastructure. Sustainability (Environmental)

Navigating with Community Stakeholders to Achieve Ambitious Energy Goals

Presented by Matthew Bartels, Vice President, Bennett Wagner & Grody Architects | CannonDesign | Jarrod Penttila, Construction Project Manager, Oregon State University-Cascades Campus | Eric Ridenour, Assistant VP & Campus Planner, CannonDesign | Jarrett Smith, Sustainability Program Director, University of Colorado Anschutz Medical Campus

Universities must navigate funding challenges, strong sustainability goals, and student expectations, using both policy-driven and participatory goals. This session explores energy master planning at Oregon State University-Cascades, which launched a geo-exchange system, and University of Colorado Anschutz Medical Campus, which transformed a steam-based system. We'll highlight how both universities engaged their communities and key stakeholders to achieve ambitious sustainability goals. Join us as we compare two different approaches to integrated energy systems planning that achieves policy goals and drives behavioral change, including community and partner roles in shaping energy priorities.

LEARNING OUTCOMES

1. Articulate the general community's role in setting sustainability goals early on in order to keep them engaged and supportive of the project.
2. Define a path to energy planning informed by community goals and shaped by sustained engagement with long-term partners: providers, funders, other users, etc.
3. Set an agenda for energy planning that plays to the strengths of your location, mix of uses, and funding strategies.
4. Consider the key roles that resilience planning plays in defining a complete energy system.

AIA LU/HSW 1.0 Unit AICP CM 1.0 Unit

Topics: Campus, Landscape, Infrastructure

Tags: Carbon Neutral, Energy Infrastructure, Sustainability (Environmental)