

ASHRAE Distinguished Lecturer's Talk

Towards Energy Efficiency: Energy Audit and Building Commissioning

Date

26 June 2024 (Wednesday)

Time

8.30am to 12.00noon

Venue

**The Hive, Level 9, Block G
Swinburne University of Technology
Sarawak Campus**

Registration (*incl. 8%SST*)

Member RM216.00

Non-Member RM270.00

****BEM CPD Applied***

**By ASHRAE
Distinguished
Lecturer
Ross D. Montgomery
*P.E., FASHRAE***



Contact Person:

Nur (+60 11 1574 4931)

Victor (+60 16 856 9850)



Towards Energy Efficiency: Energy Audit and Building Commissioning

Time	Tentative Program
0830-0850	Registration
0850-0900	Welcoming and Introduction
0900-0945	Topic 1: Energy Audits: The basics of setting up and executing energy audits in commercial buildings
0945-1030	Topic 2: Testing Adjusting and Balancing (TAB) – HVAC
1030-1045	Tea Break
1045-1130	Topic 3: Building Commissioning in the Built Environment - Principles, Process, Procedures, and the Future
1130-1200	Combined Discussion and Q&A Session



ASHRAE past Society Vice-President, Technology Council Chairman, DRC and DAL, past RVC, and chapter/section President. He has worked in ASHRAE activities for 40+ years, and has served on over 45 ASHRAE committees, councils and boards for ASHRAE. He has authored several ASHRAE Journal articles on Building EQ, HVAC controls, Commissioning fundamentals, Ventilation Filtration Effectiveness, The Strategic Guide to Commissioning”, and co-authored the ASHRAE book “Fundamentals of HVAC Control Systems”. Professionally, he works as Owner/President of QST, Inc., in the Building Commissioning, Maintenance/Operations, and Energy Audit/Rating/Assessment business, operating a company based in Florida, but travels anywhere in the world for work.

He also works as the AABC certified balancing and clean room engineer (TBE/CCE) for Testing, Adjusting, and Balancing of HVAC&R Systems of commercial buildings and cleanrooms, a primary investigator that provides Energy/IAQ monitoring, testing, research, and reporting as well as providing Environmental Solutions for IAQ problems, and performs legal subject matter expert witness work. He has successfully performed many bEQ ratings.

He graduated from the University of South Florida with a BSME. He has his Professional Engineers License, state Mechanical/Electrical Contractors licenses, as well as his CxA Certifications for Commissioning with AABC/ACG, TAB and Cleanroom certifications from AABC, IAQ, Energy Manager (CEM), High Performance Building Design (HBDP), and Green Building Engineer. He is an ASHRAE Fellow and a past recipient of the ASHRAE awards for Government Service, Presidential Certificate of Honor, Exceptional/Distinguished Service, John James International service, Lincoln Bullion membership, Andrew T. Boggs Service, and an ASHRAE Technology Award.

Speaker Information

Ross D. Montgomery, P.E., FASHRAE
President
Quality Systems and Technology, Inc.
11306 Wickersley Place
Tampa, FL 33625
United States
(941) 737-1401
Region: XII

Phone/Fax: Cik Nur +6011-1574 4931

Email: mashrae@ashrae.org.my



Towards Energy Efficiency: Energy Audit and Building Commissioning

Synopsis

Topic 1: Energy Audits: The basics of setting up and executing energy audits in commercial buildings

ASHRAE Standard 211-2018 and its predecessor publication Procedures for Commercial Energy Audits are used in this presentation that goes step by step in the required process of making energy audits, Level I, II, and III. It highlights several economic procedures used in energy audits. It shows many resources that can be used including ASHRAE Standard 100 and ASHRAE Building EQ program energy conservation measure recommendations. It highlights example energy and economic evaluation calculations about energy saving opportunities available in a typical building audit including renewables. NZEB buildings are discussed. This presentation also includes a brief discussion about other related ASHRAE Energy products and services, such as Standards 90, 100, 189, Performance Measurement Protocols, Energy Efficiency Guide for Existing Buildings, Energy Targets, and the ASHRAE Building EQ Building Labeling program tie in to providing best practices.

Topic 2: Testing Adjusting and Balancing (TAB) – HVAC

This talk is about TAB work and its relation to HVAC; it starts with the measurement basics and the instruments that are used in TAB work, including some of the forms used. The presentation shows the technical equations and solutions related to real problems used in the field. The fan and pump laws are presented and solved in many real-world word problems. The simple process about how TAB performs its site visits and balancing efforts are demonstrated and discussed. Both Air and Water TAB work is explained. Psychrometrics, Particulate measurements, Noise and vibration topics are also briefly discussed. TAB work uses ASHRAE standards as well as Industry procedural standards such as produced by AABC and NEBB. In general, it gives a basic overview of the TAB process for air and water systems, and how it is used to validate and confirm that the design parameters are being delivered and documented to the project.

Topic 3: Building Commissioning in the Built Environment - Principles, Process, Procedures, and the Future

This talk is about HVAC&R commissioning basics and highlighting our ASHRAE Standard 300 series, 202, 230P, Guideline 0 and 0.2, and sample commissioning project applications and photos. It teaches about what Commissioning is and what it is not. Some sample subjects can include:

- HVAC/R-General
- Smoke control and NFPA 909
- Radiant heating and cooling using DOAS
- Clean rooms; OR's; Procedure and Isolation rooms.
- Pharmaceutical Manufacturing and Production; Drug Mixing areas.
- Air tightness testing; Case study examples using Blower doors and site AHU's
- Energy Monitoring Systems; Btu and Kw
- Total Building Commissioning
- Enclosure/Envelope commissioning and associated method of testing
- Thermal/Ice Storage Chilled Water Systems
- Existing buildings in hot-humid climates
- Lighting controls where required by contract or code.

It explains the industry importance of commissioning and why we use it, how it works, and speaks about its many features and benefits. It is important to note that ASHRAE Cx standards are process documents and can be adapted to be used in many other commissioning disciplines. As a current voting member of the Standard 300 group, and practicing CxA/CxP and ASHRAE Certified CPMP, it outlines better and best practices in commissioning activities, using ASHRAE commissioning related Guidelines. Each chapter of the new ASHRAE standard is explained. As the past chair, it explains the activities of the Presidential Ad Hoc Building Performance Alliance Committee on Commissioning, where we are working with all of the Industry giants (ASHRAE, ICC, USGBC, AIA, NIBS, SMACNA, AABC/ACG, NEBB, BCA, TABB, CAMEE, NEMIC, BOMA, etc.) to establish high level strategic directions for "Commissioning", and its use and proliferation throughout our Industry, in collaboration with our Industry partners.

Phone/Fax: Cik Nur +6011-1574 4931

Email: mashrae@ashrae.org.my