

ASHRAE TC 7.5 Smart Building Systems
2019 Annual Conference – Kansas City

Agenda of Building Operations Dynamics Subcommittee Meeting

Date: Monday, June 24, 2019
Time: 4:15-5:00 p.m.
Location: 2104A KCCC

1. Roll Call and Introductions

2. Mission Statement

- The Building Operations Dynamics Subcommittee of TC 7.5 is concerned with the dynamic characteristics and interactions of comfort conditions, the active components of HVAC systems, the passive components of HVAC systems, control systems and operation strategies and the building. The committee is concerned with the methods of building system operation which minimize energy used through the consideration of dynamics and interactions. It is also concerned with methods which consider dynamic and interactive characteristics in the design or comfort conditioning systems.

3. Announcements

- New Subcommittee Chair

4. Program Proposals

| Program | Title | Lead | Newest update |
|------------|---------------------------------------------------------|--------------------|------------------|
| 1 | What to do with optimal control? | Peter Armstrong | |
| 2 | Model accuracy impact study on model predictive control | Andreas Athienitis | |
| 3 | Smart products for residential and commercial | Josh and Kristen | |
| 4 | Training plan for facilities | | |
| New ideas? | | | <i>See Notes</i> |

5. Research

| Research | Title | Lead | Newest updates |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RP-1661 | RP- 1661: Development and Validation of Dynamic Models for the Evaluation of Chilled-Water System Control Strategies in the ASHRAE Handbook | TBD | Li Song and Wangda Zuo provided update to the research project, developed 9 different control sequence models and have run 18,000 simulations. Simulations are on-going. Current progress is running debugging of the simulations. Project expected to end April 2019- request PMS / TC 4.7 to extend 1 year. Discuss if extension could be granted. |
| WS | WS- 1809: Updating reference guide for dynamic models of HVAC equipment | Heejin Cho | Send out to RAC before the RTAR rules changed PTAR (Publication TAR). Co-Sponsored by 1.4 |

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| | | | Has been reviewed by all voting members. 1/15/2019 – Approved by all. |
| RTAR? | If you had “perfect information” on occupant’s comfort preferences and their location within a conditioned space then how would you optimize control and how much value would you be able to realize | Rich Hackner? Li Song? | RTAR completed but did not submit. Internal TC review, and started to award, but search for co-sponsorship. Should check with occupant behavior group. Coordinate with TC 1.4? Circulate the document again via e-mail and repost by Li Song. Wen to communicate with Rich Hackner Voting Members to review on this RTAR and posted on BaseCamp. Organize electronic voting. |
| RTAR? | How IoT impacts operators | Carol Liping Wang | Carol working on outline. How to quantify impact – Li Song Dovetailing with enabling technologies. Update the title |
| RTAR? | Link the productivity with occupancy based control | Ivo Martinac | Ivo Martinac – professor developing idea. The idea but need to develop the team. |
| RTAR? | Smart management of moisture and energy consumption in residential houses, smart ventilation, optimal location for dryer, heat pump water heater, etc. | Andrew Windham; Kristen Cetin | Update from Kristen Cetin |
| RTAR? | Design guideline to consider unmeasured disturbance for an implementable MPC | Donghun Kim, David Blum | Completed RTAR but has not been voted. Donghun seek assistance to upload. Wen Jin’s records show and updated draft between Donghun and David. Wen to forward to Li and process. |

6. New Business

7. Other topics:

- Suggestion: Sponsor a program at the next ASHRAE winter conference on EE/DR Building operation dynamics
- Co-sponsor work with
 - Spc 135 BACnet
 - Effective Energy Management in new and existing Buildings ASHRAE SPEC 100
 - Operations and Maintenance of High Performance Buildings
 - GPC 36P High performance sequence of operations for HVAC Systems
- Occupancy Based Modeling with feedback to control systems - LBNL

8. Adjournment: