

NYStretch-Energy Code MULTIFAMILY WORKING GROUP Meeting

October 26, 2017 | 2:00 pm – 4:00 pm

Location: WebEx meeting

PARTICIPANTS

Remote: Priscilla Richards, Jim Edelson, Mark Lyles, Bing Liu, Gina Bocra, Jian Zhang, Lou Vogel, Marilyn Dare, Maria Karpman, Jeff Domanski, Tom Eisele, Yan Chan

Absent: Tony Lisanti, Pasquale Strochia, Lou Petrucci, Steve Rocklin, Dave Abrey, Joe Dolengo, Kevin Stack, Joe Hitt, Joe Hill, John Ciavacco, Chris Sgroi, Kerry Jane-King, Michelle Tinner

AGENDA

- Roll call and introductions of new Working Group members – Jeff Domanski (IBTS)
 - Purpose and schedule update – Jim (NBI) & NYSERDA
 - Multifamily direction and considerations – Jim and Sean (NBI)
 - Update on Multifamily topics and proposals – Jim and Sean (NBI)
 - Review and update on modeling approach and analysis – Bing and Jian (PNNL)
 - Discussion and next steps – All
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MINUTES

Roll call and introductions of new Working Group members and Purpose and schedule update

Following a roll call of participants beginning at 1:00 pm, Jim Edelson provided a brief overview of the agenda and the schedule for the remainder of the project, including intent to hold 3rd Advisory Group meeting in early December with in-person meeting location options in both NYSERDA's Albany and New York offices, with video-link set-up. The progress made to-date and noted the meeting will largely focus on the second round of PNNL commercial modeling performed to achieve the project goals since the 2nd Advisory Group which took place on 9/28/17.

Jim spoke to the Schedule presented (see slide), which proposed completion of the draft language for NYStretch-Energy 2018 in by the end of the year, and reviews by early May 2018. The modeling efforts will be discussed with the NYStretch Advisory group in the meeting to take place in early December (date to be determined).

Information on past meetings and resources shared with the working groups, including minutes and slide files, are located on the New Buildings Institute NYStretch 2018 Resources page at:

<https://newbuildings.org/nystretch/>

Multifamily direction and considerations

In discussing options for Multifamily approach, Jim referenced work done in Boulder, Colorado where the separation between Residential and Commercial codes was removed. This is being considered in Washington State.

The “Proposals for NYStretch” slide shows measures being considered for the NYStretch project, with the first six more restrictive prescriptive measures which were identified in the NBI Multifamily guide, and three additional measures being considered. These are (1) Common areas and (2) Exterior lighting in Residential settings needing to meet the Commercial requirements, and (3) seeking to have a reference to the Commercial menu of packages/options that are beyond the integrated stretch code package.

Update on Multifamily topics and proposals

Jim and Sean then discussed the work being done to set up the modeling and steps being taken to assemble the draft NYStretch-Energy 2018 language. An initiation step has been review of the NYC Energy Conservation Code. From this comparison, NBI found four areas for further consideration for the larger NYStretch code framework (see “Review of 2016 NYCECC” slide for detail). Mark noted while speaking to the “Modeling compliance” slide that NYC allows Section 11 and/or Appendix G for demonstrating compliance. Stakeholder feedback has revealed difference of opinion with respect to use of only Appendix G or whether Section 11 or ECB should be allowed. NBI intends to continue discussion with NYSERDA on this approach for Multifamily and Commercial high-rise buildings.

Mark discussed the passive house options being considered, which he noted was also discussed on the 10/24 Commercial Working Group call. The outcome of the 10/24 was for NBI to work with NYS DOS and NYSERDA to come up with a viable compliance pathway. Mark noted that Maria Karpman and NYSERDA released the report shown on the “NYSERDA Study” slide, which is available on the NBI NYStretch resources page (see link above), which is anticipated to be useful in helping determine the approach.

Jim spoke to the list of modeling measures being considered (shown on the “Modeling EEMs (preliminary)” slide) and referenced a document sent to the working group by email on 10/25 (title shown on slide). Jim indicated the modeling team is going to investigate three measures in detail.

- 1) Elevators – the modeling team had received feedback from working groups to look at regenerative braking on elevators, which is in the IgCC. Options considered are shown on the “Elevators” slide. Discussion points from working group are below.
- 2) High-Efficacy Lighting definitions – Jim spoke to the proposals shown on the slide and briefly summarized conversation on this topic that took place on the 10/24 Working Group call regarding the applications being considered by IALD and DOE before dropping off the call

temporarily. Bing and Maria shared info on what was discussed on the call with respect to 90.1-2016 requirements. When Jim returned he noted there was a good deal of feedback on this topic that the modeling group will be considering.

3) Ventilation Considerations – Sean Denniston indicated that research had been done on Balanced Ventilation and Exhaust fan efficiency and they would like to wrap up discussion on the approach based on their findings. For Balanced Ventilation, Sean explained the difference from pressurized conditions resulting from exhaust-only or supply-only approaches and how the NBI Multifamily guide indicated a 4% savings from use of Balanced Ventilation. He noted there was concern expressed by the working groups.

1) Balanced Ventilation – see discussion among stakeholders below.

2) Fan Efficiency – Sean described the approach described on the slide, suggesting there is an energy saving opportunity with low impact on the market.

Discussion/Stakeholder input

- Maria asked for clarification about what the base code is for the NYStretch-Energy 2018 framework language. Jim clarified that while the modeling is being done to achieve 20% savings over the ASHRAE 90.1-2013 code, the NYStretch-Energy 2018 framework is being developed as an overlay code of the NYECCC modified IECC 2018 and ASHRAE 90.1-2016, so 2016 is the underlying code for this version of the stretch code. The new/proposed language will be “...compliance with ASHRAE 90.1-2016” rather than the existing code language from NYC energy code shown on the slide.
- During the discussion of the passive house approach, Jodi restated her understanding gleaned from the 10/24 Commercial call of the passive house situation, in that she interprets there is a lack of faith in the passive house claim of excessive savings and difficulty in creating as a compliance path since passive house protocols may not allow sufficient modeling of buildings with multiple HVAC systems. Jodi asked if there is the possibility to cite passive house as a non-exclusive compliance path option, which she believes would be valuable as it moves towards a performance-based approaches to compliance, which she believes the code is moving towards. Jim replied they are considering it as an alternative path to the envelope and air barrier requirements. Jodi further suggested that research be done to show that the improvement levels are consistently better, if not quantifying the improvement. Priscilla summarized the current, relevant questions as being (1) how NYS would potentially incorporate elements of a ‘named’ third-party (i.e., Passive House) standard – which is not likely an option, and (2) whether the passive house path would always beat code. Gina noted that the State is the only authority with ability to approve a modeling software, and NYC was not able to do so with passive house software. NYC DOB advised the Passive House New York organization to petition the state, but is unsure whether this was done. Gina believe Ken Levinson was leading that effort. Gina shared language from NYC code Jim and Jeff by email to share with the group.
- On elevator regenerative braking measure, Don Winston indicated he had experience measuring the benefit and found it is not as large as others have projected. He suggested it should be subject to reasonable restrictions, such as the number of elevators in building and

length of runs, and offered to do some research to provide additional guidance. Jim indicated they are also talking to the 90.1 elevator working group for input.

- On the High Efficacy Lighting discussion, Bing and Maria shared that the 45 L/W for luminaire efficacy was already a 90.1-2016 requirement and the lamp efficacy is 55 L/W.
- There was much discussion of the Balanced Ventilation measure. Don indicated this was a very contentious issue in NY Mechanical code and that they are currently in transition from no requirement to requiring ventilation to dwelling units – previously was only to corridors. Don continued to explain that the 2014 Mechanical Code, after contentious and arbitrated discussion, added a requirement for mechanical ventilation to exceed 75 cfm (continuous only for excess of 75 cfm). The Mechanical Code committee is meeting tomorrow (10/27) to write the updated version of the code, and Don does expect the ventilation requirement will increase, but not that all exhaust will be supplied.
- Maria in NYC projects that participate in NYSERDA programs, the designs seen most often require matching make-up air, which is typically not seen otherwise – and not required in rest of the state, which is a mismatch.
- Bing asked about the fresh air supply practice when PTAC units are present in dwelling units for the 10 story building prototype, assuming each PTAC's intake vent is another way to get fresh air. Don indicated this can be a method, but the Multiple Dwelling Law and NYC requirements also has a window area requirement for those codes for natural ventilation, otherwise need mechanical, and that all of this is subject to change and he expects it to change. He suggests there would be strong opposition from mechanical engineers and the real estate industry if the energy code required more ventilation than the mechanical code, particularly because of the significant expense associated with installing supply ventilation – this is main reason for the compromise measure in the 2014 Mechanical Code. Jim suggested there is the possibility of putting balanced ventilation in a package and treat as an option within equipment efficiency.
- In response to question about the estimated 4% energy savings from balanced ventilation, Don suggested the measure may not work because of the fan requirements – that it can actually cause more energy use.
- Mark shared the question raised in 10/24 call about there possibly being a requirement for pressurized corridors in NYC buildings. Don provided reference from the Mechanical Code (Section 403.3).

Actions:

- NBI to continue discussion with NYSERDA on “modeling compliance” approaches with respect to incorporating ASHRAE 90.1-2013 Section 11 and/or Appendix G to derive proposed approach.
- NYSERDA/Priscilla to check with Joe Hill/DOS whether Passive House New York had petitioned the state to approve the passive house modeling software.
- Tom Eisele to follow-up with Ken Levinson on the passive house modeling approval efforts.
- Don Winston will provide additional information to inform the elevator regenerative braking measure.

Review and update on modeling approach and analysis

Bing and Jian to discuss how the modeling team will address the multifamily buildings modeling based on New York activity weight. Information was obtained from DOB to help determine the appropriate prototypes. The data led to creation of two apartment buildings – a 10 story and 20 story apartment building. Information from Maria Karpman provided data for models on NYC practices. Discussion which took place on ventilation approaches is provided below.

Jim presented the document list proposed energy efficiency measures they intend to run, and focused the review on envelope, fenestration, air leakage testing, lighting. Many of the values shown in the tables are from 189.1-2017, to solicit input on the measures. Bing encouraged group to focus on measures/values to be incorporated into multifamily modeling.

Discussion/Stakeholder input

- Maria asked two clarifying questions. The first a question was about how the ventilation was treated in the Multifamily models. Jian clarified that the PTAC fans were assumed to provide continuous ventilation. Maria's second question was about the ventilation assumptions for building corridors, and whether the corridors provided heating, cooling and ventilation served by rooftop units. It was agreed that this is common in NYC and upstate. Bing also noted that they had originally considered use of dedicated make-up air unit to supply fresh air to the corridor, but review comments indicated was too costly and not commonly done. Don noted that chilled water is rarely used in rental buildings because of difficulties in apportioning costs.
- Bing asked for feedback for "TBD" cells shown in the residential part of the fenestration table. Jian indicated the modeling team did not yet have clear direction and feedback was still required. Jim indicated they would move forward with a factor based on the Commercial values as a placeholder.
- Jim indicated the same Air Leakage Testing values used in the last version of NYStretch would be used for NYStretch-Energy 2018. Mark indicated the package approach would use the reduced infiltration value of 0.25 cfm.
- Maria asked if whole building testing sampling for larger buildings would be used. Jim indicated that this would be carried from previous effort. Don stated this is not a workable standard as he knows of no large building testing having been done, and no one knows how to do it, and when done, there is no opportunity to make adjustments/corrections, so would have significant negative impact on the market. Emily indicated NYC had looked into this, and came to conclusion that it was not ready to be incorporated. Don noted the challenges include the temperature ranges that occur over a day and over a year, the height of buildings (pressure differentials), amount of air required to be moved, and inability to rectify buildings.
- Don suggests looking at permitted buildings with potentially feasible size (up to 75 feet high or about 8 stories) to see what they do.

- Tom Eisele suggests looking at Cornell Tech buildings that were seeking passive house certification for which Terry Brennan, who has unique blower door whisperer knowledge, provided service. Don refutes, stating you can't base code on one example. Jodi acknowledges group must be mindful of pushing too far, but do need to inform the market and encourage advanced effort.
- Maria suggested it could be valuable to consider exhaust air energy recovery for corridor RTUs, which is sometimes 100% outdoor air. She indicated there is an exception in 90.1. Emily noted that NYC amended the exception to require an ERV.
- Maria also suggested (1) including energy recovery for makeup air inside apartment units which could be specified with power limit requirements, and (2) hot water recirculation controls on hot water heating loops (not included in 90.1 but is required by IECC-2015). Bing indicated need to look at the latter to make sure not double-dipping with service hot water heat recovery control, which is included.
- Jim noted there was discussion of pre-installation of Energy STAR appliances on 10/24/17 call, and asks Emily if there was additional thought on this measure. Emily indicated it would not be enforceable. It falls under federal pre-emption and would be overseen by Consumer Affairs division.
- Tom agrees with both Don and Jodi need to work with constituents but need to work to increase envelope air tightness and advance efforts.

Actions:

- The modeling team is seeking input on the Residential fenestration values.
- Emily to share information from meeting on ventilation approaches that took place c. 2 years ago.
- Emily to provide NYC code amended language on use of ERVs for roof top units to the modeling team.
- Maria to send language on hot water recirculation controls on hot water heating loops which differs from 90.1 requirement Bing referenced.

THE MEETING CONCLUDED AT 3:45