

How a New Multifamily Chapter Will Improve the 2018 IECC

Multifamily poses a conundrum for energy codes. Generally, these buildings are constructed and renovated like commercial buildings but used like residential buildings. As a result, regulation of multifamily buildings has been split between the residential and commercial sections of the International Energy Conservation Code (IECC). Multifamily buildings that are four stories and higher (hi-rise) are regulated by the commercial section and multifamily buildings three stories or lower (low-rise) by the residential section.

This split also means that the IECC is the one place in the I-Codes where commercial structures are regulated by a residential code. And this results in very different performance outcomes for multifamily buildings based on nothing more than building height. According to an analysis by the Pacific Northwest National Lab, switching between the commercial and residential requirements results in very different energy outcomes in multifamily buildings (Table).

Difference Between Multifamily Codes			
Switch from Commercial to Residential Requirements		Switch from Residential to Commercial Requirements	
10-Story High-Rise	4-Story Mid-Rise	3-Story Mid-Rise	2-Story Low-Rise
-2.7%	-2.7%	3.3%	-2.3%

In order to address this issue and substantially improve the regulation of energy in multifamily buildings, New Buildings Institute submitted proposal CE272 and a related public comment to revise how energy codes address multifamily housing.

What problems do CE272 solve?

The current code does not adequately serve the multifamily market:

- With their focus on commercial buildings and single-family homes, neither the Commercial nor the Residential sections of the IECC was crafted to address the unique energy characteristics of the multifamily building type.
- Regulation by two different energy codes complicates both code compliance and code enforcement.
- Advancing the energy code for multifamily is hindered by the necessity of pursuing changes simultaneously in two different codes, both of which are dominated by issues of building types other than multifamily.
- The presence of two different code baselines has made it very difficult to create above-code energy standards and programs that apply to all multifamily buildings.

What can I do?

Vote for CE272–Part 1 As Modified and CE272–Part 2 As Submitted.

If you are a voting member of the ICC, vote yes for NBI’s public comment to CE272 either in person at the Kansas City hearings or through ICC’s online voting system (cdpaccess.org).

Use your vote to improve the code for multifamily buildings! Use your vote to make applying and enforcing the code better and easier!



Under CE272, high-rise and low-rise multifamily will be regulated by a single chapter in the IECC.

How does CE272 address these problems?

CE272 creates a new chapter in the Commercial section of the IECC that consolidates all of the multifamily code provisions:

- It creates a roadmap that provides clarity about which provisions apply to which multifamily buildings, with a logical structure and clear references to applicable provisions. The need for this kind of clarity was made especially clear during the Committee Action Hearings. Even members of the Residential Committee struggled to agree on how to apply the code provisions to the R-occupancies. If even the panel of experts entrusted with making national recommendations about code proposals could not agree on the correct application to multifamily buildings, then the problem is significant.
- The proposed structure will allow future code advancements that can avoid the code stringency disparity that exists between low-rise and high-rise multifamily buildings (See “Does CE272 Impact Stringency?” for more). The current, inconsistent provisions can be replaced by a single set of requirements that have been tuned for the realities of multifamily buildings.

The Ramona Apartments in Portland, OR, Credit: Sally Painter Photography; Child and Family of Newport County Middletown, RI. Credit: National Grid

How does the Public Comment alter CE272?

The Public Comment simplifies CE272 in order to focus on clarity and structure. It replaces the original proposal in full in order to make the comment easier to understand, but the comment represents the same principles as the original proposal.

The biggest difference is that it replaces the envelope section from the original proposal. That section was a hybrid of the residential and commercial text and requirements that maintained the divergent requirements for high- and low-rise multifamily buildings. The result was unnecessarily complex and contained a small number of errors.

The new envelope section contains sub-sections for each of the main envelope topics – opaque envelope (602.2), roof solar reflectance (602.3), fenestration (602.4), and air leakage (602.5) – organized as they are in the commercial section. For each of these topics, the text simply directs high-rise projects to the commercial section and low-rise to the residential, completely maintaining the

actual requirements but improving the clarity substantially. This structure will also allow those references to be replaced in the future as rational requirements for all multifamily buildings can be developed and adopted into code.

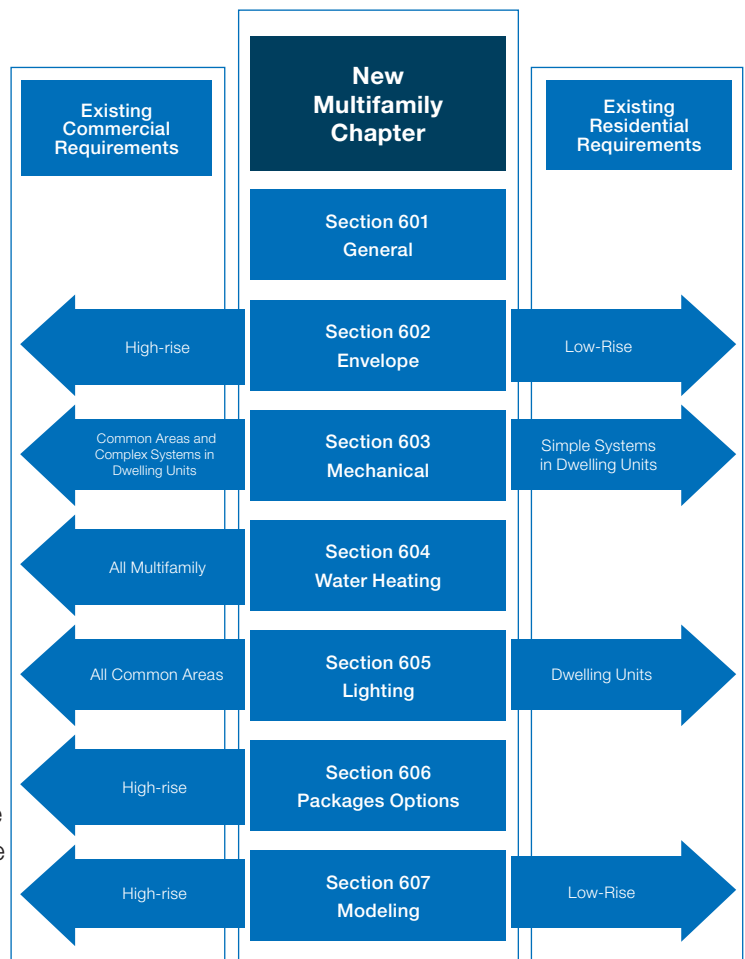
Does CE272 Impact Stringency?

The primary intent of CE272 is to provide clarity and to build the foundation for ongoing improvements to the code for multifamily buildings.

As the current requirements for high- and low-rise multifamily diverge in several places, sometimes significantly, the existing division of requirements cannot be eliminated without affecting the stringency of the code. Therefore, CE272 maintains many of these differences in order to avoid stringency changes.

For example, the envelope section of the multifamily chapter in CE272 – where there are perhaps the most significant and complex differences between high- and low-rise requirements – directs low-rise projects to the envelope requirements in the residential section and high-rise projects to the envelope requirements in the commercial section.

However, in other sections of the code, there is no or little difference in stringency between the commercial and residential requirements. In the lighting, and mechanical sections, CE272 restructures the requirements in a way that corresponds to the way that multifamily buildings are actually used, directing the dwelling units to residential requirements and common areas to commercial requirements. Therefore, in CE272, dwelling units are subject to residential lighting requirements while the common areas are subject to commercial requirements. Similarly, simple single zone mechanical systems serving dwelling units are subject to residential requirements while complex systems and systems serving the common areas are directed to commercial requirements. This is similar to the way that complex systems in the residential section are currently directed to the commercial requirements. In these sections, minor differences between the commercial and residential requirements – such as in the case with exterior lighting – may have a minor impact on stringency.



How will CE272 help with code enforcement?

The existing split in the energy code for multifamily buildings, and the confusion it creates, is an obstacle to both code compliance and code enforcement. CE272 directly and immediately addresses this issue by creating explicit clarity for which requirements apply to which multifamily buildings. This clarity will make it easier for code users to comply with the code. Reducing code user confusion will also consequently make code enforcement easier.

CE272 makes it possible to eliminate the divergent low- and high-rise multifamily requirements in the long term. Replacing them with a single set of requirements would significantly simplify the code for multifamily buildings. Code users and code officials would be freed of the two sets of inconsistent requirements driven by an arbitrary distinction between one kind of multifamily building and another.

How will CE272 help utility programs?

With the multifamily market split between residential and commercial code baselines, utilities have to choose to either deliver two different multifamily incentive programs or to deliver a single incentive program that will not deliver the same savings in all multifamily buildings. Regardless of the choice they make, conveying these programs to the market is complex and confusing. This is only exacerbated by the fact that public utility commissions often have different requirements and goals for commercial and residential programs.

Unsurprisingly, faced with this situation many utilities have opted to just ignore one part of the market and only run an incentive program for either high-rise or low-rise multifamily, but not both. Utility programs have a tremendous market transformation potential, and when the markets are ignored, efficiency in those markets suffers.

Consolidating all multifamily building under the commercial code will begin to solve this problem. All multifamily buildings will fall under the same part of the code and can easily be addressed by the same team at the utility with the same rules from the PUC. And because CE272 creates the framework to eliminate the stringency differences between the low-rise and high-rise multifamily requirements, in the future utilities will only have to address a single code baseline for this market.

What happens if the Public Comment to CE272 succeeds?

If the public comment and CE272 prevail, the energy code will be substantially improved for multifamily buildings.

Short-term, it will:

1. Provide clarity and significantly reduce the confusion caused by the current language.
2. Increase both ease of compliance and enforcement because of improved clarity.
3. Simplify the code hearing process for non-multifamily residential buildings and commercial buildings by removing multifamily issues from those deliberations.
4. Simplify the creation of above code utility programs.

Long-term, it will:

1. Allow for the elimination of the stringency disparity that currently exists between high- and low-rise multifamily.
2. Allow for the future adoption of code provisions that are tailored for multifamily occupancies and the many ways that they differ from commercial and single-family buildings.

Contact:

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New Buildings Institute (NBI) is a nonprofit organization working to improve the energy performance of commercial buildings. We work collaboratively with commercial building market players—governments, utilities, energy efficiency advocates and building professionals—to remove barriers to energy efficiency, including promoting advanced design practices, improved technologies, public policies and programs that improve energy efficiency. We also develop and offer guidance to individuals and organizations on designing and constructing energy-efficient buildings through our Advanced Buildings® suite of tools and resources.
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