



# Board of Building Standards

## CODE COMMITTEE MEETING AGENDA

DATE: OCTOBER 20, 2022  
TIME: 1:00 PM  
LOCATION: BBS LIBRARY, 6606 TUSSING RD, REYNOLDSBURG, OHIO 43068  
[CLICK HERE TO JOIN THE MEETING](#)

### Call to Order

### Approval of Minutes

[MIN-1](#) September 22, 2022 Code Committee Meeting Minutes

### Petitions

### Recommendations of the Residential Construction Advisory Committee

### Old Business

[OB-1](#) Zero lot line townhouse buildings  
[OB-2](#) Commercial Energy Code Review  
[OB-3](#) OBC draft rule review (Chapters 10, 11, 12, 14, 15, and 16)

### New Business

### Adjourn

**File Attachments for Item:**

MIN-1 September 22, 2022 Code Committee Meeting Minutes

**OHIO BOARD OF BUILDING STANDARDS  
CODE COMMITTEE MINUTES  
SEPTEMBER 22, 2022**

The Code Committee met on September 22, 2022 with the following members present: Mr. Denk, Ms. Cromwell, Mr. Miller, Mr. Pavlis, Mr. Samuelson, Mr. Stanbery, and Mr. Tyler. Board Chairman, Tim Galvin, was also present.

The following staff members were present: Debbie Ohler, Robert Johnson, and Jay Richards

Guests present:

Guests present via Teams: Charles Huber

**CALL TO ORDER**

The meeting was called to order by Mr. Denk at 1:05 P.M.

**APPROVAL OF MINUTES**

Mr. Samuelson made the motion to approve the minutes of the Code Committee meeting held on August 25, 2022. Mr. Stanbery seconded the motion. The motion passed unanimously.

**PETITIONS**

No items for consideration

**RECOMMENDATIONS OF THE RESIDENTIAL CONSTRUCTION ADVISORY COMMITTEE**

No items for consideration

**OLD BUSINESS**

**2020 NFPA 70 TIA 20-19 (Log # 1653)**

Staff presented the NFPA Standards Council decision on the 2020 NFPA 70 TIA 1653, the currently proposed Chapter 35 language for adoption of the 2020 NFPA 70, and the staff-proposed modified language for adoption of the 2020 NFPA 70 prepared after learning of the NFPA Standards Council decision. TIA 1653 modifies Section 210.8(F) to add an additional exception to the requirement for GFCI protection for outdoor outlets for dwellings. The new exception exempts all listed HVAC equipment through September 1, 2026. Mr. Pavlis made the motion to rescind the language originally approved by the Board for the proposed adoption of the 2020 NFPA 70. Mr. Tyler seconded the motion. The motion passed unanimously. Mr. Miller made a motion to adopt the staff-proposed language shown on page 13 of the Code Committee packet when the rules are filed for the adoption of the 2020 NFPA 70. Mr. Tyler seconded the motion. The motion passed unanimously.

**Zero Lot Line Townhouse Buildings**

Staff presented proposed changes to the OBC Sections 106.2.1, 310.5.5, and 1301.1.1 in response to the concerns raised by Bill Kaufholz at the last meeting. The proposed changes attempt to clarify when the seal of a Registered Design Professional is required on commercial structures using the Residential Code of Ohio, to modify the current compliance option, to add a new

optional compliance option that would apply to Group R-3 zero lot line townhouse-type buildings and allow the OHBA option to be used under very specific conditions for that option. Staff mentioned that this language is still in development and that there may be additional adjustments made, especially to the units of the equipment efficiencies in the OBC 310.5.5.2 table. After much discussion, the committee was comfortable with the overall concept of the proposal, except for the language proposed to be added in exception #1 to OBC Section 106.2.1. The committee directed staff to finalize the draft language for the October meeting for the committee to review prior to presenting it to Mr. Kaufholz. No action was taken.

#### **Commercial Energy Code Review**

Staff explained the items that were included in the packet and presented a draft of the OBC Chapter 13 rule as a starting point for discussion. Mr. Denk confirmed that he had a list of possible amendments or items of concern that he would forward to staff or present at the next meeting. He would like the input from Mr. Yankie and Mr. Johnson before making decisions on energy conservation issues. No action was taken.

#### **OBC Draft rule review (Chapters 5-9)**

Staff mentioned that we heard from LSC and JCARR that they were in support of our proposed rule filing methodology. Staff presented the draft rules of the OBC Chapters 5-9 and outlined the thought process for the staff recommendations and explained that we would go through each chapter in greater detail to make the committee aware of the significant changes that staff is recommending for each chapter. No action was taken.

#### **NEW BUSINESS**

No items for consideration

#### **ADJOURN**

Mr. Miller made the motion to adjourn at 3:28 P.M. Mr. Stanbery seconded the motion. The motion passed unanimously.

**File Attachments for Item:**

OB-1 Zero lot line townhouse buildings

**106.2.1 Seal requirements.** Construction documents shall bear the seal of a registered design professional pursuant to section 3791.04 of the Revised Code.

**Exceptions:** The seal of a registered design professional is not required on construction documents for:

1. Buildings or structures classified as one-, two-, or three-family dwellings and accessory structures;
2. Energy conservation design for buildings or structures classified as one-, two-, or three-family dwellings;
3. Fire protection system designs submitted under the signature of an individual certified in accordance with section 107.4.4;
4. Installation of replacement devices, equipment or systems that are equivalent in type and design to the replaced devices, equipment or systems; and
5. New construction, Alterations alteration, construction or repairs to any buildings or structures subject to sections 3781.06 to 3781.18 and 3791.04 of the Revised Code where the building official determines that the proposed work does not involve the technical design analysis of work affecting public health or general safety in the following areas: means of egress, structural, mechanical, electrical, plumbing, or fire protection.

For the purpose of this exception, technical design analysis is defined as the development of integrated solutions using analytical methods in accordance with established scientific and engineering principles.

**310.5.5 Multi-family ~~a~~ Group R-3 Alternative compliance options.** The following are alternative compliance options for Group R-3 buildings within the scope of this code.

**310.5.5.1** A Group R-3 building may use Chapters 2 to 11 ~~and 44~~ of the “Residential Code of Ohio for One-, Two-, and Three-Family Dwellings” (RCO) in place of the requirements of this code for ~~Group R-3 occupancies~~ under the following conditions and limitations:

1. Chapter 1 of the OBC is applicable for code administration purposes; and
2. The building is comprised exclusively of dwelling units; and
3. The building is not used as a care facility; and
4. The building is three stories or less in height; and
5. Each dwelling unit in the building has an independent exit; and
6. No more than one dwelling unit is allowed to be located above another dwelling unit; and
7. Fire separation between units within a grouping of two units, including a unit located partially or totally above another unit, ~~shall~~ is to be in accordance with the RCO section 302.2. Fire separation between any grouping of two units and other adjacent units ~~shall~~ is to be in accordance with RCO sections 302.2 through 302.6; and
8. ~~The edition of NFPA 70 listed in Chapter 35 of the OBC shall be applicable for electrical components, equipment, and system requirements; and~~
9. ~~The mechanical code shall apply for mechanical appliances, equipment, and system requirements, including fuel gas requirements; and~~
10. ~~The plumbing code shall apply for plumbing fixtures, equipment, water supply, and~~

- sanitary systems; and*
- 9. 11. Chapter 13 of this code shall apply for energy conservation, The Ohio Home Builder Association (OHBA) Alternative Energy Code Options may not be used to demonstrate compliance with energy efficiency requirements of the RCO; and*
- 10. Except as provided by this paragraph, the editions of codes and standards listed in Chapter 35 of this code shall are to be used. For codes and standards not listed in Chapter 35 or for those referenced in RCO Chapter 11, RCO Chapter 44 shall apply applies.*

**310.5.5.2** *A Group R-3 building may use the “Residential Code of Ohio for One-, Two-, and Three-Family Dwellings” (RCO) in place of the requirements of this code under the following conditions and limitations:*

- 1. Chapter 1 of the OBC shall be is applicable for code administration purposes; and*
- 2. The building is comprised exclusively of dwelling units; and*
- 3. The building is not used as a care facility; and*
- 4. The building is three stories or less in height; and*
- 5. Each dwelling unit in the building has an independent exit; and*
- 6. Each dwelling unit extends from the foundation to the roof and has a yard or public way on not less than two sides; and*
- 7. Fire separation between dwelling units is comprised of two one-hour fire-resistance-rated wall assemblies or one common wall with a two-hour fire-resistance-rated assembly rated for exposure from both sides;*
  - 7.1 If fire sprinklers are provided in accordance with NFPA 13D or RCO section 2904, the fire-resistance rating of the common wall may be reduced to one-hour;*
  - 7.2 The common wall shared between dwelling units is to be constructed without plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall; and*
- 8. Each individual dwelling unit is served by independent building services, including but not limited to, equipment, piping; wiring, and ductwork; and*
- 9. The Ohio Home Builder Association (OHBA) Alternative Energy Code Options are permitted to be used to demonstrate compliance with the energy efficiency requirements of the RCO provided that the all the following are met:*
  - 1. The building is three stories or less, and*
  - 2. Comprised exclusively of dwelling units, and*
  - 3. Each dwelling unit has an independent exit, and*
  - 4. applicable minimum appliance efficiencies meet or exceed those in Table 310.5.5.2.*

**TABLE 310.5.5.2 Appliance efficiency**

<b>Type of appliance</b>	<b>Minimum Efficiency</b>
<i>Gas forced-air central furnace</i>	<i>96% AFUE</i>
<i>Electric central air conditioner</i>	<i>14 SEER</i>
<i>Electric heat pump (air-source, heating mode)</i>	<i>8.8 HSPF</i>
<i>Electric heat pump (air-source, cooling mode)</i>	<i>14 SEER</i>
<i>Gas-fired storage water heater</i>	<i>0.57 EF [UEF]</i>
<i>Electric storage water heater</i>	<i>0.95 EF [UEF]</i>

**1301.1 Scope.** This chapter governs the design and construction of buildings for energy efficiency.

**1301.1.1 Criteria.** Buildings shall be designed and constructed in accordance with the applicable provisions of the “International Energy Conservation Code” or the requirements of “ASHRAE 90.1” listed in Chapter 35 of this code except as modified in Sections 1301.2 and 1301.3.

**EXCEPTION:** ~~Either the “International Energy Conservation Code” referenced in Chapter 44 of the “Residential Code of Ohio for One , Two , and Three Family Dwellings” (RCO) or Sections 1101.2.2 through 1104 in Chapter 11 of the RCO are permitted to be used in place of the energy conservation requirements of this code for R-3 occupancies in buildings three stories or less, comprised exclusively of dwelling units, where each unit has independent means of egress. Except as provided by Section 1301.1.1.1, Chapter 11 of the “Residential Code of Ohio for One , Two , and Three Family Dwellings” (RCO) is permitted to be used in place of the energy conservation requirements of this code for Group R-3 occupancies in buildings three stories or less, comprised exclusively of dwelling units, where each dwelling unit has an independent exit.~~

**1301.1.1.1 Ohio Home Builder Association (OHBA) Alternative Energy Code Option.** ~~Group R-3 occupancy buildings are permitted to comply with Section 1112 of the RCO provided all the following are met:~~

- ~~5. The building is three stories or less, and~~
- ~~6. Comprised exclusively of dwelling units, and~~
- ~~7. Each dwelling unit has an independent exit, and~~
- ~~8. Minimum appliance efficiencies meet or exceed Table 1301.1.1.1.~~

**TABLE 1301.1.1.1 Appliance efficiency**

<u>Type of appliance</u>	<u>Minimum Efficiency</u>
<u>Gas furnace</u>	<u>96% AFUE</u>
<u>Electric heat pump (heating mode)</u>	<u>8.8 HSPF</u>
<u>Electric heat pump (cooling mode)</u>	<u>14 SEER</u>
<u>Electric air conditioner</u>	<u>14 SEER</u>
<u>Gas hot water tank</u>	<u>At least .57 EF, but not less than the federal minimum efficiency established in 10 C.F.R. 430</u>
<u>Electric hot water tank</u>	<u>.95 EF</u>



**File Attachments for Item:**

OB-2 Commercial Energy Code Review

## Ohler, Deborah

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**From:** Ned B. Heminger <nbheminger@hawainc.com>  
**Sent:** Tuesday, August 2, 2022 12:31 PM  
**To:** Ohler, Deborah  
**Subject:** Trane publication and DOE changes  
**Attachments:** Trane\_Commercial\_DOE\_2023\_Overview.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Debbie

FYI-This came out from Trane (new DOE requirements effective 1/1/23) for manufacturers. Its an example of how dated Ohio's requirements have become on some equipment. Beginning of 2023, manufacturers have to meet a higher efficiency requirement to conform to the new DOE requirements. Saying that, the current requirements of DOE (which were effective 1/1/2016) still exceed Ohio's requirements which are based on 90.1-2010. These new requirements for DOE are address in 90.1-2019.

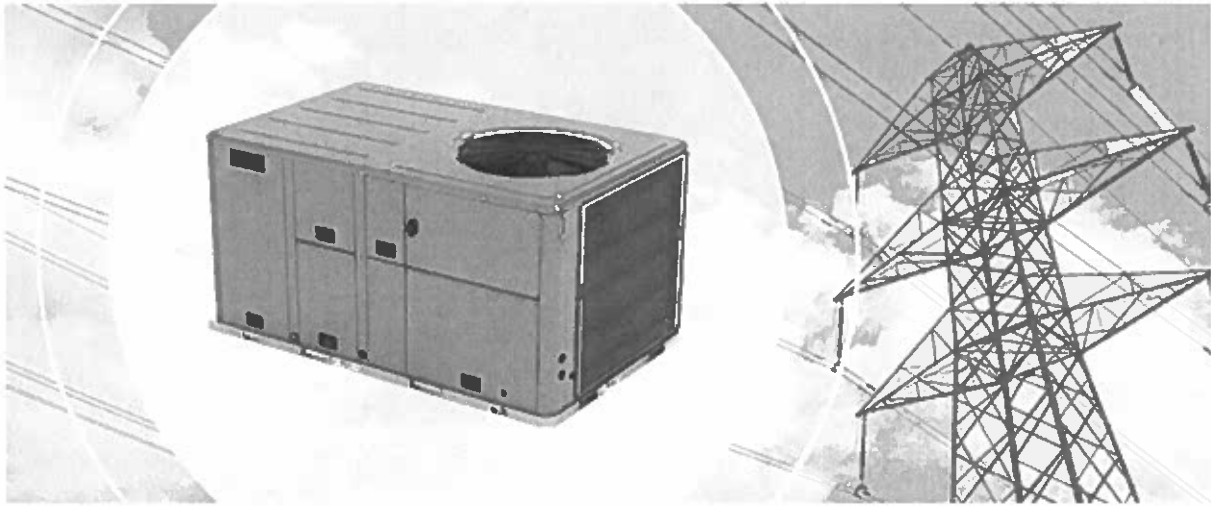
**Ned Heminger, PE, LEED AP, HBDP**  
*Vice President*  
*Chief Engineer*

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**From:** Trane Commercial <hvac@trane.com>  
**Sent:** Tuesday, July 12, 2022 10:02 AM  
**To:** Ned B. Heminger <nbheminger@hawainc.com>  
**Subject:** Are you ready?

Change is coming for HVAC efficiency standards





## 2023 DOE Standards: Start the Countdown

In January 2023, new minimum efficiency standards for many HVAC systems will go into effect. The change, reflective of the U.S. Department of Energy (DOE) initiative to reduce overall energy use in the U.S., increases the minimum efficiency standards for rooftop units by 15%.

Many of today's units will not meet the new requirements. And unfortunately, waiting to complete replacement projects in 2023 will likely mean higher prices and delays due to continued global supply chain challenges.

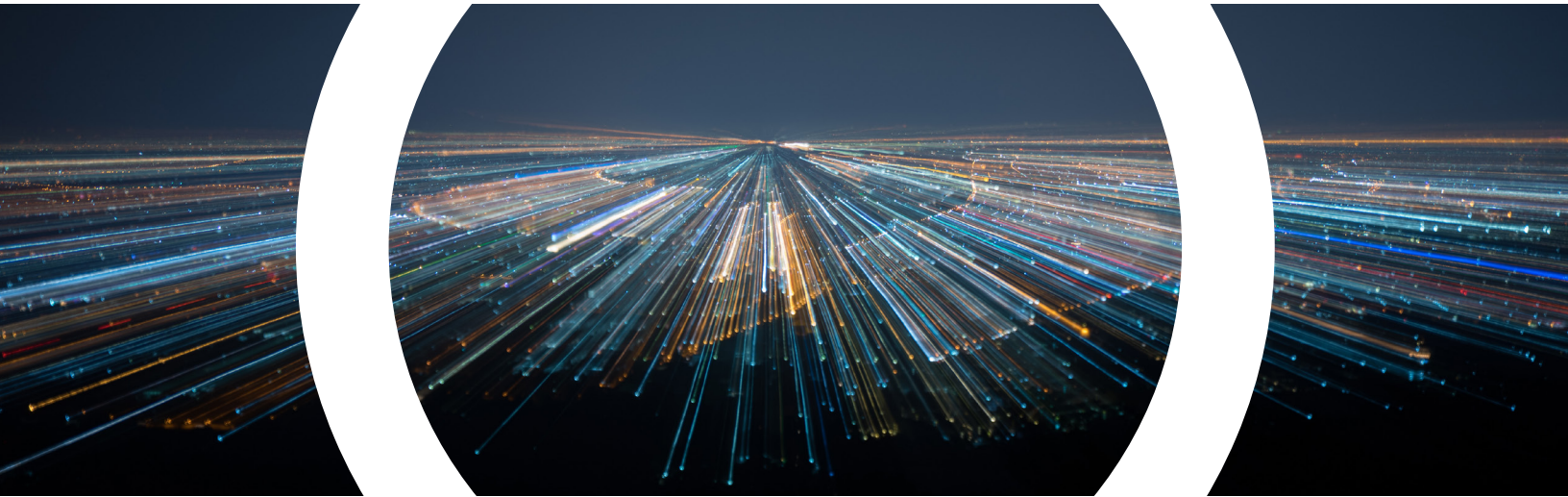
### **Start now and get ahead of the curve:**

- Learn more about the new efficiency standards for your region and share the information with your customers. Trane can help!
- Fast-track some projects into '22. Help your customers assess the age and overall condition of their equipment. Identifying retrofit solutions now may help building owners avoid anticipated 2023 challenges (while still meeting efficiency targets.).
- Research products and design-fit for your customer's new go-to replacement units.

**Get ready for the future.**

# Get Ready for the Future

## Overview of Upcoming Regulatory Changes



### 2023 DOE Regulatory Requirements

On January 1, 2023, the U.S. Department of Energy's new minimum efficiency standards will go into effect. The changes include:

- New minimum cooling efficiencies for newly manufactured residential and commercial HVAC equipment
- Natural gas heating efficiency (> 225,000 btu/h) increases from 80% to 81% steady state efficiency

These changes may present new complexities, but Trane® is committed to leading our industry in compliance and energy intensity reduction and is prepared to support our partners every step of the way. Throughout 2022, we will be updating our products to meet the new 2023 requirements.

### Why the Change?

Every six years, the Department of Energy reviews energy use of certain home appliances and mechanical systems in an ongoing effort to reduce overall energy consumption in the United States. If it is determined that an increase in energy efficiency requirements is justified, higher requirements are put into effect.

The changes are expected to save a significant amount of energy and yield environmental benefits. The DOE estimates the new standards will result in a cumulative reduction in CO<sub>2</sub> emissions through 2030 amounting to 77 million metric tons (Mt), which is equivalent to the emissions resulting from the annual electricity use of more than 10.6 million homes.\*

### IEER Ratings

In 2018, the DOE changed its performance metric for commercial air-conditioning and heat pump equipment from EER to IEER (Integrated Energy Efficiency Ratio). IEER is a cooling part load efficiency measurement that takes into account different operating conditions and is the best representation of how a unit will perform over a cooling season.

## New Commercial Minimum Efficiency Standards

The new 2023 system cooling efficiency minimums are increasing on commercial units above 65K BTU by approximately 15%. The following chart outlines standards for commercial packaged and split systems (air conditioners and heat pumps) and commercial gas furnaces. All products manufactured prior to January 1, 2023, may be installed on or after January 1, 2023.

Equipment Type		Heating Type	Current Standard Efficiency	2023 Standard Efficiency
<b>Small Commercial Split &amp; Packaged</b>  (Air Cooled) – ≥65,000 Btu/h and <135,000 Btu/h Cooling Capacity	AC	Electric Resistance Heating or No Heating	12.9 IEER	14.8 IEER
		All Other Types of Heating	12.7 IEER	14.6 IEER
	HP	Electric Resistance Heating or No Heating	12.2 IEER	14.1 IEER
		All Other Types of Heating	12.0 IEER	13.9 IEER
<b>Large Commercial Split &amp; Packaged</b>  (Air Cooled) – ≥135,000 Btu/h and <240,000 Btu/h Cooling Capacity	AC	Electric Resistance Heating or No Heating	12.4 IEER	14.2 IEER
		All Other Types of Heating	12.2 IEER	14.0 IEER
	HP	Electric Resistance Heating or No Heating	11.6 IEER	13.5 IEER
		All Other Types of Heating	11.4 IEER	13.3 IEER
<b>Very Large Commercial Packaged</b>  (Air Cooled) – ≥240,000 Btu/h and <760,000 Btu/h Cooling Capacity	AC	Electric Resistance Heating or No Heating	11.6 IEER	13.2 IEER
		All Other Types of Heating	11.4 IEER	13.0 IEER
	HP	Electric Resistance Heating or No Heating	10.6 IEER	12.5 IEER
		All Other Types of Heating	10.4 IEER	12.3 IEER

## Commercial Warm Air Furnaces: New Thermal Efficiency Standards

Equipment Type	Input Capacity	Current Standard	2023 Standard
<b>Gas-Fired Furnaces</b>	≥ 225,000 Btu/h	80%	81%

\*Source: CUAC-CUHP CWF Direct Final Rule

To learn more, contact your Trane Account Manager or local Trane office.



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RT-PRC104

04/29/2022

# ASHRAE 90.1-2019

The 2019 edition includes various modifications and clarifications to improve internal consistency and to standardize the structure and language of the document.

Significant changes to requirements include the following

## Administration and Enforcement

- New commissioning requirements in accordance with ASHRAE/IES Standard 202 [4.2.5 and Appendix H]

## Building Envelope

- Combined categories of “nonmetal framed” and “metal framed” products for vertical fenestration [Tables 5.5-0 through 5.5-8]
- Upgraded minimum criteria for SHGC and U-factor across all climate zones [Tables 5.5-0 through 5.5-8]
- Revised air leakage section to clarify compliance [5.4.3 and 5.9]
- Refined exceptions related to vestibules, added new option and associated criteria for using air curtains [5.4.3.3]

## Mechanical

- New requirements to allow the option of using ASHRAE Standard 90.4 instead of ASHRAE Standard 90.1 in computer rooms that have an IT equipment load larger than 10 kW [6.6.1]
- Added pump definitions [3.2], requirements [10.4.7], and efficiency tables [10.8.6] to the standard for the first time
- New equipment efficiency requirement tables and changes to existing tables [Tables 6.8.1-1 to 6.8.1-20]
- Replaced fan efficiency grade (FEG) efficiency metric with fan energy index (FEI) [6.5.3.1.3]
- New requirements for reporting fan power for ceiling fans and updated requirements for fan motor selections to increase design options for load-matching variable-speed fan applications [6.5.3.1.2]
- New energy recovery requirements for high-rise residential building [3.2 and 6.5.6]
- New requirement for condenser heat recovery for acute care inpatient hospitals [6.5.6.3]

## Lighting

- Modified lighting power allowances for Space-by-Space Method and the Building Area Method [Tables 9.6.1 and 9.5.1]
- New simplified method for lighting for contractors and designers of renovated office buildings and retail buildings up to 25,000 ft<sup>2</sup> (2300 m<sup>2</sup>). [9.3 and Table 9.3.1-1]
- Updated lighting control requirements for parking garages to account for the use of LEDs [9.4.1.2]
- Updated daylight responsive requirements, added definition for “continuous dimming” based on NEMA LSD-64-2014 [3.2 and 9.4.1.1]
- Clarified side-lighting requirements and associated exceptions [9.4.1.1]

## Energy Cost Budget (ECB) Method (Section 11)

- Numerous changes to ensure continuity
- Set baseline for on-site electricity generation systems [11.4.3.1 and 11.4.3.2]

### **Performance Rating Method (Appendix G)**

- Clarified Appendix G rules and corresponding baseline efficiency requirement when combining multiple thermal zones into a single thermal block
- New explicit heating and cooling COPs without fan for baseline packaged cooling equipment
- New rules for modeling impact of automatic receptacle controls [Table G3.1 #12]
- Set more specific baseline rules for infiltration modeling
- Clarified how plant and coil sizing should be performed
- Updated building performance factors

### **Both Compliance Paths**

- Clearer, more specific rules for treatment of renewables [G2.4.1]
- New updates to rules for lighting modeling

## **Significant changes 2013-2016 ASHRAE 90.1 Commercial Provisions**

[Sources: ASHRAE 90.1-2016 and PNNL-SA-127543]

- Standard reformatted for ease of use
- New Climate maps (to align with ASHRAE 169) [5.1.4.1]
  - 16 Ohio counties will change from Zone 5A to Zone 4A [Annex 1]
- Adds a new path to demonstrate compliance – Performance Rating Method [4.2.1.1 (c) and Appendix G]

### **Building Envelope**

- Air Leakage Verification requirements added [5.4.3.1.3 and 5.9.2.2]
  - Whole building pressurization test for air leakage
  - Continuous air barrier installation inspection and verification during construction
- Increased testing requirements for air leakage of overhead coiling doors [A7.1]
- Increased stringency requirements for fenestration and opaque doors [Table 5.5-4, Table 5.5-5, and 5.5.3.6]
- Clarified topics such as building orientation [5.5.4.5], default assumptions for the effective R-value of air spaces [A9.4.2], and calculation procedures for insulating metal building walls [A3.2.2, Table A3.2.3, A9.4.6]

### **Mechanical**

- Increased equipment efficiencies for chillers, heat pumps, computer room AC, Dedicated Outdoor Air Systems (DOAS), Rooftop AC, Cooling Towers, and Variable Refrigerant Flow
- Clarified that control must be “configured to” meet the requirements, not just be “capable of” meeting the requirements [throughout]
- New HVAC set point and fan control requirements for hotel and motels with greater than 50 guest rooms [6.4.3.3.5]
- Adds HVAC control requirements for cooled vestibules [6.4.3.9]
- Large, electric-driven chilled-water plants are required to be monitored for electric energy use and efficiency [6.4.3.11]
- Air-cooled DX cooling units with economizers are required to have a Fault Detection and Diagnostics (FDD) monitoring system to determine that the air economizer is working properly [6.4.3.12]
- Adds control requirements for return and relief fans [6.5.3.2.4]
- Adds control requirements for parallel-flow fan-powered VAV air terminals [6.5.3.4]
- Dedicated outdoor air systems (DOAS) now include both efficiency and rating requirements for compliance [6.5.3.7]
- Adds pump flow control requirements for chilled and hot water hydronic piping distribution systems [6.5.4.2]
- Adds new requirements for the selection of chilled-water cooling coils [6.5.4.7]
- Prescribes motor fan speed controls for heat-rejection devices [6.5.5.2]
- Adds new requirements for transfer air delivered to a space having mechanical exhaust [6.5.7]

### **Service Water Heating**

- Adds a new requirement for insulation of the first 8 ft of branch piping connections to recirculated, heat traced, or impedance heated service hot-water piping systems [7.4.3]



## **Power**

- Limits the combined voltage drop of feeder conductors and branch circuits to 5% [8.4.1]
- Increased three-phase transformer efficiencies [Table 8.4.4]

## **Lighting**

- Interior and exterior lighting power allowance have been modified (reduced) to reflect new lighting levels in the IES lighting handbook and to recognize LED technology [9.2.2.3 and 9.4.2]
- Lighting control requirements have been modified to add additional controls in some space types and options to others to allow easier application of advanced controls [9.4.1]
  - Reduce exterior lighting power by 50% (previously was 30%) during periods of inactivity or after business hours [9.4.1.4]
  - Certain outdoor parking areas required to reduce power by 50% during periods of inactivity [9.4.1.4]
- Adds a requirement that 75% of permanently installed dwelling unit lighting fixtures use high efficacy lamps [9.4.4]

## **Other Equipment**

- Updates electric motor terminology, adds exceptions, and adds efficiency tables consistent with federal regulations [10.4.1]
- Elevator efficiency specifications are required to be provided on design documents, including both usage category and energy efficiency class. While a minimum threshold is not listed, the first step is taken toward including minimum elevator efficiency requirements in a future standard [10.4.3.4]

## **Energy Cost Budget Method (ECB)**

No significant changes

## **Performance Rating Method (Appendix G)**

- Appendix G now can be used as a path for compliance with the standard. Previously, Appendix G was used only to rate beyond-code performance of buildings
- The proposed design requires computation of a new metric, Performance Cost Index (PCI), and demonstration that it is less than that shown in Table 4.2.1.1, based on building type and climate zone
- The baseline design is now fixed at a certain level of performance, the stringency or baseline of which is expected not to change with subsequent versions of the standard. In this way, a building of any era can be rated using the same method
- Other modifications to Appendix G include changes to elevator, motor, and refrigeration baselines; changes to the baseline for existing building projects; and changes to specific opaque assemblies for the baseline envelope model. Modeling rule changes were made to heat pump auxiliary heat, economizer shutoff, lighting controls, humidification systems, cooling towers, and the simulation of preheat coils

## **Significant changes 2010-2013 ASHRAE 90.1 Commercial Provisions**

(Sources: ASHRAE 90.1-2013 and PNNL-SA-107200)

### **Building Envelope**

- Modifies daylighting and several other definitions
- Limits the size of vestibules and adds specific vestibule requirements for large spaces [5.4.3.4]
- Increased stringency requirements for roofs, walls, below grade walls, slab-on-grade floors [Tables 5.5-4 and 5.5-5]
- Lowers fenestration U-factors about 18% [Tables 5.5-4 and 5.5-5]
- Limits skylight area to 3%, except to 6% if daylighting criteria are met [5.5.4.2.2]

### **Mechanical**

- Increased equipment efficiencies for air conditioners, condensing units, heat pumps, water-chillers, boilers, cooling towers, refrigerators, and freezers [6.4.1 & Tables 6.8.1]
- Reduces occupancy threshold for demand-controlled ventilation from 40 people/1000 sq ft to 25 people/1000 sq ft [6.4.3.8]
- Adds vestibule heating controls [6.4.3.9]
- Adds direct digital control (DDC) and graphical display requirements [6.4.3.10 & Table 6.4.3.10.1]
- Adds control requirements for preheat coils [6.5.2.5]
- Adds requirements for fan efficiency and controls [6.5.3]
- Adds requirements for boiler turndown ratio and efficiency [6.5.4.1]
- Reduces system size and outdoor air thresholds for energy recovery [6.5.6]
- Adds requirements for walk-in coolers, freezers and refrigerated display cases [6.4.5 & 6.5.11]
- Adds requirements for Computer room HVAC systems and introduces the Power usage Effectiveness (PUE) [6.6]

### **Service Water Heating**

- Increases efficiency of water-heating equipment [7.5.3 & Table 7.8]

### **Power**

- Increases the spaces where and reduces the threshold for when plug receptacle shutoff control is required [8.4.2]
- Requires electrical energy monitoring and reporting for total electrical, HVAC systems, lighting, and receptacles [8.4.3]
- Requires separate electrical energy monitoring for buildings with tenants [8.4.3.1]
- Adds specific control requirements for guestroom switched receptacles [9.4.1.3]

### **Lighting**

- Requires the use of certain lighting controls in more space types [9.4.1]
- Increases and clarifies requirements for daylighting and daylighting controls [9.4.1.1]
- Updates and reduces the interior and exterior lighting power densities [Table 9.5.1]
- Adds specific requirements for guest room and task lighting controls [9.4.1.3]
- Adds functional testing requirements for occupant sensors, automatic time switches, and daylight controls [9.4.3]

### **Other Equipment**

- Adds requirements for the efficiency of general-purpose motors having power rating greater than 200 hp, but no more than 500 hp [10.4.1]
- Adds power limitations for elevator cab lighting [10.4.3.1]

- Requires escalators and moving walks to slow to minimum permitted speed when not conveying passengers [10.4.4]
- Requires whole-building energy monitoring and reporting [10.4.5.1]

**Energy Cost Budget Method (ECB)**

- Allows credit for on-site renewable energy but limits the credit to 5% of the calculated energy cost budget [11.4.3.1]

**Appendix C (Envelope tradeoff)**

- Completely revamps the methodology for the building envelope trade-off option allowed in Section 5.6

**Performance Rating Method (Appendix G)- an above code program**

- Numerous clarifications are added for modeling

## **Significant changes 2018-2021 IECC Commercial Provisions**

[Sources: IECC 2021]

- Changes climate zone maps resulting in 15 Ohio counties moving from Climate Zone 5 to Climate Zone 4
- Requires an insulation certificate identifying the installed R-value of insulation when the insulation of the manufacturer is not readily observable upon inspection
- Requires that a Thermal Envelope Certificate be posted in an approved location
- Clarifies and relocates all “Mandatory” and “Prescriptive” labels to a table

### **Definitions**

- Adds or modifies definitions of “Biogas”, “Biomass”, “Data Center”, “Data Center Systems”, “Direct Digital Control”, “Enthalpy Recovery Ratio”, “Embedded Fan”, “Fan Array”, “Fan Energy Index (FEI)”, “Fan Nameplate Electrical Input Power”, “Fan System Electrical Input Power”, “Fault Detection and Diagnostics (FDD) System”, “Information Technology Equipment (ITE)”, “Internal Curtain System”, “Large Diameter Ceiling Fan”, “On-Site Renewable Energy”, “Renewable Energy Resources”, “Testing Unit Enclosure Area”, “Thermal Distribution Efficiency (TDE)”, “Vegetative Roof”, “Visible Transmittance, Annual”, and “Wall, Above-Grade”

### **Building Envelope**

- Increased envelope stringency and clarity for conditioned greenhouses [C402.1.1.1]
- Allows certain electric equipment buildings up to 1200 ft<sup>2</sup> to be exempt from envelope requirements [C402.1.2]
- Recognizes and provides guidance for layered cavity insulation [C402.1.3]
- Increased stringency requirements for attic insulation, above-grade and below-grade walls, and unheated slabs [Tables C402.1.3 and C402.1.4]
- Clarifies U-factor and R-factor insulation requirements at roofs, particularly tapered above-deck insulation [C402.1.4.1 & C402.2.1]
- Adds limit of maximum of 25% glazing area for garage door [Table C402.1.4, note i]
- Increases stringency of U-values and SHGC for fenestration in CZ 4 and CZ 5 [Table C402.4]
- Clarifies skylight requirements [C402.4.2]
- Removes R-values for doors and prescribes maximum U-factors and glazing area for non-swinging doors [C402.4.5]
- Requires either air barrier inspection and commissioning or enclosure testing to verify envelope performance of buildings and provides testing methodologies [C402.5]
- Requires HVAC interlock with operable openings that are greater than 40 ft<sup>2</sup> and provides a few exceptions (separately zoned commercial kitchens, warehouses, and outside vestibule doors) [C402.5.11]

### **Mechanical**

- Exempts data center systems from control and economizer requirements [C403.1]
- Requires that data center systems comply with ASHRAE 90.4 (with a few modifications) [C403.1.2]
- Requires large HVAC systems (serving  $\geq 100,000$  ft<sup>2</sup>) in new buildings to provide a fault detection and diagnostics system [C403.2.3]
- Updates HVAC equipment efficiency tables (some efficiencies to go into effect on January 1, 2023) for air conditioners, heat pumps, furnaces, boilers, chillers, cooling towers, condensers, and computer room AC [Tables C403.3.2(1) - C403.3.2(16)]
- Clarifies heat pump control requirements [C403.4.1.1]

- Clarifies that automatic stop controls are also required for HVAC systems [C403.4.2.3]
- Requires two-position valve for hydronic heat pump systems to be automatic and interlocked [C403.4.3.3.3]
- Adds a Variable Refrigerant Flow (VRF) exception to economizer requirements [C403.5]
- Requires Demand Control Ventilation (DCV) whenever economizers are required [C403.7.1]
- Increases number of enclosed parking garages that will require detection and controls [C403.7.2]
- Prescribes specific enthalpy recovery ratios for dwelling unit energy recovery systems [C403.7.4.1]
- Differentiates control requirements for hotel and motels (Group R-1) based upon occupancy status of rooms and changes time-out time from 30 minutes to 20 minutes [C403.7.6]
- Requires fans and fan arrays to have a Fan Energy Index (FEI) certified IAW AMCA 208 [C403.8.3]
- Prescribes minimum efficiencies of low-capacity residential-type fans [C403.8.5]
- Recognizes Large-diameter ceiling fans [C403.9]
- Adds performance requirements for commercial refrigerators, freezers, walk-in coolers, walk-in refrigerators and refrigeration equipment [C403.11]
- Clarifies insulation requirements for underground ducts [C403.12.1]
- Prescribes control system operation for operable opening interlocks [C403.14]

#### **Service Water Heating**

- Increases minimum efficiency for large (1 M Btu/h input) individual water heating equipment to 92% [C404.2.1]

#### **Lighting**

- Clarifies what is meant by “general lighting” [C405.1]
- Requires corridor lighting to be reduced to minimum levels (no more than 50% full power) when unoccupied [C405.2.1.1 & C405.2.1.4]
- Adds a section for “warehouse storage areas” and requires occupant sensor controls [C405.2.1.2]
- Clarifies intent of light reduction control requirements [C405.2.3]
- Adds additional control requirements for the secondary side lit daylight zone [C405.2.4.2]
- Adds control requirements for parking lot luminaires [C405.2.7.3]
- Adds control requirements for parking garage lighting [C405.2.8]
- Clarifies lighting power allowance calculations, especially for projects that involve only a portion of a building and for exterior lighting [C405.3.2 & C405.5.2]
- Interior and exterior lighting power allowance have been modified to reflect new lighting levels in the IES lighting handbook and to recognize LED technology [Tables C405.3.2(1), C405.3.2(2), and C405.4.2(2)]
- Recognizes the high energy use of plant growth lighting and requires 95% of permanent luminaires to have a minimum photon efficiency of 1.6 m mol/J [C405.4]

#### **Power**

- Limits the combined voltage drop of customer-owned service conductors, feeder conductors and branch circuits to 5% [C405.10]
- Requires automatic receptacle control of at least 50% of 125V, 15 and 20 amp receptacles in offices, conference rooms, copy/print rooms, breakrooms, classrooms, and modular workstations and 25% of branch circuit feeders for modular furniture not shown on plans [C405.11]
- Requires new buildings with  $\geq 25,000$  ft<sup>2</sup> to be provided with an energy monitoring system [C405.12]

**Other Equipment**

- Requires that escalators be designed to recover more electrical energy than is consumed when resisting overspeed in the down direction [C405.9.2.1]

**Additional Efficiency Requirements [C406]**

- Requires at least 10 credits by adding additional energy efficient features to the building. The credits are determined from newly added tables arranged by occupancy classification [C406.1]
- Modifies more efficient HVAC option [C406.2]
- Modifies reduced lighting power option [C406.3]
- Modifies the basic renewable energy option [C406.5]
- Adds options for energy monitoring systems, if not otherwise required [C406.10]
- Adds options for fault detection system, if not otherwise required [C406.11]
- Adds options for efficient kitchen equipment [C406.12]

**Total Building Performance**

- Provides a new table that outlines the code requirements that must be met when using the Total Building Performance method [Table C407.2]

**Commissioning**

- Allows an “approved agency” or a qualified commissioning professional to perform the commissioning activities [C408.3.1]

**Existing Buildings**

- Reorganizes and clarifies requirements
- Clarifies that commissioning is required for new lighting and power systems [C502.3.6]

## **Significant changes 2015-2018 IECC Commercial Provisions**

[Sources: IECC 2018 and PNNL-SA-127543]

- Made several editorial changes to eliminate the use of the word “Accessible” (if not associated with the IBC Chapter 11 meaning of “Accessible”).
- Clarifies that commissioning is mandatory for all mechanical and hot water heating systems
- Adds additional as-built energy code documentation and owner training requirements for all buildings (typically part of the commissioning documents) ...these documents must be submitted to the owner within 90 days of receipt of the Certificate of Occupancy
- Enhanced the section for required energy code inspections

### **Definitions**

- Adds or modifies definitions of “Access (to)”, “Air Barrier”, “Captive Key Override”, “Computer Room”, “Demand Recirculation Water System”, “Group R”, “IEC Design H Motor”, “IEC Design N Motor”, “Isolation Devices”, “Luminaire-level Lighting Controls”, “NEMA Design A Motor”, “NEMA Design B Motor”, “NEMA Design C Motor”, “Networked Guestroom Control System”, “Ready Access (to)”, and “Voltage Drop”

### **Building Envelope**

- Increased stringency requirements for heated slabs [Tables C402.1.3 and C402.1.4]
- Adds maximum U-values for garage door glazing [Table C402.1.4]
- Requires 2 staggered layers of insulation board when continuous roof insulation is installed. Also provides a new exceptions for around roof drains [C402.2.1]
- Clarifies requirements for mass walls and mass floors [C402.2.2 and C402.2.3]
- Restores section on below-grade walls [C402.2.5]
- Adds a section on airspaces [C402.2.7]
- Decreases the SHGC for fenestration in Climates zones 4 and 5 [Table C402.4]
- Raises the allowable skylight area from 5% to 6% with daylight controls [C402.4.1.2]
- Clarified topics such as sliding doors [Table C402.5.2], rooms containing fuel-burning appliances [C402.5.3], loading dock weather seals [C402.5.6]

### **Mechanical**

- Section 403 (Building Mechanical Systems) reorganized for ease of use
- Clarifies that HVAC equipment shall not be oversized [C403.3.1]
- Eliminates outdated federal equipment efficiencies for air conditioners, heat pumps, furnaces, boilers, chillers, cooling towers, and computer room AC [Tables C403.3.2(1) - C403.3.2(10)]
- Clarified that control must be “configured to” meet the requirements, not just be “capable of” meeting the requirements [throughout]
- Clarifies that many controls requirements are “Mandatory” [throughout]
- Adds HVAC control requirements for heated or cooled vestibules [C403.4.1.4]
- Adds pump flow control requirements for chilled and hot water hydronic piping distribution systems [C403.4.3.3.2 and C403.4.4]
- Adds exceptions to economizer requirements [C403.5]
- Adds a section requiring VAV with zone controls for multiple-zone systems [C403.6.1]
- Adds control requirements for parallel-flow fan-powered VAV air terminals [C403.6.7]
- Increases the threshold design airflow rate at which energy recovery is required [Table C403.7.4(2)]
- New HVAC set point and fan control requirements for hotel and motels (Group R-1) with greater than 50 guest rooms [C403.7.6]

- Provides an allowable hp exception for fans less than or equal to 5 hp [C403.8.1]
- Prescribes motor fan speed controls for heat-rejection devices [C403.9]
- Adds federal efficiency requirements for walk-in coolers and freezers to be in effect in 2020 [C403.10.2.1]

#### **Service Water Heating**

- Increased federal water heater efficiencies [Table C404.2]

#### **Lighting**

- Adds a section for “open plan office areas” and requires occupant sensor controls [C405.2.1.3]
- Adds exceptions for lighting controls for dwelling units [C405.2.4 #3] and patient rooms [C405.2.4 #2]
- Interior and exterior lighting power allowance have been modified (reduced) to reflect new lighting levels in the IES lighting handbook and to recognize LED technology [Tables C405.3.2(1), C405.3.2(2), and C405.4.2(2)]
- Lighting control requirements have been modified to add additional controls in some space types and options to others to allow easier application of advanced controls [C405.2]
  - Reduce exterior lighting power by 30% during periods of inactivity or after business hours [C405.2.6.3]
- Adds a requirement that 90% of permanently installed dwelling unit lighting fixtures use high efficacy lamps [C405.1]

#### **Power**

- Limits the combined voltage drop of feeder conductors and branch circuits to 5% [C405.9]

#### **Other Equipment**

- Updates electric motor terminology, adds exceptions, and adds efficiency tables consistent with federal regulations [C405.7]
- Adds an exception to allow a variable voltage drive in lieu of automatic speed control for escalators that are not conveying passengers [C405.8.2]

#### **Additional Efficiency Package Options**

- Adds options for enhanced envelope performance as determined by UA analysis [C406.8]
- Adds options for reduced air infiltration as determined by whole building air leakage testing [C406.9]

#### **Total Building Performance**

- Limits the amount of credit allowed for on-site renewable energy [C407.3]
- Limits the amount of credit allowed for renewable energy purchased from off-site sources [C407.3]

#### **Commissioning**

- Requires that building operations and maintenance documents be provided to the owner
- Requires a completed “Commissioning Compliance Checklist” with the “Preliminary Commissioning Report”

#### **Existing Buildings**

- Provides exceptions for Changes in Space Conditioning and for Changes of Occupancy



## **Significant changes 2012→2015 IECC Commercial Provisions**

(Sources: PNNL-SA-107200 and ESL-TR-14-11-02 Texas A&M Energy Systems Laboratory)

### **Definitions**

- Adds or modifies definitions of “Air Curtain”, “Alteration”, “Approved Agency”, “Boiler, Modulating”, “Boiler System”, “Bubble Point”, “Circulating Hot Water System”, “Computer Room”, “Condensing Unit”, “Conditioned Space”, “Continuous Insulation”, “Daylight Responsive Control”, “Daylight Zone”, “Fan Efficiency Grade”, “Fenestration”, “Floor Area, Net”, “General Purpose Electric Motor”, “Greenhouse”, “High Speed Door”, “Historic Building”, “Liner System”, “Low Sloped Roof”, “Low-voltage Dry-Type Distribution Transformer”, “Occupant Sensor Control”, “Opaque Door”, “Powered Roof/Wall Ventilator”, “Radiant Heating System”, “Refrigerant Dew Point”, “Refrigerated Warehouse Cooler”, “Refrigerated Warehouse Freezer”, “Refrigeration System”, “Repair”, “Reroofing”, “Roof Recover”, “Roof Replacement”, “Rooftop Monitor”, “Saturated Condensing Temperature”, “Small Electric Motor”, “Time-Switch Control”, “Variable Refrigerant Flow System”, “Walk-in Cooler”, “Walk-in Freezer”, “Wall, Above-grade”, “Wall, Below-Grade”, “Water Heater”

### **Building Envelope**

- Adds an exception for greenhouses [C402.1.1]
- Increased stringency for roof insulation installed entirely above roof deck [Table C402.1.3]
- Increased stringency for SHGC of vertical fenestration [C402.4.3]
- Expanded requirements to calculate U-factors of walls with cold-formed steel, aged roof reflectance and provisions for rooms containing fuel burning appliances [C402.5]
- Mandatory skylight threshold reduced from 10K to 2.5K square feet [C402.4.2]

### **Mechanical**

- Improved efficiency requirements for HVAC equipment performance [Table C403.2.3(1)-C403.2.3(10)]
- Added efficiency requirements for air-conditioning units serving computer rooms [Table C403.2.3(9)]
- Elaborated and added provisions for HVAC system controls which include: requirement for zone isolation [C403.2.4.4]; and requirement of economizer fault detection [C403.2.4.7]
- Added specifications for hot water boiler outdoor temperature setback control [C403.2.5]
- Updated provisions for energy recovery ventilation systems whose requirements are now based on the number of hour’s ventilations systems operate [C403.2.7]
- Introduced specifications for kitchen exhaust systems [C403.2.8]
- Updated requirements for duct and plenum insulation and sealing [C403.2.9]
- Introduced fan efficiency requirements [C403.2.12.3]
- Added specifications for commercial refrigeration equipment [C403.2.15 and C403.5]
- Updated provisions for air and water economizers, which include added requirements for the efficient operation of these systems [C403.3]
- Updated provisions for complex mechanical systems serving multiple zones, which include updated specifications for fan controls, heat rejection equipment and hot gas bypass limitations [C403.4]

### **Service Water Heating**

- Added performance efficiencies for certain categories of service hot water systems [Table C404.2]
- Revises and clarifies the requirements for insulation of piping [C404.4]

- Added information for implementation of efficient heated water supply piping, heated water circulating and temperature maintenance system, demand recirculation controls, drain water heat recovery systems and energy requirements of portable spas [C404.5]
- Improved specifications for energy consumption of pools and permanent spas [C404.9]
- Added commissioning requirements for hot water systems [C404.11]

#### **Lighting and Power**

- Additional provisions for lighting controls, which include the added requirement of occupant sensor controls [C405.2.1]
- New exterior and warehouse lighting control requirements [C405.2.1.2]
- Revised daylighting zone controls [C405.2.3]
- New Hotel/motel sleeping and guest suite lighting controls [C405.2.4 #3]
- Updated lighting power densities for different building area types [Tables C405.4.2]
- Specifies non-tradable components of exterior lighting [C405.5.1]
- Requires a separate meter for each Group R-2 dwelling unit [C405.6]
- Adds federal minimum efficiency requirements for electric transformers [C405.7]
- Adds federal minimum efficiency requirements for electric motors [C405.8]
- Regulates elevator cab luminaires, ventilation fans, and controls [C405.9.1]
- Requires automatic speed control and a variable frequency regenerative drive for escalators [C405.9.2]

#### **Other Equipment**

##### **Additional Efficiency Package Options**

- Adds new options for more efficient HVAC equipment performance, for reduced lighting power densities, for enhanced digital lighting controls, for dedicated outdoor air systems, and for reduced energy use in service water systems [C406.1]

##### **Total Building Performance**

- No significant changes made to this section

##### **Commissioning**

- Adds commissioning requirements and documentation submittal requirements for lighting control systems including occupant sensor controls, time control switches, and daylight responsive controls [C408.3.1]

##### **Existing Buildings**

- Moved all existing building requirements from Chapter [CE] 1 to a new Chapter [CE] 5
- Historic buildings now partially covered [C501.6]
- Replacement fenestration covered [C401.2.1]
- Requires full upgrade of roofing insulation when re-roofing [C503.1]
- Roof replacement exempt from air barrier requirements [C503.1 Exception 6]

**File Attachments for Item:**

OB-3 OBC draft rule review (Chapters 9, 10, 11, 12, 14, 15, and 16)

**4101:1-10-01 Means of Egress.**

Chapter 10 of the International Building Code, 2021 edition, as adopted by reference and modified in OBC Section 101.1, is further modified as follows:

**(A) Modify Section 1001.1 to add the following sentence at the end of the paragraph:**

Where Chapter 11 and this chapter have provisions relating to the same content, both chapters apply.

**(B) Modify Table 1006.3.4(1), footnote ‘a’ to add the following before the first sentence:**

a. Except as otherwise provided in Section 903.2.8,

**(C) Modify Table 1006.3.4(2), footnote ‘a’ to add the following before the first sentence:**

a. Except as otherwise provided in Section 903.2.8,

**(D) Modify Section 1010.2.1 to add a new exception as follows:**

5. *Temporary door locking devices* used in accordance with section 1010.2.16.

**(E) Modify Section 1010.2.2 to add an exception that reads:**

**Exception:** Non-fixed portions of door or gate *hardware*, including keys, access cards and *temporary door locking devices*.

**(F) Modify Section 1010.2.4 to add a new item that reads:**

11. *Temporary door locking devices* used in accordance with section 1010.2.16.

**(G) Modify Section 1010.2.13.1 to add items 9 and 10 and an exception that applies to the section to read as follows:**

9. The procedures for the operation(s) of the unlocking system is to be described and *approved* as part of the emergency planning and preparedness required by Chapter 4 of the *fire code*.

10. All clinical staff are to have the keys, codes or other means necessary to operate the locking devices.

**Exception:** In Group I-2 occupancies, items 1 through 3 do not apply to doors to areas where persons, because of clinical needs, require restraint or containment as part of the function of a mental hospital.

**(H) Add Section 1010.2.16 to read as follows:**

**1010.2.16 Temporary door locking devices.** A temporary door locking device, designed and used to keep intruders from entering the room, is to be permitted when *approved* by the *building official* and noted on the certificate of *occupancy* in Groups A, B, E, F, H, I-4, M, S, and U occupancies where the requirements of sections 1010.2.16.1 and 1010.2.16.2 are met.

**1010.2.16.1 Conditions of use.** A temporary door locking device is to only be used on doors under the conditions in either 1010.2.16.1.1 or 1010.2.16.1.2, based upon *occupancy*:

**1010.2.16.1.1 Conditions of use in school buildings.**

1. Proof is provided by the *administrative authority of a school building* that a school safety plan has been adopted and filed pursuant to section 3313.536 of the Revised Code; and
2. The *temporary door locking device* is to only be used in an Emergency situation and during active shooter drills; and
3. The *temporary door locking device* is engaged only by a staff member of the *school building*; and
4. The *temporary door locking device* is to only be engaged for a finite period of time as determined by the *administrative authority of a school building* in accordance with the school safety plan adopted pursuant to section 3313.536 of the Revised Code; and
5. Proof is provided by the *administrative authority of a school building* that police and fire officials having jurisdiction for the *school building* have been notified prior to the use of the *temporary door locking device*; and
6. In-service training on the use of the *temporary door locking device* is provided for school staff members and records verifying this training is to be maintained on file and provided to the fire official upon request.

**1010.2.16.1.2 Conditions of use in Groups A, B, F, H, I-4, M, S, and U occupancies.**

- (1) The device is to only be engaged for a finite period of time, in an emergency situation or during active shooter drills; and
- (2) The device is to only be used by the owner of the *building* or a person authorized by the owner; and

- (3) The owner of a *building* is to notify the police chief, or equivalent, of the law enforcement agency that has jurisdiction over the *building*, and the fire chief, or equivalent, of the fire department that serves the political subdivision in which the *building* is located, prior to the use of such devices in a *building*; and
- (4) The owner is to provide training to any person who may use the device on its use and maintain a record verifying this training on file.

**1010.2.16.2 Operational requirements.** The *temporary door locking device* is to comply with the following:

- 1. The device should be capable of being removed or disengaged from outside the room by authorized personnel.
- 2. The removal of the *temporary door locking device*, after it is engaged, is to not require more than one operation.

**Exception:** Two operations may be permitted to remove a *temporary door locking device*, after it is engaged, if the *building* is equipped throughout with an automatic sprinkler system in accordance with section 903.3.1.1.

- 3. Modifications are not to be made to listed panic *hardware*, *fire door hardware* or door closers.
- 4. Modifications to *fire door* assemblies are to be in accordance with NFPA 80.
- 5. The *temporary door locking devices* are not to be permanently mounted to the door.

**Exception:** Individual parts of the *temporary door locking device* assembly such as bolts, stops, brackets, pins, etc. that do not prevent normal ingress and egress through the door may be permanently mounted provided that when such parts are mounted on a labeled *fire door assembly* such installation does not affect the fire rating of the *fire door assembly*.

Provisions of the “Americans with Disabilities Act of 1990,” 104 Stat. 327, 42 U.S.C.A. 12101, as amended, may apply to the use of the *temporary door locking device* but are outside the scope of this code.

**(I) Modify Section 1011.16 to add an exception that reads as follows:**

**Exception:** Ladders complying with ASME A17.1 for elevator pit access.

**(J) Replace Table 1020.2 with the following:**

**TABLE 1020.2  
CORRIDOR FIRE-RESISTANCE RATING**

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)			
		Without sprinkler system or provided with a partial sprinkler system	With sprinkler system		
			Type of sprinkler system		
			13D	13R	13
H-1, H-2, H-3	All	NP	NP	NP	1
H-4, H-5	Greater than 30	NP	NP	NP	1
A, B, E, F, M, S, U	Greater than 30	1	NP	NP	0
R	Greater than 10	1	1	0.5	0.5
I-1	All	NP	1	1	1
I-2 <sup>a</sup>	All	NP	NP	NP	0
I-3	All	NP	NP	NP	1 <sup>b</sup>
I-4	All	1	NP	1	0

NP = Not Permitted

- a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.
- b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.
- d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

**(K) Replace Section 1027.2 with the following:**

**1027.2 Use in a means of egress.** Exterior exit stairways are not to be used as an element of a required *means of egress* for Group I-2, I-4 and daycare facilities in Group E occupancies. For occupancies in other than Group I-2, I-4 and daycare facilities in Group E exterior exit stairways and ramps is to be permitted as an element of a required *means of egress* for *buildings* not exceeding six stories above grade plane or that are not *high-rise buildings*.

**4101:1-9-01 Fire protection and life safety systems.**

Chapter 9 of the International Building Code, 2021 edition, as adopted by reference and modified in OBC Section 101.1, is further modified as follows:

**(A) Modify Section 901.3 to add a sentence at the end of the paragraph that reads as follows:**

Termination of fire alarm monitoring services are to be in accordance with Section 901.9 of the fire code.

**(B) Replace section 901.5 with the following:**

**901.5 Acceptance tests.** *Fire protection systems* are to be tested in accordance with the requirements of this code, the fire code, and the applicable standards referenced in this code. Required acceptance tests are to be conducted at the expense of the owner or the owner's representative. The building official may require that the acceptance tests be conducted in the presence of a certified building inspector or a certified fire protection system inspector. Test results are to be documented and test records and certificates are to be submitted to the building official and the fire official upon completion. Copies of test records and certificates are also to be maintained at the jobsite and made available to the inspector conducting the *fire protection systems* final inspections. It is unlawful to occupy portions of a structure until the required *fire protection systems* within that portion of the structure have been tested, inspected, and *approved*.

**(C) Add new section 901.8 to read as follows:**

**901.8 Welding and brazing.** Welding and brazing of all metallic *fire protection system* piping is to be done in accordance with Section 313 of the mechanical code.

**(D) Modify section 903.2.1.3 to add an exception to condition 1 that reads as follows:**

**Exception:**

1.1 *Fire areas* used exclusively for religious worship services with fixed seating.

**(E) Modify section 903.2.1.3 to add exceptions to condition 2 that read as follows:**

**Exceptions:**

2.1 *Fire areas* used primarily for worship with fixed seating.



2.2 Fire areas without fixed seating not used for exhibition or display; or

**(F) Modify section 903.2.1.3 to add an exception to and at the end of the entire section that reads as follows:**

**Exception:** Areas used exclusively as participant sports areas where the main floor area is located at the same level as the *level of exit discharge* of the main entrance and exit.

**(G) Modify section 903.2.1.4 to add an exception to and at the end of the entire section that reads as follows:**

**Exception:** Areas used exclusively as participant sports areas where the main floor area is located at the same level as the *level of exit discharge* of the main entrance and exit

**(H) Modify section 903.2.3 to add an additional condition that reads as follows:**

4. Throughout every portion of Group E day care facilities - 2 ½ years or less of age.

**Exception:** An automatic sprinkler system is not required throughout Group E day care facilities that provide care for more than five but no more than 100 children 2 ½ years or less of age where the day care facilities are at the *level of exit discharge* and where every room where care is provided for children that are less than or equal to 2 ½ years of age has no fewer than one exterior exit door for which the *exit access* and *exit discharge* do not include the traversing of stairs.

**(I) Modify section 903.2.6 to add the following phrase at the end of exception #2:**

for which the *exit access* and *exit discharge* do not require the traversing of stairs.

**(J) Modify section 903.2.8 to add an exception that reads as follows:**

**Exception:** Group R-2. An *automatic sprinkler system* is not required in buildings of Group R-2 permitted to have a single *exit* per Section 1006.3.4 where:

1. The building is not used as an “SRO” occupancy as defined in Chapter 2, and
2. The *exit* is constructed as an *exterior exit stairway* per Section 1027, and
3. The *dwelling units* egress directly into an *exit*, and
4. Two-hour *fire barriers* divide the building into *fire areas* with a maximum of two *dwelling units* per floor and not more than six *dwelling units* per *fire area*, and

5. All *dwelling units* in the *fire area* must have separations as required by Section 708.1 for *dwelling units*, and
6. The building is limited to a basement and two stories above *grade plane*, and
7. The building contains no more than four *dwelling units* per floor and no more than twelve *dwelling units* per building.

**(K) Modify the first phrase of section 903.3.1.2 to read as follows:**

**903.3.1.2 NFPA 13R sprinkler systems.** *Automatic sprinkler systems* in Group I-1, Condition 1 facilities and Group R occupancies are permitted to be installed throughout in accordance with NFPA 13R where the Group R occupancy meets all of the following conditions:

**(L) Replace section 903.8.1 with the following:**

**903.8.1 Number of sprinklers.** Limited area sprinkler systems shall not exceed nineteen sprinklers in any single *fire area*.

**(M) Modify section 903.4.2 to add an exception that reads as follows:**

**Exception:** Waterflow alarms are not required for limited area sprinkler system installed in accordance with Section 903.3.8.

**(N) Modify section 907.2.9.3 as follows:**

Replace the word “operated” with the phrase “owned or operated”

**(O) Modify section 907.2.11 to add the following phrase at the end of the section:**

“and Section 314.1.2 of the Residential Code of Ohio.”

**(P) Replace section 907.3.3 to read as follows:**

**907.3.3 Elevator emergency operation.** Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of ASME A17.1/CSA B44 as referenced in rule 4101:5-3-01 of the Administrative Code and NFPA 72.

**(Q) Modify section 907.5.2 to add the following sentence to the end of the section:**

Audible and visual alarm notification appliances are to be located and installed in accordance with this section, NFPA 72, Chapter 11, and ICC A117.1.

**(R) Replace section 907.5.2.3.3 to read as follows:**

**907.5.2.3.3 Group R-2.** In Group R-2 occupancies required by Section 907 to have a fire alarm system, each story that contains dwelling units and sleeping units is to be provided with the capability to support future visible alarm notification appliances in accordance with ICC A117.1 and be designed and installed to accommodate wired or wireless equipment.

**(S) Replace section 907.6.6.3 with the following:**

**907.6.6.3 Termination of monitoring service.** Deleted.

**(T) Replace section 909.18.8.3.1 to read as follows:**

**909.18.8.3.1 Report filing.** A copy of the final report is to be filed with the building official, the fire official, and maintained in an *approved* location at the building.

**(U) Modify section 911.1.6, item #17 to read as follows:**

17. Elevator fire recall switch in accordance with ASME A17.1/CSA B44 as referenced in rule 4101:5-3-01 of the Administrative Code.

**(V) Modify Section 912.1 to add exceptions that read as follows:**

**Exceptions:** Fire department connections are not required for:

1. Limited area sprinkler systems supplied from the domestic water system.
2. Automatic sprinkler systems having less than 20 sprinklers.

**(W) Add new section 913.1.1 that reads as follows:**

**913.1.1 Minimum suction pressure to be maintained.** When a fire pump is installed, the “Ohio Environmental Protection Agency” requires the installation of a low pressure cut-off, a low suction throttling valve, or variable speed suction limiting controls to ensure that a minimum of 10 psi is maintained in the suction line while the pump is operating (see rule 3745-95-07 of the Administrative Code).

**(X) Replace section 916.2 with the following:**

**916.2 Approvals.** Approvals shall be required as set forth in Chapter 1 of this code.

**(Y) Modify section 916.2.1 to replace the word “permit” with “plan approval”.**

#### 4101:1-11-01 Accessibility.

Chapter 11 of the International Building Code, 2021 edition, as adopted by reference and modified in the OBC Section 101.1, is further modified as follows:

(A) **Replace section 1102.1 with the following:**

**1102.1 Design.** Buildings and facilities shall be designed and constructed to be *accessible* in accordance with this code and ICC A117.1. Any references to ICC A117.1 throughout this code are to be applied with the following amendment:

1. Change the last sentence in Section 603.3 of ICC A117.1, to read:

Where mirrors are located above counters that do not contain lavatories, the bottom edge of the reflecting surface of the mirror is to be 35 inches (890 mm) maximum above the floor.

(B) **Add new section 1102.2 to read as follows:**

**1102.2 Existing buildings.** Existing buildings are to comply with Section 3411. Where an existing building is required to comply with the provisions of Chapter 11, any reference to ICC A117.1 is to the edition of ICC A117.1 identified in Chapter 35 for existing buildings.

(C) **Modify section 1104.4 Exception #1 as follows:**

Add the phrase “per story” after the area limit of 3,000 square feet (278.7m<sup>2</sup>) in exception #1.

(D) **Modify section 1110.1 as follows:**

Change the range of sections from “1110.2 through 1110.16” to “1110.2 through 1110.17.”

(E) **Add new section 1110.17 as follows:**

**1110.17 Mail receptacles.** Where provided, mail receptacles are to be *accessible* in accordance with Sections 1110.17.1 or 1110.17.2.

**1110.17.1 Dwelling units and sleeping units.** Where mail receptacles are provided for *Accessible, Type A* or *Type B dwelling*

and sleeping units, accessible mail receptacles are to be provided in accordance with 1110.17.1.1 or 1110.17.1.2.

**1110.17.1.1 Centralized mail receptacles.** Where each individual mail compartment of a centralized mail receptacle is assigned to a specific dwelling unit or sleeping unit, the individual mail compartments are to comply with 1110.17.1.1.1 or 1110.17.1.1.2.

**1110.17.1.1.1 Buildings without an elevator.** In a structure without an elevator, all individual mail compartments assigned to Accessible Units, Type A Units and Type B Units in each location are to be accessible.

**1110.17.1.1.2 Buildings with an elevator.** In a structure with an elevator, fifty percent of all individual mail compartments in each location are to be accessible. Individual mail compartments assigned to Accessible and Type A units are to be included in the accessible mailboxes.

**1110.17.1.1.3 Parcel lockers.** All parcel lockers of centralized mail receptacles are to be accessible.

**1110.17.1.2 Individual house-mounted and curbside mail receptacles.** Where an individual house-mounted or curbside mail receptacle serves a dwelling unit or sleeping unit that is required to be an Accessible unit, Type A unit or Type B unit, the mail receptacle are to be accessible.

**1110.17.2 Other occupancies.** Where mail receptacles are provided in occupancies not falling within the purview of Section 1110.17.1, at least 5 percent, but not less than one, of each type in each location, are to be accessible.

(F) **Replace section 1111.1 with the following:**

**1111.1 Scope.** Recreational facilities located within a building that is within the scope of this code are to comply with this section. Provisions of the federal law, contained in Chapters 2 and 10 of the 2010 ADA Standards for Accessible Design, may apply to the design of recreational facilities that are outside the scope of this code.

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**(G) Modify section 1111.4.8 as follows:****(1) Add note and exceptions at the end of section 1111.4.8.1 to read as follows:**

**Note:** Coordination must be performed for amusement rides regulated by the Ohio department of agriculture to determine whether the ride provides at least one wheelchair space, amusement ride seat designed for transfer, or transfer device.

**Exceptions:**

1. Amusement rides that are controlled or operated by the rider are not required to comply with this section.
2. Amusement rides designed primarily for children, where children are assisted on and off the ride by an adult, are not required to comply with this section.
3. Amusement rides that do not provide seats that are built-in or mechanically fastened are not required to comply with this section.

**(2) Replace section 1111.4.8.2 with the following:**

**1111.4.8.2 Wheelchair spaces, ride seats designed for transfer and transfer devices.** Deleted.

**(3) Replace section 1111.4.8.3 with the following:**

**1111.4.8.3 Minimum number.** Deleted.

**(H) Add new section 1111.4.16 to read as follows:**

**1111.4.16 Golf Facilities.** Buildings and amenities serving a golf course, such as parking areas, golf cart rental stations, toilet rooms, clubhouses and other structures are to be *accessible* and be located on an *accessible route*.

**1111.4.16.1 Golf Courses.** Golf course elements directly associated with practicing and playing the golf course such as the tee grounds, tee boxes, putting greens, golf cart paths, practice putting greens, practice teeing grounds, and teeing stations at driving ranges are not regulated by this code.

**(I) Add new section 1112.1.1 to read as follows:**

**1112.1.1 Signs to designate accessible parking spaces and passenger loading zones.** *Accessible* parking spaces, *van-accessible* spaces and passenger loading zones required by section 1106 to be reserved for individuals with disabilities, are to be provided with a sign mounted on a fixed or movable post or otherwise affixed in a vertical

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position so that the sign is clearly visible to the driver of a vehicle when parked in such a location. A notice is to be affixed to this sign or posted adjacent to it that states the amount of the fine established by section 4511.99 of the Revised Code for the offense of parking a vehicle in this location if it is not legally entitled to do so.

**Note:** The fine established by section 4511.99 of the Revised Code is to be not less than two hundred fifty dollars nor more than five hundred dollars.

**4101:1-12-01 Interior environment.**

Chapter 12 of the International Building Code, 2021 edition, as adopted by reference and modified in OBC Section 101.1, is further modified as follows:

**No Changes**

Draft



**4101:1-14-01 Exterior walls**

Chapter 14 of the International Building Code, 2021 edition, as adopted by reference and modified in OBC Section 101.1, is further modified as follows:

**No Changes**

Draft

### **4101:1-15-01 Roof assemblies and rooftop structures**

Chapter 15 of the International Building Code, 2021 edition, as adopted by the reference and modified in the OBC Section 101.1, is further modified as follows:

**No Changes**

Draft

**4101:1-16-01 Structural Design.**

Chapter 16 of the International Building Code, 2021 edition, as adopted by reference and modified in the OBC Section 101.1, is further modified as follows:

**(A) Add new section 1602.2 to read as follows:**

**1602.2 Live loads posted.** Where the *live loads* for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 50 psf (2.40 kN/m<sup>2</sup>), such design *live loads* is to be conspicuously posted by the owner in that part of each *story* in which they apply, using durable signs. The removal or defacing of such notices is unlawful.

**(B) Replace the last sentence in section 1603.1 with the following:**

The design *loads* and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9 and Section 106 are to be indicated on the *construction documents*.

**(C) Replace section 1607.2 with the following:**

**1607.2 Loads not specified.** For occupancies or uses not designated in Section 1607, the *live load* is to be determined in accordance with generally accepted engineering practice.

**(D) Modify section 1608.2 as follows:**

1) **Delete the last two sentences of section 1608.2.**

2) **Add the following sentence as the last sentences of section 1608.2.**

Where these values are deemed inadequate because of record snowfall or experience, higher ground snow *loads* are to be determined and adopted by the local jurisdiction.

**(E) Replace section 1612.3 with the following:**

**1612.3 Establishment of flood hazard areas.** All buildings and structures which have been determined to require flood resistant construction by the local flood plain administrator of a community participating in the “National Flood Insurance Program (NFIP),” or by the Ohio department of natural resources for communities in the “NFIP”, are to be constructed as required by the provisions of this section and the local authority’s flood damage prevention regulations.

Reference to regulations in “FEMA 44 CFR Parts 59-77” in this section are adopted pursuant to section 121.75 and 121.76 of the Revised Code.

**(F) Modify section 1612.4 as follows:**

**1) Replace subsection 1.1 with the following:**

1.1. The elevation of the *lowest floor*, including the basement, is provided by a registered surveyor.

**2) Replace subsection 2.1 with the following:**

2.1. The elevation of the bottom of the lowest horizontal structural member is provided by a registered surveyor.

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