Ohio | Common Sense Initiative

Mike DeWine, Governor
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Business Impact Analysis

Agency, Board, or Commission Name: Board of Building Standards

Rule Contact Name and Contact Information:

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Regulation/Package Title (a general description of the rules' substantive content):

Ohio Building Code Update

Rule Number(s): Rescind all existing rules in 4101:1; Adopt new rules 4101:1-1-01, 4101:1-2-01, 4101:1-3-01, 4101:1-4-01, 4101:1-5-01, 4101:1-6-01, 4101:1-7-01, 4101:1-8-01, 4101:1-9-01, 4101:1-10-01, 4101:1-11-01, 4101:1-12-01, 4101:1-13-01, 4101:1-14-01, 4101:1-15-01, 4101:1-16-01, 4101:1-17-01, 4101:1-18-01, 4101:1-19-01, 4101:1-20-01, 4101:1-21-01, 4101:1-22-01, 4101:1-23-01, 4101:1-24-01, 4101:1-25-01, 4101:1-26-01, 4101:1-27-01, 4101:1-28-01, 4101:1-29-01, 4101:1-30-01, 4101:1-31-01, 4101:1-32-01, 4101:1-33-01, 4101:1-34-01, 4101:1-35-01

Date of Submission for CSI Review: 4/20/23

Public Comment Period End Date: 5/10/23

Rule Type/Number of Rules:

New/ 35 rules

No Change/____ rules (FYR? ___)

Amended/____ rules (FYR? __)

Rescinded/ 35 rules (FYR? X)

The Common Sense Initiative is established in R.C. 107.61 to eliminate excessive and duplicative rules and regulations that stand in the way of job creation. Under the Common Sense Initiative, agencies must balance the critical objectives of regulations that have an

adverse impact on business with the costs of compliance by the regulated parties. Agencies should promote transparency, responsiveness, predictability, and flexibility while developing regulations that are fair and easy to follow. Agencies should prioritize compliance over punishment, and to that end, should utilize plain language in the development of regulations.

Reason for Submission

1. **R.C. 106.03 and 106.031 require agencies, when reviewing a rule, to determine whether the rule has an adverse impact on businesses as defined by R.C. 107.52. If the agency determines that it does, it must complete a business impact analysis and submit the rule for CSI review.**

   Which adverse impact(s) to businesses has the agency determined the rule(s) create?

   The rule(s):

   a. ☒ **Requires a license, permit, or any other prior authorization to engage in or operate a line of business.**

   b. ☐ **Imposes a criminal penalty, a civil penalty, or another sanction, or creates a cause of action for failure to comply with its terms.**

   c. ☐ **Requires specific expenditures or the report of information as a condition of compliance.**

   d. ☐ **Is likely to directly reduce the revenue or increase the expenses of the lines of business to which it will apply or applies.**

Regulatory Intent

2. **Please briefly describe the draft regulation in plain language.**
   Please include the key provisions of the regulation as well as any proposed amendments.

   The Ohio Board of Building Standards (Board) proposes to rescind all existing rules in 4101:1 and adopt new Ohio Administrative Code (OAC) rules to incorporate the 2021 International Building Code by refence with Ohio amendments as follows:

   4101:1-1-01 This proposed rule regulates the administration of the building code by certified building departments and the steps an owner needs to take to obtain a plan approval or "permit" to build and inspections.

   4101:1-2-01 This proposed rule sets forth the definitions of terms used in rules 4101:1-1 through 4101:1-35-01.

   4101:1-3-01 This proposed rule classifies buildings based on the purpose for which they are used.

4101:1-4-01 This proposed rule supplements the code for special uses and occupancies and may alter requirements found elsewhere.

4101:1-5-01 This proposed rule regulates the minimum type of construction of a building, including allowable height and area, mezzanines, unlimited area structures, and mixed occupancies.

4101:1-6-01 This proposed rule classifies buildings in one of five (I-V) types of construction.

4101:1-7-01 This proposed rule sets forth the requirements for fire-resistance-rated construction.

4101:1-8-01 This proposed rule regulates the performance requirements for interior finishes to control the spread of fire.

4101:1-9-01 This proposed rule sets forth the requirements for active fire safety provisions.

4101:1-10-01 This proposed rule regulates the design of the means of egress of buildings for the protection of occupants.

4101:1-11-01 This proposed rules regulates the accessibility of buildings for people with physical disabilities.

4101:1-12-01 This proposed rule sets forth the requirements for the interior environment of buildings intended for human occupancy.

4101:1-13-01 This proposed rule regulates the energy efficient of buildings by reference to the International Energy Conservation Code and ASHRAE 90.1 Standard.

4101:1-14-01 This proposed rule provides requirements for the materials and construction of exterior surfaces.

4101:1-15-01 This propose rule regulates the materials, design and construction of roofs.

4101:1-16-01 This proposed rule prescribes the structural loading requirements for design and construction of buildings.

4101:1-17-01 This proposed rule regulates special inspections structural observations and load testing.

4101:1-18-01 This proposed rule regulates the design and construction of building foundations.

4101:1-19-01 This proposed rule sets for the provision for the design and construction of buildings and structural components using concrete.

4101:1-20-01 This proposed rule regulates the use of aluminum in building construction.

4101:1-21-01 This proposed rule prescribes requirements for masonry construction.

4101:1-22-01 This proposed rule regulates design and construction of structural steel, cold-formed steel, steel joists, steel cable structures, steel storage racks and composite construction.

4101:1-23-01 This proposed rule sets forth the requirements for design and construction of buildings that include wood or wood-based structural components.

4101:1-24-01 This proposed rule regulates the quality and design for glazing consisting of glass and light-transmitting plastics.

4101:1-25-01 This proposed rule prescribes requirements for design, construction and quality of gypsum board and plaster.

4101:1-26-01 This proposed rule sets forth the requirements for light transmitting and foam plastics.

4101:1-27-01 This proposed rule regulates electrical installations and references the National Electrical Code.

4101:1-28-01 This proposed rule regulates mechanical system installations and references the International Fuel Gas Code and Ohio Mechanical Code.

4101:1-29-01 This proposed rule regulates plumbing system installations and references Ohio Plumbing Code.

4101:1-30-01 This proposed rule regulates the installation of elevators and conveying systems not regulated by the Division of Industrial Compliance.

4101:1-31-01 This proposed rule prescribes requirements for construction and protection of structures having unique characteristics, such as temporary and membrane structures.

4101:1-32-01 This proposed rule regulates encroachments into the public right-of-way.

4101:1-33-01 This proposed rule sets for requirements for safeguards during construction.

4101:1-34-01 This proposed rule sets forth the requirements for alterations and additions of existing buildings and adopts the 2021 International Existing Buildings Code with Ohio amendments .

4101:1-35-01 This proposed rule lists technical standards referenced in rules 4101:1-1 through 4101:1-34.

Significant changes to these rules are listed in attached Exhibit A.

3. **Please list the Ohio statute(s) that authorize the agency, board or commission to adopt the rule(s) and the statute(s) that amplify that authority.**

   Revised Code § 3781.10: http://codes.ohio.gov/orc/3781.10
   Revised Code § 3781.11: http://codes.ohio.gov/orc/3781.11
   Revised Code § 3791.04: http://codes.ohio.gov/orc/3791.04v1

4. **Does the regulation implement a federal requirement? Is the proposed regulation being adopted or amended to enable the state to obtain or maintain approval to administer and enforce a federal law or to participate in a federal program?**
   If yes, please briefly explain the source and substance of the federal requirement.

   Yes. Proposed rule 4101:1-11-01 sets forth the accessibility requirements for buildings and compliance with these provisions creates a "safe harbor" for compliance with federal accessibility requirements. The Department of Justice publishes regulations implementing the Americans with Disabilities Act (ADA) for title II (State and local government services) and

title III (public accommodations and commercial facilities) and coordinates with the 2010 Standards for Accessible Design ("2010 Standards") referenced by the proposed rules. The 2010 Standards can be found here: http://www.ada.gov/2010ADAstandards_index.htm

The Energy Conservation and Production Act (ECPA) requires the Secretary of Energy to review new editions of the model energy codes or successor codes and determine whether the codes will improve energy efficiency. If so, the results of the review are published in the *Federal Register* and each state is required to submit a certification to the Secretary of Energy that it has reviewed the most recent code and made a determination of whether to adopt the code or request an extension within two years of the *Federal Register* notice. On June 28, 2021, Department of Energy determined that the 2019 ASHRAE 90.1 standard achieves greater energy efficiency for commercial buildings over the previous edition. On June 28, 2021, Department of Energy determined that the 2019 ASHRAE 90.1 standard achieves greater energy efficiency for commercial buildings over the previous edition and the 2021 International Energy Conservation Code (IECC) greater energy efficiency for residential buildings over the previous edition. The Board's review of the energy standards included in this rule package, which began in 2021, and its decision to update to the newer editions that have been determined to achieve greater energy efficiency is in compliance with the ECPA.

5. **If the regulation implements a federal requirement, but includes provisions not specifically required by the federal government, please explain the rationale for exceeding the federal requirement.**

   Not applicable

6. **What is the public purpose for this regulation (i.e., why does the Agency feel that there needs to be any regulation in this area at all)?**

   Revised Code § 3781.10 directs the Board to "formulate and adopt rules governing the erection, construction, repair, alteration and maintenance of all buildings specified in section 3781.06 of the Revised Code…" Additionally, Revised Code 3781.06 provides:

   > *Any building that may be used* as a place of resort, assembly, education, entertainment, lodging, dwelling, trade, manufacture, repair, storage, traffic, or occupancy *by the public*, *any residential building, and all other buildings or parts and appurtenances of those buildings erected within this state*, *shall be so constructed, erected, equipped, and maintained that they shall be safe and sanitary for their intended use and occupancy.*

   This statute defines safe and sanitary as follows:

"Safe," with respect to a building, means it is free from danger or hazard to the life, safety, health, or welfare of persons occupying or frequenting it, or of the public and from danger of settlement, movement, disintegration, or collapse, whether such danger arises from the methods or materials of its construction or from equipment installed therein, for the purpose of lighting, heating, the transmission or utilization of electric current, or from its location or otherwise.

"Sanitary," with respect to a building, means it is free from danger or hazard to the health of persons occupying or frequenting it or to that of the public, if such danger arises from the method or materials of its construction or from any equipment installed therein, for the purpose of lighting, heating, ventilating, or plumbing.

The Ohio Building Code (OBC) sets forth the construction standards for nonresidential buildings in the State of Ohio to ensure that they are safe and sanitary. Additionally, Revised Code § 3781.01 provides that local governments may not adopt regulations that that conflict with the Board's rules to facilitate the uniform application of the standards.

Revised Code 3781.11 lists conditions that rules of the Board must address, including:

(1) For nonresidential buildings, provide uniform minimum standards and requirements, and for residential buildings, provide standards and requirements that are uniform throughout the state, for construction and construction materials, including construction of industrialized units, to make residential and nonresidential buildings safe and sanitary as defined in section 3781.06 of the Revised Code;

(2) Formulate such standards and requirements, so far as may be practicable, in terms of performance objectives, so as to make adequate performance for the use intended the test of acceptability;

(3) Permit, to the fullest extent feasible, the use of materials and technical methods, devices, and improvements, including the use of industrialized units which tend to reduce the cost of construction and erection without affecting minimum requirements for the health, safety, and security of the occupants or users of buildings or industrialized units and without preferential treatment of types or classes of materials or products or methods of construction;

(4) Encourage, so far as may be practicable, the standardization of construction practices, methods, equipment, material, and techniques, including methods employed to produce industrialized units;

7. **How will the Agency measure the success of this regulation in terms of outputs and/or outcomes?**

The enforcement of these rules will be implemented by certified township, city, and county building departments. Rule 4101:1-1-01 lays out the administrative procedures certified building departments must follow to implement the substantive requirements of these rules to determine compliance. These provisions require a builder or owner to make application to a building department to obtain an approval to build (permit). As part of this application the owner must submit sufficient information and/or construction documents for the building official/plans examiner to determine whether the proposed work complies with the code. After the builder or owner obtains the approval (permit), construction may commence and the building department inspectors will inspect the construction to ensure that the work conforms with the original approval. Rule 4101:1-1-01 § 105.3 provides that in the absence of fraud or a serious safety or sanitation hazard, any non-residential structure built in accordance with approved plans shall be conclusively presumed to comply with these rules. The Board requires that certified nonresidential building departments submit an annual yearly operational report which lists the following information: current employees and their certifications, total number of permits issued during the year for each type of occupancy, total number of inspections made, the total value of construction, and the total number of appeals of the code requested by a builder or owner during the year.

8. **Are any of the proposed rules contained in this rule package being submitted pursuant to R.C. 101.352, 101.353, 106.032, 121.93, or 121.931?**
If yes, please specify the rule number(s), the specific R.C. section requiring this submission, and a detailed explanation.
Not applicable.

Development of the Regulation

9. **Please list the stakeholders included by the Agency in the development or initial review of the draft regulation.**
If applicable, please include the date and medium by which the stakeholders were initially contacted.

The Board maintains a stakeholder distribution including building department personnel, contractors, designers and professional associations. The stakeholder list is available upon request.

On January 30, 2020, the Board received Petition 20-01 from the Ohio Electrical Coalition requesting the Board update the edition of the National Electrical Code (NFPA 70) referenced in the Ohio Building, Plumbing & Mechanical Codes from the 2017 to the 2020 edition. On March 9, 2020, prior to consideration of the Petition, the Board conducted a stakeholder meeting and education forum on the changes included in the 2020 edition and

their potential impact if adopted. Representatives from the Ohio Electrical Coalition provided an overview of the changes and responded to questions. Further movement on the adoption of the 2020 edition of the NEC was put on hold due to COVID until August 2021 when the Board approved Petition 20-01 with an amendment noted in rules 4101:1-35-01, 4101:2-15-01, and 4101:3-15-01 to NFPA 70 Article 210.8(F) to exempt certain HVAC equipment from GFCI requirements of this article based on information received both from stakeholders and NFPA of the compatibility of GFCIs with certain HVAC equipment. The Board began its initial stakeholder review on proposed draft rules updating the NEC to the 2020 edition and sent an email on September 2, 2021 to stakeholders that comments or questions regarding the proposed rules via email can be submitted by email by September 15, 2021. The Board received a letter of support from the Ohio Manufacturer's Association supporting the adoption of the new edition of the NEC. However, further movement on the adoption of the 2020 edition of the NEC was put on hold due to the continuing effect of COVID on the construction industry and the Board decided to wait for this full code update to also update the electrical code standard. Following these actions, NFPA published the 2023 edition of the NEC and the Board determined to adopt the 2023 edition of the NFPA rather than the 2020 edition retaining the exemption for certain HVAC equipment from GFCI requirements with the support of the Ohio Electrical Coalition. Proposed rule 4101:1-35-01 includes the reference to the 2023 NFPA 70.

As part of the Board's review of the newer edition of the ICC A117.1 for accessibility, the Board contacted the Ohio AIA and Ohio Design Professional and Code Analysts for input on March 18, 2021. Specifically, the Board requested input on the expected cost impact of the 2017 A117.1 requirements would have for new construction vs the 2009 edition currently referenced. Due to concerns regarding cost of applying the new standard on existing buildings, the Board was only looking at adoption of the newer standard for new construction. Ohio AIA organized a task force to study the newer standard's impact and its report is attached as Exhibit B. In sum, the Ohio AIA A117.1 Task Force determined, "In general, many of the changes are simply good clarifications. Where there are cost impacts we regard these as marginal and reasonable."

As part of the Board's initial review of newer editions of the ASHRAE 90.1 and IECC energy standards, the Board sent an email on December 10, 2021 requesting comments or concerns regarding the application or impact of specific requirements in these newer editions of these standards on building design focusing at that time on the 2016 edition of AHRAE 90.1 and 2018 IECC. The Board received comments from Aaron Dearth, Ned Heminger, Nicole Westfall - MEEA, Eric Lacey - RECA, and Jim Schrader.

On March 2, 2023, the Board sent an email to all agency stakeholders informing them of a scheduled stakeholder meeting on March 22, 2023 to hear comments and respond to questions on these rules. The notice summarized the proposed rules and provided other information, background and resources for stakeholder review and also informed stakeholders that if they could not attend the stakeholder meeting, they could submit questions or comments via email: Proposed 2024 Ohio Building, Mechanical & Plumbing Code Rules | Ohio Department of Commerce On March 22, 2023, the Board conducted a stakeholder meeting on the proposed rules at 1:00 PM and the following individuals attended: In-Person:Chris Randles, Summit County, David Molnar, OBOA/Richland County, Charles Huber, City of Lakewood, Ron Bartley, Nicholas Montan, Tuscarawas County, Lisa Reiheld, ICC, Tracie Boyd, SFM, Kim Boulter, Changing Spaces Ohio, Courtney Hines, Delaware Cty Board of DD, Jennifer Corcoran Changing Spaces Ohio, Matthew Helton, Changing Spaces Ohio, Chase Waits, DCBDD, Lane Beougher, OFCC and Kurt Beres, MA Design; Virtual: Christopher Parmelee, Jarrod Clay, Robert Glass, Joseph R. Briscar, Todd Hager, Duane Matlack, Troy Warnock, Jeremy M. Williams, Tim Thompson, Steve Risser and Brady Campbell.

10. What input was provided by the stakeholders, and how did that input affect the draft regulation being proposed by the Agency?

Summaries of written comments received with Board action on the comments and stakeholder meeting discussion in response to the March 2, 2023 proposed code update announcement are attached as Exhibit C. Comments received from initial December 10, 2021 solicitation of comments on energy code standards are attached as Exhibit D: MEEA's and RECA's comments were supportive of adoption of the newer editions. Mr. Shrader's and Mr. Heminger's comments were supportive of adoption of new editions due to their reference of newer standards for data center. Mr. Death's comments were related to cost impact of newer standards on metal buildings. After subsequent conversations with Mr. Dearth, the Board included language in the proposed rules providing some regulatory relief for buildings used in certain industrial processes.

11. What scientific data was used to develop the rule or the measurable outcomes of the rule? How does this data support the regulation being proposed?

The proposed rules are based on the 2021 International Building Code (IBC) promulgated and amended by the International Code Council (ICC). The model codes developed by ICC are updated every three years through a process that incorporates petitioning, public hearings and voting by ICC members. The ICC Committees that oversaw the development of the different provisions 2021 IBC included building and fire code officials, architects, engineers, contractors, and representatives from the National Association of Home Builders, Underwriters Laboratories, and other professional organizations.

When a petition to amend the model code is submitted, the proponent of the change must submit the proposed language of the amendment, the reason for the amendment including

scientific data when applicable, and the cost impact of the amendment. All submitted petitions are then published prior to initial code development hearings on the petitions. Interested persons may review the proposed changes and attend the code development hearing and provide comments. A report then is published on the public hearings for review and then final action is taken on the proposed changes at final action hearings. All successful changes are incorporated into the next edition of the model code.

Upon publication the Board's code committee reviews each substantive change included in the newest edition of the code and determines whether to recommend the change to the Board for adoption. The Board last fully updated the OBC on November 1, 2017.

12. What alternative regulations (or specific provisions within the regulation) did the Agency consider, and why did it determine that these alternatives were not appropriate? If none, why didn't the Agency consider regulatory alternatives? ***Alternative regulations may include performance-based regulations, which define the required outcome, but do not dictate the process the regulated stakeholders must use to comply.***

See question 11.

13. What measures did the Agency take to ensure that this regulation does not duplicate an existing Ohio regulation?

Editorial changes are routinely made to the rules to provide consistency with the Ohio Revised Code and other Board and agencies' rules. Additionally, RC § 3781.10 gives the Board sole authority to adopt rules which regulate the erection, construction, repair, alteration, and maintenance of all buildings or classes of buildings specified RC 3781.06 including residential and non-residential buildings.

14. Please describe the Agency's plan for implementation of the regulation, including any measures to ensure that the regulation is applied consistently and predictably for the regulated community.

For these rules to be enforced by a local government, its building department must be certified by the Board. The Board also certifies the personnel who work within these departments to ensure only qualified personnel are enforcing the Board's rules. Certified personnel must complete continuing education to maintain their certifications and continue to be authorized to enforce these rules. The Board has authority to suspend or revoke certifications for failure to properly enforce the rules. Also, the Board has two staff members dedicated to responding to complaints by persons affected by the Board rules. This program helps promote consistent and predictable application of the Board rules.

Adverse Impact to Business

15. Provide a summary of the estimated cost of compliance with the rule(s). Specifically, please do the following:

a. Identify the scope of the impacted business community, and

- Building owners
- Design Professionals
- Contractors
- Building Department Personnel

b. Quantify and identify the nature of all adverse impact (e.g., fees, fines, employer time for compliance, etc.).
The adverse impact can be quantified in terms of dollars, hours to comply, or other factors; and may be estimated for the entire regulated population or for a representative business. Please include the source for your information/estimated impact.

- Obtaining updated rules as published as the Ohio Building Code
- Becoming familiar with the changes through research and training
- Increased cost of construction due to changes that require different construction methods/materials/products or increased stringency of construction standards.

Due to the variance in allowed building designs, it is difficult to ascertain, in dollars, a cost increase/decrease in the design cost of a building as a result of the proposed code update. However, as discussed in Question 11 above, when a code change proponent submits a petition to ICC to amend the model code an estimated cost impact of the proposal is included. Of the significant changes, the following sections included in the proposed rules were noted by the proponent as having a cost increase in construction:

403.3 Automatic sprinkler system – removes exception for open parking garages

403.3.2 Water supply to required fire pumps - adds building types that require two water supplies for fire pumps

503.1.4 Occupied roofs - EM notification system is required on roof if the system is already in the building at any location

704.6.1 Secondary attachments to structural members - New Modification to ensure continuity of fire resistance protection where secondary steel attaches to other primary/secondary steel

707.4 Exterior walls - Modification of existing provisions adds exterior wall requirements for exit passageways

903.2.4.2 Group F-1 distilled spirits - new section requiring sprinklers where distilled spirits are manufactured

903.2.9.3 Group S-1 Distilled spirits or wine - new section requiring sprinklers for the storage of distilled spirits or wine

903.2.10 Group S-2 parking garages - adds a new sprinkler condition for open parking garages and clarifies that conditions 1 and 2 apply to enclosed parking garages

903.2.10.2 Mechanical-access enclosed parking garages - adds a new section requiring sprinklers

903.2.11.3 Buildings 55 feet or more in height - deletes exception #1 dealing with open parking structures

903.3.1.2 NFPA 13R sprinkler systems - reformatted the section to break out the conditions that a Group R can be considered sprinklered throughout in accordance with NFPA 13 R and clarifies how to measure the number of stories

903.3.1.2.2 Corridors and balconies in the means of egress - increase for protection of balconies and additional sprinklers in corridors

907.2.10 Group S - new section for fire alarm systems in group S and renumber remaining sections

907.5 Occupant notification - reorganizes and expands occupant notification by smoke alarm

911 FIRE COMMAND CENTER - adds a new condition for requiring a fire command center

1008.2.1 Illumination level under normal power - Modification to increase the minimum illumination levels of exit and exit access stairways from 1 fc to 10 fc

1009.6.3 Size - modification to increase the size would increase usability for scooter users and would coordinate with the new sizes in ICC A117.1-2017

1015.7 Roof access - Modification would require guards past the 30 inch limit and provides clear guidance on how the guard at the hatch should be measured. The guard needs to be extended beyond the ends of the hatch that is parallel to the roof edge in order to eliminate the tripping hazard that is common when using the hatch

1031.5.3 Drainage - Modifications for new provisions 1031.5-1031.5.2 to clarify and expand requirements for emergency escape and rescue openings (EERO's) and coordinates the IRC and IBC for 'area wells' at emergency escape and rescue openings

1104.4 Multistory buildings and facilities - Meant to distinguish between efficiency apartments and dwelling units in smaller buildings

1107.3 Fuel-dispensing systems - New scoping language for accessible electric vehicle charging stations in 2017 ANSI A117.1, renumbering following sections

1108.5.1.1 Accessible units in Group I-1, Condition 1 - requires the units to be dispersed. E123 distinguishes between I-1 Cond 1 and I-1 Cond 2. 4% for Cond 1 and 10% for Cond 2

1108.5.1.2 Accessible units in Group I-1, Condition 2 - expand on 1108.5.1.1 and use for Cond 2. E123 distinguishes between I-1 Cond 1 and I-1 Cond 2. 4% for Cond 1 and 10% for Cond 2

1108.5.2.1 Accessible units- of each type dwelling unit, >50% are Accessible units and of those <90% WC =1110.2.2 and <90% Roll-in showers = 1110.2.3 otherwise all comply with ICC A117.1

1108.5.4 Group I-2 rehabilitation facilities - Add option for quantity for water closets and roll-in type showers. 100% of dwelling units are Accessible units. <50% WC = 1110.2.2 and <50% Roll-in showers = 1110.2.3 otherwise all comply with ICC A117.1

1110.2.2.6 Dispensers - Adds requirements for assisted toileting otherwise all comply with ICC A117.1

1110.2.3.9 Water temperature - Adds requirements for assisted bathing otherwise all comply with ICC A117.1

SECTION 1206 SOUND TRANSMISSION - Deleted a list of examples of “adjacent public areas.” Removal clarifies and effectively broadens where sound abatement can be enforced

1504.9 Wind resistance of aggregate-surfaced roofs - New section 1504.9 for use of aggregate on buildings where wind can be a risk. More appropriate requirements using current wind speeds, testing that allows differences in parapet, aggregate size, building height, etc and confirmed through field study

1604.5.1 Multiple occupancies - Applies when occupancy >300 for each assembly space and the aggregate occupancy in assembly spaces >2500. S45 Added I-4 to Category III. Correcting an oversight in 2015 IBC changes. Group I-4 should be at least on par with Group E under Table 1604.5

1607.11.4 Fall arrest, lifeline, and rope descent system anchorages - Added component and updates to reflect new OSHA requirements. OSHA updates are rare – this was last updated in 1971

1607.17 Fixed ladders - Added new requirements

1610.2 Uplift loads on floor and foundations - Added section 1610.2. Coordinates with ASCE 7

1705.13.7 Storage racks - Special inspection requirements for steel storage racks in certain cases where verification is made of minimum material thickness, yield strength, and correct anchorage during installation

1705.18 Fire-resistant penetrations and joints - Special inspection requirements for firestops, fire-resistant joints, and perimeter fire barrier systems added for Group R fire areas having an occupant load exceeding 250 people, such as hotels.

1709.5.2.1 Garage doors and rolling doors - added language for labeling to address wind load resistance

1709.5.3.1 Impact protective systems testing and labeling - Additional language to address the applicable Design standard for windborne debris testing of impact protective systems.

1809.5.1 Frost protection at required exits - New section regarding frost protection for egress doors added to foundation requirements

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired - eliminates the 24/7 operational requirement and modifies the text to be more performance based and inclusive; increases cost by less than $250 which represents the cost of a keyboard component and several visual indicators

3313 WATER SUPPLY FOR FIRE PROTECTION – Timing and availability of the required water supply for buildings under construction has been expanded

Additionally, Chapters 13 & 35 updates the reference edition of energy code standards from the 2012 edition of the International Energy Conservation Code (IECC) to the 2021 edition and from the 2010 edition of ASHRAE 90.1 to the 2019 edition. The US Department of Energy (DOE) has evaluated the cost/savings associated with updating ASHRAE 90.1 standard from the 2010 to 2019 edition (including interim 2013 and 2016 editions) and the IECC from the 2012 to 2021 edition (including interim 2015 and 2018 editions) based on representative building prototypes.

The DOE studies and other materials can be found at the following links in their entirety:

2019 ASHRAE 90.1
PNNL Cost Effectiveness of ASHRAE 90.1-19 for the State of Ohio

2021 IECC Commercial
PNNL Energy and Energy Cost Savings Analysis of the 2021 IECC for Commercial Buildings

2016 ASHRAE 90.1
PNNL Cost Effectiveness of ASHRAE 90.1-16 for the State of Ohio (pdf)

2018 IECC Commercial

PNNL Energy and Energy Cost Savings Analysis of the 2018 IECC for Commercial Buildings (pdf)

2013 ASHRAE 90.1
PNNL Cost-effectiveness of ASHRAE 90.1-13 for the State of Ohio

2015 IECC Commercial
PNNL Energy and Energy Cost Savings Analysis of the 2015 IECC for Commercial Buildings

While Chapter 34 incorporates the International Existing Buildings Code (IEBC) by reference for the first time in Ohio, it retains to current Ohio compliance paths. Adoption of the IEBC provides more compliance paths in addition to the retention of the current Ohio compliance paths with some modifications which include changes that may increase cost if performing work on 50% or more of the aggregate work area in a building affecting structural requirements, smoke compartments, egress and accessibility.

Ohio-specific provisions eliminated in preference for model code provisions:

- Retained lower threshold in model code for upholstered furniture in mercantile occupancies
- Retained model code requirements for luminescent markings in high rises
- Retained model code requirements for fire extinguishers in warehouses
- Retained model code requirements for sprinklers in E occupancies
- Retained model code requirements for fixtures in B occupancies

New requirements for adult changing tables in certain occupancies under certain conditions.

Updating the reference to the 2023 edition of the NEC.

16. Are there any proposed changes to the rules that will <u>reduce</u> a regulatory burden imposed on the business community? Please identify. *(Reductions in regulatory burden may include streamlining reporting processes, simplifying rules to improve readability, eliminating requirements, reducing compliance time or fees, or other related factors).*

The proposed rules now incorporate unchanged model code by reference rather than duplicating the language in the administrative code reducing total number of words codified by approximately 90% from the Ohio Building Code. Additionally, the proposed rules eliminates about 10,000 regulatory restrictions from the current Ohio Building Code as defined by RC 121.95.

Due to the variance in allowed building designs, it is difficult to ascertain, in dollars, a cost increase/decrease in the design cost of a building as a result of the proposed code update. However, as discussed in Question 11 above, when a code change proponent submits a petition to ICC to amend the model code an estimated cost impact of the proposal is included. Of the significant changes, the following sections included in the proposed rules were noted by the proponent as having a cost *decrease* in construction:

404.5 Smoke control - adds a new atrium smoke control system exception

404.6 Enclosure of atriums - adds two new exceptions to the atrium enclosure requirement

404.10 Exit stairways in an atrium - new section that adds conditions to the atrium stairway section

407.4.4.3 Access to corridor - removed exceptions and added first and last sentence (modified and relocated from Section 407.4.4.1) to allow additional design flexibility and to be consistent with CMS federal standard. As long as 100 ft travel is met, can pass through any number of rooms

414.2.3 Number - adds the last sentence which clarifies that fire walls create separate buildings for the purpose of control areas

420.9 Domestic cooking appliances - new section (renumbers remaining sections), relocated some exceptions from section 420.8, and adds two new exceptions

TABLE 504.4 - Addition of height limits above grade plane for construction types IV-A, IV-B, IV-C to address mass timber construction provisions and increases allowable in groups S-1 (sprinklered bldgs) in type II-B and III-B construction

TABLE 506.2 - revised for the addition of height limits above grade plane for new construction types IV-A, IV-B, IV-C to address mass timber construction provisions and increases allowable in group I-3 occupancies of type II-A construction

TABLE 509.1 - relocate the 'stationary storage battery systems' as incidental uses and corresponding fire separations previously found in this Table to be more comprehensively regulated by section 1207 of the IFC

510.2 Horizontal building separation allowance - Modification and added editorial language to provide clarification to requirements for combustible construction above podium buildings that expand the Exception language when conditions listed as follows are met

713.12.1 Penthouse mechanical rooms - New language to recognize not every roof penetration requires fire protection of the roof

903.2.9.4 Group S-1 upholstered furniture and mattresses - new sprinkler exception added for self-storage facilities used for the storage of upholstered furniture and mattresses

909.20 Smokeproof enclosures - added phrases to provide additional design options and coordinate with other code requirements

909.20.7 Ventilating equipment - adds a reference to new section 909.20.6 for the pressurization options

1006.2.1 Egress based on occupant load and common path of egress travel distance - Modification to clarify that the common path of travel distance limitation for unoccupied mechanical rooms and penthouses are eliminated

1006.3.3 Egress based on occupant load - Egress requirements have been clarified for occupied roofs. 1006.3.1 Occupant Load has been created to include relocated sentence 2 from charging paragraph.

1006.3.4 Single exits - Modification for single-exit stories, travel distance limits are based on single access travel in lieu of common path of egress travel. Egress requirements have been clarified for occupied roofs

1009.6.2 Stairway or elevator access - New exception to allow for an interior area of refuge in a single story building or on the level of exit discharge in a multi-story building, rather than require an exterior area of refuge in either situation

TABLE 1404.3.11404.3(4) - New Table. Coordinating the requirements of insulation and class II vapor retarders to keep the interior of the wall sufficiently warm to control risk of moisture accumulation

1404.3.2 Hybrid insulation for moisture control with Class III vapor retarders. - New Sections. Correlates IBC and IECC. Clarifies appropriate moisture control for required R-value using cavity, continuous or a combination of insulation strategies

2902.1.1 Fixture calculations - adds exceptions 2 and 3 which provide design flexibility by allowing multi-user all-inclusive facilities and allowing single user toilet and bathing rooms fixtures to count toward the total number of required fixtures (not adopted in Ohio for use in E occupancies)

2902.1.2 Single-user toilet and bathing room fixtures - allows single user toilets and bathing room fixtures to count toward the required number of total fixtures

2902.2 Separate facilities - adds exceptions 5 and 6 which provide design flexibility by allowing multi-user all-inclusive facilities and allowing single user toilet and bathing room fixtures to count toward the total number of required fixtures (not adopted in Ohio for use in E occupancies)

2902.3.3 Location of toilet facilities in occupancies other than malls - new exception intended to address self-storage Group S occupancies

3007.1 General - added exception #2 to align with Section 403.6.1

Ohio-specific provisions:

- Several additional exemptions from the code have been added, including: solar arrays, shipping containers used temporarily and only for storage, underground storage tanks regulated by the State Fire Marshal, industrialized unit (IU) exempt from regulation in accordance with new IU rule found in 4101:10 (proposed new rule in subsequent rule package), fences not over seven feet in height from approval, certain crypts, mausoleums, and columbaria from approval, certain buildings when an emergency declaration is issued by the governor or the federal government
- Expands use of annual approvals to include structural work under certain conditions
- Allows certain townhomes to comply with construction requirements of the Residential Code of Ohio

17. Why did the Agency determine that the regulatory intent justifies the adverse impact to the regulated business community?

The majority of the provisions noted above as having an increased cost impact enhance life safety and/or accessibility provisions of the code. Additionally, other changes included in the rule package will decrease cost of construction, offer regulatory alternatives, and recognize new technologies and materials.

Updated energy standards with increased cost of construction – While there is cost increase in the first cost of construction associated with these standards update as discussed above, DOE also estimates cost savings over time due to lower energy costs. More detailed cost/benefit discussion can be found in the DOE studies listed above. Additionally, the Board is directed in RC 3781.10 to adopt standards that relate to the conservation of energy. Finally, the proposed adoption of the energy standards fulfills the commitment by the Board to review the 2019 ASHRAE 90.1 and 2021 IECC. See Question 4 above.

The Board received significant input for support of the adoption of the adult changing requirements from families within Ohio and visitors to Ohio explaining the need for the facilities for their families to be able to be more in active and included in their communities, travel more easily throughout the State, and participate in events.

Regulatory Flexibility

18. Does the regulation provide any exemptions or alternative means of compliance for small businesses? Please explain.

The rules do not have special exemptions or alternative means of compliance specifically for small business. The OBC requires a building official to issue an adjudication order to an owner when the design or construction of a building does not comply with the OBC. The adjudication order must comply with Revised Code Chapter 119 and give the owner an opportunity to appeal. This mechanism is often utilized by an owner voluntarily to obtain a

variance from the requirements. Variance requests are heard by either the Ohio Board of Building Appeals or a certified local board of building appeals.

Also, the OBC permits alternative engineered designs prepared by a registered design professional to not strictly comply with the prescriptive requirements of the rules. To obtain approvals based on alternative engineered designs, the design professional must submit sufficient technical information to demonstrate that the performance meets the intent of the rules.

19. How will the agency apply Ohio Revised Code section 119.14 (waiver of fines and penalties for paperwork violations and first-time offenders) into implementation of the regulation?

Revised Code § 3781.102 does not authorize the Board to set the fees and/or penalties assessed by local certified building departments in connection with the enforcement of these rules. Compliance with the rules is accomplished through construction conforming to the certificate of plan approval (permit). Therefore, there are no potential paperwork violations of these rules.

20. What resources are available to assist small businesses with compliance of the regulation?

As these proposed rules updates the Ohio Building Code to a new model code edition, the Board offers training and resources to building department personnel to prepare them to enforce the new codes. These resources are paid for by assessment fees collected by certified building departments pursuant to RC 3781.102 on behalf of the Board to be used exclusively for (1) the operating costs of the Board, (2) providing services, including educational programs, for building departments certified by the Board, and (3) paying the expenses of the Residential Construction Advisory Committee.

Additionally, the Board's technical staff spends approximately 25% of their time responding to questions on the building codes and educating design professionals, contractors, the public, and code officials of the intent of the Board's rules assisting all parties in compliance.

Exhibit A

Ohio Building Code Summary of Significant Changes – 2017 to 2024 April 2023

Ohio Administrative Code Rule Number	2024 OBC Section	Source of Change (2018 IBC, 2021 IBC, or BBS)	Description of Change
4101:1-1-01	101.1	BBS	Rewritten
	101.1.1	BBS	New rules of construction section to outline how codes are adopted and to make general phrase substitutions. The International Fire Code references are being retained, unless otherwise noted
	101.2 #7	BBS	Updated reference from Ohio Manufactured Home Commission to the Division of Industrial Compliance
	101.2 #10	BBS	Updates R.C. reference to Chapter 993
	101.2 #12	BBS & Petition #18-03	Clarifies intent
	101.2 #16	BBS	New exception addressing floating buildings
	101.2 #17	BBS	Renumbered from previous #16
	101.2 #18	BBS	Renumbered from previous #17, added solar arrays, and moved site lighting and flagpoles to #19
	101.2 #19	BBS	Renumbered from previous #17
	101.2 #20-#26	BBS	Renumbered from previous #18-#23
	101.2 #27	BBS	New exception for shipping containers used temporarily and only for storage
	101.2 #28	BBS	New exception for underground storage tanks regulated by the State Fire Marshal
	101.2 #29	BBS	New exception for mobile computing units defined in R.C. 3781.06
	101.2 #30	BBS	New exception for any industrialized unit (IU) exempt from regulation in accordance with new IU rule found in 4101:7
	101.4.1	BBS	New section that clarifies that gas piping is part of the code and is to be enforced by certified departments
	102.1	BBS	Changes title to better reflect content
	102.7	BBS	References the IEBC as modified in Chapter 34
	102.10 Building #2	BBS	Exempts fences not over seven feet in height from approval
	102.10 Building #12	BBS	Exempts some crypts, mausoleums, and columbaria from approval
	102.10 Building #13-17	BBS	Exempts some signs from approval
	102.10 Building #18	BBS	Provides an exemption from approval for some buildings when an emergency declaration is issued by the governor or the federal government
	102.10 Gas #5	BBS	Exempts from approval specific replacement LP tanks
	102.10 Gas #8	BBS	New exemption from approval for certain self-contained refrigeration systems
	102.11 #5	BBS	Clarifies that building departments do not enforce elevator rules. Relocated elevator enforcement paragraph from Section 3001.6
	104	BBS	Relocates duties and responsibilities of building department personnel to certification rules found in division 4101:7 of the Administrative Code
	105	BBS	Reorganizes section and deletes “Nonconformance approval”
	105.1.1	BBS	Relocates and expands use of “Annual approval”

	105.3	BBS	Relocates "Conditional Approval" from Section 105.1.2
	105.4	BBS	Relocates "Phased Approval" from Section 105.1.4
	*105.4.1	BBS	Relocates "Incomplete Fire Protection System Drawings" (in part) from Section 106.1.1.1 (*moved to 105.4.1 from 105.3.1)
	105.5	BBS	Relocates "Validity of Approval" from Section 105.2
	105.6	BBS	Relocates "Expiration" from Section 105.3
	105.7	BBS	Relocates "Extension" from Section 105.4
	105.8	BBS	Relocates "Certificate of Plan Approval" from Section 105.5
	105.9	BBS	New section that clarifies which codes apply for a given project
	106.1.1 #15	BBS	Clarifies that information is required to be submitted for fuel gas piping and equipment
	106.1.2	BBS	Reorganizes and renumbers the section
	106.1.2.2	BBS	Relocates swimming pool coordination requirements from Section 3109
	106.1.2.7	BBS	Relocates reference to Revised Code 3781.02 for use of adjacent property
	107.3	BBS	Allows the department to create a written policy for creating an alternate schedule for plan review
	107.4.5	BBS	"Participation by fire official" plan review process relocated from Sections 106.1.2 #5 and 901.2.1.1
	108.2.6	BBS	Adds required inspections for new Type IV construction
	108.2.7-108.2.14	BBS	Renumbered Sections 108.2.6-108.2.13 after adding 108.2.6
	108.2.13.1	BBS	"Fire protection system final inspections" language relocated from Section 901.2.1.2
	109.4	BBS	Clarifies process for addressing unsafe buildings and serious hazards
	110	BBS	Reorganizes "Appeals" section
	111	BBS	Combines "Certificate of Completion" with "Certificate of Occupancy"
	111.5	BBS	Deletes section addressing "Connection of service utilities"
	111.6	BBS	Deletes section addressing "Temporary connection"
	*113	BBS	*Relocates "Industrialized Units" requirements to new IU rule(s) to be found in division 4101:10 of the Administrative Code
	115	BBS	Removed
4101:1-2-01	Ch 2	2018	Removes all definition lists found at the beginning of each chapter and italicizes defined terms throughout the code
	Atrium	2021	Clarifies definition
	Building	BBS	Revised definition
	Building-Integrated Photovoltaic Roof Panel (BIPV Roof Panel)	2018	New definition
	Common path of travel	2018	Clarifies definition
	Delayed-Action Closer	2018	New definition
	Existing Building	BBS	Revised definition
	Gaming	2018	New definition
	Gaming Area	2018	New definition
	Gaming Machine Type	2018	New definition
	Gaming Table Type	2018	New definition
	Greenhouse	2018	New definition

	Higher Education Laboratory	2018	New definition
	Impact Protective System	2021	New definition
	Mass Timber	2021	New definition
	Intermodal Shipping Containers	2021	New definition
	Mechanical Access Enclosed Parking Garage	2021	New definition
	Noncombustible Protection (for Mass Timber)	2021	New definition
	Nailable Substrate	2021	New definition
	Open-air Assembly Seating	2018	New definition
	Penthouse	2021	Clarifies that enclosed stairways extending to the roof are penthouses
	Puzzle Room	2021	New definition intending to address “escape rooms” as special amusement areas
	Primary Structural Frame	2021	Clarification and updating of definition
	Registered Design Professional	BBS	Clarifies that landscape architects are also registered design professionals
	Repair Garage	2018	New definition (from IFC)
	Secondary Structural Frame	2021	Clarification and updating of definition
	Sleeping Unit	2018	Clarifies definition
	Smoke-Protected Assembly Seating	2018	Clarifies definition
	Special Event Structure	2021	New definition
	Terminated stops	2021	New definition
	Tsunami Design Geodatabase	2018	New definition
	Tsunami Design Zone	2018	New definition
4101:1-3-01	302.1	2018	Modifies the description of occupancy classification and adds mention of occupied roofs to the paragraph
	303.4	2018	Adds certain “Greenhouses” to the list of Group A-3 examples
	306.2	2021	Adds dedicated Energy storage systems and water/sewer treatment facilities to the list of Group F-1 examples
	*T307.1(1)	BBS	*Adds two footnotes to the table for consumer fireworks and fountain devices
	307.1.1	2021	Clarifies that distilleries and breweries and storage of beer, spirits, and wines in barrels and casks are not Group H
	309.1	2018	Adds certain “Greenhouses” to the list of Group M examples
	310.4	2018	Clarifies that lodging houses with 5 or fewer guest room and 10 or fewer occupants are classified as Group R-3
	310.4.5.1	BBS	Maintains optional compliance path for certain multi-family Group R-3 occupancy buildings
	310.4.5.2	BBS	Adds a new optional compliance path for certain multi-family Group R-3 occupancy buildings (townhouse structures)
	311.1.1	2018	Accessory storage spaces are part of the main occupancy, not considered mixed occupancy, regardless of size, provided that the storage is not a significantly higher hazard than the main occupancy
	311.2	2018	Adds “Self-service storage facilities (mini storage)” to the list of Group S-1 examples
	311.2	2021	Adds alcoholic beverages >16% to the list of Group S-1 examples

	311.3	2021	Adds alcoholic beverage ≤16% to the list of Group S-2 examples
	312.1	2018	Adds communication equipment structures with floor area less than 1500 ft^2 to the list of Group U examples
	312.1.1	2018	Adds a new section clarifying that Greenhouses not classified in another occupancy are Group U
4101:1-4-01	403.2.1.1	2018	Reductions in the Table 601 fire-resistance rating of certain Groups H-2, H-3 and H-5 buildings are no longer permitted
	403.3.2	2021	Extension of two fire pump water mains to Type IVA and IVB buildings over 120 ft
	403.5.5	BBS	Retains model code language for luminous egress path markings, but makes them optional
	404	2021	Restructures "Atrium" section and moves egress requirements to Ch 10
	404.5	BBS	Retains model code language
	404.5	2021	Adds an exception for atrium smoke control for buildings greater than 2 stories meeting certain criteria
	404.6	2018	Adds an exception for atrium separation when the atrium is not required to have a smoke control system
	404.6	2021	Adds 2 exceptions for atrium horizontal separation
	406	2018	Reorganizes and clarifies the requirements for motor vehicle-related occupancies
	406.2.4	2021	Deleted an exception, resulting in sloped floors for Group S-2 parking garages
	406.3	2021	Requires sprinklers for open parking garages exceeding 48,000 sq ft
	407.3.1.1	2021	Corridor door construction in Group I-2
	407.4.4.1	2021	Group I-2 care suite exit access requirements have been changed to reflect CMS requirements
	407.4.4.3	2021	Group I-2 care suite exit access requirements have been changed to reflect CMS requirements
	407.5	2018	Clarifies smoke compartment requirements for Group I-2 occupancies
	407.5.4	2018	Clarifies exit requirements from smoke compartments
	407.6.1	2021	Requires Group I-2 automatically held open doors to close upon sprinkler or fire alarm activation
	411.5	2021 & BBS	New model code language addressing puzzle room exit requirements has been deleted by BBS
	414.2.3	2021	New language that allows fire walls to create separate buildings when determining number of control areas in a building
	415.10.5	BBS	References the Ohio Fire Code for licensed fireworks facilities
	419	2021	Live/work requirements relocated to Section 508
	420.7	2018	Allows certain spaces to be open to fire-resistance-rated corridors in assisted living facilities
	420.8	2018	Allows certain cooking facilities to be open to corridors in certain Group I-1 facilities
	420.10	2018	Allows and addresses cooking facilities within Group R-2 dormitories
	422.6	2018	Addresses ambulatory care facility electrical systems and references NFPA 99 in addition to Chapter 27
	422.7	2021	Clarifies type of cooking appliances permitted in ambulatory care facilities

	423.4	BBS	Adds clarifying storm shelter language for critical emergency operations facilities
	423.4.1	BBS	Addresses occupant capacity for storm shelters for critical emergency operations facilities
	423.5	BBS	Deletes storm shelter requirements for Group E occupancies
	424	2018 & 2021	New language addressing inside play structures
	427	2018	New language from the IFC addressing medical gas systems
	428	2018	New language addressing higher education laboratories
4101:1-5-01	502.1	BBS	Retaining model code language
	503.1	2018	Clarifies that fire walls define separate buildings only for the purposes of determining types of construction and height and area
	503.1.4	2018 & 2021	Clarifies how to address H & A when an occupied roof is included and requires extension of emergency voice/alarm communication system, if required on floors below, to occupied roof
	T504.3	2021	Adds 3 new construction types for Mass Timber to Allowable Height (in Feet) Table
	T504.4	2021	Adds 3 new construction types for Mass Timber to Allowable Height (in Stories) Table and increases height for Group S-1 of Types IIB and IIIB construction and Group S-2 of Type IV construction
	505.2.1.1	2018	Clarifies the allowable area of mezzanines and equipment platforms
	T506.2 footnote i	2018	Increases allowable area for single-story, non-sprinklered Group U greenhouses
	T506.2	2021	Adds 3 new construction types for Mass Timber to Allowable Area Table and increases area for Group I-3 of Type IIA construction
	506.3.1	BBS	Retaining model code language. Ohio text referencing R.C. 3781.02 was moved to OBC Section 106.1.2.7
	506.3.2	2021	Replaced calculations for frontage increase by providing a new table
	506.3.3.1	2021	Replaced unlimited area building calculation for frontage increase by providing a new table
	507.4	2018	Clarifies that sprinklers are not required in certain Group A-4 indoor sports areas provided that sprinklers are installed in certain other ancillary areas
	507.14	BBS	Retaining model code language. Ohio text referencing R.C. 3781.02 was moved to OBC Section 106.1.2.7
	508.3.1.2	2018	Adds requirements for non-separated mixed occupancy buildings having a Group I-2, condition 2 occupancy
	508.4.1	2018	Clarifies that separated mixed occupancy separation requirements are different than fire area separations used for sprinkler system thresholds
	508.4.4	2021	Clarified fire-resistance-rated separation table for separated occupancies
	508.4.4.1	2021	Adds new language to address Mass Timber occupancy separations
	T509.1	2018	Adds reference to NFPA 70 for separation of electrical installations and transformers
	T509.1	2018 & 2021	Removed Stationary Storage battery system requirements from Table 509.1 and are now regulated through IFC 1027

	509.4.1.1	2021	Adds new language to address Mass Timber incidental use separations
	510.2	2018	Allows vertical offsets in podium building horizontal separation assemblies provided that the vertical offset and the supporting structure of the offset have at least a 3 hour fire-resistance-rating
	510.2	2021	Addresses interior exit stairway requirements for podium buildings
4101:1-6-01	T601 note b	2018	Modifies note to state that fire resistance rating of roof structural members is not required provided the members are greater than 20 above the floor below
	T601	2021	Adds new language to address Mass Timber construction and clarifies footnote c
	602.3	2018	Clarifies that fire-retardant-treated wood sheathing and framing is permitted in certain exterior walls of Type III and IV buildings
	602.4 and 602.4.1-602.4.3	2021	Completely changes Type IV construction paragraph and adds new language to address Mass Timber
	602.4.4	2021	Changes old “heavy timber” type of construction to Type IV-HT and differentiates it from new Mass Timber by adding clarifying subsections
	603.1	2021	No longer allows fire-retardant-treated wood in shaft enclosures of Group I-2 and ambulatory care facilities and requires covering of FRTW roof construction in Group I-2 to be consistent with CMS requirements
4101:1-7-01	703.6	2021	New language addressing “noncombustible protection time contribution” for mass timber construction
	703.7	2021	New language addressing sealing of edges and intersections of elements in mass timber construction
	704.2	2018	Clarifies that columns of light-frame construction that are entirely located between the top and bottom plates are not required to be individually encased
	704.6.1	2021	New language addressing fire protection of secondary attachments to structural members
	705.2	2018	Reduces the required distance from edge of projection to lot line based upon fire separation distance
	705.2.3	2018	Relocates combustible projection requirements from Section 1406
	705.2.3.1	2018	Clarifies that certain plastic composites used for pickets, rails, and guards are permitted in some situations
	705.5	BBS	Retaining model code language. Ohio text referencing R.C. 3781.02 was moved to OBC Section 106.1.2.7
	T705.5 note i	2018	Adds a note that allows non-rated exterior walls of certain R-3 occupancies having a fire separation distance greater than 5 ft
	T705.5	2021	Exterior wall rating table was relocated from Section 602 and modified to address Mass Timber construction types
	705.8.1	2018	Clarifies that each story is considered when determining the allowable area of openings
	706.1	2018	Clarifies that fire walls define separate buildings only for the purposes of determining types of construction and height and area
	706.1.1	2018	Allows certain party walls to not have to be constructed as fire walls under certain conditions

	*706.1.2	BBS	*Retains model code language for double fire walls
	706.2	2018	Provides an exception that allows floor and roof sheathing to extend through the double wall assembly in some situations
	*706.2	BBS	*Retains model code language for double fire walls
	*706.4	BBS	*Retains model code language for double fire walls
	*706.8.1	BBS	*Retains model code language for double fire walls
	707.4	2021	Addresses separation of dedicated rooms used for energy storage systems
	707.5	2021	New exception that allows the fire barrier to create a ceiling of an exit passageway enclosure and not have to extend to the roof deck above
	708.1	2021	Adds additional assemblies that are required to be fire partitions
	708.4	2018	Reformats the requirements for fire partition continuity for clarification
	708.4.1	2021	Clarifies that certain fire partitions do not have to be supported by rated assemblies
	708.4.2	2018	Consolidates fireblocking and draftstopping requirements applicable to combustible construction
	709.4.1	2021	Modified smoke barrier text to recognize horizontal assemblies
	710.5.2.1	2021	Adds an exception to louvers in smoke partition doors
	710.5.3	2021	Addresses pass-through openings is Group I-2, Condition 2 smoke partitions
	713.8.1	2018	Allows membrane penetrations of the outside of a shaft enclosure
	713.12	2021	Clarifies language addressing the top of a shaft enclosure
	713.12.1	2021	Clarifies damper requirements for penthouse mechanical rooms
	715	2021	Clarified language addressing joints and voids of fire-resistance rated assemblies
	T716.1(2)	2021	New language in table to address back-to-back doors in a single opening.
	716.2.2.1.1	2021	Terminated stops are not permitted on elevator lobby doors
	716.2.5.4.1	2021	Addresses separation of dedicated rooms used for energy storage systems
	716.2.6.5	2018	Delayed-action closers are permitted for use on self-closing doors
	716.3.2.1.1.1	2021	Addresses separation of dedicated rooms used for energy storage systems
	716.4	2021	New language to address fabric fire-protective curtain assemblies
	717.2.3	2021	New language allowing static ceiling radiation dampers in certain conditions
	717.4	2021	New language recognizing remote inspection option for dampers

	717.6.2	2021	New language allowing static ceiling radiation dampers in certain conditions
	722.7	2021	New language addressing fire resistance of Mass Timber
4101:1-8-01	803	2018	Clarifies the testing requirements for interior wall and ceiling finishes
	806.9	2021	New language regulating combustible lockers as interior finish
4101:1-9-01	901.2	BBS	Retained model code. Relocated fire protection system plan review, inspection, acceptance testing coordination requirements to OBC Ch 1, Section 107.4.5 & 108.2.13.1
	901.6.2	2018	Adds a new requirement for verification testing of integrated fire protection systems in accordance with NFPA 4
	902	2018	Prescribes access, signage, temperature, and lighting requirements for fire pump and sprinkler riser rooms
	903.2.1	2018	Clarifies the extent of sprinkler protection for multi-story and mixed occupancy buildings having Group A occupancies
	903.2.1.5.1	2018	Requires sprinklers in some enclosed spaces under grandstands or bleachers
	903.2.3	BBS	Retains the model code sprinkler area threshold for Group E
	903.2.3	2018	Adds an occupant load sprinkler threshold for Group E
	903.2.4.2	2021	Requires sprinklers for Group F-1 fire areas used for manufacturing of distilled spirits
	903.2.4.3	2021 and BBS	Clarifies and retains model code language for upholstered furniture/mattress manufacturing
	903.2.7.2	2021 and BBS	Clarifies and retains model code language for upholstered furniture/mattress display and sales
	903.2.9.3	2021	Requires sprinklers for Group S-1 fire areas used for bulk storage of distilled spirits or wine
	903.2.9.4	2021 and BBS	Clarifies and retains model code language for upholstered furniture/mattress storage. Adds a sprinkler exception for one-story self-service storage unit buildings when all units have direct access to the exterior
	903.2.10 #3	2021	Requires sprinklers for open parking garages exceeding 48000 sq ft
	903.2.10 #3	BBS	Adds a sprinkler exception for open parking garages that are used exclusively for the parking of private motor vehicles, are not part of a mixed occupancy building, and are separated from other buildings by a fire separation distance of 30 feet.
	903.2.10.2	2021	Requires sprinklers for mechanical-access enclosed parking garages
	903.3.1.1.2	2018	Deletes the sprinkler requirement for < 55 ft^2 bathrooms in Group R-4
	903.3.1.2	2021	Modifies the applicability of the NFPA 13R standard
	903.3.1.2.1	2018	Requires sprinkler protection of exterior balconies, decks and patios with roofs of unprotected combustible construction
	903.3.1.2.2	2021	Additional sprinkler location requirements added to sprinkler systems designed to the NFPA 13R standard
	903.3.1.2.3	2018	Requires attic sprinkler protection of certain mid-rise multi-family residential buildings
	*903.4	BBS	*Allows backflow preventer water supply valves to be locked in the open position, rather than electrically supervised and monitored
	904.11	2018	New reference to NFPA 750 for water mist systems

	904.12	2018	Relocates language addressing aerosol fire-extinguishing systems from Section 904.14
	904.13	2018	Kitchen hood suppression systems must now also comply with NFPA 96
	904.13	2018	Kitchen hood suppression system now required for domestic cooking appliances installed in some Group I-1 and Group R-2 dorms
	905.3.1	2018	Requires Class III standpipes when a building is 4 or more stories above grade plane and allows Groups B and E to install Class I instead of Class III. Also provides an exception that allows Class I when the occupants are not trained to use hose lines.
	905.3.1	2021	Modifies parking garage standpipe requirements
	905.3.1	BBS	Retains 2017 OBC standpipe exceptions for open parking garages
	905.4	2018	Standpipe hose connections are now required at the main stair landing, not intermediate. An exception was added to allow a hose connection in an open corridor or breezeway between open stairs
	907.2.1	2018	Adds an additional trigger for a Group A manual fire alarm system when the occupant load is more than 100 above or below the level of exit discharge
	907.2.10	2018	Manual fire alarm and smoke detection systems are no longer required in Group R-4
	907.2.10	2021	Manual fire alarm required in certain Group S public/self-storage occupancies
	907.2.11	BBS	References the RCO Section 314.1.2 which requires both ionization and photoelectric and ionization smoke alarm technologies on each story
	907.5.2.1.3	2021	Adds requirements for low-frequency alarm signal in Group R-1 and R-2 (already required in NFPA 72)
	909.20	2021	Adds a new smokeproof enclosure design option
	911	2021	Adds requirement for fire command center for Group F-1 and S-1 occupancies greater than 500,000 sq ft
4101:1-10-01	T1004.5	2018	Adds a concentrated business use area to the occupant load factor table
	1004.8	2018	Adds language describing the concentrated business use area (higher density than typical office) occupant load calculation method
	1006.2.1	2018	Clarifies the occupant load consideration for common path of egress travel distance
	T1006.2.1	2018	Clarifies single-exit and travel distance requirements for Group R-2 and R-3
	1006.2.1	2021	Removes common path of travel limitations from unoccupied mechanical rooms and penthouses
	1006.3	2018	Clarifies egress requirements for occupant traveling from adjacent stories or occupied roofs
	1006.3	2021	Addresses how to calculate number of exits when an occupied roof is involved
	1006.3.4	2021	Clarifies intent for single exit stories
	1008.2.1	2021	Changes minimum stairway illumination requirement from 1 footcandle to 10

	1008.2.2	2018	Clarifies that illumination to minimum levels is still required when a single lamp in a luminaire fails
	1008.2.3	2018	Clarifies exit discharge illumination requirements
	1008.3.5	2018	Clarifies that illumination to minimum levels is still required when a single lamp in a luminaire fails
	1009.2.1	2021	Clarifies that occupied roof counts when determining when an elevator is required for accessible means of egress
	1009.6.2	2021	Provides an area of refuge stairway access exception
	1009.6.3	2021	Increases area of refuge wheelchair space size to 30”x52”
	1009.7.2	2018	Provides an exception for area of rescue assistance fire-resistance-rated exterior wall requirements for sprinklered buildings
	1010.1.1	2018	Door sizes and clear opening requirements have been coordinated with ICC A117.1
	1010.1.1 Exception #11	2021	Provides an exception for maximum door width of swinging doors and allows certain doors to have a 20 inch clear opening
	1010.1.1.1	2021	Provides an exception that allows power door operators and electromagnetic door locks to be within clear opening of door
	1010.1.3	2021	Modifies door opening force to match ICC A117.1
	1010.2.4	2021	Modifies locking provisions to address courtyards and certain institutional occupancies
	1010.2.7	2018	Allows all stairway doors, not just those serving 4 or fewer stories, to be locked from the non-egress side
	1010.2.8	2018	Adds new model code language allowing for enhanced security locking arrangements for Groups B & E when certain conditions are met. This is a different approach than the unique Ohio locking arrangement utilizing TDLDs now found in Section 1010.2.16
	1010.2.8	2021	Expands section to allow special locking arrangements for Group I-4
	1010.2.9.1	2021	Adds requirement for panic hardware for refrigeration machinery room doors
	1010.2.13	2018	Expands the use of delayed egress locking systems to Groups B, F, I, M, R, S, U, and E (when the occupant load is less than 50) when certain conditions have been met and allows delayed egress on exit and exit access doors serving courtrooms
	1010.2.16	BBS	Relocates Temporary Door Locking Device (TDLD) requirements from Section 1010.4.
	1010.2.16	BBS	Expands Temporary Door Locking Device (TDLD) use to other than Group E
	1010.3.2	2018	Adds new language specifically addressing security access turnstiles
	1011.6	2021	Provides exceptions for curved and 90-degree stair landing
	1011.16	BBS	Adds a new exception for elevator pit ladders
	1013.2	2018	Requires low-level exit signs in Group R-1 occupancies required to have exit signs
	1015.6	2018	Provides an exception for guards when ANSI/ASSE Z359.1 personal fall arrest/restraint anchorage connector devices are provided
	1015.7	2018	Provides an exception for guards when ANSI/ASSE Z359.1 personal fall arrest/restraint anchorage connector devices are provided

	1016.2	2021	Allows egress through enclosed elevator lobby for certain spaces
	1017.3	2018	Clarifies that measuring egress travel distance and common path of travel is not a per story measurement
	1019.3	2021	Clarifies open exit access stairway requirements
	T1020.2	BBS	Replaces table with table that clarifies intent and recognizes Ohio sprinkler exceptions
	1020.5	2021	Allows certain Group I-2 dead-end corridors to extend to 30 feet
	1023.3.1	2018	Provides a new exception to eliminate fire-resistance-rating when an interior exit stairway and an exit passageway are pressurized
	1023.5	2018	Clarifies that fire protection systems, security systems, and communication systems are permitted to penetrate exit stairway enclosures
	1024.6	2018	Clarifies that fire protection systems, security systems, and communication systems are permitted to penetrate exit passageway enclosures
	1025.1	2018	Luminous egress path markings are no longer required for high-rise Group I-2, I-3, or I-4 occupancies
	1026.4	2018	Clarifies how to size the refuge area capacity of a horizontal exit
	1029.6	2018	Clarifies open-air assembly seating aisle capacity requirements
	1030.1	2018	Clarifies which occupancies and how many Emergency Escape and Rescue Openings (EERO) are required
	1030.16	2021	Requires 2 “social stair” handrails when stepped aisle is 74” or more. Mid-aisle rail is required to be discontinuous.
	1031	2021	Clarifies ladder, step, and drainage requirements for Emergency Escape and Rescue Opening (EERO) area wells.
4101:1-11-01	1102 & Ch 35	2021 & BBS	The A117.1 standard has been updated to the 2017 edition for new construction and additions and allows the 2009 edition to be used for change of occupancy and alterations
	1102.1	BBS	Modifications to the A117.1 standard have been relocated from Section 1112
	1102	BBS	References Ch 34 for existing buildings (moves reference from Section 1103.2.15
	1103.2.14	2018	Clarifies when walk-in coolers and freezers are exempt from accessibility requirements
	1104.4	2021	Clarifies that 3000 ft^2 exception for connected accessible route does not apply to multi-story, multi-family buildings having 4 or more dwelling units
	1105.1.1	2021	In certain Group A, B, M, and R-1 occupancies, requires at least one accessible public entrance door to be an automatic door
	1107	2021	Adds new Section for motor vehicle related facilities and requirements to address accessibility of Electrical Vehicle (EV) charging stations
	1108	2021	Renumbers former Section 1107 addressing Dwelling Units and Sleeping Units
	1108.5	2021	Allows that a certain number of water closets and showers in nursing homes and assisted living be assisted-use rather than fully accessible

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	1109	2021	Renumbers former Section 1108 addressing Special Occupancies
	1110	2021	Renumbers former Section 1109 addressing Other Features and Facilities
	1110.2.1.2	2018 & BBS	Allows child height plumbing fixtures, changing tables, and other accessories to be within a family or assisted-use toilet room
	1110.6	2021	Requires that bottle-filling stations be accessible
	1110.13.2	2021	Clarifies that at least one of each type of sales and service counter/windows be accessible
	1110.15	2021	Clarifies that A117.1 has certain exceptions that may apply to the accessibility requirement of controls and operable parts
	1110.16	2018	Clarifies accessibility requirements for gaming machines and tables
	1110.18	BBS	Adds requirements for adult changing stations
	1111	2021	Renumbers former Section 1110 “Recreational Facilities”
	1111.4.13	2018	Clarifies that children’s play areas are required to be on an accessible route
	1112	2021	Renumbers former Section 1111 “Signage”
	1113	BBS	Adds requirements for adult changing stations
4101:1-12-01	1202.3	2021	Adds a new option for unvented attics (not applicable in Ohio)
	1206.2	2018	Adds a performance approach for determining sound transmission class
	1206.3	2018	Adds a performance approach for determining impact insulation class
	1207	2021	Adds a requirement for enhanced classroom acoustics in Group E where the classrooms $\leq$ 20,000 ft^3 volume.
	1208.4	2021	Minimum floor area of an efficiency dwelling unit has been reduced to 190 ft^2
	1210.3	2021	Adds a requirement and exception for visual screening at public restrooms
	1210.3.1	BBS	References IAPMO/ANSI/CAN Z124.10 standard for privacy requirements for water closet partitions used in all-gender facilities
4101:1-13-01	1301.2	BBS	Provides Ohio modifications to the 2021 IECC
	1301.3	BBS	Provides Ohio modifications to the 2019 ASHRAE 90.1
4101:1-14-01	T1404.2	2018	Modifies the table for minimum thickness of weather coverings
	1404.3	2021	Clarifies vapor retarder requirements
	1404.18	2018	Allows polypropylene siding on exterior walls of all construction types provided certain requirements are met
	1406.10	2021	Simplifies and clarifies surface-burning and thermal barrier requirements for metal composite materials (MCM) used for exterior cladding
4101:1-15-01	1503.3	2021	Adds a requirement for parapet wall moisture resistance
	1504.4.3	2018	Adds language specifically addressing metal roof shingles
	1504.5	2021	All requirements for ballasted low-slope single-ply roof systems are now found in the SPRI RP-4 standard
	1504.9	2021	Aggregate-surfaced roofs are now required to have a parapet of a certain height based upon wind exposure and speed to prevent blow-off.

	1507.1.1	2018	Relocates roof underlayment requirements to one common location
	1507.1.2	2018	Relocates ice barrier requirements to a common location in the code
	1507.17	2018	Adds language addressing building-integrated photovoltaic roof panels
4101:1-16-01	1603.1	2018	Updates construction document requirements for structural components
	1603.1.4	2021	Requires ASCE 7 component and cladding wind zones to be identified on the construction documents
	1604.3.7	2018	Addresses limits for deflection of glass framing
	T1604.5	2021	Clarifies that certain mixed occupancy buildings having public assembly spaces are Risk Category III
	1604.5.1	2018	Clarifies that the presence of a storm shelter in a building does not change the risk category of the building unless the storm shelter is designated as an emergency shelter per Table 1604.5
	1604.10	2018	References to ICC 500 for storm shelter structural loads
	1605	2021	The strength load combinations and the basic allowable stress load combinations are now found exclusively in the 2016 ASCE 7
	1606	2021	Clarifies that the weight of materials of construction, fixed service equipment, photovoltaic panel systems, and vegetative and landscaped roofs are to be used in determining design dead loads
	T1607.1	2018	Modifies live load for decks to be consistent with the 2016 ASCE 7
	T1607.1	2018	New table footnotes clarify where live loads can be reduced
	1607.11.4	2021	Addresses the design loads for fall arrest, lifeline, and rope descent system anchorage
	1607.16.2	2018	Prescribes a minimum live load of 5 psf for fire walls
	1607.17	2021	Addresses live loads for fixed ladders and ships ladders
	1607.18	2021	Addresses live loads for library stacks
	1607.19	2021	Addresses loads for Assembly seating
	1607.20	2021	Addresses loads for Sidewalks, driveways, and yards
	1607.21	2021	Addresses loads for Stair treads
	1607.22	2021	Addresses loads for Attics in residential occupanies
	F1608.2	2021	Snow load maps have been updated (not applicable in Ohio)
	1609	2018	Updates maps and the terminology for design wind speed from “ultimate” to “basic” to be consistent with the 2016 ASCE 7
	1610.2	2021	Basement floors and slab foundations are now specifically required to be designed to resist soil heave
	1611	2021	Rain loads are now consistent with the 2016 ASCE 7 requirements
	1612.4	2021	A flood emergency plan is required when the building is within a flood hazard area
	1613	2018	Seismic site coefficients have been updated to be consistent with the 2016 ASCE 7
	1613.2.1	2018	Seismic maps have been updated to reflect the NEHRP provisions and the 2016 ASCE 7 standard
	1615	2018	Adds language addressing tsunami loads

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4101:1-17-01	1704.6	2018	Requires structural observations for high-rise and risk category IV buildings
	1704.6	2021	Clarifies the distinction between special inspections and structural observations
	T1705.3	2021	Adds a special inspection requirement for precast concrete diaphragm connections
	1705.4.1	2021	Removes the allowance for empirically designed masonry in Risk Category IV buildings, consistent with TMS 402
	1705.5.2	2018	Requires special inspection of metal-plate-connected wood trusses that are greater than or equal to 5 ft tall
	1705.5.3	2021	Adds a special inspection requirement for mass timber construction
	1705.10	2021	Allows the building official to require an engineering assessment when installed deep foundations appear to have structural issues
	1705.12.1	2018	Clarifies exceptions for special inspections of structural steel seismic-force-resisting systems and elements
	1705.13.1	2018	Clarifies exceptions for testing of structural steel seismic-force-resisting systems and elements
	1705.13.6	2018	Adds periodic special inspection requirements for sprinkler piping in some seismic areas to ensure that required clearances are maintained from building services piping and ductwork
	1705.13.7	2021	Clarifies special inspection requirements for certain steel storage racks that are 8 feet or more in height
	1705.18	2021	Adds a special inspection requirement for fire stops, fire-resistant joint systems and fire barrier systems in Group R fire areas having an occupant load exceeding 250
	1705.20	2021	Adds a special inspection requirement for mass timber sealing and adhesives
	1705.21	BBS	Adds a special inspection requirement for medium and high voltage electrical systems
	1709.5.2.1	2021	Adds a label requirement for garage doors
	1709.5.3	2021	Adds impact protective system requirements for buildings in windborne debris regions
4101:1-18-01	1804.4	2018	Provides an exception for maintaining the minimum slope of 2% away from the building
	1807.2	2018	Deletes the requirement for a keyway in the design of retaining walls
	1809.5.1	2021	Frost protection required at exterior door landings
	T1810.3.2.6	2021	Modifies allowable stresses for materials used in deep foundation elements
	1810.3.3.1.9	2021	Clarifies application of axial design load calculation for helical piles
	1810.3.5.3.1	2021	References AISC 341 for the design of structural steel H-piles
	1810.3.6	2021	Adds an exception that allows certain splices to not comply with 50% tension and bending stress requirements
	1810.3.8	2018	Precast prestressed pile seismic equations have been updated to be consistent with 2016 ASCE 7
	1810.3.8	2021	References ACI 318 for the design of precast concrete piles
	1810.3.11	2021	References ACI 318 for the design of pile caps

	1810.4.5	2021	Provides 2 new exception for load tests of piles installed using vibratory drivers
4101:1-19-01	1901.2 & Ch 35	2021	ACI 318 has been updated to the 2019 edition
	1901.7	2021	References ACI 117 and ITG-7 for structural concrete tolerances
4101:1-20-01	No significant changes		
4101:1-21-01	2109.2.4.8	2021	Adds new language addressing plaster for adobe construction
4101:1-22-01	2205.2.1	2021	Certain beam -to- column moment connections are now required to be prequalified or qualified by testing
	2207.1	2018	References a new standard (the 2015 SJI-100) for steel joists
	2209.2	2018	References a new standard (RMI ANSI/MH 16.3) for cantilevered steel storage racks
	2209.3	2021	A certificate of compliance is required to be submitted to the owner from the installing contractor of racks greater than 8 feet high indicating that the racks were installed per approved plans
	2211	2018	References several AISI standards for cold-formed steel light-framed construction
4101:1-23-01	2303.2	2021	Some language was removed because the same text is now found in the ASTM E84 standard
	2303.2.2	2018	Clarifies type of chemical treatment permitted to be used to treat fire-retardant-treated lumber
	2303.4.1.2	2021	Adds language specifically addressing the diagonal bracing and restraint of wood truss members
	2303.6	2018	References Supplement 1 of ASTM F1667 for nails and staples and prescribes minimum average bending moment values
	T2304.9.3.2	2018	Adds a nail fastener schedule for mechanically laminated decking
	T2304.10.1	2018	Coordinates the IBC and IRC for fastening of roof, subfloor, and interior wall wood structural panels and other sheathing
	2304.10.1	2021	Adds language addressing mass timber connection fire-resistance rating
	T2304.10.2	2021	Adds fastener options that are consistent with the new ASCE 7 wind loads
	2304.10.6	2018	References standard ASTM F1667 for stainless steel fasteners
	2304.11	2018	Prescribes minimum dimension for heavy timber elements
	2304.11	2021	Allows concealed spaces in certain Type IV-HT buildings
	2304.12.2	2018	Requires positive drainage of permeable floors and roofs to protect wood construction below
	2305	2021	References 2021 edition of AWC SDPWS standard for shear wall and diaphragm design
	2308.4.1.1	2018	Header and girder span tables for walls have been updated to reflect southern pine design value changes
	2308.5.5.1	2018	Allows single-member lumber headers at opening in exterior bearing walls
	2308.6.6.2	2021	Clarifies cripple wall requirements
	T2308.7.3.1	2021	Updates the rafter tie connection table
4101:1-24-01	2407.1	2018	Clarifies requirements for glass guards
4101:1-25-01	2510.6	2018	Adds a requirement for a ventilated air space between stucco and water-resistive barrier in CZs 1A-3A (not applicable in Ohio)
	2510.6	2021	Adds language for water-resistive barriers for stucco

4101:1-26-01	2603.13	2018	Adds requirements to address cladding attachment over foam sheathing and wood framing
4101:1-27-01	2702.1.2	2021	Adds requirements for fuel-line piping protection
4101:1-28-01	No significant changes		
4101:1-29-01	T2902.1	2018	Added note f for swimming pool fixture quantities
	T2902.1	BBS	Retained model code fixture values, moved footnote f from "outdoor sporting events and activities" to "assembly" cell and deleted current Ohio footnotes f and g as redundant
	2902.1.1	2021	Adds exceptions that provides an alternate fixture count calculation method when multiple-user, all-gender facilities are installed (not permitted in Group E) or when single-user toilet and bathing room fixtures are installed
	2902.1.2	2021 & BBS	Clarifies that single-user toilet and bathing room fixtures can count toward total required number of fixtures
	2902.2	2021	Clarifies that certain facilities are not required to be separated and designated by gender
	2902.3.3	2021	Allows the travel distance to required fixtures in Group S to exceed 500 ft when approved by the building official
	2903.1.4	BBS	References IAPMO/ANSI/CAN Z124.10 standard for privacy requirements for water closet partitions used in multi-user, all-gender facilities
4101:1-30-01	3001.2	2018	Adds a requirement for visual, text-based, and video two-way emergency elevator communication system in accessible elevators to meet the needs of deaf, hard of hearing and speech impaired individuals
	3001.2	2021	Clarifies performance and functional requirements of required two-way emergency elevator communication system
	3006.2.1	2018	Clarifies that when an elevator hoistway opens into a rated corridor, protection is required at the hoistway opening via an elevator lobby, additional doors, or pressurization of the hoistway
	3007.1	2018	Clarifies that fire service access elevators only need to serve at and above the lowest level of fire department vehicle access and do not need to be provided when the elevator only connects a parking garage and the lobby of an attached building
	3008.1.1	2018	Requires that the number of Occupant Evacuation Elevators is determined from a required egress analysis
4101:1-31-01	3103.1	2021	Clarifies that special event structures are a type of temporary structure
	3107	BBS	References and modifies the 2021 IBC Appendix H for signs
	3109	BBS	Significantly modifies the language addressing public swimming pools
	3111	2018 & 2021	Addresses solar energy systems in greater detail
	3112	2018	Addresses greenhouse construction
	3113	2018	Adds a new section addressing Relocatable buildings. Ohio deletes this section and, instead, references the Industrialized Unit (IU) program rules.
	3114	2021	Provides criteria for public restrooms installed in flood hazard areas
	3115	2021	Provides new language to address shipping containers used in the construction of a building
4101:1-32-01	No significant changes		

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4101:1-33-01	3310.1	2018	Requires at least one stairway to be provided when a building under construction reaches a height of 40 ft
	3313	2021	Requires that fire protection water supply be available at the site for certain buildings during construction
	3314	2018	Allows the fire official to require a fire watch for construction that exceeds 40 ft. BBS deletes this new language because it is located in the International Fire Code.
4101:1-34-01	Ch 34	2021	References and modifies the 2021 International Existing Building Code (IEBC) for use in Ohio
	*IEBC 306.2	BBS	*Clarifies that there are two standards referenced for accessibility in existing buildings
	IEBC	2021	Adds a new optional compliance path for existing buildings called the “Work area method”
4101:1-35-01	*Referenced standards	2021 & BBS	*Updates ASHRAE 170 & numerous NFPA referenced standards to newer editions
		BBS	References the 2021 International Fire Code, except for fireworks facilities. Fireworks facilities will be referred to the Ohio Fire Code for requirements

*Indicates a change after the stakeholder comment period

Exhibit B

AIA Ohio

A117.1 Task Force

May 2021

Re: A brief study of the cost implications of adoption of the 2017 ICC/ANSI A117.1 accessibility standard for new construction by the Ohio Board of Building Standards

Participants: Terry Welker, FAIA, Chair
Bruce Sekanick, FAIA
Melinda Scalfaro, AIA
Robert Siebenaller, AIA
Doug Gallow, AIA
Karen Planet, AIA

The Ohio Board of Building Standards is currently reviewing the 2021 IBC for planned tentative adoption on or about January 2023. As part of the review Steve Regoli prepared a summary of the major differences between 2017 ICC/ANSI A117.1 Standard and the 2009 edition which we still currently reference. The Board is not considering adopting the 2017 standard for all buildings (new and existing) but is exploring the option to adopt the 2017 edition for new buildings only where the additional requirements would have the least impact on design and cost. The Board's Code Committee suggested reaching out to AIA Ohio and ODPCA for input as well any information they could provide on the expected cost impact these requirements would have for new construction versus the current standard.

The task force began with the "ICC/ANSI A117.1 Comparison Between the 2009 and 2017 Editions" Chart. Several meetings and lengthy discussions generated an expanded spread sheet with comments and associated costs where applicable. We first ranked the IMPACT of each change from VERY LOW, LOW, MODERATE, HIGH or VERY HIGH. We found that none of the changes were ranked as VERY HIGH and only one item was ranked as HIGH.

Since we are exploring the implications of a standard, rather than a prescriptive code, we've learned that costs are very relative to particular building projects and overall costs can vary widely with the size scope of the project. We also learned that some Use Groups will be affected more than others for some of the proposed changes.

Under the topic of Accessible Building Blocks the impacts were LOW or VERY LOW. The biggest costs are attributed to the incremental of cost of increased sizes of wheelchair spaces and turning spaces. However, this may not necessarily lead to larger buildings. Over the course of time, we anticipate these to be easily integrated in new buildings.

Under the topic of Accessible Route all items were graded as LOW or VERY LOW except for the item about curb ramps which we graded as MODERATE. Most of these impacts were minimal in costs because most of the time building programs call for designing well above the minimal standards. As architects we were pleased to see the expanded guidance for curb ramps even though there is a moderate cost associated with this change. Health care and residential facilities in particular would be impacted by this change. Site design and grading has been easily ignored, misunderstood or inadequately detailed by architects and engineers because the standard was inadequate. Designing facilities to these new or supplemental requirements will have significant positive design rewards.

On the related topic of General Site & Building, parking spaces and routes through parking lots will have an effect on design but it's difficult to universally attribute costs because of the wide variance in possible site conditions.

Under the topic of Special Rooms & Spaces, one item stood out: enhanced acoustics for classrooms. The Use Group most obviously affected by this is Education, but it could also apply to B Use classrooms in colleges and universities. Until these design approaches are more commonly used and standardized in the design world, architects and engineers will have a burden of proof to demonstrate compliance when seeking construction approvals. Increased finish costs and HVAC duct sizes (or alternative HVAC systems) are anticipated. It's important to recognize that this standard is already integrated into the LEED requirements which are already required by the Ohio Facilities Construction Commission. Because of the existing requirements by the OFCC, many communities are already benefitting from these proposed improvements to the code.

The Task Force has studied this new standard as it relates to new buildings only. It is important to recognize however that this new A117.1 anticipates adoption with existing buildings in mind. There is potential for some confusion. The sections where existing building provisions have been included are Sections 304.3.1.2, 304.3.2.2, 305.3.2, 403.5.1 Exception 2, 403.5.2.2, 403.5.3.2 and 403.5.4.2 among others.

In general, many of the changes are simply good clarifications. Where there are cost impacts we regard these as marginal and reasonable. A helpful document for consideration is the ICC's Significant Changes to the ICC A117.1 Accessibility Standard.

Respectfully submitted,

Terry Welker, FAIA, Task Force Chair

AIA Ohio A117.1 2009-2017 Comparision Task Group

Steve Regoli ICC/ANSI A117.1 Comparision Between the 2009 and 2017 Editions

		Element	Current 2009 A117.1 Requirement	A117.1-2017 Requirements		Impact	Impact Notations	Estimated Cost	Building Type	OAC Impact
				Existing Buildings	New Buildings					
Building Blocks	1	Wheelchair Space (305.3.1)	48" x 30"	48" x 30"	52" x 30"	Very low	The 4 " increase is relatively minor for new buildings has little to no impact on design	The cost for the increased area per wheel chair space is estimated at between $124 and $190.	General	Architect
	2	Wheelchair Turning Space - Circular (304.3.1.1)	60" w/25" overlap	60" w/25" overlap	67" w/10" overlap	Low	This change provides for better accessibility, however, it can make compliance slightly more dificult. Think about the cummulative effect of the route. Could be affected by Use Group Classification. Single use restrooms could be affected. This could affect small rooms in buildings and is not limited to just restrooms	The cost increase per accessible stall is estimated to be between $874 and $1,342.	General	Owner-Architect
	3	Wheelchair Turning Space - T-shaped (304.3.2.1)	60" x 60" w 24" x 12" cutouts	60" x 60" w/24" x 12" cutouts	3 options: 60" x 64" with different sized cutouts	Very low	The cutouts provide more flexibility for compliance and the increase of the T-shaped turning area is minimal.	No increase projected	General	Architect
	4	Turning Space Overlap in T-shaped space	Not specifically diagrammed			Very low	No impact	No increase projected	General	Architect
	5	Operable Parts (308.3)(309.1)		Added Exceptions to general requirements		Very low	This item refers to fuel dispensers on existing curbs and general operable features of devices or equipment. (Fans, panels, etc.) There is no impact and changes provide additional flexibility for the Owner and Architect.	No increase projected	General	Owner-Architect
	6	Accessible Route: 90 degree truns	36" to 36" corridor	36" to 36" corridor		Low	This item might have a cost impact when the chamfered corners are required to narrow corridors. The other options provide for more flexibility. Most architects design to a higher standard.	Minimal cost. At each intersection where chamfered corners might be needed, add $200 - $400.	General use buildings or structures	Architect
	7	Accessible Route: 180 degree turns	2 options: 42" to 48" to 42" < 48" sep. or 36" to 60" to 36">48" sep.	2 options: 42" to 48" to 42" < 48" sep. or 36" to 60" to 36">48" sep.	3 options: 42" to 48" to 42" < 52" sep.; 36" to 60" to 36" < 52" sep.; 43" to 43" w> 52" sep.	Very low	There is more flexibility added to the requirements. Changes are not anticipated to have any real costs that would impact the over all budget of a project.	No increased costs anticipated.	General use buildings or structures	Architect

Accessible Route	8	Passing Space	36" corridors, comply w/ T-shaped turn and arms extend 48"	36" corridors, comply w/ T-shaped turn and arms extend 48"	36" corridors, comply w/ T-shaped turn and arms extend 52" w/chamfered corners.	Low	The revision provided alternative for design compliance. While this could have a small impact when utilizing chamfered corners, most designs would have minimal to no effect on the overall project. Most architects design to a higher standard	A minimal cost of $200 - $400 could be applied to this item per occurance. The impact however is negligible.	General use buildings or structures	Architect
	9	Manuevering Clearances at doors	Maneuvering clearance includes full opening width of door and cannot include knee or toe clearances	Maneuvering clearance includes full opening width of door and required latch-side and hinge-side clearances.		Very low	This appears to be a clarification to the overall intent. Many designs already exceed this requirement. Based on a review of the changes, the approach clearance for doorways with doors appears to be changed to 52" as well.	There appears to be a minimal cost of $200 - $400 for each occurance due to the change in the area of the approach.	General use buildings or structures	Architect
	10	Maneuvering Clearances at doorways w/o doors	Approach: front 48", side 42"	Approach: front 48", side 42"	Aproach: front 52", side 42"	Low	This is a minor change, but it does have an impact on design and a minor impact on construction.	A minimal cost of $200 - $400 could be applied to this item for each occurance.	General use buildings or structures	Architect
	11	Maneuvering Clearances at recessed doorways	Pull 60", Push 48" w/ conditions	Pull 60", Push 48" w/ conditions	Pull 60", Push 52" w/ conditions	Low	Again, a minor change with a low impact.	It is anticpated to have an impact of only a few hundred dollars per occurance. A minimal cost of $200 - $400 could be applied to this item for each occurance.	General use buildings or structures	Architect
	12	Two doors in a series	48" plus door swing providing 60" turning radius	48" plus door swing providing 60" turning radius	48" plus door swing providing; Diagrams use T-shaped Turning	Very low	This provides clarity to the existing requirements.	No Impact.	General use buildings or structures	Architect
	13	Clear width of an accessible route	Reduced to 32" for 24" spaced 48"	Reduced to 32" for 24" spaced 48"	Reduced to 32" for 24" spaced 52"	Very low	A minor change that will have only a very limited cost implication.	No cost impact is anticipated.	General use buildings or structures	Architect
	14	Curb ramps		Greatly expanded: blended, perpendicular, parallel; grade break, cross slope, counter slope, clear space at bottom 48" x 48"		Moderate	This is listed as moderate because there will be an impact due to some of the new requirements that require larger areas for the ramps. At the same time, this section provides clarity to the curb ramp requirements. Small sites with toographic grading problems could cost much more.	This is difficult to apply a cost to as each condition is different. There could be added costs of as low as a few hundred dollars to more than a $1,000 per occurance depending on the condition. Because of the variations in application, this is listed as moderate.	Varies by use and occupancy. These requirements are more likely to impact smaller projects that often only meet but not exceed requirements.	Architect
	15	Platform Lifts	36" x 48"	36" x 48"; 36 x 60"	36" x 52"; 36 x 60"	Very low	This will have a minimal effect on a very limited number of buildings. The impact is extremely low.	No cost impact is anticipated.	General use. Limited application.	Architect

General Site & Building	16	Parking Spaces		Wide sidewalk and narrow sidewalk parallel, angled parking, parking meter, electric vehicle charging station requirements.		Moderate	This requirement will require added space considerations for new construction. The change however responds to changing technology as well as needed clarifications.	There will be cost impacts, however these will be based on building use and size. General costs implications are anticipated to be low.Site size determines cost. One space = $1000	General use.	Architect
	17	Passenger loading zone access aisle	Loading zomes to be marked 60" wide	Loading zone to be marked 60" wide	Loading zone to be marked 67" wide	Very low	Increase in parking areas will result in some minor design changes. Overall impact however is low.	No to very low cost increase	General use.	Architect
	18	Windows		One operable window operating force requirements		Low	Depending on the building use, this could have a minor impact on design and costs.	Cost implications are minimal, hower there could be some instances where costs of up to $500 could be incurred.		Architect-Contractor
	19	Assessible routes through parking		Routes through parking facility must be physically separated from vehicular traffic except at drive aisle crossing		Moderate	This element could add to additional site development costs to a project. The scope of this depends on the size of the project. Increased site sizes possible.	The cost will vary with project size, but this will have some impact on overall project costs.		Owner-Architect
Plumbing	20	Drinking fountains		Added requirements for children fountain height, water flow		Very low	No Impact	Minor impact item		Architect
	21	Bottle filling stations		Requirements for clear floor space, controls		Very low	No Impact, provides clarity.	Minimal impact to overall project costs.		Architect
	22	Toilet stalls		Added alternate compartments; toe clearances increased to 12" x 8"		Very low	No Impact, provides clarity.	Minimal impact to overall project costs.		Architect
	23	Grab bars in roll-in shower compartments		Detailed plan and elevation dimensions for grab bars		Very low	Clarity added for compliance with minimal impact on costs	No projected increase		Architect
Comm. Elements	24	Signs		Nonglare finish and character contrast requirements added		Very low	Added requirement to existing regulations. No impact in cost for compliance	No projected increase		Architect-Contractor
	25	Visual relay service booth		Requirements for seating, privacy, lighting, finish, color		High	Adding an interpreter style booth will have equipment and space impacts. This section defines the requirements if provided. There is no specific information on requirements as to where and when these faciities should be provided.	Equipment Costs: $6,000-$10,000. Space Costs: $8,000 - $16,000, if required. The impact of this is offset by the potential limited application of the interpreter booth.		Owner-Architect
	26	Detectable warning surfaces		Greatly expanded requirements; accompany changes to curb ramps, islands, rail crossings.		Very low	More claifications for design.	No projected increase		Architect
	27	Assembly wheelchair space	48" or 60" depth	48" or 60" depth	52" or 60" depth	Very low	Cumulative effect possible.	No projected increase		Architect
	28	Assembly wheelchair space overlap		New dimensioned diagrams		Very low	No Impact	No projected increase		Architect
	29	Companion seating seat alignment	12"/36"	New diagrams 12"/36"	New diagrams 12"/4"/36" 12"/12"/36"	Very low	No Impact	No projected increase		Architect
	30	Horizontal dispersion	Dispersed to provide viewing options	Dispersed, but for stage or field, includes entire seating area		Very low	Limited impact to specific use.	There may be a small increase in some areas, although other requirements already make some of these items necessary.		Owner-Architect

Special Rooms & Spaces	31	Sign language interpreter station		Requirement for area, location, illumination, backdrop		Low	New for some uses. This is similar to the Visual Relay Service Booth. The requirements of for interpreter stations if provided. No specific requirements are noted for location and quantity.	$500 per occurance	Owner-Architect
	32	Transportation facilities	60" x 96" boarding/alighting area	60" x 96" boarding/alighting area	60" x 100" boarding/alighting area	Very low	limited impact to specific use.	The cost of this incerease for new construction is negligable.	Architect
	33	Enhanced accoustics for classrooms		Sound requirements for classrooms <20,000 SF performance and prescription methods for reveberatin time; ambient sound limits.		Moderate	Increased finish costs for walls and ceilings. Increased design costs for acoustic analysis. Increased HVAC duct sizes. Already incorporated into LEED Silver standard for OSFC. Good designers often incorporate this. Ambient noise is a new requirement.	$2000-$3000 per classroom.	Architect
Furnishing & Equipment	34	Sales and service counters and windows		Added diagrams and requirements for parallel and forward approach counters		Very low	No Impact.	No projected increase	Architect
	35	Charging stations		New requirements for clear floor space and height and reach ranges		Very low	New rules for airports. Could increase SF if stations are required adjacent to machines and out of aisles.	No projected increase	Architect
	36	Gaming machines and tables		New requirement for clear floor space for transfer or wheel chair use.		Very low	Could increase SF if stations are required adjacent to machines and out of aisles.	No projected increase	Owner-Architect
Recreational Facilities*	37	Golf facilities		New requirements for teeing grounds, putting greens, practce greens, teeing stations, teeing stations at driving ranges, and weather shelters.		Very low	This is a very limited and specific group of requirements and will have minimal impact in general.	No specific cost increase projected	Owner-Architect
	38	Miniature golf club reach range area	36" x 48"within 36"	36" x 48"within 36"	36" x 52"within 36"	Very low	No or limited Impact	No projected increase	Architect
	39	Play area accessible routes		New exceptions to accessible route requirements		Very low	No or limited Impact	No projected increase	Architect
	40	Pool/hot tub/spa clear deck space	36" x 48" forward 12"	36" x 48" forward 12"	36" x 52" forward 12"	Very low	No or limited Impact	No projected increase	Architect
Dwelling Units & Sleeping Units*	41	Bed height	At least one with open frame	At least one 17" - 23" above floor to top of matress		Very low	This is a limited item for residential structures and has minimal impact on a majority of applications	No cost impact due to requirement	Owner-Architect
	42	Wheelchair charging station		Clear floor area required for bed but also serves as charging area.		Very low	Provides additional requirement but also clarifies requirements. Very liminted building type impact indicated.	No significant projected costs. Limited building type application.	Architect
	43	Type B unit accessible route		New exceptions to clear width requirements added.		Very low	Clarity items. No impact to cost or design	No projected cost increase	Architect
	44	Type B ramps, elevators, platform lifts		New exceptions to requirements added.		Very low	Clarity items. No impact to cost or design	No projected cost increase	Architect
	45	Type B refrigerator approach	Centerline of clear floor space offset 24" from centerline of appliance	Centerline of clear floor space offset 24" from centerline of appliance for forward and 15" for parallel.		Very low	This provides clarity for the approach of appliances and will only have a limited impact on cost and design	No projected cost increase	Architect

Standard pricing for facilites are indicated at $150/SF - $230/SF. These prices vary significantly based on use and construction type. Prices can range based on construction type, use, and finishes between $40/SF and $500/SF (or more).

* The chapters addressing Recreational Facilities (forrmerly chapter 11) and Dwelling Units & Sleeping Units (formerly Chapter 10) traded places in the 2017 edition of the standard and the chapters, consequently, were entirely renumbered. Recreational Facilities are now addressed in Chapter 10 and Dwelling Units & Sleeping Units are now dealt with in Chapter 11 of the 2017 edition of the standard.

Exhibit C

2024 Ohio Building Code Comments					
Commenter	Email	Code Section	Comment	Staff Comments	Code Committee Action
Arthur, Dan	arthurteam.realestate@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Baker, Kayla	kbaker@mybvls.org	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Beasley, Audra	docprep@adbparalegal.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Bielanski, Joe	joebielanski@kw.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Beres, Kurt	kurtb@designwithma.com	General	I am so excited to see the state of Ohio making the leap to the 2021 model code. The update is extremely important to adopt for our state's long term financial security and promotion of new businesses. As an architect, CBO, and MPE familiar with the OBC and 2021 model code I have compiled the following list of recommended changes for consideration as part of the adoption.		NA
Beres, Kurt		AGRICULTURAL BUILDING.	A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure is not to be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor is it to be a place used by the public. (See definition of “AGRICULTURAL PURPOSES”, section 101.2, and section 312 of this code).	Typo. Will fix.	NA
Beres, Kurt		406.5.2.1	Recommendation - to align with the requirements of table 705.5 Revise as follows "Where openings below grade provide required natural ventilation the outside horizontal clear space shall be one and one half times the depth of the opening up to 10' wide. The width of the horizontal clear space shall be maintained from grade down to the bottom of the lowest required opening."	Concern that 10' max width may not provide adequate natural ventilation for below grade garages and that this proposal conflicts with OBC 1202.5.1.2	See next comment
Beres, Kurt		406.5.2.1	As discussed during the stakeholders meeting I have revised the proposed change below to align 406.5.2.1 with 406.5.2.1 Recommendation - to align with the requirements of 1206 Revise as follows "Where openings below grade provide required natural ventilation the outside horizontal clear space shall be one and one half times the depth of the opening up to 23' wide. The width of the horizontal clear space shall be maintained from grade down to the bottom of the lowest required opening."	IBC Section 1205 (not 1206) deals with above-grade yards and courts. In contrast, IBC Section 406.5.2.1 is specifically addressing below grade natural ventilation requirements; Recommend no change based on comment	3/30 Further review
Beres, Kurt		406.6.2	Can you clarify the intent of deleting 406.6.2 ventilation is generally a basic requirement for enclosed garages.	The exception was proposed to be deleted because garages accessory to 1- and 2-family dwellings are within scope of the RCO, not the OBC	NA

Beres, Kurt		507.14	To mimic 507.13 From the 2017 OBC to allow for use of property deeded or dedicated on adjacent properties be used for use in determining the compliance of an unlimited area building. This code section has been a mainstay of the OBC for several code cycles now and has been the envy of many of our sister states.	The code language was moved to OBC Section 106.1.2.7	NA
Beres, Kurt		705.5	Add an exception to mimic the 2017 OBC to allow for property on an adjacent property to be deeded or dedicated as a no build zone and contribute to the fire separation distance. See above.	The code language was moved to OBC Section 106.1.2.7	NA
Beres, Kurt		705.6	Add the following exception to 705.6 - Reasoning this is in keeping with 706.2 and allows the floor sheathing to act structurally. Exception - Floor and roof sheathing not exceeding 3/4" thickness are permitted to be continuous through the exterior wall assembly to interior face of the exterior wall sheathing in light frame construction.	2021 IBC Commentary states that this exception is intended to allow the roof and floor diaphragms to remain in-tact through a double fire-wall because there is only a small risk that the other fire wall (the non-fire side) would fail in a double-fire wall situation.	3/30 Further review
Beres, Kurt		706.8.1	Revise Proposed Language for 706.8.1 to add the following exceptions (Reasoning the vestibule requirement impacts the ability of the fire walls to act independently and the code language for Horizontal Exits provides numerous additional protections further the existing language conflicts with the exception to 705.3) Exception 1: Openings in double fire walls complying with section 1026 for Horizontal Exits. Exception 2: Openings complying with 705.3 Exception 2	The proposed OBC Section 706.8.1 language was brought in before the model code recognized double fire walls. Perhaps we should simply refer to NFPA 221 and delete the Ohio change.	3/30 Delete Ohioizations - comment specific to Ohio language; eliminate concern
Beres, Kurt		903.2.10	Recommendation - (This proposed exception opens up existing opening parking garages to be have partial adaptive reuses while as written might be technically infeasible and allows them to be modified in the future and addresses the majority of concerns raised by fire departments concerning electric vehicles, 1: Early Detection of thermal runaway and 2: The ability to apply as much water as possible to the source of the fire which sprinklers are incapable of providing) Add exception 2: Open Parking Garages provided with additional stand pipes such that all parking spaces with vehicle charging stations are fully covered by two standpipes and any space equipped with an electric vehicle charging station is provided with heat detectors tied to a fire alarm system with automatic notification of the local fire department.		3/30 Keep language - further review

Beres, Kurt		1020.2	The proposed table 1020.2 is confusing and is not in keeping with past OBC sections, as proposed it is identical in application to the table in the model code. Recommend eliminating in the table the words "or provided with a partial sprinkler system" and adding footnote C to 13R and footnote D to 13D while adding I-1 to the footnote and applying C to the 13 column in similar locations as the 2017 OBC.	Staff was proposing this table reorganization to recognize unique Ohio exceptions for Group R and to clarify intent of footnote c which sparked many questions.	No change
Beres, Kurt		1102.2	The language does not do a good job for the purposes of ICCA117.1- 2017 to identify existing buildings. Recommend adding language referencing that existing buildings for the purposes of the application of requirements for existing buildings identified in ANSI A117.1 shall be buildings constructed using the 2017 Ohio Building Code or earlier.	The definition of "existing building" in the ICCA117.1 standard is the same as the 2021 IBC. BBS staff is proposing a different definition.	No change
Beres, Kurt		1110.18.1	References to Adult Changing Stations. 1110.18.1 - Recommend Revising #3 to include Group E occupancies serving special need students above the 6th grade. Recommend revising item 1 to make the requirement a tier above what is required for a family restroom since this would be a double burden or excluding M all together except for open and enclosed malls.	Proposed language was intended to mirror the 2024 IBC and A117.1 in scope.	No change
Beres, Kurt		1210.3.1	1210.3.1 Revise Exception 2 (Reasoning most child care uses provide low or no toilet partitions for younger children to allow staff to assist in potty training). New Section to read - Toilets rooms located in child day care facilities must provide facilities dedicated for the privacy of staff but may provide additional facilities without enclosing compartments solely for assisting with potty training as determined by the building official.	IBC allows for only one unenclosed water closet, recognizing that an adult may need to assist a child	No change
Campbell, Meahan	m.campbell.6492@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Chase, Steve	chief@ashtabulafire.com	903.4 & 913.4	IBC Section 903.4 requires electrical supervision and monitoring of backflow prevention assembly valves, however, Section 913.4 allows locking of the same valves. Which is it?	The NFPA 13 Section 8.16.1.1.2.1 allows locking of the valves	3/30 Make consistent in section 903.4
Combs, Pamela/Montgomery Cty Board of Developmental Disabilities Services		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Dowll, Sophia	sophiardowell@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Dugan, Kelly	kellydugan117@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Earl, Jennifer	jennearl.re@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Emch, Theresa	temch@kw.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA

Flanery, Anne	annemarie2109@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Fox, Faith	naomigracerapha@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Goss, Natlie	nataliegoss8@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Gott, Heather	hgott@kw.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Harmon, Kristin	kharmon@iamboundless.org	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Hinkel, Jill		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Hopkins, Madeline	mhopkins@mybvls.org	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Huber, Charles	Charles.Huber@lakewoodoh.net	105.3, 105.4	Draft Ohio Building Code (OBC) 105.3 "Conditional approval" accurately reflects the statutory language at Ohio Revised Code (ORC} 3791.04(0) (extract attached). Draft OBC 105.4 "Phased approval" accurately reflects the statutory language at ORC 3791.04(G) (extract attached).	Draft Chapter 1 rule proposes to keep "Conditional approval", but proposes to delete "Nonconformance approval"	3/30 Further review
Huber, Charles		105.3.1	Renumber, Draft OBC 105.3.1 to read 105.4.1 and revise text to read, "Incomplete fire protection system drawings. For fire protection system drawings, if actual fire protection system details or product listing information is not known at the time of plan examination, conditional phased plan approval shall be granted subject to subsequent submission of the information prior to installation of any part of the fire protection systems." This more accurately reflects the statutory language at ORC 3791.04(D) & (G).	A "phased approval" may be more appropriate for fire protection system documents because it appears that "conditional approval" is intended for conflicting interpretations of the code.	3/30 Drafting correction
Huber, Charles		OBC Table 2902.1 & OPC Table 403.1	Draft OBC Table 2902.1 & Draft OPC Table 403.1, Add Footnote Pointing to ORC 3318.038 Water Bottle Filling Stations in Schools. 133rd Session Ohio General Assembly Senate Bill 259 (133 GA SB 259), revised by 134 GA House Bill 110 (134 GA HB 110) enacted/revised Ohio Revised Code (ORC) 3318.038 (attached) providing requirements for water bottle filling stations and drinking fountains. Revise draft Ohio Building Code (OBC) Table 2902.1 and draft Ohio Plumbing Code (OPC) Table 403.1 by adding footnote to each reading, "See Section 3318.038 of the Revised Code for water bottle filling station and drinking fountain additional requirements for schools approved by Ohio Facilities Construction Commission."	Staff has removed many pointers in order to reduce the content of the rules. It appears that this requirement is applicable only to schools approved by the Ohio Facilities Construction Commission for funding. This is similar to another agency licensing requirement that is not intended to be enforced by the building departments.	3/30 No change
Jackson, Julie	namaste.julie@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Jenkins, Dewayne	Dewayne.Jenkins@ketteringoh.org	General	I am in full support of the proposed updates in code editions as proposed by the Board of Building Standards.		NA
Jenson, Lindsey	talula@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Kemp, Brian	briankemp@kw.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Kidd, Scott	SKidd@mcbdds.org	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Kirkwood, Sandy	sandykirkwood2005@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA

Kowalczyk, Paul	pkowalczyk@pepperpike.org	1110.18, 1113	1. Under the adult changing station Section 1110.18.1, was it ever discussed to make this required under the Group I-4 adult daycares? It seems this would be a logical place to require these. 2. Is there any provision that would allow the adult changing station to be a substitute for the baby changing station? Could the adult changing station serve both purposes, therefore eliminating the need to have (1) child and (1) adult? 3. For E occupancies, should that sentence end with "but no less than 1 required for the building"? Based on the square footage of a room or space, you may not reach the requirements of six or more and then you would not need to provide one. I think the one Mom who spoke may it clear that these buildings should at least be provided with one.	1. Proposed language was intended to mirror the 2024 IBC for scope and proposed A117.1 for accessibility requirements. 2. In my opinion, it could serve for both; however, neither the IBC/OBC nor A117.1 require a baby changing station. The authority that requires a baby changing station should answer the question. 3. The charging paragraph requires at least one. Not the intent of the ICC code change to require for all Group E buildings.	3/30 No change
Lacey, Eric	eric@reca-codes.com	Chpt 35	Support for adoption of the 2021 IECC and 2019 ASHRAE 90.1		NA
Lehman, Tracey	tjlehman@hotmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Martin, Latish		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Martin, Garet		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Martin, Bree	breemcvean@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Martin, Lisa	lbmartin64@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Morison, Jed/Franklin Cty Board of Dev Disabilities	Jed.Morison@fcbdd.org	1110.18, 1113	Support for adoption of adult changing tables provisions		NA

Parmalee, Chris	christopher.parmelee@lakewoodoh.net	107.6.1, 107.6.2	Draft Ohio Building Code (OBC) 105.1 et seq. deletes existing OBC 105.1.1 Nonconformance approval. If this deletion's adopted, then: a. Existing and draft OBC 107.6.1 & 107.6.2 shows the building official determines whether the plans examiner's comments are to be communicated to the owner's representative asking whether the drawings will be revised and resubmitted. Estimated date of resubmission's obtained. b. Existing and draft OBC 107.6.2 reads in part, "The building official ... determines whether any approvals are possible, and issue the appropriate approval as described in Section 105." That section describes "Conditional approval." and "Phased approval." These descriptions (definitions) are driven by statute, Ohio Revised Code 3791.04(G) and 3791.04(D) respectively. c. It's unlikely that conditional approval (defined by statute) will be appropriate. That leaves either: (1) Phased approval, or (2) Disapproval of Plans Adjudication Order (no approval). 2. One or a series of phased approvals is a clumsy method where the issues are items such as: a. Accessible signage. b. Door hardware. c. Occupant load information in each room. d. Structural design loads. e. Occupancy Group(s)/Division(s)f. Exit signs, emergency powered means of egress lighting, conventional and emergency powered exit discharge lighting. Therefore, deleting nonconformance approval removes a tool building officials now have toxpedite plan approval and construction	A "phased approval" may be more appropriate in most cases because it appears that "conditional approval" is intended for conflicting interpretations of the code and "nonconformance approval" was only good for 30 days, creating a tracking requirement for the department.	3/30 Further review
Reed, Madison	miracleformadison1@icloud.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Reed, Madison	uysports21@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Rogowski, Andrea, Mike & Ben		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Senseman, Marilou	marilousen@yahoo.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Sheldon, Marisa	sheldon.127@osu.edu	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Simmons, Tom/Dept of Aging	TSimmons@age.ohio.gov	1110.18, 1113	No comment		NA
Sunderman, Mary	Mary@sunderman.org	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Sykes, Laura	mswheelchairoh2020@outlook.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Van Winkle, Juliana		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Warne, Savannah	savannah@holisticws.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Wilkinson, Ed	edwilkinson771@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Wilson, Shauna	sshunter03@yahoo.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA

Young, Benjamin	benwestohio@outlook.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Young, Janet		1110.18, 1113	Support for adoption of adult changing tables provisions		NA
Zender, Amy	amybethzender@gmail.com	1110.18, 1113	Support for adoption of adult changing tables provisions		NA

2024 Ohio Existing Buildings Code Comments					
Commenter	Email	Code Section	Comment	Staff Comments	Code Committee Action
Collins, Dave	dcollins@preview-group.com	506, 507	I am impressed with you've done to develop the rules package! Thank you for your response to my email yesterday. Greg, Sarah and I are still of an opinion that what Ohio has done with Chapter 34 is far better than what is included in the IEBC. 34 is clear, concise and successful for those that deal with existing buildings (we've done tons of them). Adding thresholds for significant upgrades to portions of buildings beyond the scope of the planned alterations to create three levels complicates design and enforcement doesn't achieve anything! To make them understand that it is the owner's (applicant) option will be fun. The reason for the development of "Levels" when the IEBC was created is derived from the attitude in some east coast states that wanted to retroactively apply code compliance, and used this to bolster what they were doing. Ohio Law not permitting any changes (design or compliance) retroactively once the approval is issued, and the project is constructed is unique (attitude wise). This became a major issue in 1978 when Ohio adopted the BOCA Code, and lead directly to the creation of Chapter 34. Your rule on 506.1 leaves the exception and 506.1.1 intact. The exception to 506.1 includes reference to the IBC. 506.1.1 includes language that is odd and includes a reference to I Codes. Same references are still in 506.4. Perhaps it is just clumsy language, but IEBC Section 507 indicates that "provisions of this code that require improvements (to) existing conditions." That language does not include alterations or change of occupancy to existing buildings that are historic. OBC Section 3409 clearly does include all categories of work. But there is no rule on 507?	References to the I-codes within the IEBC are being addressed through the "Rules of construction" Section 101.1.1 in paragraph (A) of the Ch 34 rule (4101:1-34-01). The language in IEBC 507 for historic buildings, while not identical, seems very similar to the current OBC 3409.1. It provides needed flexibility to the code official to address distinct life safety hazards (current language) while, at the same time, exempting an historic building from most provisions of the code.	3/30 No change
Collins, Dave	group.com	Chpts 6-12	Thank you! I have reviewed the draft rules and am impressed by what you have done to incorporate the Chapter 34 specific criteria. However, I personally still do not see the benefit of adding the provisions for the "work area" compliance, as the prescriptive means have been exhaustively handling the scope of work. I understand that you have made it allowable by choice, I just do not have any understanding why any designer/owner would do so. I believe it would create new mandatory criteria in Chapters 6 through 12 that I believe are contrary to 3781 and 3791 authority given to the BBS that were the basis for the modifications of Chapter 5. The historic buildings provisions have some strange areas where a building official is required to make a decision regarding means of egress. Similar "alternative signs" and "alternative life-safety system" opens a can of worms. Thank you again for sharing this up-to-date information! How would you see simply deleting Chapters 6 through 12 when adopting the IEBC. Similarly, do you intend to modify Chapter 13 at all?	There is nothing in RC 3781. or 3791. that prohibits an owner from exceeding the minimum prescriptive requirements of the code. Some owners may have the resources and desire to incrementally improve the safety of their building. The Work Area Compliance Method provides that guidance. The owner always has the option to choose the Prescriptive Compliance Method. The IEBC Ch 12 for historic buildings is part of the optional Work Area Compliance Method.	3/30 No change

Collins, Dave			When you said that the IEBC "levels" combined with the "prescriptive" requirements for existing buildings provide the same options as the OBC, I've gone back to look at what equates to alterations in the OBC and have the following questions: •Are you considering that the "prescriptive method" using Chapter 5 of the IEBC equates to the "limitation" on code application to alterations in section 3404 of the OBC? •Does Chapter 5 cover historic buildings appropriately, or are you planning considerable modifications to Chapter 5 in order to cover everything that the OBC includes as an alteration? •Will the fire escape provisions in Chapter 8 of the IEBC (Alterations Level 2) also be referenced in Chapter 5, or not permitted per the IBC? •Existing fire escapes are only mentioned in 804.4.1.2. I am seriously concerned with maintaining the "prescriptive method" which is close to what the OBC considered alterations and IEBC alterations are only considered included in the "levels" option. Chapter 12 of the IEBC includes a great number of "code official may" and references to things like "construction requirements specified in this code." What does construction requirements "in this code" mean? In Section 101.2.1 it references the IFC Chapter 11. Will Ohio reference the fire code? Section 1203.12 states: Every historic building that cannot be made to conform to the construction requirements specified in the International Building Code for the occupancy or use that constitutes a distinct fire hazard ....." The entire sentence doesn't make sense as an existing building. Just because it is historic the existing building MUST meet the construction requirements of the IBC for that occupancy? Where is the distinct hazard to be found in the building that triggers compliance here. Section 102.6 states that "provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings where such buildings or structures do not constitute a distinct hazard"	The language in paragraph (E) of this rule proposes to modify the IEBC Section 503, Alterations, to be similar to the language in the current OBC Section 3404.1. The IEBC Section 507 addresses historic buildings in a similar way as found in the current OBC Section 3409. The IEBC Chapter 8, Section 804.4.1.2 provisions for fire escapes are applicable when the Work Area Compliance Method is chosen and recognizes existing and newly constructed fire escapes. The IEBC Section 504 addresses the prescriptive compliance method fire escape requirements and are very similar to current OBC Section 3406 requirements for fire escapes. Again, Chapter 12 of the IEBC is part of the optional Work Area Compliance Method to incrementally improve the safety of the existing building. The proposed BBS rule	3/30 No change
Collins, Dave		303.1.3	303.1.3 establishes that the method “as selected by the applicant” is the path that it must conform to. Selecting Level 1, 2 or 3 would have significant impact on an owners obligation under the code and creates conflicts of intent easily.	The 2021 IEBC Section 303.1.3 does not exist. Yes, much like the energy conservation code, the 2021 IEBC Section 301.3 requires the owner/owner's representative to select a compliance method	3/30 No change
Collins, Dave		303.3	303.3 It is not clear what is supposed to happen with Storm Shelters in Group E under Section 303.3 IEBC (which only addresses Group E additions), and while the Group E portions are deleted nothing is clarified about what is required for Group E with only alterations or change of occupancy.	The 2021 IEBC Section 303.3 does not exist. Section 303.2 is proposed to be deleted because Ohio law prohibits the BBS from requiring storm shelters in Group E occupancies, regardless of the type of work proposed.	3/30 No change

Collins, Dave		306.2	Section 306.2 of the amendments should read, “the applicable <u>portions of</u> the ICC A117.1” I see why you took out using the ICC A117.1 for alterations and existing buildings, but I believe the intent was that only portions applying to the rules for alterations, additions, etc. were to be enforced.	The proposed rules are allowing for different editions of the standard to be used, depending upon the scope of work. The suggested clarification makes sense.	3/30 No change
Collins, Dave		Chpt 5	Chapter 5 You indicated that this chapter is essentially what is in Ch. 34, it goes far beyond that in the following sections. Replacement section 503.1 references “the code for new construction.” Should it not be the OBC? There are multiple references to building code in 503.1 exceptions. 503.10 has a threshold for the “work area” exceeds 50% of the building area. There is no such provision in Chapter 34! 503.11 has provisions establishing requirements when the “work area” exceeds 50% of the building. There are no such provisions in Chapter 34! 503.11 deals with reroofing more than 50% of the diaphragm. Section 1511 of the OBC addresses reroofing, but has no such threshold! No reroofing requirements are in Chapter 34, its scope would refer back to Section 1511 of the OBC.	We could replace that phrase with the name of every code (OBC, OMC, OPC, IECC, etc.) that is applicable to new construction, but the point is that compliance with those codes is only required to the extent of the alteration. Making reference only the OBC leaves out the building systems (mechanical, plumbing, fuel gas, etc). Yes, the 2018 and 2021 IEBC has added some additional mandatory structural requirements in Ch 5 (503.5-503.11) that exceed current OBC prescriptive requirements for alterations. There are also some new Ch 5 mandatory requirements that may be triggered related to accessibility (enhanced classroom acoustics, two-way communication systems, areas of refuge, etc.) if alterations exceed certain thresholds.	3/30 No change - life safety, structural & accessibility issues

Collins, Dave		Chpt 8	Chapter 8 The requirements of Sections 802.5.1 and 802.5.2 shall apply in all work areas. They require every portion of a floor, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, shall be provided with guards. Then it says the guards shall be designed and installed in accordance with the International Building Code. In the IBC guards are not required in 8 specific locations: 1. On the loading side of loading docks or piers. 2. On the audience side of stages and raised platforms, including stairs leading up to the stage and raised platforms. 3. On raised stage and platform floor areas, such as runways, ramps and side stages used for entertainment or presentations. 4. At vertical openings in the performance area of stages and platforms. 5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment. 6. Along vehicle service pits not accessible to the public. 7. In assembly seating areas at cross aisles in accordance with Section 1030.17.2. 8. On the loading side of station platforms on fixed guideway transit or passenger rail systems.	Again, Ch 8 is part of the optional Work Area Compliance Method. It provides guidance to owners wishing to incrementally improve the safety of their building.	3/30 No change
Collins, Dave		Chpts 6-12	Chapters 6-12 should be totally eliminated. Building officials and designers will have a hard time understanding that using the work area method for compliance forces that include retroactive requirements not otherwise required in the prescriptive method. The most dangerous portions are Chapters 7 and 8. The 50% threshold of the “floor area” or “area of the building”, totally ignores the tenant interest where there may be more than one or multiple tenants affected by the work in one tenant area. (802.2.2.3 – floor openings (at a minimum, be enclosed with smoketight construction on the highest work area floor and all floors below.), 802.3.1.1 – high rise, Retroactively applying provisions to areas of the building not involved in the work, in areas where other tenants are affected, etc. violates Ohio Law. We’ve been involved in projects even now where a sprinkler system was required by code officials throughout a high-rise building simply because of one tenant improvement.	Chapters 6-12 are part of the optional Work Area Compliance Method.	3/30 No change

Collins, Dave		Chpt 10	Chapter 10 Prescriptive compliance has no provisions for Part Change of Occupancy, so it appears to apply to the entire building no matter what method of separation when going to a higher hazard level. Height and area for change of occupancy is more restrictive than for new construction, and only allows fire walls and a fire wall alternative with sprinklers. The limits on exterior wall and vertical opening ratings for a change of occupancy to a higher hazard also appear to be for the entire building. These requirements will make a part change of occupancy so difficult to interpret and apply that uniform application is not possible and strict reading will kill most all attempts at a change of occupancy to a higher hazard level. Section 1011 has scattered provisions which allow some requirements to be separated and not comply and not others. Sprinkler coverage can be separated, but fire alarms don't need any rated separation. Means of egress is not clear on what extent the MOE has to comply – but appears to take into consideration the entire building and not just the change of occupancy areas and their paths of egress.	Chapter 10 is part of the optional Work Area Compliance Method. The 2021 IEBC modified Section 1011.2 clarified how far to extend the sprinkler system when only a part of the building is undergoing a change of occupancy. It's already clear what is intended for fire alarm systems in buildings undergoing a part change of occupancy. The 2021 IEBC Section 1011.6 does a good job of helping owners/owners representatives understand which occupancies are more hazardous than others. An analysis of this type is already a requirement in the OBC 3408.	3/30 No change
Collins, dave	dcollins@preview-group.com	1002.2	The reference is to the IBC, not the building code. I saw no rule change for that? Still working on it?	The rules of construction is intended to change references from the IBC to the OBC	NA
Collins, Dave		Chpt 13	Chapter 13 – Performance Compliance The amendments don't include the current OBC exception to Section 3412.2 OBC, which limits the comparative analysis to buildings built before July 1, 1979. The IEBC has no limiting dates, so it could be used for a building built last year which was not its intended purpose. Ohio established the limiting date, will it not be used here?	Staff proposes to eliminate the date and allow all existing buildings to qualify for the performance compliance method, just as the IEBC does.	3/30 No change
Oeflein, William	woeflein@gmail.com	General	I'm very much in favor of the new IEBC. We are renovating an old building and the new language in the IEBC clearly has been written to clear up the confusing challenge of deciding what needs to be brought up to code and why. I'm not sure why you would want to retain anything about Chapter 34. That scoring system as an option for a alteration is a nightmare to work with.		NA
Rice, Sarah	srice@preview-group.com	604.1	Associated with this whole "building area" I want to circle back to IEBC 604.1 – and what they mean by the term "building area. Does "building area" mean "per story" in this context OR does it means "aggregate building area??" Without some kind of elaboration to just what "building area" is here in the IEBC you will have people going back to the "per story" dimension in the IBC. THIS IS AN IMPORTANT DISTINCITON - The commentary on the IEBC reads "aggregate building area" (see below) So logically shouldn't the code read to say "aggregate building area" or maybe it should be "actual aggregate building area"????	The proposed Chapter 34 rule paragraph (FF) adds the word "aggregate" to clarify the intent, as suggested.	3/30 Approve change

Exhibit D

From: Ohler, Deborah
To: Aaron Dearth
Cc: Denk, Joseph
Subject: RE: Energy Code
Date: Friday, February 18, 2022 7:57:00 AM
Attachments: image003.png

Good morning, Aaron-
Thank you for taking the time to provide comments to the BBS Code Committee at their January meeting.

Thank you, too, for taking the time to help me understand your position and to clarify which standard you are using to demonstrate compliance. It was clear to me that you were using the COMcheck software to enable trade-offs. However, I thought I heard you say that you were selecting the 2018 IECC option within the COMcheck software to demonstrate compliance.

Thank you, again, for the clarification.
Have a good day and a great weekend!
Debbie

Ohio | Board of Building Standards

Deborah D. Ohler, P.E., Construction Codes Administrator
Ohio Board of Building Standards
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dohler@com.state.oh.us
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Better Codes, Better Buildings, Safer Ohio

http://coronavirus.ohio.gov
Thanks for your patience while our staff works remotely to stop the community spread of COVID-19.

This message and any response to it may constitute a public record and thus may be publicly available to anyone who requests it.

From: Aaron Dearth <adearth@simonsonconstruction.com>
Sent: Wednesday, February 16, 2022 2:22 PM
To: Ohler, Deborah <debbie.ohler@com.state.oh.us>
Cc: Joe Denk <Joseph.Denk@denkassoc.com>
Subject: Re: Energy Code

Debbie,
thank you for taking the time to call me today. After our conversation, I wanted to look up the codes

and follow up with the information we discussed. You stated that you were confused as to how ComCheck was showing different values, when it appeared that the insulation values had not changed. I believe the confusion lies in the difference between the tabular prescriptive values (for example ICC table C402.2) and the appendix used for the trade-off method. To clarify, we have (3) options for energy code compliance. #1- strictly following or surpassing the prescriptive values, #2- the trade-off method via software such as ComCheck which allows benefits from high performing spaces to allow savings in others, and #3 complex full building modeling which would allow savings between disciplines such as solar lighting allowing decrease in insulation. In general, most of our projects, and those whom I have business with, continue to utilize the trade-off method via ComCheck. The prescriptive values are simply too restricting and don't allow for any variance to things like continuous insulation. I see what you are saying that the prescriptive values appear the same, however these are already the high end insulation values and not the values they allow for use in the trade-off method.

The comcheck software utilizes Ashrae appendix A for its roof and wall calculations. This appears to be where they implemented the changes in the code to inflate the insulation values. For example, in 90.1:2010 a single layer of R-13 in a metal building wall calculated to a U-value of 0.113, in 2016 that changed to a U value of 0.162. This equates to a 30% decrease in the benefit they will allow you to document for that insulation. (Table A3.2) It's the same story for roofing, in 90.1:2010 a double layer of R19 was U0.046, and in 2016 that changed to U0.060, or a 23% decrease in benefit.

Hopefully that helps clear up some of the confusion. It would appear that the changes they made are less obvious. They altered the allowable U-values in the appendix for anything less than the prescriptive values. This effectively artificially inflates the insulation requirements to force them closer to the prescriptive despite being the same R-value previously calculated at better U-values.

As I mentioned, although this was the confusion, this is not my primary concern. My primary issue remains that these changes will primarily be forcing additional upfront costs on businesses with little to no future savings. I admit that as a design-build contractor, factories and warehouses utilizing pre-engineered metal buildings are a major part of our business. And it's these clients I don't see recouping anything in the long run. For just about any facility in the F or S use group, the HVAC system is sized almost entirely for equipment, processes, and ventilation requirements of the space. Additional insulation value won't likely cause any change in the sizing, output or energy use of the large air handling units needed for these facilities. When you are changing over the air in factory space 10-15 times an hour, external influences are negligible. In a way, it could be said that by requiring more raw materials, more labor, without decreasing the utility usage, for F and S uses this change could actually use more energy overall than the previous.

Thanks again for your call, and feel free to reach out to me if you have any further questions. As before, I would recommend you reach out to Mike Halapy and Bill Beals if you would like any input from the insulation industry or Ashrae.

Aaron Jay Dearth, RA, AIA, NCARB

Simonson Construction Services, Inc.
Cell: (419) 565-1898

On Mon, Jan 31, 2022 at 10:45 AM Aaron Dearth <adearth@simonsonconstruction.com> wrote:

> No problem at all Joe. In fact I was very pleasantly surprised by the openness to comments of your board. As well as your appreciation and concern for the real world effect on businesses in Ohio that these changes could affect.
> I have spoken with Mike both before and after the meeting, and he is updating Bill as well. Mike has expressed interest in speaking at the March meeting if that would benefit you.
>
> If you have any other questions, or would like to discuss what we are seeing/hearing from clients in this region, on even the current energy code, I would welcome the conversation. Let me know if you need anything from me.

Aaron Jay Dearth, RA, AIA, NCARB
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Simonson Construction Services, Inc. is an Equal Opportunity Employer

On Mon, Jan 31, 2022 at 10:15 AM Joe Denk <Joseph.Denk@denkassoc.com> wrote:

> Aaron:
>
> Thank you again for your input at our recent Board of Building Standards Code Committee meeting. Please make Mike Halapy and Bill Beals aware that we are considering an update of the Energy Code. We would welcome any input they are inclined to provide.
>
>
> Joe Denk, PE, LEED AP
>
> **Denk Associates, Inc.**
> 503 East 200th Street
> Cleveland, Ohio 44119
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DENK ASSOCIATES
CONSULTING ENGINEERS

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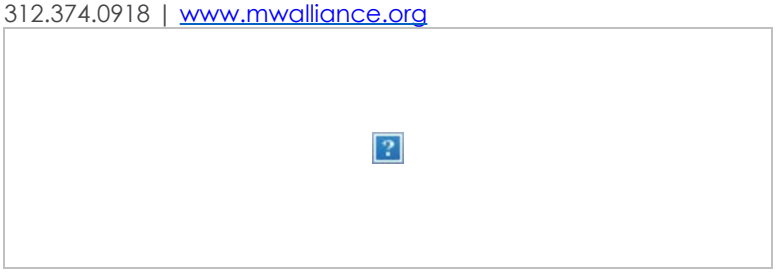
From: Nicole Westfall - MEEA
To: BBS, BBSOfficAsst3
Subject: MEEA Comments on Ohio"s Building Code Updates
Date: Friday, January 14, 2022 2:25:44 PM
Attachments: image001.png
MEEA comments on Ohio"s Building Code Update - 1.14.2022.pdf

Ms. Hanshaw and the Ohio Board of Building Standards,

Thank you for the opportunity to comment on Ohio's Building Code update. Please find attached comments from the Midwest Energy Efficiency Alliance. If you have any questions about the attached, please do not hesitate to reach out to me.

Kind regards,
Nicole Westfall

Nicole Westfall
(she/her/hers)
Building Policy Manager
Midwest Energy Efficiency Alliance (MEEA)
312.374.0918 | www.mwalliance.org



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January 14, 2022

Ohio Board of Building Standards Members
Attn: Regina Hanshaw
6606 Tussing Rd
Reynoldsburg, OH 43068

RE: Comments of the Midwest Energy Efficiency Alliance (MEEA) Supporting the Adoption of the 2021 International Energy Conservation Code

Dear Ms. Hanshaw and Members of the Board of Building Standards,

Thank you for opportunity to comment on Ohio's commercial energy code update. The Midwest Energy Efficiency Alliance (MEEA) is a member-based non-profit organization promoting energy efficiency to optimize energy generation, reduce consumption, create jobs and decrease carbon emissions in all Midwest communities. MEEA has previously worked in Ohio on energy codes and provided technical assistance to the Ohio Board of Building Standards in previous energy code adoption cycles.

MEEA supports the adoption of the most recent model energy code, the 2021 IECC, without weakening amendments for commercial and multifamily residential buildings in Ohio. While the adoption of the unamended 2018 IECC will improve commercial construction in the state, the 2021 IECC provides the most up to date cost effective standards and guidance on best practices for commercial construction and will ensure Ohio is capitalizing on the energy savings that come with the adoption of the latest model energy code. We urge the Board adopt the unamended 2021 IECC to ensure the people of Ohio receive the wide-ranging benefits of improved building efficiency. Doing so will make commercial buildings more resilient, reduce costs for owners and occupants, help promote local job creation, and improve the state's building infrastructure for generations to come.

The 2021 IECC provides a cost-effective way for Ohioans to save money and energy

Buildings account for roughly 40% of all energy used and over 70% of all electricity used in the United States. Updated building energy codes have consistently shown to be the most cost-effective way to reduce that energy consumption – putting significant monetary savings back into pockets of building owners, businesses and residents. The US Department of Energy (DOE) conducts state-specific energy savings and cost-effectiveness analyses for each new model commercial energy code1. Using DOE research, updating Ohio's current code, based on the 2012 IECC, to the 2021 IECC

[1] DOE's analysis is based on ASRAHE 90.1-2019. The 2021 IECC incorporates ASHRAE Standard 90.1 by reference as a compliance option and the commercial requirements are typically very close to ASHRAE for overall efficiency. Because these codes are the same in terms of efficiency, we reference the 2021 IECC for clarity. See U.S. Dep't of Energy, *Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Ohio* , at vi (July 2021), available at https://www.energycodes.gov/sites/default/files/2019-09/Cost-effectiveness_of_ASHRAE_Standard_90-1-2013-Ohio.pdf

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would result in a nearly 19% improvement in building energy efficiency.[2] The update on an unamended 2021 IECC would provide significantly more energy savings than can be attributed to the 2018 IECC. Results show that updating Ohio's commercial energy code from the 2018 IECC to the 2021 ICC is cost-effective for every building type in Ohio – meaning the cost of energy saved is higher than cost of compliance and will reduce building energy use and costs when compared to the current commercial energy code in Ohio[3]. On average, building owners and occupants can expect to save an average of $0.05 per square foot in just the first year. This analysis only compares the two most recent version of the code for Ohio – because the state has adopted the 2012 IECC with several weakening amendments, expected energy and cost savings would be significantly higher.

Strong Energy Codes Make Ohio's Buildings More Resilient

In addition, the adoption of the 2021 IECC would lead to more energy efficient buildings in Ohio but would also result in the construction of more resilient buildings. Improving the resiliency and preparedness of Ohio's buildings from blizzards, floods, heatwaves, and power outages will bring obvious benefits to communities across the state, including increased safety, greater ability to safely shelter in place and improved health outcomes. Updating energy codes can also significantly reduce the stress on the grid, and improve reliability, by reducing peak demand from commercial buildings in the state. This is critical during times of extreme weather, when energy resources from the grid can be strained. The most cost-effective time to prevent future damage from extreme weather is during initial building construction and Ohio has an opportunity to instill long-term resiliency planning with the adoption of the 2021 IECC.

Efficient buildings make for healthier and more productive environments

The adoption of a strong commercial building energy code would result in healthier and more productive indoor environments for Ohioans. Improvements in the building envelope and mechanical systems found in the unamended 2021 IECC would positively improve the indoor environmental quality of commercial buildings. The COVID-19 pandemic clearly demonstrated the importance of providing controlled fresh air in our businesses, workspaces, and homes. However, while critically important, increasing ventilation can also increase the energy use in our buildings. Energy efficient construction can ensure that buildings are able to cost-effectively provide appropriate levels of fresh air without increasing costs.[4]

Energy efficiency supports Ohio jobs.

In 2020, the clean energy sector supported more than 103,400 jobs in Ohio, of which 71% are in energy efficiency.[5] Of those energy efficiency jobs, all are interdependent

[2] See https://www.energycodes.gov/development/determinations for more information.
[3] See U.S. DOE, State Fact sheet – Ohio, at vi (July 2021), available at https://www.energycodes.gov/sites/default/files/2021-07/EED_1365_BROCH_StateEnergyCodes_states_OHIO.pdf
[4] See: https://energynews.us/2021/06/25/energy-efficiency-can-rein-in-costs-from-healthy-building-air-quality-projects/
[5] See Clean Energy Jobs Midwest: https://www.cleanjobsmidwest.com/state/ohio

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with the building industry, whether it be HVAC, insulation, or lighting. These are good, in-state jobs in a vital, growing sector of Ohio's economy. By updating the state's commercial energy code, Ohio has an opportunity to build on this foundation and continue to spur local construction and manufacturing jobs while improving the livability and resiliency of new building and reducing energy waste.

The 2021 IECC includes achievable, cost-effective standards that many states across the Midwest are considering. The adoption of the unamended 2021 IECC would result in energy efficient commercial buildings that are more affordable to operate and maintain for years to come in Ohio. However, the full value of the energy and cost savings, and other benefits associated with updating to the 2021 IECC will be substantially reduced if weakening amendments or a weaker model energy code are adopted in the final Ohio Commercial Building Code. The adoption of the unamended 2021 IECC will reduce the cost of utility bills for residents, businesses and building owner's, create more comfortable and healthier indoor environments and improve the resilience of buildings in the state. Adopting the newest/strongest building standards will ensure long-lasting benefits for all Ohioans. If you have any additional questions, please contact MEEA's Building Policy Manager, Nicole Westfall at nwestfall@mwalliance.org.

Thank you for your time and consideration.

Sincerely,

Stacey Paradis

Stacey Paradis
Executive Director

From:	Eric Lacey
To:	BBS, BBSOfficAsst3
Cc:	Hanshaw, Regina
Subject:	RECA Comments Supporting Commercial Energy Code Update in OH
Date:	Wednesday, January 12, 2022 2:47:08 PM
Attachments:	Supplemental RECA Comments Supporting 2021 IECC in OH 1-12-22.pdf RECA Comments Supporting 2021 IECC in OH 7-14-21.pdf

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Regina,

I hope you are doing well. Please see the attached supplemental comments of the Responsible Energy Comments in support of Ohio's proposed commercial energy code update, along with a copy of our July 2021 letter. If you have any questions, please call or email me. I will also plan on participating virtually in the January 27 Board of Building Standards meeting in case Board members have any questions.

Thank you,
Eric

Eric Lacey, Chairman
Responsible Energy Codes Alliance
1850 M Street, NW, Suite 610
Washington, DC 20036
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Submitted Via Email

July 16, 2021

Regina Hanshaw
Executive Secretary
Ohio Board of Building Standards
P.O. Box 4009
6606 Tussing Road
Reynoldsburg, OH 43068

RE: Comments of the Responsible Energy Codes Alliance (RECA) Supporting the Adoption of the 2021 International Energy Conservation Code for Commercial and Multifamily Residential Buildings

Dear Ms. Hanshaw,

We understand that the Ohio Board of Building Standards is in the process of reviewing the 2021 *International Building Code* (*IBC*) for adoption as the Ohio Building Code. The Responsible Energy Codes Alliance supports the full adoption of the 2021 *IBC*, including Chapter 13, which would incorporate the 2021 *International Energy Conservation Code* (*IECC*) for commercial and multifamily residential construction. The 2021 version of the *IECC* is a clear and substantial improvement over the 2015 and 2018 versions of the *IECC* and will provide a range of energy efficiency, resiliency, and environmental benefits for the owners and occupants of commercial and multifamily residential buildings.

The need for decisive action to reduce energy demands is clearer than ever before. Buildings are a significant source of energy use and emissions, and the 2021 *IECC* provides a solution focused on improving the energy performance of buildings that will save money, promote local job creation, and improve the state's building infrastructure for generations to come. Updating Chapter 13 of the Ohio Building Code from the 2012 *IECC* to the 2021 *IECC* presents an important leadership opportunity that will place Ohio on the forefront of building efficiency. As a result, we recommend that the Board consider the full range of long-term benefits of adopting the 2021 *IECC* for commercial and multifamily residential buildings in the state.

Energy and Cost Savings

The *IECC* is the most widely adopted model energy code for residential and commercial construction, and earlier versions have been adopted in Ohio and nearly every state that has a statewide energy code. For the last fifteen years, the *IECC* has improved in efficiency with every new edition, providing straightforward energy and cost savings for the owners of homes and commercial buildings, and providing an important policy tool for state and local governments to achieve energy efficiency goals.

Like previous editions of the code, the 2021 *IECC* incorporates *ASHRAE* Standard 90.1 by reference as a compliance option, providing additional flexibility for design professionals and builders without sacrificing energy efficiency. In accordance with federal law, the U.S. Department of Energy analyzes efficiency improvements in each edition of *ASHRAE* Standard 90.1. The *IECC* commercial requirements are historically similar to Standard 90.1 in terms of overall efficiency, and the vast majority of states adopt the *IECC* (including the reference to Standard 90.1) and allow design professionals to use both codes. The table below summarizes DOE's analyses of national average energy savings, showing that building owners and occupants stand to benefit from over 20% lower energy costs, on average, with the adoption of the three most recent editions of the model codes.

Model Code	National Avg. Energy Cost Savings over previous model code		National Avg. Energy Cost Savings over previous model code
***ASHRAE* 90.1-2013**	**8.7%[1]**	**2015 *IECC***	**11.5%[2]**
***ASHRAE* 90.1-2016**	**8.3%[3]**	**2018 *IECC***	**5.3%[4]**
***ASHRAE* 90.1-2019**	**4.3%[5]**	**2021 *IECC***	**Not yet released**

[1] *See* U.S. Dep't of Energy, *ANSI/ASHRAE/IES Standard 90.1-2013 Determination of Energy Savings: Quantitative Analysis*, at iv (Aug. 2014), *available at* https://www.energycodes.gov/sites/default/files/documents/901-2013_finalCommercialDeterminationQuantitativeAnalysis_TSD.pdf.

[2] *See* U.S. Dep't of Energy, *Energy and Energy Cost Savings Analysis of the 2015 IECC for Commercial Buildings*, at vi (Aug. 2015), *available at* https://www.energycodes.gov/sites/default/files/documents/2015_IECC_Commercial_Analysis.pdf.

[3] *See* U.S. Dep't of Energy, *Energy Savings Analysis: ANSI/ASHRAE/IES Standard 90.1-2016*, at iv (Oct. 2017), *available at* https://www.energycodes.gov/sites/default/files/documents/02202018_Standard_90.1-2016_Determination_TSD.pdf.

[4] *See* U.S. Dep't of Energy, *Energy and Energy Cost Savings Analysis of the 2018 IECC for Commercial Buildings*, at vi (Dec. 2018), *available at* https://www.energycodes.gov/sites/default/files/documents/2018_IECC_Commercial_Analysis_Final.pdf.

By adopting the 2021 *IECC*, Ohio can capture the important energy-saving improvements incorporated into the 2015, 2018, and 2021 versions of the *IECC*.[6]

State-Specific Weakening Amendments

As noted earlier, in the most recent update to Chapter 13 of the Ohio Building Code, several state-specific weakening amendments were adopted, leaving the statewide code short of its full potential for energy and cost savings. Weakening amendments make the code less efficient by watering down specific code requirements and substituting requirements from previous codes for more up-to-date provisions. The *IECC* has undergone a considerable number of interrelated changes since the 2012 edition, so carrying forward the current Ohio amendments could create conflicts (in addition to lost energy savings).

The most straightforward approach to address such potential amendments in this code update would be to start with a clean slate by eliminating all state-specific amendments at the start and then add back only the administrative amendments necessary to align section numbers and other necessary state amendments. If substantive amendments are to be considered, each such amendment to the model code should be carefully analyzed to determine if it is an improvement to the 2021 *IECC.* In our view, only improvements should be adopted and incorporated into Chapter 13 of the Ohio Building Code. For example, the current amendment to Section 1301.2 allows new multifamily residential buildings to be air leakage tested to ≤4 ACH50, whereas the *IECC* has required these buildings to be tested to ≤3 ACH50 since the 2012 edition. In Ohio's varying climate conditions, tighter envelopes provide energy savings and comfort benefits for occupants. And since the current requirement has been in place for several years now, we expect that builders could easily achieve improved air tightness levels in the next edition of the code. We recommend that Ohio adopt the air tightness testing requirement and other improvements as they are published in the 2021 *IECC* so that owners and occupants of these buildings can enjoy the full benefits of the latest model energy codes.

Broad Support for the 2021 *IECC*

Like previous versions of the *IECC*, the 2021 edition was developed with the direct input of the nation's leading architects, building code officials, builders, manufacturers, environmental groups, and sustainability experts in a consensus-based code development

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[5] *See* U.S. Dep't of Energy, *Preliminary Energy Savings Analysis: ANSI/ASHRAE/IES Standard 90.1-2019*, at vi (Apr. 2021), *available at* https://www.energycodes.gov/sites/default/files/documents/20210407_Standard_90.1-2019_Determination_TSD.pdf.

[6] For an estimate of energy and carbon savings associated with the latest model energy codes, download the Building Energy Codes Emissions Calculator at https://www.imt.org/resources/building-energy-codes-emissions-calculator/.

process. During this process, the efficiency improvements proposed for the 2021 *IECC* were endorsed by a broad range of organizations, including mayors, code officials, state energy officials, sustainability directors, and other governmental representatives from every region of the U.S. For example, the U.S. Conference of Mayors unanimously adopted a Resolution endorsing proposals that would achieve a 10% improvement in the 2021 *IECC*, finding that:

> "… building energy codes, by setting minimum efficiency requirements for all newly constructed and renovated residential, multi-family, and commercial buildings, provide measurable and permanent energy savings and carbon emissions reductions over the century-long life spans of these buildings …"[7]

The 2021 *IECC* is the result of voting by governmental members who participated directly in the ICC process. These members voted in record numbers to improve almost every aspect of the *IECC*, paving the way for a more efficient, more sustainable future.

The 2021 *IECC* contains reasonable energy-saving improvements for the entire building, including:

- Improved building envelopes, providing year-round energy savings and comfort for occupants;
- Improved requirements for verification, certificates, and other consumer protections;
- More efficient mechanical and lighting systems and automated controls designed with occupant health and safety in mind;
- Additional flexibility for builders and design professionals to optimize their design choices without reducing efficiency;
- Improved resilience, protecting occupants from environmental and climate-related risks and helping protect the investment of building owners; and
- A framework for jurisdictions to customize efficiency and net-zero requirements to adapt the *IECC* to meet energy and climate goals.

Delaying the adoption of potential efficiency improvements in the energy code could also have significant long-lasting negative consequences. Buildings constructed today are expected to last 70 years or more, and the vast majority of features that affect efficiency will be chosen and set in place at construction. The failure to grasp the opportunity to build more efficient buildings at the outset is a tremendous loss; any delay in adoption will result in the

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[7] *See* U.S. Conference of Mayors, *Meeting Mayors' Energy and Climate Goals by Putting America's Model Energy Code on a Glide Path to Net Zero Energy Buildings by 2050*, USCM Resolution 59 (July 1, 2019) (emphasis added), *available at* https://energyefficientcodes.org/wp-content/uploads/2019-07-1-Putting-the-*IECC*-on-a-Glide-Path-to-Net-Zero-Energy-Buildings-by-2050.pdf.

construction of buildings with less efficiency, a condition that will last for many years and possibly for the life of such buildings. The owners and occupants of commercial and multifamily residential buildings depend on the state to regulate buildings in a way that optimizes energy and cost savings and that will be consistent with Ohio's long-term energy goals. The 2021 *IECC* provides a consensus-driven, adaptable blueprint for Ohio's future.

Conclusion

RECA's members and supporters have been involved in energy code development and adoption for decades, and we offer our assistance and experience as you work to maximize building energy efficiency. Please contact us if you have any questions or would like to discuss how RECA can be of assistance.

Sincerely,

Eric Lacey
RECA Chairman

RECA is a broad coalition of energy efficiency professionals, regional efficiency organizations, product and equipment manufacturers, trade associations, and environmental organizations with expertise in the development, adoption, and implementation of building energy codes nationwide. RECA is dedicated to improving the energy efficiency of homes throughout the U.S. through greater use of energy efficient practices and building products. It is administered by the Alliance to Save Energy, a non-profit coalition of business, government, environmental and consumer leaders that supports energy efficiency as a cost-effective energy resource under existing market conditions and advocates energy-efficiency policies that minimize costs to society and individual consumers. Below is a list of RECA Members that endorse these comments.

Air Barrier Association of America

Alliance to Save Energy

American Chemistry Council

American Council for an Energy-Efficient Economy

CertainTeed LLC

EPS Industry Alliance

Extruded Polystyrene Foam Association

Institute for Market Transformation

Johns Manville Corporation

Knauf Insulation

National Fenestration Rating Council

Natural Resources Defense Council

North American Insulation Manufacturers Association

Owens Corning

Polyisocyanurate Insulation Manufacturers Association

Submitted Via Email

January 12, 2022

Regina Hanshaw
Executive Secretary
Ohio Board of Building Standards
P.O. Box 4009
6606 Tussing Road
Reynoldsburg, OH 43068

RE: Comments of the Responsible Energy Codes Alliance (RECA) Supporting the Adoption of the 2018 *IECC/ASHRAE* 90.1-2016 and Supplementing July 16, 2021 RECA Letter Supporting the Adoption of the 2021 *IECC/ASHRAE* 90.1-2019

Dear Ms. Hanshaw,

We are writing in response to the Ohio Board of Building Standards' December 10, 2021 request for comments on the adoption of the 2018 *International Energy Conservation Code* (*IECC*) and *ASHRAE* Standard 90.1-2016 (*ASHRAE*) for commercial and multifamily residential construction. RECA submitted comments to the Board supporting an update to the most recent edition of the model energy codes on July 16, 2021 (a full copy of which is attached to these comments). **As discussed in more detail below, we strongly recommend adoption of the 2018 *IECC/ASHRAE* 90.1-2016, and ideally the 2021 *IECC/ASHRAE* 90.1-2019, as soon as reasonably practicable.** We submit the following supplemental comments to provide additional information requested by the Board.

1. **RECA supports the proposed adoption of the 2018 *IECC/ASHRAE* 90.1-2016 in Ohio.**

RECA supports the adoption of the 2018 *IECC and ASHRAE* 90.1-2016, which would be a substantial improvement over the current commercial energy code in Ohio (based on the 2012 *IECC*). As we noted in our July letter, the 2018 *IECC/ASHRAE* 90.1-2016 provide clear, cost-effective energy savings for commercial and residential multifamily buildings in Ohio's climate zones. U.S. DOE has found that on a national basis, the 2018 *IECC* saves an average 5.3% in energy cost over the 2015 *IECC* and an additional 11.5% over the 2012 *IECC.* Similarly, *ASHRAE* 90.1-2016 saves 8.3% in energy cost over the 2013 version and an additional 8.7% over the previous version. (A more complete discussion of energy savings can be found in the attached July 2021 letter, page 2).

The Board's request for comments asks for specific details on the impact of the latest codes on building design. The update from the 2012 to the 2018 edition of the *IECC* will provide a number of key improvements for commercial buildings, including the following:

- **System Efficiency** – Heating, cooling, and water heating system efficiency requirements have been improved to maintain pace with federal requirements and market transformation, and new system control requirements will help further optimize efficiency.
- **Permanent Envelope** – The opaque envelope requirements and fenestration efficiency requirements are improved, helping to ensure long-term occupant comfort and energy savings, reducing electric peak demands, and contributing overall to a more durable and resilient building stock. A building that is insulated well and includes reasonably efficient fenestration will provide these benefits over the useful lifetime of the building.
- **Lighting Efficiency** – Lighting efficiency requirements and controls have been updated nearly every cycle to keep pace with rapid advancement in lighting efficiency and market trends. Interior and exterior lighting power densities have been adjusted to match the improving performance of lighting products. The 2018 *IECC* also updates requirements for lighting in multifamily residential dwelling units.
- **Additional Efficiency Options** – The 2018 *IECC* updates and increases the number of efficiency options in section C406, giving design professionals and builders more flexibility in compliance.

2. **Each edition of the *IECC* and *ASHRAE* 90.1 published since the 2012 *IECC* has been carefully reviewed by the U.S. Department of Energy and found to be an improvement in energy efficiency and to be life-cycle cost-effective for Ohio buildings.**

The U.S. Department of Energy reviews each edition of the national model energy codes pursuant to its federal statutory mandate. As part of this work, DOE has released state-specific energy savings and cost-effectiveness analyses for the most recent three editions of the model codes. For commercial buildings, U.S. DOE analyzes *ASHRAE* Standard 90.1 (which is a compliance option referenced in the *IECC*). For Ohio commercial construction specifically, DOE found clear cost-effectiveness over the useful lifetime of commercial buildings for each edition.

By adopting the 2018 *IECC*/*ASHRAE* 90.1-2016, Ohio can benefit from the energy- and cost-saving improvements incorporated into two published versions of the model energy codes. (Adoption of the 2021 *IECC* provides additional cost savings.)

U.S. DOE Analyses of Cost Savings for Commercial Buildings in Ohio			
Model Code	**Average Annual Cost Savings Over Previous Model Code**	**Avg. Life Cycle Cost Savings (Public Bldgs)**	**Avg. Life Cycle Cost Savings (Private Bldgs)**
ASHRAE 90.1-2013[1]	$0.144/sq.ft.	$2.38/sq.ft.	$1.97/sq.ft.
ASHRAE 90.1-2016[2]	$0.118/sq.ft.	$7.62/sq.ft.	$6.31/sq.ft.
ASHRAE 90.1-2019[3]	$0.054/sq.ft.	$4.02/sq.ft.	$3.57/sq.ft.

3. **RECA also encourages the Board to take the next step and adopt the 2021 *IECC/ASHRAE* 90.1-2019 as soon as practicable.**

As noted in our July comments to the Board, while a move to the 2018 *IECC/ASHRAE* 90.1-2016 would certainly be a major improvement and should not be delayed, adoption of the 2021 *IECC* (which includes *ASHRAE* 90.1-2019 as a compliance option) would yield even more energy savings and provide the widest range of benefits for building owners and occupants. The owners and occupants of commercial buildings constructed to the 2021 *IECC/ASHRAE* 90.1-2019 would see, on average, over a 20% reduction in energy costs as compared to buildings constructed to Ohio's current code. The latest model codes have demonstrated clear energy savings and will contribute to Ohio's greenhouse gas reduction goals; additionally, buildings will be more comfortable and more resilient for generations to come.

A move to the 2021 *IECC* provides significant additional improvements for commercial buildings at all levels as compared with the 2018 *IECC:*

1. **Further Improvements in Envelope Efficiency.** The 2021 *IECC* improves nearly all aspects of the permanent envelope, including more efficient fenestration and opaque envelope requirements.

[1] *See* U.S. Dep't of Energy, *Cost-Effectiveness of ASHRAE Standard 90.1-2013 for the State of Ohio*, at 2 (Dec. 2015) *available at* https://www.energycodes.gov/sites/default/files/2019-09/Cost-effectiveness_of_*ASHRAE*_Standard_90-1-2013-Ohio.pdf.

[2] *See* U.S. Dep't of Energy, *Cost-Effectiveness of ASHRAE Standard 90.1-2016 for the State of Ohio*, at 1 (Aug. 2020) *available at* https://www.energycodes.gov/sites/default/files/2021-03/Cost-effectiveness_of_*ASHRAE*_Standard_90-1-2016-Ohio.pdf.

[3] *See* U.S. Dep't of Energy, *Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Ohio*, at 1 (July 2021) *available at* https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_*ASHRAE*_Standard_90-1-2019-Ohio.pdf.

2. **Tighter Building Envelopes.** New air leakage testing for most building types will save energy, improve mechanical system performance, and help maintain healthy indoor air quality.
3. **Heating, Cooling, and Lighting Improvements.** Increased mechanical system and lighting system efficiencies will help maintain occupant health and reduce costs.
4. **Increased Flexibility for Design Professionals.** A new points-based system of code compliance replaces the package-based Additional Efficiency Options and will provide additional flexibility for design professionals to demonstrate compliance with the code based on specific building occupancy types.
5. **Streamlined Compliance and Enforcement.** Reorganized compliance paths will facilitate code compliance and enforcement.
6. **Improved Transparency for Building Owners.** New certificate and other disclosure requirements will provide information to building owners and operators and improve transparency in the design and building process.
7. **Reference to Most Current and Up-to date Version of *ASHRAE* 90.1.** The 2021 *IECC* references the improved *ASHRAE* 90.1-2019 as an alternate compliance path.
8. **Consistency with other I-Codes.** Section numbers and internal references will align with other 2021 International Codes under consideration in Ohio.

Adopting a code that meets or exceeds *ASHRAE* Standard 90.1-2019 would also be an important step in meeting the Federal Law that requires states to adopt a commercial energy code that meets or exceeds the most recent edition of *ASHRAE* on which U.S. DOE has found increased energy savings.[4] Because U.S. DOE made a positive determination on *ASHRAE* Standard 90.1-2019 on July 28, 2021, states have until July 28, 2023 to make that certification to the Secretary of Energy.[5]

The 2021 *IECC* (and *ASHRAE* Standard 90.1-2019) are the most current and up-to-date options available for adoption and, like previous editions of the model codes, benefit from the latest input of the nation's architects, engineers, efficiency experts, builders, product and equipment manufacturers, and other stakeholders who prioritize safe, healthy, efficient buildings.

[4] *See* 42 U.S.C. § 6833 (b)2(B).

[5] *See* U.S. Dep't of Energy, *Final Determination Regarding Energy Efficiency Improvements in ANSI/ASHRAE/IES Standard 90.1-2019*, 86 Fed. Reg. 40543 (July 28, 2021).

Conclusion

RECA supports the work of the Board of Building Standards to improve the health and safety of the built environment for Ohio citizens. We strongly recommend adoption of the 2018 *IECC/ASHRAE* 90.1-2016, and ideally the 2021 *IECC/ASHRAE* 90.1-2019, as soon as practicable. Please contact us if you have any questions or would like to discuss how RECA can help.

Sincerely,

Eric Lacey
RECA Chairman

RECA is a broad coalition of energy efficiency professionals, regional efficiency organizations, product and equipment manufacturers, trade associations, and environmental organizations with expertise in the development, adoption, and implementation of building energy codes nationwide. RECA is dedicated to improving the energy efficiency of homes throughout the U.S. through greater use of energy efficient practices and building products. It is administered by the Alliance to Save Energy, a non-profit coalition of business, government, environmental and consumer leaders that supports energy efficiency as a cost-effective energy resource under existing market conditions and advocates energy-efficiency policies that minimize costs to society and individual consumers. Below is a list of RECA Members that endorse these comments.

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CertainTeed LLC

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Extruded Polystyrene Foam Association

Institute for Market Transformation

Johns Manville Corporation

Knauf Insulation

National Fenestration Rating Council

Natural Resources Defense Council

North American Insulation Manufacturers Association

Owens Corning

Polyisocyanurate Insulation Manufacturers Association

From:	Ned B. Heminger
To:	BBS, BBSOfficAsst3
Subject:	Comment on Adoption of ASHRAE 90.1-2016 and IECC 2018
Date:	Wednesday, December 29, 2021 1:53:54 PM
Attachments:	image001.jpg

To the BBS:

I recommend adding language to Ohio's Energy Code so that Data Centers can comply with "ASHRAE 90.4-2016 – Energy Standard for Data Centers", provided they are within the scope of this standard.

Some history behind this, in the 2010 version of 90.1 a change was made that no longer exempted data centers from the standard. This created a significant problem for the industry because 90.1 was primarily written around comfort cooling systems. While some patchwork was done in the 2010 standard, it was not a good solution. Additional patchwork was done in later editions, until such time that a new energy standard was developed by ASHRAE specifically for Data Centers. This occurred with the new publication 90.4-2016. Even at that time, 90.1 did not recognized this new 90.4 standard until the 90.1-2019 standard was published. Until such time that Ohio recognizes 90.1-2019 or a later version, it would be very beneficial to include 90.4-2016 as a compliance path for Data Centers in Ohio.

Thank you for your consideration. If you have any questions, please do not hesitate to call.

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

HAWA Engineers | 980 Old Henderson Road, Columbus, Ohio 43220 | (O) 614-451-1711 | (C) 614-595-2773 | www.hawainc.com

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From: Jim Schrader
To: BBS, BBSOfficAsst3
Cc: Jim Schrader
Subject: Comment on Adoption of ASHRAE 90.1-2016 and IECC 2018
Date: Thursday, January 13, 2022 1:23:58 PM
Attachments: image001.png

To BBS:

I recommend that language be added to Ohio's Energy Code to allow Data Centers to comply with ASHRAE 90.4 – 2016 - Energy Standard for Data Centers.

Jim Schrader, President
TechSite
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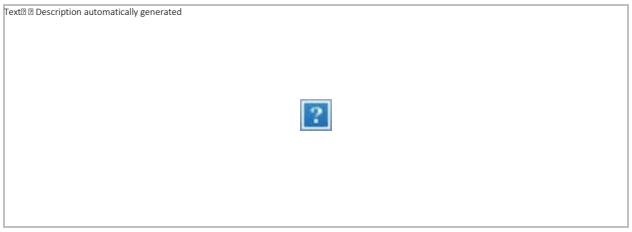

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