



Common Sense Initiative

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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 Mechanical Code Update

Rule Number(s): Rescind all existing rules in 4101:2; Adopt new rules 4101:2-1-01, 4101:2-2-01, 4101:2-3-01, 4101:2-4-01, 4101:2-5-01, 4101:2-6-01, 4101:2-7-01, 4101:2-8-01, 4101:2-9-01, 4101:2-10-01, 4101:2-11-01, 4101:2-12-01, 4101:2-13-01, 4101:2-14-01, 4101:2-15-01

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

Public Comment Period End Date: 5/10/23

Rule Type/Number of Rules:

New/ 15 rules

No Change/ rules (FYR?)

Amended/ rules (FYR?)

Rescinded/ 15 rules (FYR?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.

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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 4101:2 and adopt new Ohio Administrative Code (OAC) rules to incorporate the 2021 International Mechanical Code by reference with Ohio amendments as follows:

4101:2-1-01: This proposed rule regulates the administration of the mechanical code by certified building departments.

4101:2-2-01: This proposed rule sets forth the definitions of terms used in rules 4101:2-1 through 4101:2-15-01

4101:2-3-01: This proposed rule contains the requirements for the safe installation of mechanical equipment and appliances.

4101:2-4-01: This proposed rule regulates the quality of indoor air and ventilation.

4101:2-5-01: This proposed rule regulates the installation of exhaust systems to protect against the hazards air contaminants and smoke development in the event of a fire.

4101:2-6-01: This proposed rule regulates the installation of supply, return and exhaust air systems.

4101:2-7-01: This proposed rules sets forth the requirements for combustion air.

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4101:2-8-01: This proposed rule regulates the design and installation of chimneys, vents and their connections to rule-burning appliances.

4101:2-9-01: This proposed rule contains the requirements for construction and performance of fireplaces, appliances and solid-burning equipment.

4101:2-10-01: This proposed rule contains the requirements for boilers, water heaters and pressure vessels.

4101:2-11-01: This proposed rule regulates the use of refrigerants and the installation of refrigerating systems.

4101:2-12-01: This proposed rule regulates the construction, alteration and repair of hydronic piping systems.

4101:2-13-01: This proposed rule regulates the design and construction of fuel oil piping and storage.

4101:2-14-01: This proposed rule regulates the design and construction of solar energy systems use for space heating and cooling and domestic hot water heating.

4101:2-15-01: This proposed rule lists technical standards referenced in rules 4101:2-1 through 4101:2-14

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.***

No – See Ohio Building Code Update BIA

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)?

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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 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;

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(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

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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 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 B.

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 Mechanical Code (IMC) 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 IMC included building and fire code officials, engineers, mechanical contractors, boiler inspectors and the National Association of Home Builders.

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

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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:**

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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 Mechanical 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:

304.11 Guards - modified text to clarify guard requirements at a hatch to eliminate tripping hazards

403.1 Ventilation system - removed the restriction that limits application to Group R three stories of less in height; the result is that all Group R will require mechanical ventilation

506.3.9 Grease duct horizontal cleanouts - adds a new requirement for a cleanout within 3 ft of a horizontal fan

801.21 Blocked vent switch - new section that requires controls that shut off appliance burner when vent is obstructed

16. Are there any proposed changes to the rules that will reduce 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

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by approximately 85% from the Ohio Mechanical Code. Additionally, the proposed rules eliminates about 2,500 regulatory restrictions from the current Ohio Mechanical Code as defined in 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:

602.2 Construction - clarifies intent and coordinates with new definitions

603.5.1 Gypsum ducts - clarifies intent and coordinates with new definitions

604.3 Coverings and linings - adds exceptions and flexibility in design by allowing foam plastic insulation in more circumstances

607.6.2.1.2 Static systems - new text clarifies intent and coordinates with new definitions

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.

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

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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 Mechanical Code Summary of Significant Changes - 2017 to 2024 April 2023

| Ohio Administrative Code Rule Number | 2024 OMC Section | Source of Change (2018 IMC, 2021 IMC, or BBS) | Description of Change |
|--------------------------------------|--|---|--|
| 4101:2-1-01 | 101.1 | BBS | Formal adoption by reference of the International Mechanical Code (IMC) |
| | 101.1.1 | BBS | "Rules of construction" are universal edits of the IMC |
| 4101:2-2-01 | Ch 2 | 2018 | Removes all definition lists found at the beginning of each chapter and italicizes defined terms throughout the code |
| | Appliance, existing | 2021 | Modified definition |
| | Balanced Ventilation | 2018 | New definition for dwelling units 403.3.2.1 |
| | Building | BBS | Revised definition |
| | Ceiling Radiation Damper | 2018 | Modified definition to add two sentences and coordinate with UL 555C testing requirements |
| | Direct Evaporative Cooling | 2018 | New Definition to differentiate between direct vs indirect evaporative cooling process as used in 602.2 and 603.5.1 |
| | Dwelling, One-, Two-, or Three-Family | BBS | Added definition |
| | Flammability classification (refrigerant) | 2018 | Modified definition |
| | Indirect Evaporative Cooling | 2018 | New definition to differentiate between direct vs indirect evaporative cooling process as used in 602.2 and 603.5.1 |
| | Large-diameter ceiling fan | 2018 | Modified definition to align with DOE definitions |
| | Press-Connect Joint | 2018 | Modified definition to recognize use of bite ring joint. |
| | Refrigerant Safety Group Classification | 2018 | Modified definition to coordinate with ASHRAE 34. |
| | Registered Design Professional | BBS | Clarifies that landscape architects are also registered design professionals |
| | Toxicity Classification (Refrigerant) | 2018 | Modified definition to remove code requirements and better coordinate with the ASHRAE 34 |
| | Unvented Alcohol Fuel-Burning Decorative Appliance | 2018 | New definition to recognize a newer type of decorative appliance listed in Section 929 |
| 4101:2-3-01 | 301.6 | BBS | Modified Exception to refer to ORC 4104.44 -Requirements for welding and brazing. |
| | 301.18 | 2018 | Modification to include 'anchorage and bracing' to scope of seismic |

Ohio Mechanical Code Summary of Significant Changes - 2017 to 2024 April 2023

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|-------------|-----------------|------|---|
| | | | resistance design with Ch 16 of building code |
| | 304.11 | 2018 | Increases guardrail extension requirements for added safety at roof edge for roof hatch |
| | 307.1.1 | 2018 | New section to require what concealed piping is to be identified (marked) |
| | 307.2.1.1 | 2021 | Added how condensate drain is to be terminated. |
| | 307.2.2 | 2021 | Modified section to include PE-RT and PVDF pipe |
| | 307.2.3.3 | 2021 | New section to require identification of concealed piping and to clarify what is to be identified |
| 4101:2-4-01 | 401.2 | 2021 | Modified section to reference both the IECC and the ASHRAE 90.1, deleted Ohio change |
| | 401.4 | 2021 | Added the last sentence to condition #3 to recognize factory-built termination fittings |
| | 403.1 | 2021 | Deleted the restriction that limits application to Group R three stories or less in height; result is all Group R will require mechanical ventilation |
| | 403.2 | BBS | Added Exception 2 to use either ASHRAE 62.1, or 62.2 as an alternative engineered design for compliance |
| | 403.2.1 | 2021 | Added the last sentence to condition #2 to reference the ACCA 10 Manual SPS |
| | Table 403.3.1.1 | 2021 | Modification to footnote 'g', to address ERV technology and coordinates ventilation rates with ASHRAE 62.1 for commercial laundries and private dwellings |
| | 403.3.1.3 | 2021 | Modification to add the last sentence to clarify when demand-controlled ventilation controls are used, the required minimum amount of outdoor air shall be provided when occupied |
| | 403.3.1.5 | 2021 | Deleted balancing Section 403.3.1.5, and moved to Section 608.1 with modifications |
| | 403.3.2.1 | 2021 | Added exception 2 to provide incentive for whole-house outdoor air ventilation system rather than exhaust-only systems for dwelling units. See new definition of 'balanced ventilation systems' |

Ohio Mechanical Code Summary of Significant Changes - 2017 to 2024 April 2023

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|-------------|-----------|---------------|---|
| | 403.3.2.4 | 2018 | Added new section for labeling controls for whole house-dwelling ventilation systems |
| | 403.3.2.5 | 2018 | Added new requirement for testing exhaust fans in dwelling units |
| | 404.1 | 2018 | Modification to clarify intent regarding intermittent operation and added 2 options of modes of operation. |
| | 404.2 | 2018 | Deleted 'Minimum Ventilation requirements and reassigned section 404.2 for 'Occupied spaces accessory to public garages' |
| | 407.1 | 2021 | Modification to add requirement to comply with NFPA 99 in addition to the IMC to coordinate with federal healthcare facility requirements |
| 4101:2-5-01 | 501.2 | 2021 | Clarification to consolidate independence requirements regarding domestic kitchen and hazardous exhaust and commercial kitchen exhaust requirements |
| | 501.3.1 | 2021 | Added last sentence to Condition 3 to recognize factory-built termination fittings |
| | 502.9.5 | 2021 /BBS | Retains model codes language and adds reference to IFC Section 5701.2 as exception |
| | 502.9.5 | 2021/BBS | Added exceptions 3 for Fuel and diesel oil tanks connected to fuel burning equipment & 4 for underground storage tanks in accordance with ORC 3737.87-.89 |
| | 502.20.1 | 2021/BBS | Added new section for requirement for controls that exhaust system must operate at all times "during chemical application." |
| | 504.4 | 2018 | Modification to add last sentence to seal ducts per Section 603.9. |
| | 504.4.1 | 2018/2021/BBS | Modified 2018 new section that clarifies dryer exhaust termination requirements must meet dryer manufacturer's instructions or as prescribed in the section. Added revised language to last sentence after 'buildings' to read as 'Except ventilated soffits. |
| | 504.6 | 2021 | New section that clarifies that booster fans are not permitted in dryer exhaust systems; however, dryer exhaust duct power ventilators are permitted per 504.5. |

Ohio Mechanical Code Summary of Significant Changes - 2017 to 2024 April 2023

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|-------------|------------------------|------------|--|
| | 504.8.2 (504.9.2-2021) | 2018 | Modification to add Sentence after main paragraph to address dryer exhaust ducts in wall/ceiling cavities |
| | 506.3.7 | 2021 | New exception that allows manufacturer's slope for grease ducts |
| | 506.3.9 | 2021 | Adds a new requirement #7 for a cleanout within 3 ft of a horizontal fan |
| | 506.3.13.2 | 2018 | Modification to clarify locations and clearance to openings per 506.3.13.3 and not located within 3' of any opening in the exterior wall |
| | 506.5.2 | 2018 | New code section further refines and add flexibility to the requirements for pollution control units and adds certification to UL 8782 which manufacturers are already doing |
| | 507.1 | 2021 | Adds new hood exception for smoker ovens with integral exhaust |
| | 507.2.6 | 2018 | Adds new Exception 2 to recognize Type 1 hoods listed for clearances less than 18" from combustibles. |
| | 507.6 | 2021 | Clarification to replace end of last sentence with 'such as that by smoke generators.' |
| | 501.2 (510.4) | 2021 | Moved independence requirement from 510.4 to Section 501.2 to consolidate independence requirements. |
| | 510.4 | 2021 | Renumbered existing 510.5, a result of the deletion of 510.4 information consolidated in 501.2 |
| | 510.5- 510.8.3 | 2021 | Renumbered all existing sections because of the deletion of 510.4 |
| | 510.5.5 | 2021 | Editorial modifications regarding make up air 'from all sources' for hazardous exhaust systems and their operation |
| | 511.1.5 | 2021 | Modified section name and the section to clarify intent |
| | 514.2 | 2021 | Modification removes Type II hoods from prohibited location item #4 thus allowing ERV systems |
| 4101:2-6-01 | 602.2.1.8 | 2018/ 2021 | Modification for new addition in 2018, 2021 adds last sentence to clarify intent that the entire assembly must be tested, not just the individual components |
| | 603.5.1 | 2021 | Modification to last sentence to clarify intent for 'supply' air ducts ...utilizing 'direct' evaporative 'cooling systems'. Coordinates with new definitions |

Ohio Mechanical Code Summary of Significant Changes - 2017 to 2024 April 2023

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|-------------|---|------------------------|---|
| | 603.5.2 | 2018 | Added new section on new type of non-metallic ducts. (phenolic duct). |
| | 603.8.2 | 2018 | Modification for testing of underground ducts. (Sealing requirements, Section C403 -IECC) |
| | 603.9 | 2018 | Modification to exception to indicate exception for closure systems is not applicable for 'snap' and 'button' lock type joints and seams located outside conditioned spaces |
| | 604.3 Exceptions | 2021 | Adds new exceptions and flexibility in design by allowing foam plastic insulation in more circumstances |
| | 607.2 | 2021 | Clarifies intent and coordinates subsections with new definition |
| | 607.2.3 | 2021 | New section clarifies intent and coordinates with new definition |
| | 607.3.1 | 2018 | Modification to clarify that dynamic-type ceiling radiation dampers are required where subject to continuous air flow from HVAC fans. |
| | 607.3.3.1 | 2021 | Clarifies intent and coordinates terminology with UL 555 |
| | 607.4 (607.4.1, 607.4.1.1, 607.4.1.2) | 2021 & Petition #17-01 | Separates single charging paragraph into multiple subsections and coordinates code with NFPA 80 requirements |
| | 607.5.2 | 2021/BBS | Modification adds conditions where flexible air connectors are permitted to be installed; like Ohio language already adopted. 'Non-metallic' is deleted from beginning of each exception. |
| | 607.5.5 Exception 1, condition 1.1 | 2021 | Adds a requirement for standby power for subduct exception to ensure continuous upflow |
| | 607.5.5.1 | 2021 | New subsection that clarifies subduct exception for continuous upflow condition |
| | 607.5.5.2 (607.5.5.1) | 2021 | Section renumber for new exception |
| | 607.6.2.1.1, 607.6.2.1.2 and exceptions | 2021 | Added new sections to clarify intent of ceiling radiation dampers for dynamic and static conditions and coordinates with new definitions |
| | 608.1 | 2021 | Added new section to relocate deleted balancing Section 403.3.1.5, with modifications. |
| 4101:2-7-01 | No significant changes | | |
| 4101:2-8-01 | 801.21 | 2021 | New section requires controls to shut off appliance burner when vent is obstructed |

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| 4101:2-9-01 | 905.2 | 2021 | Adds last sentence recognizing clean wood-burning hydronic heaters |
| | 908.1 | 2021 | Adds UL/CSA 60335-2-40 which will eventually replace UL 1995 |
| | 908.3 | Petition #19-02 | Location expanded to include 'outdoor public areas' affected by vapor plumes. Distance from plume discharges are increased from 20' to 25' away from any ventilation inlet and adds 'including operable windows. Added note to refer to ASHRAE 12-2000. |
| | 916.1 / 918.1 / 918.2 | 2021 | Adds UL/CSA 60335-2-40 which will eventually replace UL 1995 |
| | 920.2 | 2021 | New section prohibits unit heaters in certain locations of Group I-2 buildings |
| | 929 | 2021 | New section recognizing 'Unvented alcohol fuel-burning decorative appliances' |
| | 930 | 2018 / 2021 | Renumbered new section for HVLD fans as a result of new Section 929 |
| 4101:2-10-01 | 1004.1 | 2021 | Clarifies scopes for fuel input ratings of ASME CSD-1 'less than' 12,500,000 Btu/hr, and NFPA 85 greater 'or equal to' 12,500,000 Btu/hr. |
| 4101:2-11-01 | 1101.1 | 2021 | Deleted second sentence regarding refrigerant piping design |
| | 1101.1.1 | 2021 | New section differentiating most refrigerants from ammonia shall comply with ASHRAE 15 for piping design and installation |
| | 1101.1.2 | 2021 | New section for refrigeration systems using ammonia to comply with IIAR 2 through IIAR 5 and are not required to comply with this chapter |
| | 1101.2 | 2021 | Added UL 1995, UL/CSA 60335-2-40, and UL 60335-2-89 and amended paragraph for references to new Table 1101.2 for equipment and applicable standards by equipment type |
| | 1101.6 | 2021 | 1101.6 'General' is deleted and incorporated into 1101.1 Scope. [former 1101.7-1101.10 renumbered accordingly]. |
| | T 1103.1 | 2021 | Modifications to the table include removing R717 ammonia, deleting note c (outdoor installations), and moving note f to note c. Added new refrigerants to the table to coordinate with ASHRAE 34 |

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| | 1104.2.2 | 2021 | Delete exception dealing with ammonia from condition 3 and removed ammonia from condition 5 |
| | T 1104.3.2 | 2021 | Adds the word "Public" to 'Assembly' column of Table to be consistent with Section 1103.2 occupancy classifications |
| | 1104.3.3 | 2021 | Deleted reference to 'other than R717 ammonia,' after refrigerants |
| | 1104.3.4 | 2021 | Deleted 'R717 ammonia' from the exception, condition 1 |
| | 1105.6.3 | 2018 / 2021 | Modified first sentence and deleted second sentence referencing 'ammonia' |
| | 1105.8 | 2021 | Deleted previous Section 1105.8 dealing with ammonia discharge. |
| | 1105.8 (new) | 2021 | Renumbered after deleting previous section 1105.8 and completely referred to IFC for Emergency pressure control system. |
| | 1105.9 | 2021 | New section pointing to required means of egress/doors from refrigerant machinery room. (Duplicated from IBC requirements) |
| | 1106.3 / 1106.4 | 2021 | Deleted Section 1106.3 dealing with ammonia and rennumbers remaining sections, deletes old section 1106.4 exception dealing with ammonia, |
| | 1106.3 (Exception) | 2021 | Added missing phrase "provided with ventilation" in sentence |
| | 1106.4 | 2021 | Reworked section to address the ventilation and electrical classification relationship |
| | 1106.4.3 | 2021 | Deleted Section 1106.3 dealing with ammonia and rennumbers remaining sections thru 1106.6 |
| | Sections 1107-1110 | 2021 | All sections are reorganized and completely updated for Sections 1107-1110 and excluding ammonia. Tables 1107.4, 1107.5, and 1107.5.1 for piping, fittings, and copper brazed swaged cup depths. Additional testing requirements have been added. |
| | 1107.1 | 2021 | New subsection for scoping of refrigerant piping to comply with this section, excluding Ammonia. |
| | 1107.2 | 2018/ 2021 | Modification for used material piping to be approved for reuse. |
| | 1107.3 | 2021 | Add third sentence for clarification of materials ratings and prohibition of |

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| | | | magnesium alloys with halogenated refrigerants. |
| | 1107.5 | 2021 | Pipe fittings are to comply with Table 1107.5 <u>or</u> be listed and labeled with UL 207 |
| | 1107.5.1 | 2021 | New section and table for copper brazed swaged cup depths for in field fabrication. |
| | 1107.6 | 2021 | Section addresses compatibility of valve materials that are consistent with pipe materials. |
| | 1107.7 | 2021 | Section indicates that flex connectors and expansion and vibration compensators are to be listed and labeled for use in refrigerant systems. |
| | Section 1108 | 2021 | Section changed from 'Field Test' to 'Joints and Connections' |
| | 1108.3.1 | 2021 | Brazing requires use of inert gas in piping to prevent oxidation on the interior of the piping. Excessive oxidation could result in obstruction of small piping or components including system chemistry degradation, requiring future repair work. Reducing frequency of opening refrigerating systems for repair reduces the exposure to numerous hazards/risks |
| | Section 1109 | 2021 | Section changed from 'Periodic Testing' to 'Refrigerant Pipe Installation' |
| | 1109.2.2 | 2021 | New section requiring refrigerant piping to be concealed within the building elements. (Previously 1107.3) |
| | 1109.2.3 | 2021 | Clarification of prohibited locations for refrigerant piping. (Previously/similar to Section 1107.2) Allows piping to be installed in the ceiling of a corridor, If the RCL (refrigerant classification limits) requirements are met |
| | 1109.2.5 | 2021 | New section regulating the requirements for shaft containing refrigerant piping. A FR-rated shaft is required when piping connects three or more stories. Other utilities can be located in shaft. Three exceptions 1. water is use, (R718 refrigerant), 2. use of Group A1 refrigerants provided the smallest space if pipe meets the RCL requirements, 3. Piping installed on building exterior where leak vent to atmosphere. |

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| | 1109.2.6 | 2021 | New section to protect an individual from directly contacting a hot or cold refrigerant pipe with insulation |
| | 1109.3 | 2021 | New section regulating the installation of piping using Group A2L or B2L refrigerants |
| | 1109.3.1 | 2021 | New section regulating pipe protection for the installation of piping using Group A2L or B2L refrigerants. |
| | 1109.5 | 2021 | New section for building envelope penetrations. |
| | Section 1110 | 2021 | New section basis is the current Section 1108. Significant differences relate to test medium, test equipment, and pressure and vacuum test. |
| | Section 1111 | 2021 | Renumbered from previous section 1109 with no changes. |
| 4101:2-12-01 | Section 1202 and Tables | 2021 | Modifications to recognizes CPVC/AL/CPVC pipe and fittings for hydronic applications, new standards for cross-linked PEX fittings, and CPVC fittings |
| | 1203.3.4 | 2021 | Modification to recognize CPVC/AL/CPVC pipe and fittings for hydronic application |
| | 1203.7 | 2021 | Modification to recognize mechanical joints for CPVC |
| | 1203.8 | 2021 | Adds new section recognizing CPVC/AL/CPVC pipe and fittings for hydronic applications |
| | 1203.10.3 | 2021 | Addresses the appropriate fittings for PEX |
| | 1203.16 | 2021 | Addresses fittings for PE-RT tubing |
| | Table 1210.4 | 2021 | Modifications to recognize new standard for PEX for ground-source loop pipe, new standard for PE-RT, and new standard for PEX |
| | Table 1210.5 | 2021 | Modifications to recognize new standard for PEX for ground-source loop pipe, new standard for PE-RT, and new standard for PEX |
| | 1210.6.2 | 2021 | Modification to remove requirement to chamfer and ream, and refer to manufacturer's installation instructions |
| | 1210.8 | 2021 | Modification to require all ground source piping installation to meet CSA C448 and refer to manufacturer's installation instructions |
| 4101:2-13-01 | 1301.4 and Table 1302.3 | 2021 | Adds fuel fittings to the scope of the chapter |

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| | 1302.8 and 1309 | 2021 | Modification requires that all fuel oil piping be listed and labeled |
| | 1303.3.5 – 1303.84 | 2021 | Adds fuel fittings to the scope of the chapter |
| 4101:2-14-01 | 1401.4, 1401.4.1, 1402.1 | 2018 | Modifications to address application of Chapter 14 for 'solar thermal' applications only, and for consistency with current terminology, and to reference solar product standards (ICC900/SRCC300 and ICC901/SRCC100) |
| | 1408.1.2 | 2021 | Clarifies that the sleepers, curbs, and stanchions used for mounting solar arrays are required to be noncombustible |
| | 1404.1 | 2021 | Clarifies solar thermal collectors are to be identified with SRCC OG-100 labels |
| 4101:2-15-01 | ASHRAE | Petition #20-05 & Daikin request | Updated standards 15 and 34 to the 2022 edition |
| | *ASHRAE | Request from Jeremy Fauber of Heapy Eng. | *Updates standard 170 to the 2021 edition |
| | CSA | Petition #20-05 & Daikin request | Adds standards C22.2 No. 60335-2-40 (2022 edition) and C22.2 No. 60335-2-89 (2021 edition) |
| | NFPA | Petition #22-01 & BBS | Updates standard 70 to the 2023 edition (with one amendment) and updates standards 37, 72, 80, and 85 |
| | UL | Petition #20-05 & Daikin request | Updates standard 60335-2-40 to the 2022 edition and standard 60335-2-89 to the 2021 edition |

*Indicates a change after the stakeholder comment period

Exhibit B

| 2024 Ohio Mechanical Code Comments | | | | | |
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| Commenter | Email | Section | Comment | Staff Comments | Code Committee Action |
| Glass, Robert | Robert.Glass@daikincomfort.com | Chpt 15 | At the very least I would like to get ASHRAE 15-2022, ASHRAE 34-2022 and UL/CSA 60335-2-40-2022 updated to reflect the current standards and as has already been approved by ICC for the 2024 IMC. | Requested changes are included in the draft rules. | No change; already addressed |
| Holland, Jerry | jerry.holland@bureauveritas.com | 1001.2 | I would like clarification on the proposed changes with regard to Ohio Mechanical Code 4101:2-10-01(C) and (D). 1. Will the Jurisdiction be required to enforce the adopted NBIC/NFPA/ASME CSD-1 standards in full, without exception per 4101:4-3-01? Specifically, NBIC, NFPA and ASME CSD-1 requirements regarding lockable electrical disconnects and emergency shutdown switches. | Staff contacted Mr. Holland and explained that the boiler rules will be going through the revision process later this year and that BBS has no control over boiler enforcement decisions, but that we would contact John Sharier the boiler chief to learn more. Mr. Holland stated that he would send an email which outlines the relevant code sections in the NBIC/NFPA/ASME CSD-1; based on conversation with commenter recommend no change because more appropriate for boiler rules | 3/30 Further review for boiler rules |
| Sandman, Joseph | josephs@fioptics.com | General | I support the State Of Ohio 2024 Mechanical Code adopting the 2021 International Mechanical Code 607.4 (607.4.1, 607.4.1.1, 607.4.1.2) as show without any changes. | | NA |
| Tossey, Steve | steve.tossey@kzf.com | Conditioned space, 602.2.1.1, 908.3 | Typos in conditioned space and 602.2.1.1 and question regarding ASHRAE Guideline 12 in 908.3 -whether it it required | Will fix typos. The "Note" is intended to be informational, not enforceable. | 3/30 Drafting correction |
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