CSI - Ohio

The Common Sense Initiative

Business Impact Analysis

Agency Name: Ohio Board of Building Standards

Regulation/Package Title: 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: January 3, 2017

Rule Type:

X New

Amended

X 5-Year Review

X Rescinded

The Common Sense Initiative was established by Executive Order 2011-01K and placed within the Office of the Lieutenant Governor. Under the CSI Initiative, agencies should balance the critical objectives of all regulations with the costs of compliance by the regulated parties. Agencies should promote transparency, consistency, predictability, and flexibility in regulatory activities. Agencies should prioritize compliance over punishment, and to that end, should utilize plain language in the development of regulations.

Regulatory Intent

1. **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 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.
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.

2. **Please list the Ohio statute authorizing the Agency to adopt this regulation.**

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

3. **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.

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

   Not applicable.

5. **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 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;

6. 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 § 105.2 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.

Development of the Regulation

7. **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 October 7, 2016, the Board sent an email to all agency stakeholders informing them of a scheduled stakeholder meeting on October 28, 2016 to hear comments and respond to questions on these rules. The notice summarized the proposed amendments and also informed stakeholders that if they could not attend the stakeholder meeting, they could submit questions or comments via email or regular mail by November 2, 2016. On October 28, 2016, the Board conducted a stakeholder meeting on the proposed rules at 2:30 PM. No stakeholders attended but written comments were submitted by Michael Miller, Cincinnati Financial.

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

   A copy of the correspondence the Board received in response to October 7, 2015 email are attached as Exhibit B. The initial comments received were reviewed by the Board's Code Committee at its November 3, 2016 and December 8, 2016 meetings. The Board's Code Committee reviewed Mr. Miller's comments and in response corrected the definition of boiler

9. **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 2015 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 2015 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

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 OMC on November 1, 2011.

10. **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?**

    See Question 9.

11. **Did the Agency specifically consider a performance-based regulation? Please explain.** ***Performance-based regulations define the required outcome, but don't dictate the process the regulated stakeholders must use to achieve compliance.***

    The rules permit a registered design professional's alternative engineered design to be a compliance alternative method to the prescriptive requirements of the code. Section 106.5 of the Ohio Building Code permits a registered design professional to submit sufficient technical data to substantiate that performance of the proposed alternative engineered design meets the intent of the code. Additionally, section 107.4.3 provides that when construction documents have been prepared by an Ohio registered design professional conforming to the requirements of the rules of the Board pertaining to design loads, stresses, strength, and stability and other requirements involving technical analysis, the documents need only be examined to the extent necessary to determine conformity with other requirements of the rules of the Board.

12. **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.

13. 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 a staff member 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

14. Provide a summary of the estimated cost of compliance with the rule. Specifically, please do the following:

a. Identify the scope of the impacted business community;

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

b. Identify the nature of the adverse impact (e.g., license fees, fines, employer time for compliance); and

- 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.

c. Quantify the expected adverse impact from the regulation.
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.

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 9 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:

Section 306.1 – Clarifies that controls, heat exchangers, and other energy using HVAC equipment needs to be accessible.
Section 307.2.5 – Add requirement to enable clearing drain without cutting line.
Section 307.3 – Requires that appliance shut off when condensate pump fails
Section 401.2 – Requires mechanical ventilation for dwelling units when air infiltration rate is less than 5 ACH as determined by blower door test.
Section 404.1 - Allows parking garage ventilation systems to be intermittently operated by CO and NO2 detectors.
Section 506.3.7.1 – Modified to extend full width of the duct.
Section 506.5.3 – Clarifies that up-blast fans shall be equipped with a means of restraint to limit the fan swing.
Section 507.1 – Reorganized entire section and added scoping paragragh.
Section 507.1.1.1 – Added a section addressing multiple hoods utilizing a single exhaust system.
Section 510.5 – Separated out the requirements for incompatible materials by creating a separate section and added a few new conditions for laboratory exhaust systems.
Section 602.1 – Requires ducting from the boundary of the fire area to the air handling equipment.
Section 602.2 – Clarifies that construction materials that are exposed to the airflow are subject to the plenum requirements.
Section 602.2.1.5 – Adds a new section for discreet plumbing and mechanical products in plenums.
Section 1101.10 – Allows other options for securing refrigerant caps.
Section 1102.3 – Requires access port protection when refrigerant is added or recovered.
Section 1105.6.3 – Adds a new section for ventilation rate of refrigeration systems.

The new Ohio Mechanical Code publication will be available from publishers at an approximate cost of $100.

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

While noted as cost increase, many of the changes listed have little or no affect depending on the design choices. The most significant is Section 401.2 requirement for mechanical ventilation. This change is offset for certain residential occupancies by permitting the owner to comply with energy code requirements in the Residential Code of Ohio. Additionally, other changes included

in the rule package will decrease cost of construction, offer regulatory alternatives, and recognize new technologies and materials.

Finally, until the current edition the Board updated the codes every three years. The Board has taken steps to lengthen the time between code updates to reduce the impact on the construction community. To date, however, 14 states have already adopted the 2015 IMC and another 17 have adopted the 2012 IMC. Projects are designed months and years in advance. Design professionals need predictability to be able to design the appropriate standards. This update will keep Ohio's code aligned with the majority of other states.

Regulatory Flexibility

16. 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 Ohio Building Code (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.

17. 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 residential 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.

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

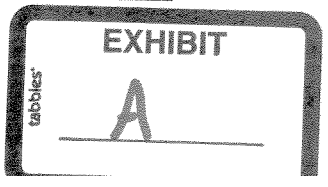
As these proposed rules updates the Ohio Mechanical Code to a new model code edition, the Board offers training and resources to building department personnel to prepare them to enforce the new codes. These resources are paid for by assessment fees collected by certified building departments pursuant 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.

Summary of BBS Proposed Ohio Mechanical Code Rule Changes – October 2016

Significant Changes are highlighted in yellow

Ohio Administrative Code Rule Number	OMC Section	IMC change origin	Reason for proposed change
4101:2-2-01	Air, Makeup	2015	Modified definition
	Air, Outdoor	2015	Added definition
	Air, Transfer	2015	Added definition
	Clothes Dryer	2012	Modified definition to remove Types
	Combustible Liquid	2012	Modified definition
	Commercial Cooking Appliances	BBS initiated change	Modified definition to clarify intent
	Commercial Food Service Establishment	BBS initiated change	Modified definition to clarify intent
	Conditioned Space	2015	Modified definition
	Design Flood Elevation	2015	Modified definition
	Discrete Product	2015	Added definition
	Domestic Cooking Appliances	BBS initiated change	Added definition
	Ductless Mini-Split System	2015	Added definition
	Environmental Air	2012	Modified definition to include parking garage exhaust
	Exfiltration	2015	Added definition
	Extra-Heavy-Duty Cooking Appliance	2015	Modified definition
	Flammability Classification	2015	Moved definition from Refrigerant Safety Classification
	Flexible Air Connector	2015	Added definition
	Heavy-Duty Cooking Appliance	2015	Modified definition to add smokers and smoker ovens
	Household Cooking Appliances	BBS initiated change	Added definition
	Infiltration	2015	Added definition
	Lower Flammable Limit	2012	Modified definition
	Mechanical Joint	2012	Modified definition
	Occupational Exposure Limit	2015	Added definition
	Press Joint	2012	Added definition
	Protective Assembly (Reduced Clearance)	2015	Modified definition
	Refrigerant Safety Classification	2015	Moved part of definition



	Toxicity Classification	2015	Moved and modified definition from Refrigerant Safety Classification
4101:2-3-01	302.2	2012	Added a reference to OBC Chapter 7
	303.3	2015	Modified exception #2 to remove reference to unusually tight construction
	304.3	2012	Added an exception to the requirement to elevate the ignition source
	304.5	2012	Added a sentence requiring compliance with listing and manufacturer's instructions
	304.11	2015	Clarified guard requirements and added an exception for guards if fall-arresting restraint system is provided
	305.4	2015	Changed referenced standard to MSS SP-58
	306.1	2015	Clarifies that controls, heat exchangers, and other energy using HVAC equipment needs to be accessible
	306.5	2012	Modified access requirements for appliances on roofs
	306.5.1	2015	Changed stairs to stairways
	307.2	2015	Added an exception for condensate drain requirement
	307.2.2	2015	Removed polybutylene and added polypropylene for drain pipe
	307.2.4.1	2015	Adds requirement for inline check valve for ductless mini-split condensate drain
	307.2.5	2015	Adds requirement to enable clearing drain

			without cutting drain line
	307.3	2015	Requires that appliance shut off when condensate pump fails
	308.5	2012	Added a reference to UL 1618
4101:2-4-01	401.2	2012	Requires mechanical ventilation for dwelling units when air infiltration rate is less than 5 ACH as determined by blower door test
	401.4	2012	Clarified intake opening location requirements
	401.5	2012	Adds referenced standard AMCA 550 for louvers in hurricane-prone regions
	403.1	2015	Clarifies that mechanical ventilation air requirements for dwelling units is met via an exhaust system, supply system, or a combination of both.
	403.2	2015	Relocated a sentence to Section 403.3.1.1
	403.2.1, items #3 and #4	2015	Clarified that recirculation of air within a space is permitted, but not from a space.
	403.3	2015	Clarified ventilation requirements for dwelling units
	Table 403.3	2012	Rearranged the columns
	Table 403.3	2012	Broke out nail salons as a separate row and clarified that a source capture system is required
	Table 403.3	2012	Clarified notes e and f
	403.3.2	2015	Clarified ventilation requirements for dwelling units

	404.1	2015	Allows parking garage ventilation systems to be intermittently operated by CO and NO2 detectors.
4101:2-5-01	501.2	2012	Added a new section clarifying that certain exhaust systems need to be independent systems
	501.3	2015	Relocates the prohibition of exhausting air onto walkways from Section 501.3.1.1
	501.3	2015	Clarifies that listed domestic ductless range hoods are not required to exhaust to the outdoors
	501.3.2	2012	Adds referenced standard AMCA 550 for louvers in hurricane-prone regions
	502.8.1	2012	Adds ventilation requirement for fireworks and explosives storage areas and storage buildings
	502.9.1	2012	Exhaust system thresholds for compressed gases now based upon permit amounts in the IFC, not maximum allowable quantities
	502.9.11	2012	Reference to IFC Chapter 64 for Silne gas exhausted enclosure and gas cabinet requirements
	502.10.2	2012	Clarified exhaust duct penetration requirements
	502.14	2015	Add requirement for registered design professional engineering or factory built equipment

	502.20	2015	Adds a new section for manicure and pedicure exhaust systems
	504.5	2015	Adds a new section for dryer exhaust duct power ventilators
	504.7	2015	Relocated from section 504.6.7
	504.8	2012	Removed reference to Type 2 clothes dryer
	504.8.2	2015	Clarifies that screw protrusion of not more than 1/8 inch is permitted
	504.8.4.3	2015	Adds a new section for dryer exhaust duct power ventilators
	504.10	2012	Adds an additional condition for multi-story dryer duct system independence
	505.1	BBS initiated change	Adds new first sentence to clarify scope
	505.1	2012	Adds an independence requirement for domestic kitchen exhaust ducts
	505.1	2015	Removes reference to dwelling units
	505.1	BBS initiated change	Added exception 1 to clarify intent
	505.3	2015	Added a new section for common exhaust in a multi-story building
	505.4	BBS initiated change	Deleted section
	505.5	BBS initiated change	Clarified Group I-2 requirements
	506.3.2.3	2012	Requires 1500 F rating for gaskets and seals of duct-to- exhaust fan connections
	506.3.7.1	2012	Adds new criteria for grease duct reservoirs
	506.3.7.1	2015	Modified condition #3 to extend the full width of the duct
	506.3.8	2012	Breaks the cleanout requirements into a list and adds a 1500 F

			rating requirement for gaskets and seals
	506.3.8	2015	Adds dimensions to condition #2
	506.3.9	2012	Breaks the horizontal cleanout requirements into a list
	506.3.10	BBS initiated change –already adopted 2012 text	Relocated underground grease duct requirements from 506.3.13
	506.3.11	2012	Duct enclosure rating shall be consistent with the rating of the assembly penetrated, not less than 1 hour.
	506.3.11	2015	Relocates 506.3.11.4 to a new exception in 506.3.11
	506.3.11	2015	Clarifies that an enclosure is only required for commercial grease ducts, that in-line fans shall be enclosed unless outdoors, and that fire and smoke dampers are not permitted in grease ducts
	506.3.11.2	2012	Prohibits partial application of field-applied duct enclosure systems
	506.3.11.2	2015	Corrects the UL standard number
	506.3.11.3	2015	Clarifies that the duct enclosure assembly and firestop system needs to be installed in accordance with its listing and manufacturer's instructions
	506.3.13.3	2012	Adds the word "horizontally" to clarify intent
	506.4	2012	Relocates a requirement for Type II exhaust system independence to 501.2

	506.5.1.2	2015	Adds a new section for in-line fans
	506.5.3	2015	Clarifies that up-blast fans shall be equipped with a means of restraint to limit the swing of the fan
	507.1	2012	Reworded to clarify intent
	507.1	2015	Reorganized entire section 507 and added scoping paragraph
	507.1.1	2012 and 2015	Clarified interlock methods
	507.1.1.1	2015	Added a section addressing multiple hoods utilizing a single exhaust system
	507.2	BBS initiated change	Removed list of appliances requiring hoods
	507.2	2012	Added an exception to the requirement for a Type I hood
	507.2.1	2012	Requires flow rate label on Type I hoods
	507.2.7	2012	Clarified that field-applied grease duct enclosure systems are not to be used to protect hoods that penetrate ceiling, wall or furred spaces
	507.2.8	2012 and 2015	Added UL 1046 standard for grease filters
	507.3	2012	Clarifies when Type II hoods are required and adds a minimum exhaust rate for spaces that contain cooking appliances but no hood
	508.1.2	2015	Requires air balance schedule for the commercial kitchen ventilation system
	510.5	2015	Separated out the requirements for incompatible materials by creating a separate

			section and added a few new conditions for laboratory exhaust systems
	510.5.5	2015	Clarified that make-up air is required to comply with 401.4.
	510.7.1.1	2015	Provides a reference to specific OBC sections to address shaft penetrations of hazardous ducts
	510.8	2012	Added a suppression exception for non-combustible hazardous ducts in semiconductor fabrication facilities
	510.9	2015	Reorganized the section
	510.9.1	2012	Allows hazardous duct joints complying with SMACNA standards
	513.4.6	2015	Changed "passive" to "engineered" smoke control and changed "whichever is less" to "whichever is greater"
	513.4.7	2015	Requires the consideration of all other smoke control systems in the design
	513.5	2015	Clarifies that smoke barriers are used for passive smoke control systems
	513.5	2012	Changed "Exit enclosures" to "Interior exit stairways and ramps and exit passageways" and "All other shafts" to "Enclosed exit access stairways and ramps and all other shafts"
	513.5.2	2015	Added exceptions for Group I-1 and Ambulatory care facilities
	513.5.3.1	2015	Adds a new section addressing Group I-1,

			I-2, and Ambulatory Care Facilities
	513.6.3	2015	Adds a new section for pressurized stairways and elevator hoistways
	513.7	2015	Adds a reference to NFPA 92 when using the airflow method
	513.11	2015	Clarified standby power requirements for smoke control systems
	513.12.1	2015	Provides an exception to the verification requirement
	513.13.1	2012	Requires tubing to comply with OMC Section 602.2.1.3 (listed/labeled, flame spread and optical density requirements)
	514.1	2012	Adds standards for listing and labeling of heat recovery ventilators
	514.2	2015	Allows ERV equipment that recovers sensible heat only utilizing coil-type heat exchangers
	514.4	2012	Clarifies how recirculated air is considered in the context of energy recovery systems
4101:2-6-01	601.4	2012	Adds an exception for chimneys and vents passing through plenums
	601.5	2015	Relocates section addressing return air openings from Chapter 9
	602.1	2015	Requires ducting from the boundary of the fire area to the air handling equipment
	602.2	2015	Clarifies that construction materials that are exposed to the airflow are subjected to

			the plenum requirements
	602.2.1	2012	Clarifies that materials within a plenum must be listed and labeled if combustible
	602.2.1.1	2012	Clarifies the requirements for combustible optical fiber within plenums
	602.2.1.5	2015	Adds a new section for discreet plumbing and mechanical products in plenums
	602.2.1.6	2012	Adds a new section for foam plastic insulation in plenums
	602.2.1.7	2015	Adds a new section for plastic plumbing pipe and tubing in plenums
	603.2	2015	Allows manufacturer's installation instructions to be used for sizing dwelling unit ducts
	Table 603.4	2015	Modifies the minimum duct thickness table
	603.4.2	2015	Adds a new section for duct lap
	603.9	2015	Changes "Closure systems" to "Tapes and mastics" and adds an exception for sealing certain types of duct joints
	603.10	2012	Allows duct supports in accordance with the SMACNA standard
	603.17	2012	Adds a new section for air dispersion systems
	605.1	2015	Clarifies that all air is filtered upstream of a heat exchanger or coil
	607.1.1	2015	Allows horizontal ducts connecting shaft enclosures to not be in an enclosure if a damper is provided
	607.3.1	2015	Adds requirements for corridor dampers

	607.3.2.3	2012	Modified the combination fire/smoke damper requirements
	607.3.3.2	2015	Clarifies that duct smoke detectors can be outside of the duct if the sampling tubes protrude into the duct and requires detectors used to activate the smoke damper be listed for releasing service
	607.5	2015	Adds reference to ceiling radiation dampers
	607.5.2	BBS initiated change	Clarified when flexible air connectors can be used in fire barriers
	607.5.3	2012	Added new exception for ducted HVAC systems
	607.5.3	BBS initiated change	Clarified when flexible air connectors can be used in fire partitions
	607.5.4	2015	Clarifies when corridor vs ceiling radiation dampers are required and adds an exception for smoke dampers in certain smoke barriers
	607.5.5	BBS initiated change	Added new exception for smoke dampers in sprinklered buildings
4101:2-7-01	701.2	2015	Adds a new section requiring interlocks for dampered openings
4101:2-8-01	801.16.1	2012	Requires labeling of listed chimney lining systems
	802.9	2015	Adds a 12 inch horizontal vent terminal clearance from door swings
	804.3	2012	Requires listing and labeling of mechanical draft systems in accordance with UL 378
	804.3.8	2012	Requires listing and labeling of mechanical

			draft systems in accordance with UL 378
	805.3	2012	Clarifies requirements for factory-built chimney offsets
4101:2-9-01	902.2	2012 and 2015	Adds a labeling requirement and reference to UL 907 for fireplace accessories
	903.2	2012	Adds a reference to UL 1618
	903.4	2015	Adds a new section for fireplace doors
	905.3	2012	Adds a reference to UL 1618
	908.1	2012	Adds a reference to UL1995
	908.5	2015	Adds additional requirements for cooling tower water supplies
	908.8	2015	Adds requirements for cooling tower controls and drift eliminators
	911.1	2012	Changes standard to UL 19996
	912.1	2012	Adds a reference to UL 499
	918.5	2015	Provides pointer to other sections for outdoor intake and return air openings
	918.6	2012	Clarifies the garage prohibited source for forced air heating and cooling systems
	918.6	2015	Relocates the prohibited source section to 601.5
	922.1	2012	Adds a reference to NFPA 31
	923.1	2012	Adds a reference to UL 499
	923.1	2015	Adds a reference to alternative engineered designs.
	927	2012	Adds a new section for radiant heating systems

	928	2012	Adds a new section for evaporative cooling equipment
	928.1	2015	Adds a condition for evaporative cooling equipment water supply
4101:2-10-01	1001.1	BBS initiated change	Clarified applicability of Chapter 10
	1001.2	BBS initiated change	Clarifies enforcement responsibilities for boilers, pressure vessels, and hot water heaters
	1002.1	2012	Adds standards for solid -fuel -fired water heaters and thermal solar water heaters
	1003.1	2015	Clarified the applicable construction standard for pressure vessels
	1003.3	2015	Clarified the applicable construction standard for welding of pressure vessels
	1004.1	BBS initiated change	Allows the ASME CSD-1 as an option for the design of the boiler control system
	1004.1	2012	Adds a standard for solid-fuel-fired boilers
	1004.1	2015	Clarified boiler design standards
	1004.3.1	2012	Reorganizes the boiler top clearance requirements
	1007.1	2015	Adds an exception for the low-water cutoff control
	1007.2	2015	Adds a requirement that combustion operations stop when water circulation stops
	1008.1	2015	Changed the steam boiler blowoff valve arrangement
	1009.2	2015	Requires expansion tanks for systems operating in excess of 30 psi to be

			construction in accordance with ASME BPVC
	Table 1009.2	2015	Adds a new table for closed-type expansion tank sizing
	1011.1	2015	Allows tests to be conducted IAW manufacturer's requirements
4101:2-11-01	1101.10	2012	Allows other options for securing refrigerant caps
	1101.10	2015	Adds an exception for locking access port caps
	1102.3	2015	Requires access port protection when refrigerant is added or recovered
	Table 1103.1	2012	Updates the refrigerant classification table
	1104.1	2015	Deletes last sentence relating to worst case of fractionation
	1105.6.3	2012	Adds a new section for ventilation rate of refrigeration systems
	1105.9	2015	Clarifies that the section only applies to permanently installed refrigeration systems
	1106.3	2015	Corrects reference to 1105.6.3
	1106.4	2012	Clarifies exception
	1106.5	2012	Clarifies control requirements
	1106.5.1	2015	Allows a tamper-resistant cover instead of a break-glass switch
	1106.5.2	2015	Allows a tamper-resistant cover instead of a break-glass switch
	1107.1	2015	Adds a reference to ASME B31.5 for refrigerant piping design
4101:2-12-01	Table 1202.4	2012	Adds a standard for PE and PE-RT pipe

	Table 1202.4	2015	Removes brass, PB, and PE pipe and tubing
	Table 1202.5	2012	Adds standards for PEX fittings
	Table 1202.5	2015	Removes brass and bronze fittings
	1203.3.4	2012	Adds an exception for CPVC pipe joint primer
	1203.8	2012	Recognizes press-joints
	1203.15	2015	Removes PE pipe and tubing
	1208.1	2015	Relocated testing requirements for ground source heat pump loop systems
	1209.3.2	2015	Removed brazing filler metal melting point temperature
	1209.3.4	2015	Added a section for PE-RT piping
	1210	2015	Added a new section dedicated to plastic ground source heat pump loop systems
4101:2-13-01	1303.3.2	2015	Recognizes press-connect joints
	1306.4	2012	Added a standard for liquid-level indicating gages
	1307.1	2012	Added a standard for fuel oil valves
4101:2-15-01	1501.3	BBS initiated changes	Updated many referenced standards

Hanshaw, Regina

From: Ohler, Debbie
Sent: Monday, October 24, 2016 4:07 PM
To: Sharier, John; 'Michael_Miller@CINFIN.com'
Subject: RE: BBS CODE UPDATES

Dear Mr. Miller and Mr. Sharier.
Thank you for taking the time to review the BBS draft Ohio Mechanical Code rule package. Your comments are appreciated and will be presented to the Code Committee for review. The next draft of our OMC rules will be sent out for E-notification and will incorporate fixes to the typographical errors that you have identified. Thank you, again.
Regards,
Debbie

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http://www.com.ohio.gov/dico/BBS/

From: Sharier, John
Sent: Monday, October 24, 2016 3:36 PM
To: Ohler, Debbie <debbie.ohler@com.state.oh.us>
Subject: FW: BBS CODE UPDATES

Hi Debbie,

I got this email and have to agree with Mr. Miller. The definition should have (steam is generated) in front of steam is superheated in the first sentence. The to, between pressure and vacuum should be or.
I also found that in the second to last sentence, (not) should be in front of exceeding 250 degrees, so it would read: or temperatures NOT exceeding 250 degrees F.

John

John Sharier
Boiler Chief
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EXHIBIT
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From: Miller, Michael [mailto:Michael_Miller@CINFIN.com]
Sent: Friday, October 07, 2016 5:08 PM
To: Sharier, John <john.sharier@com.state.oh.us>
Subject: BBS CODE UPDATES

http://www.com.state.oh.us/documents/bbs_CombinedOMCstakeholdermtg.pdf

I read through the proposed changes to the Mechanical Code and noted the following:

- Not all boilers generate superheated steam.
- I think the to should be or.

Have a great weekend.

BOILER. *A closed vessel in which water is heated, steam is superheated, or any combination thereof, under pressure to vacuum for use externally to itself by the direct application of heat from the combustion of fuels, or from electricity or nuclear energy. The term boiler includes fired units for heating or vaporizing liquids other than water where these units are separate from processing systems and are complete within themselves.* Low-pressure boilers operate at pressures less than or equal to 15 pounds per square inch (psi) (103 kPa) for steam and 160 psi (1103 kPa) *or temperatures exceeding 250 °F* for water. High-pressure boilers operate at pressures exceeding those pressures *and temperatures.*

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