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April 4, 2024

Michigan Department of Licensing and Regulatory Affairs (LARA)
Bureau of Construction Codes
Via email to LARA-BCC-RULES@michigan.gov

Re: Support for Mass Timber incorporated in 2022-57 LR Construction Code – Part 4. Building Code, “Draft Rule”

Dear Bureau of Construction Codes Team,

We support the adoption into the 2021 Michigan Building Code the 2021 International Building Code, particularly the mass timber elements identified as building types IV-A, IV-B, IV-C, and IV-HT. We request one amendment to Type IV-B **602.4.2.2 Interior Protection** that, if adopted, will enable Michigan practitioners to deliver mass timber buildings more affordably and to optimize the architectural and sustainability benefits of the materials.

Specifically, The Tall Wood Building Ad Hoc Committee (TWBAHC) had only wanted to include provisions in the 2021 IBC that had been tested. Since the time the Ad Hoc Committee finished their work until the Group A CAH period ended, additional testing was conducted on several building types. Based on based on testing and data provided by the RISE institute (ref 2-4), the 2021 TWBAHC recommended that the 2024 IBC update Type IV-B language to allow for up to 100% exposure of mass timber ceilings, based on the following justification;

> “The proposed revisions above are based upon recently completed research conducted at the Research Institute of Sweden (RISE). These fire tests demonstrated that the proposed amounts of unprotected areas on the ceiling and walls, as a function of floor area, can be safely implemented while still achieving the performance objectives specified by the ICC Tall Wood Building Ad-Hoc Committee in the development of the tall building mass timber provisions in the 2021 I-codes. Specifically, Test 1 of the test series conducted at RISE involved a ceiling in which 100% of the area was unprotected mass timber. Tests 2 and 5 had unprotected mass timber on 100% of the ceiling area, in addition to unprotected areas on the two opposing side walls, equivalent to 78% of the floor area. These tests exhibited satisfactory performance in that no significant fire re-growth was observed and temperatures within the compartment decreased continuously from the time of the fully-developed phase until the end of the four-hour test”
> - (**ref. 1**)

Based on this, we support sections 602.4.2.2.2 in the draft 2021 Michigan Building Code with the minor exceptions below which are presented below and have been adopted in the 2024 International Building Code:

602.4.2.2 Interior protection. Interior faces of all *mass timber* elements, including the inside face of exterior *mass timber* walls and *mass timber* roofs, shall be protected, as required by this section, with materials complying with Section 703.3.

602.4.2.2.1 Protection time. *Noncombustible protection* shall contribute a time equal to or greater than times assigned in Table 722.7.1(1), but not less than 80 minutes. The use of materials and their respective protection contributions specified in Table 722.7.1(2) shall be permitted to be used for compliance with Section 722.7.1.

602.4.2.2.2 Protected area. Interior faces of *mass timber* elements, including the inside face of exterior *mass timber walls* and *mass timber roofs*, shall be protected in accordance with Section 602.4.2.2.1.

Exceptions: Unprotected portions of *mass timber* ceilings and walls complying with Section 602.4.2.2.4 and the following:

1. Unprotected portions of mass timber ceilings and walls complying with one of the following:

1.1 Unprotected portions of mass timber ceilings, including attached beams, shall be permitted and shall be limited to an area less than or equal to ~~20~~100 percent of the floor area in any dwelling unit Or fire area."

1.2 Unprotected portions of mass timber walls, including attached columns, shall be permitted and shall be limited to an area less than or equal to 40 percent of the floor area in any dwelling unit or fire area

As a practicing architect in Michigan, adding this amendment will help us deliver designs for buildings, particularly critically needed housing, that achieve the design and sustainability goals of our communities. Having to go through a variance for each project of this type adds cost and time onto an already long and expensive process in which the ultimate financial burden is placed on tenants of the building. Additionally removing the need to have extensive coverage of timber elements reduces construction cost and enhances livability without reduction in life safety.

Sincerely,

Adam Smith AIA, NCARB
Director of Design - Synecdoche

Lisa Sauve, AIA, NCARB
Principal - Synecdoche
Founder, Executive Director - Do Good Work

Reference 1 (Code): G147-21 ICC Ad-Hoc Committee on Tall Buildings recommendation for change to IBC 602.4.2.2.2 -

Reference 2 (Technical): USDA Forest Products Laboratory General Technical Report FPL-GTR-247 - May 2018

Reference 3 (Technical): RISE Report 2021:40 Final Report - Fire Safe implementation of visible mass timber in tall buildings - compartment fire testing - 2021

Reference 4 (Technical): RISE Report 2020:94 Summary Report - Fire Safe implementation of visible mass timber in tall buildings - compartment fire testing - 2021

Reference 5 (Technical): 2022 FDS Fire design Specification for Wood Construction by The American Wood Council

Reference 6 (Technical): RISE Report 2021:63 Predictive method for fires in CLT and glulam structures - A priori modeling versus real scale compartment fire tests and an improved method - 2021

Steven Banchero

Dr. R.J. Webber
Superintendent

Steve Banchero
Director of Operations

April 4, 2024

Tony Williamson
State of Michigan
Bureau of Construction Codes
P.O. Box 30254
Lansing, MI 48909
sent via (Lara-bcc-rules@michigan.gov) and (WilliamsonT5@michigan.gov)

Re: Rule Set 2022-57 LR-Public Comment

Mr. Williamson,

I am submitting a comment regarding the proposed rule changes to the Michigan Construction Code -Part 4—Building Code rule set. The proposed rules incorporate by reference the 2021 International Building Code with Michigan amendments, additional or deletions. The topic of my comment is regarding Section 423 Storm Shelters.

My position at Northville Public Schools is the Director of Operations; part of my responsibilities is managing and overseeing capital projects within the school district. I have a Bachelor's degree in Civil Engineering from Michigan Technological University and a Master's in Applied Science and Construction Management from Eastern Michigan University. Before being employed by Northville Public Schools, I spent almost all of my career building and renovating public schools throughout southeast Michigan with a prominent construction management firm in Farmington Hills, Michigan.

I am requesting the Michigan Bureau of Construction Codes evaluate the implementation of Section 423 for use Group E. The Bureau adopted the 2015 IBC without the storm shelter provision in the prior code update cycle. The same concerns that moved the state to remove the requirement exist today.

The State of Michigan does not fund capital improvements for local school districts. Outside of recent Federal and State grants, the vast majority of funding is accomplished by the local district asking voters to

approve issuing bonds or local sinking funds. The process of assessing facilities, gathering community input, school board authorization, voting, design, and construction takes years to accomplish.

During the capital improvement planning stages, care is taken to budget for current and future construction costs. If adopted, Section 423 will have a significant negative impact on projects that were planned for and financed without the requirement.

In 2022, Northville Public Schools performed a facility evaluation. We gathered community input, and the Board of Education authorized a bond initiative to be put on the ballot. In March of 2023, the voters approved the bond initiative. Currently, two significant projects are in the design process. Part of the scope of the projects is building additions to an elementary and middle school. If the projects are submitted for plan review after the implementation of the new proposed code, it is likely that a significant amount of the proposed scope will have to be eliminated to fund the cost of the storm shelter requirement. Future projects will face a very similar situation as we budget the projects without the requirement of Section 423. We are not in a unique situation. School districts that already have financing in place will see considerable unanticipated cost increases with the storm shelter requirement.

The State of Ohio faced a similar situation during a code cycle update. I have included a 2019 report from the Ohio Facilities Construction Commission and a 2022 memo from the Ohio Board of Building Standards. The summary of the two documents indicates an extensive study and review process for the implementation of Section 423. The stakeholders realized that it would have a significant impact on projects that had already secured financing. Ohio phased the implementation in and developed a specific timeline so that the planning for future projects could be budgeted at the appropriate level to incorporate the new code requirement.

The State of Michigan BCC should develop a similar review and implementation process so that the new code requirement does not negatively impact projects already underway.

Steve Banchero
Northville Public Schools
Director of Operations
bancherost@northvilleschools.org

BBS MEMO

Ohio Board of Building Standards December 2, 2022 6606 Tussing Road, P.O. Box 4009, Reynoldsburg, Ohio 43068-9009

December 2022 Update: The moratorium in R.C. 3781.1010 which prohibited the Board's rules from requiring the installation of a storm shelter in any school building operated by a public or private school expired on November 30, 2022. The moratorium also expired for any school building undergoing or about to undergo construction, alteration, repair, or maintenance unless "financing has been secured" prior to November 30, 2022. The Ohio Attorney General issued Opinion 2019-027 in response to the Board's request for guidance on the meaning of "financing has been secured" in R.C. 3781.1010. The Opinion is available here.

September 2020 Update: HB 164 adopted by the Ohio General Assembly on June 11, 2020, amended R.C. 3781.1010 to extend the storm shelter moratorium to November 30, 2022.

August 2019 Update: HB 166 adopted by the Ohio General Assembly on July 17, 2019, amended R.C. 3781.1010 to extend the storm shelter moratorium to September 15, 2020. Additionally, the Ohio Attorney General has issued Opinion 2019-027 in response to the Board's request for guidance on the meaning of "financing has been secured" in R.C. 3781.1010. The Opinion is available here.

On June 7, 2018, the Ohio General Assembly adopted House Bill (HB) 21 effective September 28, 2018 which includes new Revised Code (R.C.) § 3781.1010 enacting a moratorium on the building code requirement for schools to have storm shelters until September 15, 2019. The 2017 Ohio Building Code (OBC) adopted by the Board last year and effective November 1, 2017 included new Section 423.4 requiring storm shelters constructed in accordance with ICC 500 in Group E occupancies. New R.C. § 3781.1010 provides:

> No rule of the board of building standards for the erection, construction, repair, alteration, and maintenance of buildings adopted under section 3781.10 of the Revised Code shall require the installation of a storm shelter in any school building operated by a public or private school prior to September 15, 2019, or in any such school building undergoing or about to undergo construction, alteration, repair, or maintenance for which financing has been secured prior to that date. Any rule adopted by the board that conflicts with this section shall not be effective with respect to any school building prior to September 15, 2019.
> As used in this section, 'school building,' 'public school,' and 'private school' have the same meanings as in section 3781.106 of the Revised Code.

Building departments and school districts should consider the following when evaluating how new R.C. § 3781.1010 may affect proposed school construction project designs and submittals:

(1) Projects submitted before November 1, 2017: Proposed school building designs (new buildings, additions, alterations) submitted to the building department prior November 1, 2017 are subject to the requirements of the code in effect at the time of application. Therefore, OBC § 423.4 does not apply and would not be affected by HB 21.

(2) Projects submitted between November 1, 2017 and September 28, 2018: In R.C. § 3781.1010, the General Assembly prohibited requiring storm shelters in schools until September 15, 2019. Building

Officials should consult with their legal counsel regarding whether resubmittal of the project is needed for the moratorium to apply.

(3) Projects submitted on or after September 28, 2018: The moratorium applies; therefore, a storm shelter constructed in accordance with ICC 500 is not required if the project is submitted prior to September 15, 2019. Additionally, if financing has been secured for a project prior to September 15, 2019 the moratorium applies regardless of when the project is submitted. Building Officials should consult with their legal counsel regarding what constitutes the securing of financing for the purposes of R.C. § 3781.1010.

After the expiration of the moratorium on September 15, 2019, a storm shelter constructed in accordance with ICC 500 will be required in Group E occupancies unless one of the above conditions apply, the project falls within a listed exception in OBC § 423.4, a variance is granted, or the project is for an alteration of an existing building and a storm shelter would not otherwise be required under OBC Chapter 34.

OFCC

OHIO FACILITIES CONSTRUCTION COMMISSION

SCHOOL STORM SHELTER STUDY REPORT

to the 133rd Ohio General Assembly

Prepared by the

Ohio Facilities Construction Commission

December 2019

Introduction

In July 2019, Amended Substitute House Bill 166 of the 133rd General Assembly included a statutory directive in Section 287.90, titled School Storm Shelter Study:

> The Ohio Facilities Construction Commission shall conduct a study to evaluate and make recommendations regarding appropriate requirements for storm shelters for Ohio school buildings. The Commission shall conduct this study in consultation with stakeholders, including school district officials, and submit a report of its findings to the General Assembly not later than December 31, 2019.

OFCC is the central agency responsible for oversight of state-funded public building construction projects, including projects in K-12 schools, state agencies, and state-assisted colleges and universities. Under Ohio Revised Code (ORC) Chapter 3318, OFCC administers the state's facilities assistance to certain public schools for the construction or renovation of its facilities, which to date has exceeded $12.3 billion. OFCC also provides grants to community and private schools under separate legislative authority. In order to manage state's facilities assistance program, OFCC publishes the Ohio School Design Manual (OSDM), a set of design standards and specifications for schools choosing to participate in its state-funded programs. The manual was developed by Commission staff, in cooperation with architects and nationally recognized educational planners. The design manual is updated annually and sets standards of quality for the state's educational facilities funded through OFCC programs.

Consultation with Stakeholders

Because the OSDM incorporates building code standards, in response to this legislative charge, the OFCC staff consulted with the Department of Commerce's Ohio Board of Building Standards (BBS). BBS is the entity charged with adopting and enforcing rules governing the erection, construction, alteration, and maintenance of all buildings or classes of buildings specified in ORC Section 3781.06 (which is relevant to the school buildings). In addition to the statutory requirements, the rules regulating non-residential buildings are codified in Ohio Administrative Code Division 4101:1 and are collectively known as the Ohio Building Code (OBC). The OBC provides the minimum requirements for the construction of school buildings, and the OSDM provides additional standards, details or options above those required in code.

OFCC staff also met with and sought input from the following stakeholders:

- School district officials suggested by the Buckeye Association of School Administrators (BASA) and the Ohio Association of School Business Officials (OASBO);
- Professional design experts suggested by the American Institute of Architects (AIA) and the American Council of Engineering Companies (ACEC); and
- Representatives from the Ohio Department of Public Safety, Ohio School Safety Center

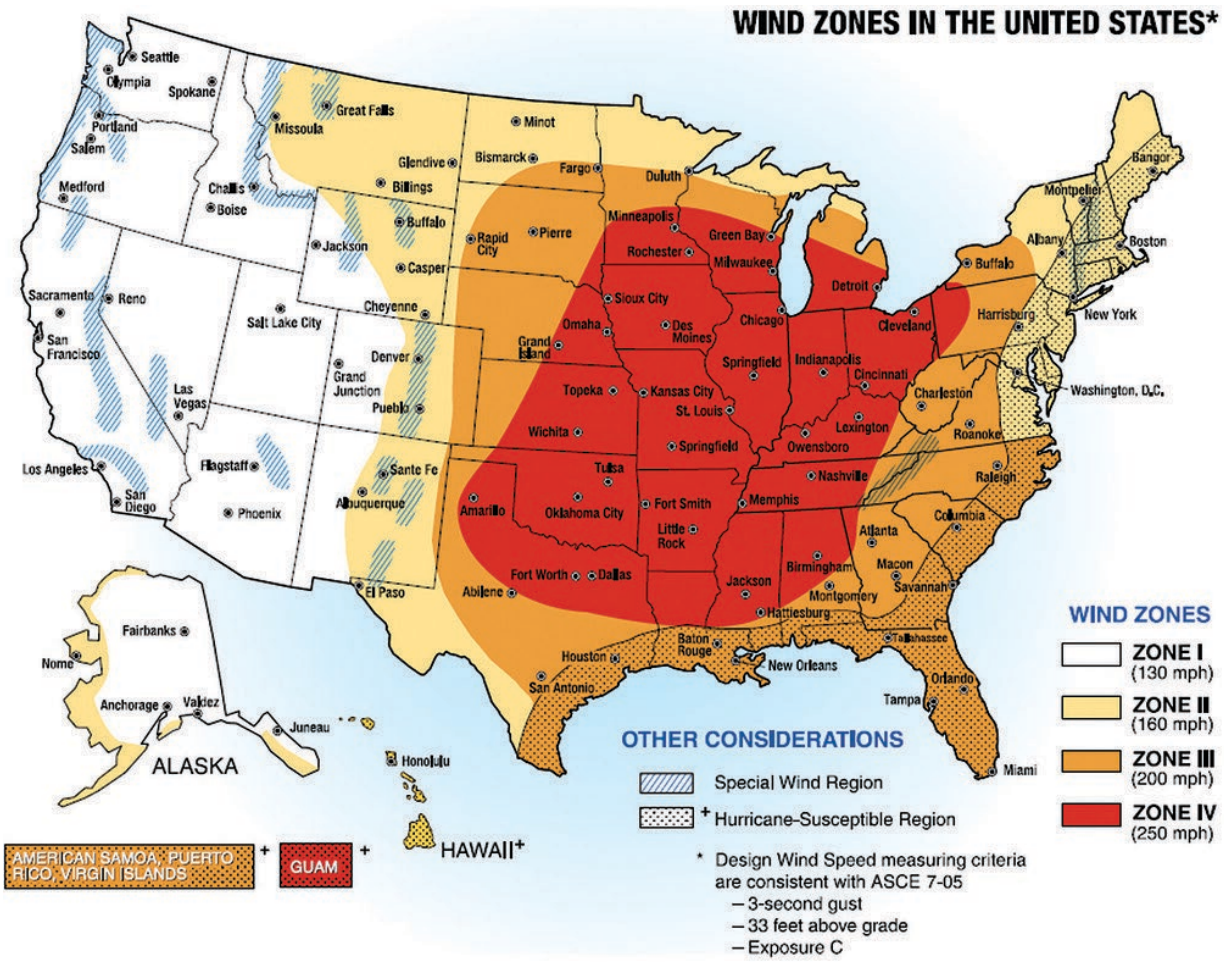
Based on input from stakeholders, OFCC's findings and recommendations are set forth below.

Building Code Requirements for School Storm Shelters

In July 2000, the Federal Emergency Management Agency (FEMA) published its first edition of FEMA P-361, *Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Room.* Now in its third edition, this document sets forth design and construction guidance for tornado and hurricane shelters. FEMA also helped develop the International Code Council (ICC) *Standard for the Design and Construction of Storm Shelters*, known as ICC 500, originally published in 2008 and updated in 2014. ICC, in partnership with the National Storm Shelter Association (NSSA), intended the ICC 500 standard to be adopted by government agencies and organizations in creating model codes for storm shelters.

Beginning in 2009 and continuing through the present, the ICC 500 has been referenced in the IBC as the governing standard for storm shelters. The IBC may be adopted by local jurisdictions with or without amendments, and with the timing of adoption determined locally. The current OBC is based on the IBC's 2015 edition and requires certain buildings, based upon building function and geographic location, to include storm shelters.

For building code purposes, structures are classified into one of ten occupancy groups. In 2015, the IBC required the application of the storm shelter requirement to Educational Group E, which includes K-12 schools, among other structures. The IBC further narrowed the requirement to Educational Group E buildings in the geographic locations within the 250 mile per hour (mph) wind speed zone as identified in the ICC 500 standard. This requirement affects 23 U.S. states, including Ohio.



In June 2017, BBS adopted an update to the OBC that included a new Section 423.4, requiring buildings to include storm shelters constructed in accordance with ICC 500 in Group E occupancies. This code update, and storm shelter requirement, became effective on November 1, 2017.

The 2015 Storm Shelter code requires a design that buildings provide a space large enough to house all the typical occupants and strong enough to withstand a tornado. More specifically, the code requires:

- Space for at least five square feet per person, based upon total occupancy
- Designed to allow for two hour a minimum of 2 hour occupancy after the tornado
- Shelter envelope components including doors and windows designed for debris missile impact based on a design wind speed of 250 mph
- Protection of any shelter opening greater than 3 ½ sq. in. or 2 1/16 in. diameter
- Sanitation facilities within the shelter, including minimum number of toilets
- Mechanical or natural ventilation
- Design for roof live load of 100 pounds per square foot minimum

The storm shelter code also requires a quality assurance plan, special inspections, and peer review by an independent registered design professional. The peer reviewer provides a signed and sealed report, submitted with the construction documents to the code authority having jurisdiction over the proposed building, prior to the issuance of a permit. The report includes reference to structural design elements, means of egress and accessibility, fire safety, ventilation, and other essential features. The report describes the items reviewed, the compliance of those items, and a recommendation for acceptance or rejection.

The storm shelter code requirement can be met through a stand-alone structure, or as a specifically designed hardened area within the existing building footprint.[1]

Storm Shelter Cost Impact on OFCC Projects

In anticipation of the November 2017 effective date, OFCC contracted with a consulting firm to develop an estimating cost model for the storm shelter requirements. OFCC also compiled a list of its K-12 projects that were then in design and could be affected by the code requirement. Using the estimating model, OFCC staff estimated a potential additional cost of about $40 million for 68 active projects within 31 school districts, with an estimated additional state share of $18.5 million. This calculated to an average increase of 3.8% in construction costs or approximately $589,000 per school.

At its October 2017 meeting, OFCC adopted a resolution authorizing co-funding of project-specific allowances to address the new storm shelter requirement. Because the referenced projects were in various stages of design, it was uncertain whether the requirement would apply to all projects as application of the storm shelter requirement dependent on the date designs were submitted to BBS or other applicable building department. Application of the requirement was addressed on a case-by-case basis in coordination with BBS and local code officials, which BBS later formalized by a BBS Memo on July 13, 2018. See Exhibit A.

Of the original list of 68 projects, two have incorporated the storm shelter code requirement: Fairborn City School District and Dover City Schools. Both projects are currently in construction.

2018 Moratorium

As a result of concerns about costs and uncertainty about implementation that were raised by several school districts and the above-noted school associations, on June 7, 2018, the Ohio General Assembly adopted Substitute House Bill 21, effective September 28, 2018, which included a new ORC Section 3781.1010 enacting a moratorium on the school storm shelter requirement until September 15, 2019. In addition to the September 15, 2019 moratorium requirement, the new language stated that the requirement shall also not take effect if "financing has been secured prior to" September 15, 2019. On May 13, 2019, BBS requested a formal opinion from the Ohio Attorney General (OAG) for interpretation of the "financing has been

[1] To implement this solution, the designer would need to fortify the foundation, walls and roof of the designated area to provide a continuous load path and provide necessary life safety and anti-panic amenities.

secured" language. On August 7, 2019 the OAG issued Opinion No. 2019-027 providing clarity on the language, including multiple options for a school to satisfy its obligation to secure financing. See Exhibit B.

2019 Moratorium and Study Requirement

On July 17, 2019, the Ohio General Assembly adopted Amended Substitute House Bill 166, which, in addition to the above-noted study directive, amended ORC Section 3781.1010 to extend further the storm shelter moratorium until September 15, 2020.

Study Findings

Tornadoes as a Risk Factor

Tornadoes are among the most destructive weather events on Earth. Although tornadoes occur worldwide, the United States has by far the most tornadoes of any country, averaging more than 1,200 annually. Since tornadoes are short-lived and unpredictable, many are never seen or recorded. While most tornadoes do not result in fatalities, they are responsible for an average of 80 deaths and 1,500 injuries annually in the U.S.[2]

In an average year, Ohio experiences 17 tornadoes causing four fatalities. Since 1950, every county in Ohio has experienced at least one tornado, with 14 counties experiencing more than $100 million in cumulative damages from 1950-2017. While Ohio is not among the top states for numbers of tornadoes, it ranks among the top 20 states for fatalities, injuries, and dollar losses.[3] And although tornadoes have struck school buildings in Ohio, including in the spring of 2019, there has been just one recorded fatality (1887).[4]

Other states have not been as fortunate. Part of the reason for the storm shelter requirement addition to the 2015 IBC was the finding that even schools built to modern building codes are susceptible to collapse during tornadoes. For example, in 2013, seven school children died in Oklahoma at the Plaza Towers Elementary School during a tornado. The children were taking refuge in the hallway, which was their designated tornado safety area, when the masonry hallway walls collapsed on them**.**

[2] National Oceanic and Atmospheric Administration, National Centers for Environmental Information, retrieved November 25, 2019 at https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology

[3] Grazulis, Thomas P. (1993). *Significant Tornadoes 1680-1991: A Chronology and Analysis of Events*. St. Johnsbury, VT: The Tornado Project of Environmental Films. pp. 139–40.

[4] Ohio Department of Public Safety, Ohio Emergency Management Agency, *2019 State of Ohio Enhanced Hazard Mitigation Plan*, February 2019, Section 2.3.

Stakeholder Feedback

Throughout the meetings with the stakeholder groups, all participants noted the desire to ensure appropriate safety needs in schools, and there was universal recognition of the potential risk that tornados pose to building occupants.

Understanding that student and staff safety is a paramount concern for building construction and renovation, stakeholder feedback noted two primary issues regarding implementation of the school storm shelter code requirement: (1) uncertainty about the conditions under which the storm shelter requirement would apply for school building renovations and additions, and the (2) cost impacts to school building construction and renovation.

From the school district official perspective, participants noted that school districts plan for and address a multitude of health and safety issues daily. Among the issues facing school administrators are active shooter situations, fire, bomb threats, bullying and cyberbullying, physical health outbreaks, and mental health issues. Each of these health and safety issues requires the allocation of resources – money, people, planning time– to reduce risk and provide the best, safest educational environment for students and staff.

In addition, while physical safety was important to all school districts providing input for this report, participants reported that tornado safety was not among the top concerns expressed by citizens, parents and staff to school administrators. When factoring in cost-effectiveness, participants suggested that the school districts would prefer the flexibility of an optional storm shelter requirement. Recognizing, however, that building code requirements typically are not options, participants indicated that should the storm shelter requirement remain in place after the expiration of the September 2020 moratorium, school district officials encouraged the code officials and design professionals to work to provide the enhanced safety requirements at the least possible cost.

Representatives of the professional design community expressed confidence in designing spaces to meet any current storm shelter requirement. ICC 500 requires thoughtful design and configuration of known building materials and techniques, rather than the application of untested technologies or materials. Design officials noted, however, that much of the professional experience with these storm shelter requirements currently lies out of state, as there is limited real-world experience with building ICC 500 compliant storm shelters in Ohio. Based on this limited experience and the information provided, OFCC staff notes that there is not currently one specific path for designing a cost-effective and compliant storm shelter.

While there are many potential compliance paths, the goal would be to provide the most cost-effective solution to meet the requirements for a particular school's design. The design industry was open to any avenues for clarification of the code's requirements. During the meeting discussions, questions were raised about the applicability of the code and whether the requirements extended beyond tornadoes to the hurricane requirements of ICC 500 (which have additional hardening requirements and cost impacts). Though it was later clarified that the hurricane requirements do not apply, the feedback received suggested that additional discussion between the design community and BBS would help all involved parties better understand

requirements and lead to better and more cost-effective implementation. The group offered some alternative, lower cost compliance paths if certain code elements were modified. Clarification could also take the form of additional detailed guidance from BBS, local code officials, and training on the requirements. As Ohio gains more experience in these requirements, it is expected that the compliance cost will be reduced.

Neighboring State Implementation

Ohio is not alone in addressing and evaluating the storm shelter requirements. Despite the adoption of the ICC 500, not all states in the 250 mph wind zone have adopted the storm shelter requirement. For those neighboring states within the 250 mph zone, adoption of the requirements has been varied. Michigan initially adopted the storm shelter requirement for schools in 2017, but it then added emergency rules that suspended that adoption and implementation. Kentucky's mandatory requirement became effective on January 1, 2019. Indiana has no formal requirement, but this past summer, several news stories began reporting additional calls for its implementation. Outside of Ohio's border neighbors, Illinois adopted the requirement in 2014.

Other states in the 250 mph wind zone have considered adoption but have not yet made it mandatory. In 2013 the Governor of Oklahoma requested that schools consider constructing shelters, but that state has not adopted the code requirement. From all available accounts, resistance to mandatory adoption is primarily triggered by cost impact concerns. Ohio is unique in the scope of its state supported school construction program administered by OFCC.

Recommendations

New building code requirements, especially those requirements that have cost impacts, are often met with initial concerns. This happened previously with Americans with Disabilities Act requirements. It also happened with non-code requirements for OFCC's implementation of the Leadership in Energy and Environmental Design (LEED) requirements. The initial concerns, consistent with the feedback received from this study's participants, are typically based on cost impacts, particularly for early adopters. And cost is certainly an important factor, especially when evaluating proposed new construction and renovation projects in the current tight construction market.

But history also shows that these concerns often dissipate once the early cost impacts are mitigated. As with other requirements, including OFCC's experience with the LEED implementation in its school programs, the additional cost associated with the storm shelter requirement is anticipated to decrease as the storm shelter designs become more widespread. With full implementation and much wider design and use of storm shelters, the storm shelters will become much less of a specialty item from a design and construction standpoint. Similarly, once the market widens for the products included in the storm shelters, then we anticipate that other cost reductions will follow.

Consistent with this context, these recommendations are made within the context of the moratorium ending and are offered for incorporating the storm shelter requirement for Ohio

schools scheduled to take effect on September 15, 2020. These recommendations should be implemented prior to the effective date of the requirement.

1) School district officials are encouraged to participate directly in the BBS rule development process, either formally or informally, to share their perspective on building code impacts on their districts.

2) BBS is encouraged to provide additional detailed guidance on the code requirement for school renovations and additions. This guidance should address the conditions under which the requirement is applicable, and the design occupancy for the shelter space in the case of renovations or additions.

3) BBS and the design community are encouraged to meet for technical discussions on the interpretation of ICC 500, with particular attention to requirements that may be modified for tornadoes. The focus should be on compliance paths that provide the necessary level of safety for the least cost. The result of these discussions could be communicated through written guidance and/or training opportunities

4) To the extent possible with a small sample size of projects, OFCC and the design and construction community should widely share real-world experiences on storm shelters in Ohio, with the goal of reducing risk and cost through lessons learned. Information may be shared through conferences, webinars, meetings or other appropriate venues.

mifbi.org
institute@mifbi.org

The Michigan Forest Biomaterials Institute

April 3, 2024

Bureau of Construction Codes
Michigan Department of Licensing and Regulatory Affairs (LARA)
via email to LARA-BCC-RULES@michigan.gov

Re: Public Comment on the Proposed 2021 Michigan Building Code

Dear Bureau of Construction Codes,

As a Michigan architect since 1981, an educator of future architects, and Board Chair of the Michigan Forest Biomaterials Institute (MIFBI), I am writing to express strong approval and support for the mass timber elements incorporated in 2022-57 LR Construction Code – Part 4. Building Code, the "Draft Rule," as presented for review.

Having been part of this conversation over the last several years, I very much appreciate the effort that the Bureau has put into making the new Code forward thinking and of benefit to both the AEC industry and public health, safety, and welfare. Perhaps as importantly, as an educator of future architects I see this code leading in the same direction that they are heading. There is tremendous interest in a sustainable future among students and young architects. Mass timber is a realistic tool in reaching that future, one that my students have been exploring at their own initiative since 2018 and before.

The increased options and clarity provided by incorporating the 2021 IBC mass timber elements will enhance our ability to build safe, efficient, and beautiful mass timber buildings in Michigan, creating places that support the State's net zero carbon goals as well as its role as a mass timber leader in the Great Lakes region. Please adopt the mass timber elements of the Draft Rule as presented. Thank you for your time and consideration.

Sincerely,

Brian K Craig, FAIA, Architect
Board Chair, Michigan Forest Biomaterials Institute
Founding Director Emeritus, Graduate Program in Architecture
Kendall College of Art and Design of Ferris State University

April 4th, 2024

Janelle Rai
Grand Rapids, MI

Michigan Department of Licensing and Affairs (LARA)
Bureau of Construction Codes
Ottawa Building
611 W. Ottawa
P.O. Box 30004
Lansing, MI 48909

Dear Bureau of Construction Codes Team:

I am a structural engineer in Grand Rapids, Michigan. I work in the building industry and support the use of Mass Timber as a structural system in buildings. Mass Timber is an important building material. Removing obstacles within the Michigan Building Code to use Mass Timber extensively is a good idea.

We structural engineers in the building industry are trying to make buildings more sustainable, so future generations can enjoy life in Michigan. If we can use Mass Timber as a structural system in buildings in Michigan, we can better achieve that goal. Our goals as building designers align directly with State of Michigan climate and sustainability goals.

I support Michigan joining the 22 U.S. states and Puerto Rico in adopting the Mass Timber elements of the 2021 International Building Code. Michigan is behind schedule when it comes to updating its codes, even as demand for mass timber quickly rises in our state. I urge the State of Michigan to adopt the 2021 Michigan Building Code with all the mass timber elements included in the draft intact.

Sincerely,

Janelle Rai
Structural Engineer, EIT
Grand Rapids, MI

LARA-BCC-Rules

From: Hallinen <hallinen@gmail.com>
Sent: Wednesday, March 13, 2024 12:14 AM
To: LARA-BCC-Rules
Subject: Building code suggestions

All new construction should be able to be fully electrified without retrofits. For example, roofs ready for solar panels, ability to have bidirectional charging for an EV, heat pump ducting in place. Also energy recovery ventilation in homes, to be energy efficient means a tight house, which means too many VOCs. Building codes to make it easy for local building inspectors to approve energy upgrades. Also, we need ground sourced hot water systems at the utility scale instead of methane getting pumped to homes. I don't know if that's something a building code can help facilitate, but we have to stop using methane.

Use the International Code Council, including appendices, as a guide.

Building for zero carbon saves money, sure, it costs more up front, but we can't afford not to eliminate fossil fuels in homes.

Diane Hallinen
Highland, Mi

LARA-BCC-Rules

From: Fabrice Smieliauskas <fab.smieliauskas@gmail.com>
Sent: Wednesday, April 3, 2024 10:42 AM
To: LARA-BCC-Rules
Subject: public comment in support of Mass Timber elements of 2022-57 LR Construction Code – Part 4. Building Code, "Draft Rule"

Dear Bureau of Construction Codes Team,

Mass timber construction, defined and provided for in building types IV-A, IV-B, IV-C, and IV-HT in the 2021 International Building Code (2021 IBC), is quickly increasing in popularity in Michigan and across the United States. Since 2018, the number of mass timber projects in the U.S. has more than quadrupled and demand is expected to at least double every two years until the mid-2030s. At the time of this writing, project teams in Michigan are developing at least 45 projects where mass timber will definitely comprise the building's structure, or where mass timber is the top choice, and teams are researching the best path to deliver it to their clients. A key part of clearing that path is to ensure that the 2021 Michigan Building Code (2021 MBC) provides the greatest possible permission and clarity as relates to mass timber. **I commend the BCC for including all the 2021 IBC mass timber elements in the 2022-57 LR Construction Code – Part 4. Building Code, "Draft Rule," and I strongly encourage and support their adoption in the final code.**

Mass timber is an umbrella term for an array of engineered wood building materials used in structural and non-structural applications to construct beautiful, strong, safe, cost-effective, and sustainable buildings, including large and taller buildings. By providing for the greatest permission and clarity for mass timber in the 2021 Michigan Building Code, the State will open a door that will allow a broad array of Michigan stakeholders to harness the myriad benefits of mass timber, which include:

• **Constructing safe, cost-effective buildings, faster**

o Mass timber buildings are constructed with thick manufactured floor and wall panels, and posts and beams comprising multiple layers of wood. These large pieces usually arrive at the building site as a prefabricated kit-of-parts, which can:

♣ Minimize construction noise and waste; and

♣ Reduce construction times and costs. That means building occupants can start living and working in buildings sooner, which has important positive implications for State goals related to business and economic development as well as housing, including affordable housing.

o Mass timber is a high-performance material that fares well in high winds as well as in fire; only the outer layers of mass timber are likely to char in fire and can be repairedand replaced without threatening the building's structure.

• **Creating economic development opportunities**

o Ensuring Michigan has the most up-to-date mass timber building codes could help attract a mass timber manufacturer to Michigan as major companies seek to build headquarters or hubs using sustainable materials.

o Making mass timber from wood sourced from Michigan forests or reclaimed from Michigan buildings can help spur economic development opportunities in both rural and non-rural areas.

• **Realizing climate and sustainability benefits**

o Trees absorb carbon dioxide and store it as carbon in their branches, trunks, roots, and ultimately in forest soils.

Harvesting forests sustainably contributes to forest health and overall carbon storage. Making mass timber buildings from sustainably harvested wood stores the trees' carbon in the building for as long as it stands. By deconstructing and re- using mass timber at the end of a building's life, we extend the wood's carbon storage, keeping carbon dioxide out of the atmosphere where it contributes to climate change.

o Mass timber, made from a renewable resource, can substitute for more carbon-intensive building materials made from non-renewable resources.

o **These benefits align directly with State of Michigan climate and sustainability goals, which is why the MI Healthy Climate Plan highlights mass timber construction as an important way to reduce the carbon footprints of our buildings and promote the carbon benefits of forests**.

It is worth noting that at least 22 U.S. states and Puerto Rico have already adopted the mass timber elements of the 2021 International Building Code. That puts Michigan behind schedule when it comes to updating its codes, even as demand for mass timber quickly rises in our state. Adopting the 2021 MI Building Code with all the 2021 IBC mass timber elements in place will enable these projects to move forward without unnecessary barriers and enable Michigan to secure its place as the mass timber leader in the Great Lakes Region, and the Eastern United States.

Acknowledging the myriad benefits of mass timber and embracing it as an important emerging technology in our industry in Michigan, the Great Lakes region, and across the United States, **I urge the State of Michigan to adopt the 2021 Michigan Building Code with all the mass timber elements included in the draft intact**. This action will enhance demand for safe, efficient, and beautiful mass timber buildings in Michigan and the likelihood that mass timber manufacture will take place here. Both activities support the State's net zero carbon goals as well as its role as a mass timber leader in the Great Lakes region.

Sincerely,
Fabrice Smieliauskas
Troy, MI

LARA-BCC-Rules

From: Gerald E.McClelland <GMcClelland@auchconstruction.com>
Sent: Friday, February 16, 2024 2:44 PM
To: LARA-BCC-Rules
Subject: Code update

Attn: Tony Williamson,

I hope this email finds you well. I am writing to express my concerns regarding the recent announcement of storm shelter requirements being added to the upcoming building codes, particularly in relation to its impact on school building budgets.

While I understand the importance of ensuring safety and resilience in our built environment, the timing of this change presents significant challenges for schools that have already budgeted for construction projects prior to the implementation of these new regulations, set to take effect this April.

The addition of storm shelters to school buildings represents a commendable effort to enhance preparedness and protect students and staff during severe weather events. However, the financial implications of retrofitting or integrating these shelters into existing construction plans can be substantial, potentially leading to delays or cancellations of vital projects aimed at improving educational facilities.

School districts across Michigan have meticulously planned and allocated funds for construction projects based on the prevailing building codes and requirements at the time. The sudden introduction of storm shelter mandates jeopardizes the feasibility of these plans and puts undue strain on already constrained budgets.

I urge the Michigan Bureau of Construction Code to consider the potential negative impact on school building budgets and the broader educational community. It is essential to assess the feasibility of implementing these new requirements in a manner that minimizes financial burdens on school districts while still prioritizing safety.

I propose exploring alternative solutions or phasing in the storm shelter requirements over a reasonable timeline to allow for proper planning and budget adjustments. Additionally, providing support or incentives for schools to comply with the new regulations could help mitigate the financial burden and ensure equitable access to safe learning environments for all students.

I appreciate your attention to this matter and urge you to carefully consider the concerns raised by stakeholders in the education sector. Collaborative efforts between regulatory bodies and educational institutions are crucial to achieving a balance between safety enhancements and fiscal responsibility.

Thank you for your time and consideration. I look forward to a constructive dialogue on this issue and finding mutually beneficial solutions.

Regards,

Gerry McClelland, CPE, LEED AP BD+C |
AUCH Construction

Jason Wadaga

CONSTRUCTION ASSOCIATION OF MICHIGAN

43636 Woodward Avenue
Bloomfield Hills, MI 48302-3204

Phone: (248) 972-1000
Fax: (248) 972-1001
www.BuildwithCAM.com

February 20, 2024

Dear Michigan Bureau of Construction Code,

I hope this email finds you well. I am writing to express my concerns regarding the recent announcement of storm shelter requirements being added to the upcoming building codes, particularly in relation to its impact on school building budgets.

While I understand the importance of ensuring safety and resilience in our built environment, the timing of this change presents significant challenges for schools that have already budgeted for construction projects prior to the implementation of these new regulations, set to take effect this April.

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Thank you for your time and consideration. I look forward to a constructive dialogue on this issue and finding mutually beneficial solutions.

Sincerely,

Kevin N. Koehler
President
Construction Association of Michigan
Koehler@buildwithcam.com
Cell: 248-421-4500

PROPOSED RULE/CODE CHANGE REQUEST

Kerry Sutton

Pages 26-28

Michigan Department of Licensing and Regulatory Affairs
Bureau of Construction Codes/Administrative Section

Point of Contact:

Attn: Amanda Johnson
Cell: (517) 582-5519

Attn: Katherine Place
Cell: (517) 388-3613

Attn: Tony Williamson
Cell: (517) 388-3536

Submission Options:

PO Box 30254, Lansing, MI 48909
Fax (517) 241-0130
Email: LARA-BCC-Rules@michigan.gov

ACTION:

DATE: 2/27/2024				
NAME: Kerry Sutton, PE		REPRESENTING: American Concrete Institute		
ADDRESS: 38800 Country Club Drive	CITY: Farmington Hills	STATE: MI	ZIP: 48331	
PHONE: (248) 848-3161	FAX:	EMAIL: kerry.sutton@concrete.org		

RULE/CODE SECTIONS/TABLES/FIGURES PROPOSED FOR REVISION (Note: If the proposal is for a new section, indicate "new")

New Section to amend the 2021 IBC: 1901.2.1 Structural concrete with GFRP reinforcement.

PROPOSED LANGUAGE: Show proposed text in accordance with the following format: ~~Strikeout~~/**Bold & underline proposed added text**

Add new text as follows:

1901.2.1 Structural concrete with GFRP reinforcement. Cast-in-place structural concrete internally reinforced with glass fiber reinforced polymer (GFRP) reinforcement conforming to ASTM D7957 and designed in accordance with ACI CODE 440.11 shall be permitted where fire resistance ratings are not required and only for structures assigned to Seismic Design Category A.

REASON: Thoroughly explain the need and reason for the proposed change to include the following:

-Identify the problem.
-Explain the rational for the proposed change.
-Describe the environmental impact.
-Is the proposed change comparable to federal rules or national or regional standards in similarly situated states, based upon geographic location, topography, natural resources, commonalities, or economic similarities? If the proposed change exceeds standards in those states, explain why and specify costs and benefits.
-Identify individuals and groups affected by the proposed change and the impact on these groups.
-Are there any reasonable alternatives to the proposed change? If so, please provide those alternatives.
-What is the fiscal impact for the proposed change? Provide a cost/benefit analysis.
-Estimate the actual statewide compliance costs of the proposed rule.
-What are the primary and direct benefits of the rule?
-Estimate any cost increases or reductions to businesses, individuals, groups, or governmental units as a result of the rule.

As well as any other information appropriate to assist with a clear understanding of the issue. During the rulemaking process, the need and reasoning of all proposed rule changes should be identified. By including a detailed explanation, the general public will gain a better understanding on all aspects of the proposal. Providing an explanation on the need and rationale for the proposal is optional; however, MCL 24.245 requires the department to provide proper justification for each proposal. Without this important information, the department may not be able to document appropriate justification and merit for a proposal. For further information, please refer to the Administrative Procedures Act of 1969.

See Attached Reason Statement.

☐ **Back Up/Graphic Material Included**

ATTACHMENT

2021 IBC Option for ACI 440.11

Chapter 19 – Concrete

Section – 1901 General

1901.2 Plain and reinforced concrete. Structural concrete shall be designed and constructed in accordance with the requirements of this chapter and ACI 318 as amended in Section 1905 of this code. Except for the provisions of Sections 1904 and 1907, the design and construction of slabs on grade shall not be governed by this chapter unless they transmit vertical *loads* or lateral forces from other parts of the structure to the soil.

Add new text as follows:

1901.2.1 Structural concrete with GFRP reinforcement. *Cast-in-place structural concrete internally reinforced with glass fiber reinforced polymer (GFRP) reinforcement conforming to ASTM D7957 and designed in accordance with ACI CODE 440.11 shall be permitted where fire resistance ratings are not required and only for structures assigned to Seismic Design Category A.*

Add new standard(s) as follows:

ACI		American Concrete Institute 38800 Country Club Drive Farmington Hills, MI 48331
Standard reference number	Title	Referenced in code section number
440.11-22	*ACI CODE-440.11-22: Building Code Requirements for Structural Concrete Reinforced with Glass Fiber-Reinforced Polymer (GFRP) Bars – Code and Commentary*	1901.2.1

ASTM		ASTM International 100 Barr Harbor Drive, PO Box C700 West Conshohocken, PA 19428
Standard reference number	Title	Referenced in code section number
D7957/D7957M-17 Reinforcement	*Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete*	1901.2.1

Background and rationale - This proposal adds a new referenced standard: ACI CODE 440.11-22: *Building Code Requirements for Structural Concrete Reinforced with Glass Fiber-Reinforced Polymer (GFRP) Bars – Code and Commentary.* The addition of this new standard allows the design and construction of cast-in-place reinforced concrete using non-metallic reinforcement bars. While the design and construct requirements contained in the standard are limited to use in structures assigned to Seismic Design Category A and structural elements not part of seismic force-resisting systems in SDC B and C, for simplicity this proposal limits the use to structures assigned to SDC A. ACI Committee 440 developed this standard to provide for public health and safety by establishing minimum requirements for strength, stability, serviceability, durability, and integrity of GFRP reinforced concrete structures.

The standard not only provides a means of establishing minimum requirements for the design and construction of GFRP reinforced concrete, but for acceptance of design and construction of GFRP reinforced concrete structures by the building officials or their designated representatives.

Due to the performance of other types of FRP reinforcement and the lack of research and testing of other types, the standard only applies to reinforced concrete structures designed and constructed with GFRP manufactured in accordance with ASTM D7957 Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete

GFRP reinforced concrete is especially beneficial for satisfying a demand for improved resistance to corrosion in highly corrosive environments, such as reinforced concrete exposed to water and de-icing salts.

This standard establishes minimum requirements for GFRP reinforced concrete in a similar fashion as ACI 318 -19 Building Code Requirements for Structural Concrete establishes minimum requirements for structural concrete reinforced with steel reinforcement. A separate standard is needed, as GFRP reinforcement behaves differently than steel reinforcement. The preliminary results of the ICC Online Governmental Consensus Voting show approval of the inclusion of ACI CODE 440.11 in the 2024 International Building Code.

Currently GFRP is accepted for use to reinforce highway bridge decks. Acceptance is primarily in areas where deicing salts are used on the roads and cause severe corrosion to conventional steel reinforcement. This proposed change provides minimum requirements for other applications where GFRP reinforced concrete is being considered, such as marine and coastal structures, parking garages, water tanks, and structures supporting MRI machines. Design reasons to use GFRP bars in structures are: resistance to corrosion in the presence of chloride ions, lack of interference with electromagnetic fields, and low thermal conductivity.

Currently the standard prohibits the use concrete internally reinforced with GFRP for applications where fire resistance ratings are required. Chapter 6 of the Michigan Building Code cites applications for floors, roofs, walls, partitions, and primary and secondary structural frames where fire resistance ratings are not required.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This proposal adds alternative materials for the design and construction of reinforced structural concrete in Seismic Design Category A and does not preclude the use of conventional reinforced concrete. Thus, there is no cost impact.

Compliant by Design LLC
Building Code Consulting
31695 Karolyn Lane
Fraser, MI 48026

April 4, 2024

Tony Williamson
Bureau of Construction Codes
P.O. Box 30254, Lansing, MI 48909

Re: Public Comment on proposed Michigan Building Code
Part 4 Rules of Public Act 230 of 1972

Dear Sir:

I will be unable to attend the public hearing scheduled for 4/4/24. Enclosed are my comments on the proposed rules which would adopt and amend the 2021 International Building Code to become the 2021 Michigan Building Code.

Rule 401

Section 104.2 is proposed to be excepted from the MBC. However, Section 104.2.1 is proposed to be adopted as written. Since the topic of Section 104.2.1 is dealing with applications for reconstruction, rehabilitation, repair, alteration, addition, or other improvement of existing buildings these provisions should be located in the Michigan Rehabilitation Code for Existing Buildings based upon the provisions of Section 101.4.7.

Sections 2902 through 2902.6 are proposed to be excepted from the MBC. However, Sections 2902.7 and Section 2903 are proposed to be adopted as written. If the intent is to direct users to the Michigan Plumbing Code for the requirements for the installation of plumbing fixtures these other “orphaned sections” should be deleted as well.

Rule 412

Section 111.2 and 111.2.1 are proposed to be amended. These sections address requirements for the change of occupancy of an existing building. In accordance with the provisions of Section 101.4.7 these topics are regulated by the Michigan Rehabilitation Code for Existing Buildings. If the language is desired it should be located there.

Rule 415a

The definition of "Registered design professional" is intended to be amended to mean an individual who is licensed under **the occupational code,** 1980 PA 299, MCL 339.101 to ~~339.2919~~ **339.2677**.

Compliant by Design LLC
Building Code Consulting
31695 Karolyn Lane
Fraser, MI 48026

There are numerous professions that are licensed under 1980 PA 299. These include barbers, accountants and appraisers. The correct reference should be to individuals who is licensed **under article 20** of the occupational code, 1980 PA 299. That is the article that licenses architects, engineers and land surveyors who should be the licensed professionals that are submitting plans for approval with building permit applications.

Rule 418

Rule 418 proposes to modify Section 1203.1 to read as follows:

R 408.30418 Maximum ~~floor area allowances per occupant.~~ **Occupiable space heating systems.**
Rule 418. ~~Table 1004.1.21004.5~~ **1203.1** of the code is amended to read as follows:
1203.1. Equipment and systems. Interior spaces intended for human occupancy shall be provided with heating facilities capable of maintaining a minimum interior room temperature of 68 degrees Fahrenheit at a point 3 feet above the floor and 2 feet from exterior walls at the required design temperature. The installation of portable space heaters shall not be used to comply with this section.
Exceptions:
(a) Interior spaces where the primary purpose is not associated with human contact.
(b) Group F, H, S, or U occupancies.
(c) Interior, seasonal spaces unoccupied during cold weather months, including restrooms, shower buildings, day-use restrooms, concession stands, press boxes, ticket booths, and locker rooms.

Although "titles" do not contain enforceable language, the word "maximum" in the title should be deleted along with the rest of the current title. The term "human contact" in Exception (a) is perhaps a "typo" and should read "human comfort" as it does in the Michigan Mechanical Code.

Rule 419

Part of Rule 419 is to amend Section 1210.5 to read as follows:

1210.5. Baby changing stations. A building or structure ~~that has~~ **with** baby changing stations in the women's restrooms shall have baby changing stations in the men's restrooms.

As proposed, the rule would not require that a baby changing station be provided in a women's restroom if one were installed in a men's restroom. It is my belief that the intent of this rule was to be gender neutral and require equal facilities. The language should be revised to require equal facilities be provided in both gender's toilet rooms.

Proposed new rule.

I proposed that Section 101.4.8 be added to the code to read as follows:

101.4.8 Electrical. The provisions of the Michigan Electrical Code shall apply to the installation, alterations, repairs and replacement of electrical equipment.

Compliant by Design LLC
Building Code Consulting
31695 Karolyn Lane
Fraser, MI 48026

Reason for Code Change:
Within Section 101.4 we have provisions for the application of the other International (Michigan) codes relating to gas, mechanical, plumbing, property maintenance, fire protection, energy, and existing buildings. The one category that is currently missing from the section is electrical. This proposed code change would close that hole.

I appreciate the opportunity to submit these public comments. I can be reached via email at marks@compliantbydesignllc.com.

Respectfully submitted.

Mark Stimac, R.A., C.B.O.
Compliant by Design LLC

NFSA Proposed Rule Change

Proposed Draft Part 9A. Mechanical Code Effective March 12, 2024

Add New Exception, Section 5 below.

107.1 Construction documents.

(1) Construction documents, engineering calculations, diagrams, and other data shall be submitted in 2 or more sets with each application for a permit. Code officials may require additional construction documents at any point during construction. The code official shall require construction documents, computations, and specifications to be prepared and designed by a registered design professional, licensed in accordance with the occupational code, 1980 PA 299, MCL 339.101 to 339.2677.

Exceptions:

1. The code official may waive the submission of construction documents, calculations, or other data if the nature of the work applied for is such that reviewing of construction documents is not necessary to determine compliance with the code.

2. Construction documents shall not be required when obtaining a permit from the bureau of construction codes for any of the following circumstances:

a. Alterations and repair work determined by the mechanical official to be of a minor nature.

b. Business, mercantile, and storage use group buildings having HVAC equipment only, with 1 fire area and not more than 3,500 square feet.

c. Work completed by a governmental subdivision or state agency costing less than $15,000.00.

(2) Where special conditions exist, the code official may require additional construction documents to be prepared by a registered design professional.

(3) Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show in detail that the work conforms to the provisions of this code.

(4) Construction documents for buildings more than 2 stories in height shall indicate where penetrations will be made for mechanical systems, and the materials and methods for maintaining required structural safety, fire-resistance rating, and fire blocking

(5) Automatic Fire Sprinkler Plans submitted by an individual who possesses at least a Water-Based Systems Layout Level III or IV certified by the National Institute of Certification in Engineering Technologies (NICET).

Justification:

The State of Michigan currently permits “Certification of Firms for Fire Alarm Systems and Fire Suppression Systems in State-Regulated Facilities, under 1941 PA 207, MCL 29.1 et seq., plans and specifications to be submitted for high-risk facilities by “Qualified” individual under **R29.2805 (g)** to maintain a NICET LEVEL III or higher category.

Additionally, an overwhelming majority of the state and local jurisdiction across the country accept NICET Leve III or higher as qualified to submit fire sprinkler drawings to the authority having jurisdiction.

LARA-BCC-Rules

From: Ryan Leestma <RML@leestmamanagement.com>
Sent: Friday, March 1, 2024 12:20 PM
To: LARA-BCC-Rules
Subject: Mass Timber

As the leading developer in the State of Michigan for Mass timber constructed buildings, I would like to wholeheartedly support the adoption of the 2021 international building code without any amendments or supplemental notations related to Mass timber construction. I believe that this construction method is important for Michigan to develop as sustainability and environmental preservation are critical to the long-term future of the state.

Sincerely,

Ryan Leestma

Ryan M. Leestma
Founder and Owner
Leestma Management, LLC
(M) 616-633-6020

April 2, 2024

Michigan Department of Licensing and Regulatory Affairs (LARA)
Bureau of Construction Codes
Via email to LARA-BCC-RULES@michigan.gov

Re: Support for Mass Timber incorporated in 2022-57 LR Construction Code – Part 4. Building Code, "Draft Rule"

Dear Bureau of Construction Codes Team,

Mass timber construction, defined and provided for in building types IV-A, IV-B, IV-C, and IV-HT in the 2021 International Building Code (2021 IBC), is quickly increasing in popularity in Michigan and across the United States. Since 2018, the number of mass timber projects in the U.S. has more than quadrupled and demand is expected to at least double every two years until the mid-2030s. At the time of this writing, project teams in Michigan are developing at least 45 projects where mass timber will definitely comprise the building's structure, or where mass timber is the top choice, and teams are researching the best path to deliver it to their clients. A key part of clearing that path is to ensure that the 2021 Michigan Building Code (2021 MBC) provides the greatest possible permission and clarity as relates to mass timber**. I commend the BCC for including all the 2021 IBC mass timber elements in the 2022-57 LR Construction Code – Part 4. Building Code, "Draft Rule," and I strongly encourage and support their adoption in the final code.**

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- **Constructing safe, cost-effective buildings, faster**
    - Mass timber buildings are constructed with thick manufactured floor and wall panels, and posts and beams comprising multiple layers of wood. These large pieces usually arrive at the building site as a prefabricated kit-of-parts, which can:
        - Minimize construction noise and waste; and
        - Reduce construction times and costs. That means building occupants can start living and working in buildings sooner, which has important positive implications for State goals related to business and economic development as well as housing, including affordable housing.
    - Mass timber is a high-performance material that fares well in high winds as well as in fire; only the outer layers of mass timber are likely to char in fire and can be repaired and replaced without threatening the building's structure.
- **Creating economic development opportunities**
    - Ensuring Michigan has the most up-to-date mass timber building codes could help attract a mass timber manufacturer to Michigan as major companies seek to build headquarters or hubs using sustainable materials.

    - Making mass timber from wood sourced from Michigan forests or reclaimed from Michigan buildings can help spur economic development opportunities in both rural and non-rural areas.
- **Realizing climate and sustainability benefits**
    - Trees absorb carbon dioxide and store it as carbon in their branches, trunks, roots, and ultimately in forest soils. Harvesting forests sustainably contributes to forest health and overall carbon storage. Making mass timber buildings from sustainably harvested wood stores the trees' carbon in the building for as long as it stands. By deconstructing and re-using mass timber at the end of a building's life, we extend the wood's carbon storage, keeping carbon dioxide out of the atmosphere where it contributes to climate change.
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Acknowledging the myriad benefits of mass timber and embracing it as an important emerging technology in our industry in Michigan, the Great Lakes region, and across the United States, I **urge the State of Michigan to adopt the 2021 Michigan Building Code with all the mass timber elements included in the draft intact.** This action will enhance demand for safe, efficient, and beautiful mass timber buildings in Michigan and the likelihood that mass timber manufacture will take place here. Both activities support the State's net zero carbon goals as well as its role as a mass timber leader in the Great Lakes region.

Sincerely,

Sandra Lupien
Director, MassTimber@MSU
Michigan State University
480 Wilson Road #121
East Lansing, MI 48824
Contact: lupiensa@msu.edu

BUREAU OF CONSTRUCTION CODES
Providing for Michigan's Safety In the Built Environment

CODE WORKS!

WWW.MICHIGAN.GOV/BCC

SUMMER 2011

WORDS FROM DIRECTOR IRVIN J. POKE, AIA

When a governmental subdivision is granted the authority to administer and enforce the Michigan Construction Codes, they must also enforce the Stille-DeRossett-Hale Single State Construction Act, 1972 PA 230. As an enforcing agency, it may not amend the code or any provision of the Act. The enforcing agency does not adapt codes which are adopted by the state. It is the director of the Department of Licensing and Regulatory Affairs (LARA) who is vested with the sole authority to adopt the codes. The enforcing agency must adopt an ordinance or ordinances to enforce the Act and the codes, set up an agency, adopt a fee structure, and establish a board of appeals.

While the primary function of an enforcing agency is to issue permits, conduct plan reviews, inspections, and issue certificates of use and occupancy, there are other functions that are sometimes overlooked. The enforcing agency is the front line of license enforcement. The enforcing agency must take reasonable action to assure that properly licensed personnel perform all work. This includes and is not limited to the building, electrical, mechanical, and plumbing trades as well as professional services of architects and professional engineers. When there is a licensing investigation, the enforcing agency is responsible for providing any records and conducting necessary inspections.

It is also important that the enforcing agency have a process in place to handle complaints. One of the most critical complaints is that of a dangerous building. If a governmental subdivision elects to enforce the codes, the responsibility for investigating such complaints goes with this authority. The Bureau of Construction Codes will not intervene and the enforcing agency is responsible for any legal action that may ensue as a result of an investigation.

Finally, a code enforcement program is not a means of generating revenue for a unit of government. Section 22, MCL 125.1522, makes it clear that the fees must be set to resemble the cost of services and that revenue from the program can be used only for code administration and enforcement. The Michigan Department of Treasury issued two memorandums, 200-2 and 200-6 dated March 31, 2000, and June 2, 2000, respectively, which detail how an enforcing agency must handle its finances. These memorandums are available on the Department of Treasury website.

In conclusion, every enforcing agency must have a working knowledge of 1972 PA 230, all licensing statutes, environmental regulation, Freedom of Information Act (FOIA), Open Meetings Act, and the Administrative Procedures Act. All of which should be in the agency's library, along with all codes and standards, and available for public review. These documents should be periodically reviewed to assure that the agency operates correctly.

WHAT'S INSIDE

BCC OFFICES CLOSED
SEPTEMBER 5
NOVEMBER 11

BOARD AND COMMISSION MEETINGS

Meeting	Date	Time	Location
Barrier Free Design Board	Sep 9, Nov 18	9:30 am	Okemos – Conf Room 3
Board of Boiler Rules	Sep 13	9:30 am	Okemos – Conf Room 3
Construction Code Commission	Oct 5	9:30 am	Okemos – Conf Room 3
Electrical Administrative Board	Aug 25, Nov 3	9:30 am	Okemos – Conf Room 3
Elevator Safety Board	Aug 24, Nov4	9:30 am	Okemos – Conf Room 3
Manufactured Housing Commission	Aug 17, Oct 19	10:00 am	Okemos – Conf Room 3
Board of Mechanical Rules	Aug 24, Nov 16	9:00 am	Okemos – Conf Room 3
State Boundary Commission	Sep 15	10:00 am	Okemos – Conf Room 3
	Oct 20	1:30 pm	
State Plumbing Board	Sep 20	10:00 am	Okemos – Conf Room 3

Dates and times are subject to change. Visit the BCC website for updates.

BOILER DIVISION

CERTIFICATE INSPECTIONS AND INSPECTOR'S DUTIES

By William Vallance, Chief
Boiler Division

Boilers coming under the jurisdiction of the State of Michigan boiler law fall into three categories of inspection frequency:

Annually

- High pressure boilers that produce steam at pressures above 15 psi, or those that produce hot water at pressures above 160 psi and/or temperatures above 250 deg. F.
- Low pressure process boilers that evacuate more than 10% of their capacity.

Bi-Annually

- Boilers that produce steam for heating and operate at pressures of 15 psi or less.

Tri-Annually

- Boilers used for hot water heating and hot water supply that do not operate above pressures of 160 psi or temperatures above 250 deg. F.

Boilers must receive a certificate inspection by a licensed boiler inspector at least once during the inspection frequency. Once a boiler has passed its certificate inspection and a certificate has been issued the boiler is approved for operation until the next certificate inspection is due.

A certificate of inspection is defined in the Boiler Act, PA 290 of 1965, as "an inspection, the report of which is used by the chief inspector to decide whether a certificate . . . shall be issued. The certificate inspection shall be an internal inspection if construction allows; otherwise the certificate inspection shall be as complete an inspection as possible [emphasis added]." The definition of "certificate inspection" in the law requires an internal inspection on all boilers where construction allows. Inspectors should refer to rule R 408.4057 (c) and (g) which grants some discretion for hot water heating, hot water supply, and cast boilers.

Rule 57 allows an inspector to forego the internal inspection on hot water heat and hot water supply boilers because historically boilers in this use category do not usually degrade internally. A main cause of internal degradation in this type system is the introduction of scale and corrosion. Draining and opening a system for internal inspection can allow the introduction of scale and corrosion. The inspector must be critical during the inspection to look for external signs that would indicate a problem. The same concern is true for cast boilers because their typical construction does not make an internal inspection practicable.

In-service and internal inspection of all boilers is to be conducted in accordance with the National Board Inspection Code and the Michigan Boiler Rules as specified in boiler rule R 408.4057. Please refer to these documents for further information on boiler inspection. If you have questions or concerns contact the Boiler Division at (517) 241-9334.

ATTENTION READERS!

If you know of an organization or individual that would benefit from the information posted in BCC's newsletter, please direct them to our website at www.michigan.gov/bcc. Then, click on the "Publications/Bulletins/Interpretations/Advisories" link for more information on how to subscribe to and receive an electronic notification of when each quarterly newsletter is posted.

PLAN REVIEW DIVISION

VESTIBULE REQUIREMENTS IN THE 2009 MICHIGAN UNIFORM ENGERY CODE

By Todd Cordill, NCARB, Chief
Plan Review Division

Under what circumstances are vestibules required for new buildings or building additions? For buildings other than one-and two-family dwellings or low-rise residential buildings (three or fewer stories above grade) the requirements are found in section 501.1 of the 2009 Michigan Uniform Energy Code that references ANSI/ASHRAE/IESNA Standard 90.1-2007. Section 5.4.3.4 of the standard states:

> Building entrances that separate conditioned space from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time.

Exceptions:

a. Building entrances with revolving doors.
b. Doors not intended to be used as a building entrance.
c. Doors opening directly from a dwelling unit.
d. Building entrances in buildings located in climate zone 1 or 2.
e. Building entrances in buildings located in climate zone 3 or 4 that are less than four stories above grade and less than 10,000 square feet in area.
f. Building entrances in buildings located in climate zone 5,6,7, or 8 that are less than 1,000 square feet in area.
g. Doors that open directly from a space that is less than 3,000 square feet in area.

Section 5.4.3.4 and its exceptions are clear except for the application to tenant spaces. When we consulted the staff at ASHRAE we did not get a clear answer regarding tenant space. To apply this section we will look to the definition of "building entrance" in section 3.2 of the standard. When the definition is applied it is clear that a tenant space entrance is not a "building entrance." We then may apply exception g, and if the tenant space is less than 3,000 square feet, a vestibule is not required.

Questions may be addressed to the Plan Review Division at (517) 241-9328 or the Building Division at (517) 241-9317.

ELEVATOR SAFETY DIVISION

ASME B20.1 SAFETY STANDARD FOR CONVEYORS AND RELATED EQUIPMENT

By Cal Rogler, Chief
Elevator Safety Division

The Elevator Safety Division has reviewed the Michigan Elevator Laws and the Michigan Elevator Rules with regard to a conveyor built to the American Society of Mechanical Engineers (ASME) B20.1 Safety Standard for Conveyors and Related Equipment. It is our determination that conveyors and conveying systems which are designed, constructed, installed, maintained, inspected, and operated to the provisions of the ASME B20.1 Standard, do not fall within the scope the Elevator Safety Board Act, PA 227 of 1967, as amended. This means the Elevator Safety Division does not have jurisdiction of and will not regulate equipment which is certified compliant with the American Society of Mechanical Engineers (ASME) B20.1 and maintained and operated accordingly.

However, it is recommended that a data plate should be securely attached in plain view to the main line disconnect or controller. The data plate should indicate the Standard and the edition in effect at the time of installation. The data plate should be of such material and construction that the letters and figures stamped, etched, cast, or otherwise applied to the face shall remain permanently and readily legible. The height of the letters and figures should be not less than 3.2 mm (0.125 in.). The data plate should help assure the device is not mistaken for a device which the Elevator Safety Division does regulate. All warning signs as required by the B20.1 Safety Standard for Conveyors and Related Equipment must also be properly posted or we may assume the device to be an elevator, and enforce the Michigan Elevator Rules, ASME A17.1 requirements, and write violations accordingly.

The installation of a B20.1 device shall comply with the Michigan Building Code and requires a building permit be obtained for supports, structures, etc. Local zoning requirements must also be followed. The B20.1 Standard contains requirements for the safe installation, maintence and use of the device.

The Michigan Elevator Rules may be found on the Elevator Safety Division website www.michign.gov/bcc.

If you have any questions or need assistance with accessing the website, please call the Elevator Safety Division at (517) 241-9337.

BUILDING DIVISION

MICHIGAN RESIDENTIAL SMOKE ALARM REQUIREMENTS

By Larry Lehman, Chief
Building Division

Issue

Must smoke alarms be hard wired with battery back up and interconnected as required for newly constructed residential dwellings? Must these smoke alarms be installed in the same manner when alterations, repairs, and additions requiring a permit occur in existing residential dwellings?

Discussion

There are different installation requirements for smoke alarms depending on whether the installation is in a newly constructed dwelling or is part of an alteration, repair, or addition to an existing dwelling.

New dwelling requirements:

The 2009 Michigan Residential Code (MRC) R314.3 requires the installation of smoke alarms for new construction in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

The 2009 MRC, R314.3 also requires smoke alarms to be interconnected when there is more than one alarm device in such a manner that the activation of one alarm will activate all the alarms in the individual unit..

Existing dwelling requirements concerning alterations, repairs and additions:

The 2009 MRC, R314.3.1 provides language for alterations, repairs, and additions. When alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings.

Exceptions:

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.

This section applies a unique provision in the code requiring smoke alarms to be installed and located as required for new dwellings when a building or an electrical permit is required for building or electrical installations, while exempting work involving exterior surfaces, the addition of a porch or deck, and the installation, alteration, or repairs of plumbing or mechanical systems.

The 2009 MRC, R314.4 requires smoke alarms to receive their primary power from the building wiring when such wiring is served from a commercial source, and requires smoke alarms to be interconnected.

Exceptions:

1. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power.
2. **Interconnection and hard-wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of the interior wall or ceiling finishes exposing the structure**, unless there is an attic, crawl space or basement available which could provide access for hard wiring and interconnection **without the removal of interior finishes.**

The second exemption clearly indicates interior finishes do not need to be removed. Additionally, this code section does not address the fishing of wiring that may be necessary for the interconnection and hard wiring of smoke alarms, which also may require the removal and replacement of building insulation and vapor retarders, penetration of required fireblocking, and installation of wiring in stud cavities necessary to accommodate the fishing of wires.

Rationale:

Section 4, (3) (d) of the Stille-DeRrossett-Hale-Single State Construction Code Act, 1972 PA 230, states: "The code shall be designed to effectuate the general purposes of this act and the following objectives and standards: . . . To eliminate restrictive, obsolete, conflicting, and unnecessary construction regulations that tend to increase construction costs unnecessarily or restrict the use of new materials, products, or methods of construction, or provide preferential treatment to types or classes of materials or products or methods of construction."

BUILDING DIVISION (CON'T)

The 2009 MRC, R104.10 states in part "Wherever there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, provided the building official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety . . . ."

The requirements for smoke alarms to be installed in buildings and structures at specified locations comes from chapter 9 of the Michigan Building Code (MBC) and NFPA 72. Therefore, since they are referenced standards from the 2009 Michigan Residential Code (MRC), the Building Official or Building Inspector shall determine when smoke alarms or additional smoke alarms are required, if they are to be hard-wired or wireless systems, and whether they require interconnection.

The building official or building inspector should consider that wireless smoke alarms which are part of an interconnected system are widely available, and provide an acceptable cost effective and safe solution when installed in accordance with manufacturers' installation instructions and are adequately maintained. Removing interior finish and fishing wires presents a practical difficulty while greatly increasing construction costs.

Conclusion

When alterations, repairs, or additions requiring a building or electrical permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings. When access is provided by means of a crawl space, basement, or attic, **and the building framing is exposed**, the smoke alarms shall be interconnected and hard-wired when the building has wiring from a commercial source except as noted in the 2009 MRC 314.4, Exception 2.

When interior finishes have to be removed such as cutting out interior finishes to mount an electrical box, and **fishing wires to accomplish hard-wiring and interconnection, additional smoke alarms may be battery operated smoke alarms in accordance with MRC 314.4, Exception 2, and the additional smoke alarms are not required to be interconnected.**

It should also be noted, 2009 MRC, Section 314.3.1, exception 1, **exempts work on the exterior of a structure.** As an example, when the installation of a swimming pool or hot tub occurs on the exterior of a home, exception 1 would allow the installation of a swimming pool or hot tub without expanding the project to include smoke alarms regardless of whether a building or electrical permit are required as part of the swimming pool or hot tub installation. Exception 2 **exempts the installations, alterations or repairs of plumbing or mechanical systems** from the requirements of adding smoke alarms regardless of whether a building or electrical permit is required as part of the plumbing or mechanical system. As an example, this exception would allow the replacement of equipment such as a furnace without expanding the project to include smoke alarms regardless of whether a building or electrical permit are required as part of a furnace replacement.

Furthermore, it is the building official or building inspector who determines whether additional smoke alarms are required, if they are to be hard-wired or wireless systems, and whether they require interconnection.

Questions may be directed to the Building Division at (517) 241-9317.

BCC CONTACT INFORMATION

Telephone Numbers:

Administration (517) 241-9302
Office of Administrative Services (517) 335-2972
Office of Management Services (517) 241-9313
Boiler Division (517) 241-9334
Building Division (517) 241-9317
Act 54 Registration (517) 241-9317
Electrical Division (517) 241-9320
Elevator Safety Division (517) 241-9337
Mechanical Division (517) 241-9325
Office of Land Survey & Remonumentation (517) 241-6321
(includes State Boundary Commission)
Plan Review Division (517) 241-9328
Plumbing Division (517) 241-9330

Facsimile Numbers:

Administration & Office of Administrative Services (517) 241-9570
Office of Management Svcs, & Plumbing Division(517) 373-8547
Building, Electrical, Mechanical, Plan Review, (517) 241-9308
Office of Land Survey & Remonumentation, Elevator Safety & Boiler Divisions (517) 241-6301

Mailing Addresses:

P.O. Box 30254 (Codes: general correspondence)
P.O. Box 30255 (Codes: permits, licenses, and other documents containing payment)
P.O. Box 30704 (Offiice of Land Survey & Remonumentation)
Lansing, MI 48909

MECHANICAL DIVISION

DO YOU HOLD THE PROPER LICENSE CLASSIFICATION?

By Kevin Kalakay, Chief
Mechanical Division

The Mechanical Division receives calls daily concerning the validity of a mechanical contractor's license and the scope of work that can be performed with such license. Routinely, it is found that the licensee in question does not possess the proper license classifications for the work he or she has performed or has contracted to perform.

Performing unlicensed mechanical work is a direct violation of the Forbes Mechanical Contractors Act, 1984 PA 192.

Any individual, partnership, association, or corporation found performing mechanical work without first obtaining the proper license and classification(s) through written examination is guilty of a misdemeanor and subject to fines, imprisonment, and sanctions, including, but not limited to, denial, revocation, or suspension of the license. A licensee may also be required to pay restitution to the party for whom the unlicensed mechanical work was performed.

It is appropriate to file licensing complaints with the Office of Adminstrative Services regarding contractors that performed mechanical work for which they are not properly licensed. Complaint information can be found at www.michigan.gov/bcc.

Definitions of the licensing classifications are located in the Forbes Mechanical Contractors Act, 1984 PA 192, Sec 2. which can be found at the following link: http://www.michigan.gov/lara/0,1607,7-154-10575---,00.html.

Any questions may be directed to the Mechanical Division at (517) 241-9325.

PLUMBING DIVISION

LICENSE RENEWAL DEPENDENT UPON 2009 PLUMBING CODE UPDATE COURSE

By Robert Konyndyk, Chief
Plumbing Division

The State Plumbing Act, 2002 PA 733, Sections 23 (2) and 25 (2), requires licensed master and journey plumbers to complete approved code update classes within 12 months after the plumbing code change.

The five hours of instruction addressing the 2009 Michigan Plumbing Code and the State Plumbing Act began on the 2009 code, effective date of August 20, 2010. For that reason, master and journey plumbers shall complete an approved course for the 2009 code by August 19, 2011. Notices have been provided to all licensees reminding them of the requirement. The law requirement was enacted to insure that all licensees have the most recent code information to operate in a safe manner while serving the public.

Individuals who have not completed the class will not receive license renewal notices and will not be able to renew their plumbing license as required by law. Further, the act clearly states that a license not renewed within a three-year time frame becomes void and the individual will have to reexamine. Section 15 of the act clarifies who shall be licensed to install plumbing and Section 49 mandates that individuals not licensed and performing plumbing will be guilty of a misdemeanor punishable by a fine of not less than $1,000 per day.

We urge you to take the class as soon as possible and call the Plumbing Division if you have any questions. Class course instructor's information is available on the Bureau website at www.michigan.gov/bcc.

Questions regarding this matter may be directed to the Plumbing Division at (517) 241-9330.

PROVIDING FOR MICHIGAN'S SAFETY
IN THE BUILT ENVIRONMENT

ELECTRICAL DIVISION

WIRING METHODS FOR PATIENT CARE AREAS IN HEALTH CARE FACILITIES

By **Dan O'Donnell, Chief**
Electrical Division

Health care facilities offer many challenges for both electrical contractors and electrical inspectors with respect to the proper wiring method required given the complexity that these types of buildings present. The current electrical code for health care facilities in effect in the State of Michigan is the 2008 Michigan Electrical Code (MEC). The MEC includes the Electrical Part 8 Rules and by reference adopts the 2008 National Electrical Code (NEC)/ NFPA 70 with the Michigan amendments. Article 517 in the 2008 NEC deals with health care facilities. The scope of article 517.1 as defined in the code states that "the provisions of this article shall apply to electrical construction and installation criteria in health care facilities that provide services to human beings." Health care facilities are defined in the code as "buildings or portions of buildings in which medical, dental, psychiatric, nursing, obstetrical or surgical care are provided." The definition further states that "health care facilities include but are not limited to hospitals, nursing homes, limited care facilities, clinics, medical and dental offices, and ambulatory care centers, whether permanent or movable." Patient care areas are also clearly defined in the code as "any portion of a health care facility wherein patients are intended to be examined or treated." There is no reference in the definition of patient care areas as to whether these areas are used for simple interviews or invasive procedures.

Article 517.1 states that "a doctor's examining room located within a limited care facility would be required to meet the provisions of 517.10." Article 517.10 (A) states that "part II shall apply to patient care areas of all health care facilities". Article 517.10 (B) points out the areas where part II of Article 517 would not apply and includes "business offices, corridors, waiting rooms, and the like in clinics, medical and dental offices, and outpatient facilities." Simply put, the code is clear that areas other than the patient examining rooms in doctors' offices, clinics, and the like may be wired using an acceptable wiring method recognized in chapters 1 through 4 of the code which would include Type NM Cable. However, the patient examining rooms must be wired in accordance with the requirements specified in Article 517.10.

Electrical inspectors and contractors alike need to be mindful of the requirements for health care facilities as specified for in article 517 of the NEC. Researching the code and communication between contractors and inspectors can help avoid costly mistakes and jobsite delays.

If you have questions feel free to contact the Electrical Division at (517) 241-9320.

****** ELECTRICAL REMINDERS******

Code update classes will not be required for renewal of 2012 licenses for master and journey electricians, fire alarm specialty technicians, and sign specialist.

Apprentice electrician registrations expire on August 31. Each electrical apprentice currently registered with the State of Michigan was sent a renewal form in mid June which was due in our office by July 31, 2011 for processing. Hope everyone is enjoying a safe and prosperous summer.

MICHIGAN CODES & RULES CURRENLTY IN EFFECT

Boiler Fees	**09/04/2007**
Boiler Rules - General	**07/27/2009**
Boiler Operators & Stationary Engineers Qualification & Registration Program Rules	**07/30/2010**
Building/Residential Codes (Part 4)	**03/09/2011**
Electrical Code (Part 8)	**12/02/2009**
Elevator Safety - General	**06/21/2010**
Manufactured Housing General Rules	**09/02/2008**
Mechanical Code	**10/21/2010**
Plumbing Code (Part 7)	**08/20/2010**
Rehabilitation Code	**03/09/2011**
Subdivisions of Land	**06/16/2008**
Uniform Energy Code	**03/09/2011**

FOR CODE/RULE UPDATES - Visit BCC's website to monitor updates on code review processes.

OFFICE OF LAND SURVEY AND REMONUMENTATION

TITLE VESTING AUTHORITY OF VACATED PUBLIC AREAS WITHIN RECORDED SUBDIVISIONS

By Nicholas J. Clever, P.S.
Office of Land Survey and Remonumentation

The Office of Land Survey and Remonumentation (OLS&R) is the agency responsible for the review and approval / rejection of subdivision plats filed with the State of Michigan under the Land Division Act, 1967 PA 288, MCL 560.101 et seq. (LDA).

When a subdivision plat is submitted for review to the OLS&R pursuant to either section 169 (proprietor plats), section 210 (assessor plats) or section 229 (amended plats) of the LDA, it shall be accompanied by the following:

Proprietor plats filed under section 169
Preliminary Plat [MCL 560.111]
Preliminary plat approvals (as applicable):
Road Commission [MCL 560.113]
Drain Commissioner [MCL 560.114]
State Transportation [MCL 560.115]
Natural Resources and Environment [MCL 560.116 & 560.117]
Health Department [MCL 560.118]
Municipality [MCL 560.120]
State Plat Review Fee and Filing and Recording Fee [MCL 560.142 & 560.241]
Certified True Copies of Plat [MCL 560.169]
Floodplain Restrictions (if applicable) [MCL 560.194]
Owner's Policy of Title Insurance [MCL 560.245]
Governmentally Imposed Subdivision Restrictions [R 560.103]
Final Plat on Approved Material [R 560.104]
Land Corner Recordation Certificates [R 560.112]
Recorded Easements [R 560.112]
Traverse Closure [R 560.112]
State Issued Constructions Permits and Proof of Surety (if applicable) [R 560.121]

Assessor plats filed under section 210
State Plat Review Fee and Filing and Recording Fee [MCL 560.142& 560.241]
Municipal Resolution Ordering Assessor Plat [MCL 560.201]
Current Year's Tax Roll & Preliminary Map [MCL 560.204]
Recorded Lot Line Agreements [MCL 560.206]
Proof of Public Notice [MCL 560.209]
Final Plat on Approved Material [R 560.104]
Land Corner Recordation Certificates [R 560.112]
Recorded Easements [R 560.112]
Traverse Closure [R 560.112]
Amended plats filed under section 229
State Plat Review Fee and Filing and Recording Fee [MCL 560.229 & 560.241]
Floodplain Restrictions (if applicable) [MCL 560.194]
Recorded County Road Commission Resolution (if applicable) [MCL 560.226]
Recorded Municipal Resolution (if applicable) [MCL 560.226 & 560.256]
Recorded Court Judgment [MCL 560.228]
Final Plat on Approved Material [R 560.104]
Land Corner Recordation Certificates [R 560.112]
Recorded Easements (if applicable) [R 560.112]
Title Search for Easements of Record [R 560.112]
Traverse Closure [R 560.112]

In accordance with section 171 of the LDA and upon OLS&R's completion of the plat review the plat will be either: (1) approved and forwarded to the county register of deeds for recording or (2) rejected. Upon rejection of a plat, a letter providing the reasons for rejection shall be provided to the following parties as follows:

(1) Proprietor plats – Rejection letter, plat mylar, and markup copies will be issued to the proprietor with the majority interest, with copies of the rejection letter being provided to other proprietors and the surveyor of record. Upon authorization by the proprietor, the plat mylar and markup copies may be provided to the surveyor of record.

(2) Assessor plats – Rejection letter, plat mylar and markup copies will be issued to the surveyor of record, with a copy of the rejection letter being provided to the assessor.

(3) Amended plats – Rejection letter, plat mylar and markup copies will be issued to the surveyor of record, with copies of the plat rejection letter being provided to the Office of the Attorney General and the plaintiff's attorney.

Subdivision plat re-submittals, resulting from the rejection of a plat by the OLS&R, are considered new submittals and shall be accompanied by a new state plat review fee and any of the above listed required documentation, as applicable.

Questions regarding this matter may be directed to the Office of Land Survey and Remonumentation at (517) 241-6321.

BCC ONLINE SERVICES

Manufactured Home Affidavit of Affixture Online Lookup
Online License Search
Disciplinary Action Report
Easy Access to Permit & License Verification
Statewide Search for Subdivision Plats
Statewide Search for Remonumentation Data
County Remonumentation Data Entry
Building System Approval Reports
Online Code Training Series
BCC Field Inspection Survey

BCC QUICK LINKS

Online Permitting
Online License Renewals
Codes & Standards Order Form
Statewide Jurisdiction List
Local School Construction Enforcement List

CIVIL SERVICE WEBSITE

State Job Postings

Code Works! is a quarterly publication of the Bureau of Construction Codes within the Department of Licensing and Regulatory Affairs

Editor in Chief
Keith Lambert

Editors
Deborah Young
Hillary Cushman

Created under the authority of 1972 PA 230.

LICENSE EXAMINATION DATES

Examination	Date	Location	Deadline
Boiler Installer and Repairer	Sep 7&8	Okemos	Aug 5
	Dec 7&8	Okemos	Nov 4
Fire Alarm Spec. Tech./Sign Spec.	Nov 8	Okemos	Oct 11
Electrical-Journeyman	Aug 18	Lansing	Jul 21
	Nov 3	Lansing	Oct 6
Electrical-Master	Aug 18	Lansing	Jul 21
	Nov 3	Lansing	Oct 6
Electrical-Contractor	Sep 22	Lansing	Aug 24
	Nov 8	Lansing	Oct 11
Elevator Journeyperson	Sep 20	Okemos	Aug 30
	Nov 22	Okemos	Nov 1
Elevator Contractor/Cert. of Comp.	Aug 26	Okemos	Jul 29
	Nov 4	Okemos	Oct 7
Mechanical Contractor	Sep 13	Lansing	Aug 15
	Dec 6	Lansing	Nov 4
Plumbing - Contractor	Sep 21	East Lansing	
Plumbing - Master and Journey	Sep7	East Lansing	

Dates and times are subject to change. Visit the BCC website for updates.

LARA
LICENSING AND REGULATORY AFFAIRS
CUSTOMER DRIVEN. BUSINESS MINDED.

March 21, 2024

LARA-BCC-Rules
Attention: Tony Williamson, Bureau of Construction Codes
Via email: LARA-BCC-Rules@michigan.gov

RE: Storm Shelter Provisions in 2021 Michigan Building Code

Dear Mr. Williamson and LARA:

I am writing to oppose late amendments to the proposed rules that would adopt the 2021 IBC as our next MBC. I am writing as a Michigan resident; as a parent who has had students in Michigan schools; as a son whose mother survived the 1953 Flint-Beecher EF5 tornado; as a friend to police, firefighters, doctors and nurses and others would benefit from storm shelters in their new buildings; as a Professional Engineer who practices structural engineering; as an engineer who has a great deal of experience working with systems that can provide economical storm shelter; and, as a consultant for the Michigan Masonry Coalition.

First, I have watched the current, proposed rules since their inception and there previously were no exceptions to the storm shelter requirements provided in Section 423. I am currently traveling, and on a whim and prior to tomorrow's Public Hearing, I went to the BCC's website. There I found two notable changes - Sections 423.3 and 423.4 were now excepted in the proposed rules,. These added exceptions were not in reference to any written comments that were shared in the BCC documents related to the proposed new MBC – I reviewed the published letters/comments. I had seen that there were comments related to other aspects of the code, but none related to the storm shelter provisions. As such, I was going to write a brief letter in support of maintaining the full adoption of Section 423. It appears, however, and as in prior adoption processes, that actions have taken place outside of the Public Hearing process and without public knowledge, that led to the new storm shelter exceptions. A person would not have known of those recent changes unless, and until, they had re-visited the BCC's website and notices the undated but changed proposed rules. I have checked various websites every couple months, through the 2021 adoption process, and was becoming convinced that Section 423 was going to be adopted in whole… until this evening. This seems entirely inappropriate for a public safety related process both with regard to the lack of announcement of changes and with regard to the late timing of the changes.

Second, during the 2018 MBC adoption process, previously withdrawn, I, and others, had spoken in support of maintaining the storm shelter provisions and in opposition to poorly or unsupported letters of objection to shelters, particularly in schools. I will recap my general opinions here and would very much like to share updated data with you, and other appropriate bodies of influence for our code adoption process, in the future and prior to finalizing the proposed rule language.

With regard to storm (tornado) shelters being required in Michigan's Building Code:

1. Tornadoes happen in Michigan. Prior data that I had cited noted 58 significant tornadoes (EF3-5) having occurred in Michigan between 1950 and 2017. 2510 injuries and 195 deaths occurred from those tornados according to NOAA. That data can be updated, and please note – we have already had tornadoes in Michigan this year….
2. Storm shelters requirements were retained, in the former proposed rules, for Critical Emergency Operations buildings.
3. There was strong opposition to the late addition of storm shelter requirement exceptions for Group-E buildings in the former proposed rules.
4. While conventional construction for schools and critical emergency operations buildings is done to higher wind design standards than for typical use buildings, their conventional construction design IS NOT SUFFICIENT for tornado level wind loads and flying debris resistance.
    a. Current shelter spaces in schools would be classified as 'best available' shelter space and they may or may not have better protective structural capacity than other parts of the building, but they will definitely not have sufficient structural capacity to protect occupants during an EF3 or greater tornado. They may, also, prove insufficient for lesser level tornadoes.
    b. EF3 tornadoes have wind speeds 36.5% greater than typical school design wind speeds, and the resulting design wind pressure is 89% greater (load is 189% of design capacity).
    c. EF4 tornadoes have wind speeds 66.7% greater, and design wind pressures 175% greater (275% of design capacity).
    d. EF5 tornadoes have wind speeds 100% greater, and design wind pressures 332% greater (432% of design capacity).
    e. Structural failure often occurs at 200 % to 250% of design capacity.
5. It had been said, during the former process, that Michigan was the only state that would require tornado shelter construction in schools that didn't fully fund school construction. My former research showed that many states were constructing school shelters without any funding, or with very low funding, from the state. I, also, noted that FEMA provided (and still provides) grants for the premium costs associated with shelter construction.
6. It was also previously presented that school districts, especially small, rural districts, could not afford to construct new schools, or school additions, due to the significant cost of shelter construction.
    a. Shelters are typically constructed using spaces planned for other activities and the only cost is the premium cost for the shelter construction which will include greater structure for the roofs, walls and possibly the foundations. That premium cost, however has been shown to be very small relative to the overall construction budget – typically a percent or two.
    b. One of the apparent strongest objections was related to small additions for rural schools. Note that occupancies less than 50 do not require shelter spaces. For spaces with 50, or more, occupants a shelter space will be required for at least the occupants of the addition.
    c. I previously ran, and presented, a quick financial analysis for a small, 6,000 square foot addition, or about six classrooms and ancillary space. The whole space was considered as a shelter, rather than only a portion of it, to shelter only the occupants of the addition – so a net increase in sheltered students beyond the

addition at increased cost for the whole addition. The base construction at time would have been approximately $1.8 million while the shelter cost would have been approximately $2.4 million, or about $600 thousand more. That number could be off-putting, but when considering the bonded cost, it amounted to about $10/year in my small community of Bath Township, based on our taxable units, values and rates. That is a very palatable cost to any community member and would be easily presentable and defensible. The cost of the shelter would not have to be in place of other aspects of construction, with proper presentation and education of the local public.

d. The premium cost differential decreases as the overall construction project size increases.

7. There ***is*** a premium cost to building shelter spaces. There ***is also*** a cost to not sheltering students or other occupants in tornado prone areas. The current data for 2022, from the U.S Department of Transportation, lists the value of a statistical life (VSL) as $12.5 million. With one statistical life valued at $12.5 million, the relative cost of a tornado shelter is very small in comparison. ***We cannot afford to not shelter where the code currently suggests that shelters should be provided.***
8. Masonry and concrete provide economical envelope and structural systems to create shelter spaces within new construction. They have been, and are being, used in many states around Michigan and occupants of Critical Emergency Operations and Group-E buildings are being properly protected. Many, possibly most of those states (I'd need to update my research) are doing so with no state funding or low state funding levels. Additional systems are being developed to provide other options for the structure and envelope.
9. Other aspects of shelter construction can be managed via the code language to limit the nature, and related costs, of hand-washing, toilet and lighting facilities. Ventilation systems are recommended and must be protected, but other options are available to provide natural ventilation. The MEP system costs can be managed, and to some degree, mitigated if needed.

There are, likely, other points that I could make, and certainly updated and greater depth of detail can be provided as the process proceeds. I encourage you to review the substance of the information submitted during the prior process. I invite you to further consider the above points and to allow the process to properly and fully address the realities of the benefits and potential costs related to shelter construction. I, and others, are happy to assist with that process.

Please contact me if you have any questions regarding WCE's evaluation relative to this information. Please, also, let me know if/when alternative viewpoints and data can be provided. Thank you for your time in considering my comments.

Sincerely,

Scott W. Walkowicz
PE$_{AL/AR/CA/CO/FL/GA/IA/IN/KS/LA/MI/MO/MS/NC/NY/OH/SC/SD/TN/TX/VA/WA/WI}$, SE$_{UT}$, FTMS, NCEES MLE
Owner/WCE

To Whom it may concern,

In review of the proposed changes to the Michigan Building Code, I present the following on behalf of the Metro Building Inspectors Association of Greater Grand Rapids, and myself.

General

- In several modifications to rule language there appears a change from a metric measurement symbol to a metric word. For example, “mm millimeter” the symbol "mm" appears 2,434 times in the model code. To be clear, the short forms for metric units (such as mm for millimeter) are symbols, not abbreviations. These correct ways to use the Système international d’unités, and other related units are set by the international standards that define the SI. There is no need to create additional confusion of measurements or additional rules that will need to be reviewed in the next promulgation process. Please allow the symbol mm to remain where used in the model code.

Rule 401

- It is proposed to newly except 18 sections of chapter one of the model building code from being included in the Michigan Building Code including 104.2, 104.3, 104.8.1, 104.10, 105.3, 105.3.1, 105.3.2, 105.6, 111.2, 111.3, 113.2, 113.3, 113.4, 114.1, 114.2, 114.4, and 115.1 to 115.4. We ask the director to specifically identify why these sections, which have been allowed to remain in prior versions of the Michigan Building Code are now being removed. The Stille Derosett-Hale Single State Construction Act which grants authority to promulgate the Building Code has not changed in a manner that would affect the sections proposed to be removed. Nor, has the model code changed these sections in such a way that they would contradict the authority of Public Act 230. Given that the enacting legislation and the model code have not changed language and I know of no judicial rulings pertaining to the sections in question, there should not be a change in the rules to remove them now.

Rule 415a

- The definition for “Act” should not be written into code language. There are references within established rules and draft rules that reference different Public Acts of Michigan, such as the Skilled Trades Regulation Act, the Occupation Code, the Adult Foster Care Licensing Act, as well as the Stille Derosett-Hale Single State Construction Act. Where any Act is referenced within code language it is, and properly so, identified using it’s full name. PA 230 is named the “Stille Derosett-Hale Single State Construction Act” within the Act. It does not need to be redefined in code language that is subordinate to the Act.
- "Cold Weather Months" should not be added as a definition. The language used here should, instead, be added to the code section you intend to modify; that being 1203.1
- The definition of “Occupiable Space” should not be changed. This definition is a bedrock definition applicable to every other section of code in some manner. The seemingly minor change will have many unforeseeable issues with interpretation of the code. As an alternative to redefining “Occupiable Space”. The desired exceptions to it should be identified in sections 1203.1 of this code and 309.1 of the Mechanical Code.

Rule 418

- To effect the desired outcome of defining “cold weather months” and redefining “occupiable space” the draft language of 1203.1 should word the proposed exception 2 as follows:
  “Exception 2: Interior, seasonal spaces that are unoccupied during November 1 through April 1 in climate zone 5A and from October 15 through May 1 in climate zones 6A and 7, including spaces such as restrooms, shower buildings, day use restrooms, concession stands, press boxes, ticket booths and locker rooms.”

Rule 421

- Rule 421 was not proposed to be modified, however,
- The modifications to section 1025.1 can be struck from rule 421.
  Rule 421 was not proposed to be modified, however, with the striking of the Michigan’s definition of “High-Rise Building” (408.30415a), Rule 421 does not need to correct the language of the 2021 model code.
- Rule 421 proports to modify section 1030.1 retaining to Emergency escape and rescue opening. The model code section has been renumbered to 1031.2. The rule needs to be changed to reflect the renumbering. In addition, the model code language should be reviewed considering the changes made to this section of the model code, the prior Michigan language is substantially similar to the 2021 model code and can be rescinded.

Rule 429

- Rule 429 was not proposed to be modified, however,
- With the striking of the Michigan’s definition of “High-Rise Building” (408.30415a), Rule 429 does not need to correct the language of the 2021 model code.
- Rule 429 can be rescinded.

Rule 429b

- Rule 429 was not proposed to be modified, however,
- The section references within this existing Michigan rule do not point to the correct 2021 model code sections.
- More appropriately this rule can be rescinded to allow 3006.3 clear directions on when elevator lobbies are required.

Rule 447

- Rule 429 was not proposed to be modified, however,
- The reference to section 1023.11 needs to be changed to 1023.12.

Thank you for the consideration of these items and honestly (honestly, because inflection can be misread in written communication) thank you for your diligence in updating the codes.

William A Hordyk, MCP

LARA-BCC-Rules

From: Tracie Pack <paxnmac@gmail.com>
Sent: Thursday, April 4, 2024 11:57 AM
To: LARA-BCC-Rules
Subject: Building Code Rules

Good afternoon. I'm recommending that the Bureau of Construction Codes keep the current building code rules as they are with no amendments.

Thank you,
Tracie Pack