

**Concise Statement for Adoption of Amendments to
Alabama Administrative Rule 355-12-1
Alabama State Building Code**

The Alabama Department of Finance, Division of Construction Management (“DCM”) adopted rules to incorporate the 2021 International Building Code as the State Building Code. These proposed rules were published in the Alabama Administrative Monthly on December 30, 2021. The period for public comments ended on February 3, 2022. No public comments were received in response to these proposed rules. However, three public comments were received during the comment period for nearly identical rules that were proposed on October 29, 2021. DCM considered, but did not adopt, the changes in these comments.

1. Responsible Energy Codes Alliance Comment:

The Responsible Energy Codes Alliance requested the adoption of the 2021 IECC and ANSI/ASHRAE/IES Standard 90.1 – 2019 commercial energy codes.

Response:

Thank you for the information supporting the adoption of the 2021 IECC and ANSI/ASHRAE/IES Standard 90.1 – 2019 commercial energy codes. Given today’s environmental and political climate, the State of Alabama Division of Construction Management appreciates the need for action to reduce energy use and emissions. However, the codes that we adopt also need to acknowledge the available financial and technical resources that are available to State governed facilities and their operators.

Construction Cost and Energy Usage Impacts of Currently Adopted ASHRAE 90.1 - 2013

The electrical power consumption reduction measures in ASHRAE 90.1 - 2013, such as transformer efficiency requirements, maximum lighting power density levels and automated lighting control have had positive impacts on building energy conservation in the State of Alabama since ASHRAE 90.1 – 2013 adoption in July of 2016. HVAC equipment efficiency requirements and envelope insulation/fenestration requirements also adopted as part of ASHRAE 90.1 – 2013 have generated real savings in reduced building power consumption.

However, these benefits of the above energy savings measures have been partially offset by first cost, operational and long-term maintenance problems with controls and monitoring requirements of ASHRAE 90.1 – 2013. The controls and monitoring requirements that have been found to generate little or no payback are the following:

- Economizers
- Automatic Receptacle Control
- Electrical Energy Monitoring

Economizers are often found functioning improperly or disabled within a short period of time following building occupancy due to a lack of maintenance funding for sensor replacement and a lack of understanding of psychometrics by many public facility maintenance personnel. Automatic receptacle control is often removed or bypassed by building maintenance personnel once controllers fail or complaints rise due to the lack of continuously powered outlets. Lastly, energy monitoring data is only useful if maintenance staff have the technical ability to interpret the data collected and diagnose the correct repairs/modifications – most State governed facilities lack the engineering staff capable of this analysis and as a result the collected data goes unused.

Energy monitoring and automatic receptacle control implementation have historically been costly, with a typical implementation costing an additional \$2.60/SF. Implementation of energy monitoring includes not only separate power distribution for HVAC, interior lighting, exterior lighting and receptacle circuits, but additions to building information technology infrastructure to capture energy monitoring data, along with servers to store all power consumption recorded once every 15 minutes and stored for a minimum of 36 months. Implementation of automatic receptacle control requires switched outlets for a minimum of 50% of all receptacles in most typical occupied spaces – effectively doubling the power control requirement and cost for most spaces.

Impact of 2021 IECC/ASHRAE 90.1 – 2019 Adoption

Adoption of the 2021 IECC and ASHRAE 90.1 – 2019 continues the implementation of the problematic controls and monitoring requirements included in ASHRAE 90.1 – 2013.

Adoption of the 2021 IECC and ASHRAE 90.1 – 2019 also makes verification of Electrical and Mechanical System Controls and Commissioning (2021 IECC, C105.2.5 and C105.2.6) the Code Official/Inspector’s responsibility in lieu of the A/E, Contractor or Commissioning Provider. Verification of modern controls programming and sequences of operation requires specialized software and training, which the State of Alabama inspectors currently do not have access to. Increased inspection scope and staffing to address this scope requires support at the State of Alabama legislative level – support which is not forthcoming.

We respectfully acknowledge your request for 2021 IECC and ASHRAE 90.1 – 2019 adoption but will not be adopting these codes during this code revision cycle.

2. American Chemistry Council Comment:

The American Chemistry Council also requested the adoption of the 2021 IECC and ANSI/ASHRAE/IES Standard 90.1 – 2019 commercial energy codes. DCM’s response is the same as above.

3. Goodman Manufacturing Company, L.P. Comment:

Goodman Manufacturing Company, L.P. requested various modifications to the Alabama Residential Code, the Alabama Mechanical Code, and the Alabama Electrical Code.

Proposed Modifications to the Alabama Residential Code, Based on the 2021 International Residential Code – Sections M1402.1, M1403.1, M1412.1, M1413.1 and M2006.1:

Response: The State of Alabama Division of Construction Management does not have jurisdiction over the Alabama Residential Codes. Contact the Alabama Department of Economic and Community Affairs (ADECA) for proposed 2021 IRC modifications. See <https://adeca.alabama.gov/energycodes/> for contact information.

Modification to the Alabama Mechanical Code, Based on the 2021 International Mechanical Code – Table 1103.1, Footnote c.:

Proposed Modification: *The ASHRAE Standard 34 flammability classification for this refrigerant is 2L, ~~which is a subclass of Class 2.~~*

Commentary: The proposed change appears to be intended to prevent the application of the 2021 International Mechanical Code’s usage restrictions on ASHRAE 34 flammable Group A2 refrigerants to Group A2L limited flammability refrigerants. However, the 2021 International Mechanical Code Reference Standards ASHRAE 15 – 2019 and ASHRAE 34 – 2019 are both very clear on regarding the differences in Group A2 and A2L refrigerants and do not reference A2L refrigerants as a subclass of A2. ASHRAE 15 – 2019 Section 7.6 also includes specific safety requirements for Group A2L refrigerant use including maximum concentration levels based on flammability and requirements for refrigerant leak detection, classified electrical devices and ventilation interlocks. Since the 2021 International Mechanical Code does not address the use of Group A2L refrigerants in human comfort applications, the ASHRAE reference standards take precedence.

Response: DCM does not consider this proposed modification necessary and will not be including the modification in its next code update.

Modification to the Alabama Mechanical Code, Based on the 2021 International Mechanical Code – 1104.3.1:

Proposed Modification: *1104.3.1 Air conditioning for human comfort. High probability systems used for human comfort shall use Group A1 or A2L refrigerant. In other than industrial occupancies where the quantity in a single independent circuit does not exceed the amount in Table 1103.1, Group B1, B2 and B3 refrigerants shall not be used in high-probability systems for air conditioning for human comfort.*

Commentary: The proposed change conflicts with the (implied) permitted use of Group A2 refrigerants for human comfort applications within this same paragraph and may generate other conflicts within the International Mechanical Code. The 2021 International Mechanical Code in its unrevised form does not prohibit the use of Group A2L refrigerants in high-probability human comfort applications – allowing their use without removing other code compliant options available to the designer.

Response: DCM does not consider this proposed modification necessary and will not be including the modification in its next code update.

Modification to the Alabama Mechanical Code, Based on the 2021 International Mechanical Code – Chapter 15, Referenced Standards:

Proposed Modification: Addition of CSA C22.2 No. 60335-2-40-2019 reference and update of UL 60335-2-40 reference from the 2017 to the 2019 revision.

Commentary: The proposed changes, although nominally approved by the ICC in the documentation submitted, will not be issued as code requirements until 2024. As a result, not all manufacturers may be able to comply with these updated reference standard requirements at the time of the Alabama State Building Code updates.

Response: DCM considers early adoption of these proposed modifications unnecessary and will not be including the modification in its next code update.

Modification to the Alabama Electrical Code, Based on the 2020 National Electric Code – 210.8(F):

Proposed Modification:

Delete or modify the 210.8(F) requirement (new to the 2020 NEC):
210.8(F) Outdoor Outlets. All outdoor outlets for dwellings that are supplied by single-phase branch circuits rated 150 volts to ground or less, 50 amperes or less, shall have ground-fault circuit-interrupter protection for personnel.

Commentary: The new expansion of GFCI in the 2020 NEC 210.8(F) to cover exterior outlets on dwelling units other than just those rated 125V is a necessary enhancement to safety. Code Making Panel 2 supported the expansion of GFCI protection to cover outdoor outlets rated 250V based on the electrocution of a young boy who came in contact with the energized enclosure of an outdoor HVAC unit. However, recent field experience with new installations performed in accordance with the 2020 NEC has demonstrated some random opening of the

GFCI devices protecting ductless mini splits. It has also become apparent that random opening may also occur with other equipment employing power conversion equipment controlling the speed of the compressor. To address this issue, NFPA issued a Tentative Interim Amendment (TIA 20-13) regarding NEC 210.8(F) on September 15, 2021:

Revise 210.8(F) to read as follows:

210.8(F) Outdoor Outlets. *All outdoor outlets for dwellings, other than those covered in 210.8 (A)(3), Exception to (3), that are supplied by single-phase branch circuits rated 150 volts to ground or less, 50 amperes or less, shall have ground-fault circuit-interrupter protection for personnel. This requirement shall become effective for ductless mini-split-type heating/ventilating/air-conditioning (HVAC) equipment and other HVAC units employing power conversion equipment as a means to control compressor speed on January 1, 2023.*

The purpose of this TIA is not to eliminate the GFCI protection, but to provide time for the industry to understand and address the field tripping on ductless mini splits and units containing power conversion equipment. This TIA extends the date of enforcement for the industry to address the present tripping issues that are occurring in the field on these specific equipment types. Proposed changes, although nominally approved by the ICC in the documentation submitted, will not be issued as code requirements until 2024. As a result, not all manufacturers may be able to comply with these updated reference standard requirements at the time of the Alabama State Building Code updates.

Response: DCM considers early adoption of these proposed modifications unnecessary and will not be including the modification in its next code update.