Residential and Manufactured Structures Board

Meeting agenda

Meeting date: January 10, 2024
Time: 9:30 a.m.
In-person attendance: Building Codes Division Salem office in Conference Room A
Virtual connection and online streaming: View the live meeting or access the connection information for the Zoom meeting at: Oregon.gov/bcd/Pages/bcd-video.aspx

I. Board business

A. Call to order
B. Roll call
C. Approval of agenda and order of business
D. Approval of the draft board meeting minutes of October 4, 2023
E. Date of the next scheduled meeting: April 3, 2024
F. Board vote for Chair and Vice Chair of Residential and Manufactured Structures Board
G. Formal farewell to Vice Chair Rebai Tamerhoulet
H. Welcome new member Sean Blaire

II. Public comment

The board will hear public testimony, including testimony from individuals who have signed up in advance.

III. Reports and updates

A. Residential Program update
B. Energy Program update

IV. Communications

Statewide Code Interpretation 23-02 Condensate from a Heat Pump Water Heater

V. Appeals

There are no appeals for this meeting.

VI. Unfinished business

There is no unfinished business at this time.

VII. New business

A. Board review and recommendation on Statewide Alternate Method 24-01 International Energy Conservation Code (IECC) alternate path
B. Board review and recommendation on Statewide Alternate Method 24-02 Variable speed heat pump thermostats

VIII. Announcements

The Board Chair or board members can make announcements during this time.

IX. Adjournment

Board meetings are generally adjourned by the Board Chair.

Interpreter services or auxiliary aids for persons with disabilities are available upon advanced request. For assistance, please contact Nathan Kramer at 503-899-2131.

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State of Oregon

Agenda Item I.D.

Residential and Manufactured Structures Board

Meeting minutes
October 4, 2023

Members present: Rebai Tamerhoulet, Vice-chair, building official
Gordon Anslow, home designer
James Austin, manufacturer of manufactured dwellings
Rich Fry, residential structural contractor
Douglas Lethin, remodeler/residential structural contractor
Rich Tovar, residential building trade subcontractor
Matthew Lutter, utility/energy supplier

Members absent: John Chmelir, multi-family contractor
Forrest Barnes, seller/distributor of new manufactured dwellings
Emily Kemper, public member

Staff: Tony Rocco, residential, structural program chief, PTS
Mark Heizer, mechanical and energy systems engineer, PTS
Kelly Thomas, energy policy analyst, PTS
Eric McMullen, senior building code specialist, PTS
Andy Boulton, senior policy advisor, PTS
Pierre Sabagh, policy analyst, PTS
Debi Barnes-Woods, boards coordinator/administrator, PTS
Nathan Kramer, policy development coordinator

Guests: Steve Strawn, JELD-WEN Inc.

I. Board business

A. Call to order

The Residential and Manufactured Structures Board meeting of October 4, 2023, was called to order at 9:30 a.m. by Facilitator and residential and structural program chief Rocco.

B. Roll call

Three members were excused: Forrest Barnes, John Chmelir, Emily Kemper

Vice-chair Tamerhoulet and member Fry were in person and 5 members were connected through ZOOM. The board has one vacant position.

C. Approval of agenda and order of business

Facilitator Rocco ruled the agenda and order of business approved as published.

D. Approval of the draft board meeting minutes

Facilitator Rocco ruled the draft meeting minutes of July 12, 2023, final.

E. Date of the next scheduled meeting

January 10, 2024.

F. Board vote for Chair and Vice Chair of Residential and Manufactured Structures Board

Pierre Sabagh, policy analyst, explained the process for nominating and voting for a new chair and vice-chair. Member Fry, made a motion to table this item until the next meeting. All members agreed.

G. Board vote for CIEB membership

Pierre Sabagh, policy analyst, described the options for a board vote for Construction Industry Energy Board(CIEB) membership. Member Lutter nominated himself for the position and would be happy to represent the board. Pierre confirmed there were no additional nominations. Member Lutter formally accepted the nomination.

Roll call vote taken
Aye: Gordon Anslow, James Austin, Rich Fry, Douglas Lethin, Rich Tovar, Matthew Lutter, Rebai Tamerhoulet
Nay: none
Motion carried unanimously

II. Public comment

Steve Strawn, JELD-WEN Inc. provided public testimony related to the Reach Code. In section n114.4.3 fenestration air leakage the current draft contains a previous version. The energy code updated earlier this year corrected some of the air leakage issues and he recommends including the updated language.

III. Reports and updates

A. Residential program update

Chief Rocco, structural program chief, informed the board the 2023 iteration of the Oregon Residential Specialty Code (ORSC) became effective on October 1. Aside from the chapter one administrative provisions the remainder of the code does not become mandatory throughout the state until April 1, 2024. During this time customers may choose to use either the 2021 or 2023 iteration. It is a customer choice and municipalities throughout the state are charged with accepting plans based on either iteration. On the residential code program page information and resources are available regarding the new code and adoption process. This includes prior board meetings and the projected forecast of codebook availability. A summary of all amendments and changes to the base model code is coming soon. The BCD team is currently working on compiling related training videos covering significant changes that will be available for free hosted on YouTube prior to the end of the year. The training will be required for certified individuals including plans examiners, inspectors, and building officials. It is also a great tool and resource for others to understand the code updates. BCD will soon post a training for the Oregon Construction Contractors Board regarding the updated section R327 and the provisions for Wildfire Hazard mitigation, commonly referred to as home hardening or fire hardening. This training is intended for licensed residential contractors, and will be available for anyone to access.

Mr. Rocco introduced the new senior policy analyst Richard Donovan to the board. Richard joined BCD in September and brings a wealth of experience and expertise to the already robust policy team. Prior to joining BCD, Richard spent a decade in the legislature working as nonpartisan committee staff and seven years as a lobbyist for the Oregon School Boards Association. Richard will be working on legislative matters as well as coordinating with local jurisdictions.

B. Energy program update

Mark Heizer, energy and mechanical engineer, thanked the board for adding a representative to CIEB. They will be following the progress of the 2024 commercial code. This board worked on the 2023 Oregon Residential Specialty Code (ORSC) Chapter 11. It provides a method for constructing efficient, safe, cost effective homes for Oregon. The University of Oregon's Energy Studies and Buildings Lab has completed their modeling of the 2023 ORSC. The results are posted on the division website. The US Department of Energy received a letter noting Oregon has met its requirements under federal rules. The current Oregon provisions are meeting or exceeding the 2021 International Energy Conservation Code, residential standards. This work is in addition to the internal modeling that the division has completed. Executive Order 17-20 has been completed by exceeding the US Department of Energy Zero Energy Ready home equivalency. Executive Order 20-04 will be addressed later in the meeting. Mr. Heizer asked for board questions, there were none.

C. Legislative update

Andy Boulton, senior policy advisor, gave a brief update on the legislation impacting the division from this year's legislative session. There is a full summary in the board

packet. Full bill language and supporting documents are available on the Oregon Legislative Information System (OLIS). Increasing housing supply was a major theme of the session. The primary bills addressing this were: House Bill (HB) 2001, HB 2889, and HB 3395. The division has been asked to create a definition for accessibility and visitability, as they relate to housing. The division needs to consider updates to the Oregon Structural Specialty Code (OSSC) to allow residential occupancies to be served by a single exit in certain circumstances. This will happen during the normal code development process.

Senate Bill 80 was the wildfire updates bill. There are not many impacts on the division, but it does impact the roll out of the new Wildfire Hazard Advisory map. This map will impact the division's roll out of R327 wildfire hardening standards in certain high hazard wildfire zones.

HB 2727 created child care facilities work group and BCD will be a member to provide expertise on relevant codes.

HB 5506 includes an extension to June 2025 for the wildfire hardening grant program, and expands it to include structures lost in the 2021 wildfires.

HB 3409 was the climate an greenhouse gas emissions bill. The division is required to consider greenhouse gas emissions in agency actions. Consulting the Environmental Justice Council is required when considering agency action that impacts climate change or greenhouse gas emissions. This will likely involve a regular check-in with the council. The bill puts into statute the reporting requirements that existed under Executive Order 20-04, so the division will continue to provide those same reports. The division is required to consider lower carbon building materials and those impacts on the code. Two new positions within the division are created and the division anticipates contracting with a third party. The division is required to adopt the reach code in rule as opposed to just adopting it. There are additional agenda items addressing this. The first will kick off the process of adopting the next version of the reach code based on the 2023 Residential code. The second will look at the overarching process rule for how the division adopts the reach code in the future.

Member Anlsow thanked Andy for the Legislative update detail included in the packet.

Vice-chair Tamerhoulet asked about the housing production goal of 36,000 units a year. Does the division have plans to meet the goal looking at the number of additional plan reviewers and inspectors needed.
Senior Policy Advisor Boulton said the Housing Production Advisory Council (HPAC) are bringing forward recommendations soon.

IV. Communications

Executive Order 20-04 Directive 6(B) Report

Mechanical and energy systems engineer, Mark Heizer informed the board the governor has received the report which discusses updates to the energy codes and our progress toward meeting Executive Order 20-04. The report was completed after updates to the residential and commercial energy codes. There will be an equivalent report to the legislature in December. In the report, Figure A(page 9) shows the progress since 1992. The intent of the Executive Order was to start with the 2006 code as a baseline and to cost effectively get to a 60 percent reduction in energy use from that level. The 2023 code shows a consistent line averaging out toward the 2029 target. Looking forward to the 2026 and 2029 codes the regulated energy of buildings are about a 10 percent reduction each cycle to meet the target. There have been increases in cost of construction and the baseline for the cost of energy. Balancing the cost effectiveness for the end consumers will need to be considered.

Member Lutter asked if there is data on actual building energy usage in addition to the model data presented. Mr. Heizer confirmed the data uses federal modeling, including weighting for number of buildings and climate. These reports allow comparison over time. Individual energy usage has a number of factors can be highly variable. Member Lutter said he believes there are some building stock assessments that are ongoing looking at older buildings built to 2006 codes versus 2021 code, comparing the consumption levels. He thanked Mark for the clarification.

V. Appeals – None

VI. Unfinished business – None

VII. New business

A. Rulemaking timeline for 2023 Oregon Residential Reach Code

Pierre Sabagh, policy analyst, introduced the item. The division is requesting the board review and approve the proposed process and timeline for developing and adopting the 2023 Oregon Residential Reach Code. The reach code is an optional set of standards designed to increase energy efficiency. All municipalities must accept the reach code and it provides an additional efficiency compliance path for builders, consumers, contractors, and others. The reach code must be technically feasible and must be more efficient than the building code. The division's goal is to have this 2023 Oregon Residential Reach Code in place by July 1, 2024. The anticipated timeline is in your board packet today. This item does require a motion.

Vice-chair Tamerhoulet asked to clarify the reach code is not mandatory and does not replace Chapter 11. Mr. Rocco confirmed the reach code is an above code, customer choice, optional path.

Member Fry asked if a municipality could adopt the reach code as their base code. Mr. Rocco confirmed the municipality would have to go through a local amendment process as is required of any change that is preempted by the State Building Code.

Motion by Member Lutter to approve the division's proposed code adoption

process steps and timeline for adopting the 2023 Oregon Residential Reach Code.

Roll call vote taken
Aye: Gordon Anslow, James Austin, Rich Fry, Douglas Lethin, Rich Tovar, Matthew Lutter, Rebai Tamerhoulet
Nay: none
Motion carried unanimously

B. Proposed changes to Reach Code adoption process rule

Pierre Sabagh, policy analyst, introduced the item. The division requests the board review and approve the proposed reach code process rule and timeline. HB 3409 (2023) includes a requirement that the reach code be adopted by rule with the approval of the appropriate advisory boards. These proposed rules and adoption process changes are intended to create a predictable process by which the division, with board approval, can adopt future versions of the reach code. The full language of the proposed rule is provided as the amended OAR 918-465-0040. This item will require a motion.

Member Fry asked to clarify that changes to the rules still have to go through the RMSB, it would make it easier to adopt the rule. Policy analyst Sabagh said the rule will meet the requirement of HB 3409 and will go through the appropriate boards similar to the previous agenda item.

Vice-chair Tamerhoulet asked why the language is may instead of shall. Senior Policy Advisor Andy Bouton said the division intends to go through a robust stakeholder engagement process, including a rulemaking hearing with public comment accepted during the process. The may language is intended to outline the steps and allow a certain amount of flexibility.

Motion by Member Anslow to approve the division's proposed Reach Code adoption process rule and proposed rulemaking timeline.

Roll call vote taken
Aye: Gordon Anslow, James Austin, Rich Fry, Douglas Lethin, Rich Tovar, Matthew Lutter, Rebai Tamerhoulet
Nay: none
Motion carried unanimously

C. Review of analysis of home size data

Pierre Sabagh, policy analyst, said at this board's meeting on March 16, 2021, board members requested the division look into the possible consideration of home size in the application of energy performance standards in the Oregon Residential Specialty Code (ORSC). The formation of a workgroup by the division to obtain additional input on the impact of home size was approved by the board at the July 28, 2021 meeting. The division has updated the board regularly on its progress obtaining historical home size and pricing data. The division is now bringing its analysis of that

data to the board for its review and for any additional direction from the board to further pursue incorporation of home sizing considerations into future versions of the ORSC. The full analysis is available in the board packet.

Mechanical and energy systems engineer, Mark Heizer said the growing concern about affordable housing led to recommendations of looking at what Washington state does where smaller homes have fewer requirements for meeting the energy code. Midsize homes get another requirement, and above 5,000 square feet they are required to do even more. Determining a size for when fewer energy requirements would be appropriate is part of the evaluation. Average median homes sizes for homes constructed between 2005 and 2021, and 2015 onward were used. The median cost for the homes and the official Oregon median incomes from 2017 to 2021 was also used. It worked out that the median income could afford a $207,000 home or about 1350 square feet. During this time there has been a change in interest rates and costs have gone up. The median home cost is approaching $500,000. The 1,350 square foot homes represent 12 percent of the market. Looking at the other end of the market, the top 12 percent in size start at around 3,200 square feet. This is brought forward for your discussion whether there is something that can be done to consider different requirements for smaller homes from an affordability standpoint versus typical or larger homes.

Member Anslow asked if the Washington requirements involve reduction of base requirements for smaller homes or if it adds requirement for larger homes.

Mr. Heizer said the Washington system uses points, and a smaller home requires less points. The typical home between 1,200 and 5,000 square feet requires approximately 3 to 6 percent additional efficiency. A home over 5,000 square feet requires even more points. The Oregon data is available to assist in determining where those divisions could occur.

Member Anslow said he has worked in other jurisdictions and does not support an arbitrary square footage number. He supports a sliding scale and thinks it ends up being more equitable and avoids incentivizing building right up to the size limit. Being careful to not penalize larger families, a sliding scale is a good way to serve the public and anything that makes it more possible for people to get a new efficient house that is not a 1970's era place is good. He is interested in seeing more from the state and hopes it ends up in the code.

Member Lutter asked if there is data from Washington state showing an increase in building smaller homes to meet the code.

Mr. Heizer said the division does not have specific data. Using products like Zillow show the Seattle market has a number of smaller homes. The Richland Tri City area, and more rural locations, less so.
Member Lutter said he is in favor of incorporating home size into future codes. Smaller homes will cost less upfront and on an ongoing basis.

Member Fry said as a developer, land costs are a factor affordability.

Member Anslow said in the current market there is a built in incentive to build larger houses when the land price is high. System development charges and land costs make financing more difficult for a smaller home. In the 80's his company built 800 to 1,400 square foot homes on 2,250 square foot lots and they were very popular. His current clients are frequently older people with equity, intentionally downsizing. He supports recognizing and incentivizing the smaller home in the code.

The board recognized public attendee David Heslam, Earth Advantage and he shared his recent analysis in the city of Portland. In relation to HB 2001, middle housing zoning changes with the intent to lower the cost per unit, by enabling duplexes, triplexes, fourplexes, and town houses on land previously designated as single family. Current data shows 48% of units built this year are selling for under $500,000. They are frequently multifamily and many fall under the 1,200 square foot limit with some as small as 800. This drives the cost of land down per unit. Market demand for townhouses is also driving development in suburban areas.

The board recognized public attendee Alex Boetzel, Earth Advantage and he said his anecdotal contact with Washington State has not shown a significant change in building based on the size requirements. Other parameters drive the market more than the energy credits.

Member Fry said system development charges have increased significantly and contribute to affordability.

VIII. Announcements

Facilitator Rocco announced this is the final meeting for Vice-chair Rebai Tamerhoulet

IX. Adjournment

Facilitator Rocco adjourned the meeting at 10:44 a.m.

Respectfully transcribed and submitted by Nathan Kramer, policy development coordinator

STATEWIDE CODE INTERPRETATION NO. 23-02

Condensate Drainage from a Heat Pump Water Heater

Building Codes Division
Department of Consumer and Business Services

In accordance with OAR 918-008-0110, the information contained in this statewide code interpretation is legally binding on any party involved in activities regulated by applicable Oregon law, applicable Oregon regulations or the state building code. If the information contained in this statewide code interpretation is cited as a basis for a civil infraction, a representative of the jurisdiction must cite the interpretation number found in this document.

Agenda Item IV.

Code reference: 2023 Oregon Residential Specialty Code (ORSC)—Section M1307.1
2022 Oregon Mechanical Specialty Code (OMSC)—Section 304.1

Date: Dec. 21, 2023

Subject: Condensate drainage from a heat pump water heater

Questions:

1. Is condensate drainage from a heat pump water heater covered in the OMSC and ORSC?
2. If the condensate drain terminates outdoors or is routed through a space subject to freezing, does the drain pipe require heat tracing?
3. Where the manufacturer's installation instructions include special requirements for "cold climates," such as specifying that the condensate drain termination be located in an area not subject to freezing (indoors or within conditioned space). What constitutes a "cold climate?"

Answers:

1. **Yes.** OMSC Section 304.1 requires condensate drainage to be installed in accordance with the manufacturer's installation instructions. ORSC Section M1307.1, applicable to HVAC equipment, does not address condensate drains from a heat pump water heater. However, ORSC Section M1301 indicates that installations of mechanical *appliances, equipment* and systems not addressed by the ORSC shall comply with the applicable provisions of the OMSC. Therefore, OMSC Sections 307.2.1 and 307.2.2 apply, which prescribes that condensate from an evaporator be routed to an indirect drain, grade or other *approved* location.
2. **Yes.** The majority of manufacturer's installation instructions require piping to be heat traced when it is exposed to freezing conditions. Drain pipe exposed in a vented crawlspace or attic shall be considered as locations exposed to freezing conditions; drain pipe exposed in a garage, such as for the installation of a heat pump water heater, is not a location considered as being subject to freezing. The drain termination point, if the drain terminates outdoors, shall be considered as a location exposed to freezing conditions and must be heat traced; the heat trace begins at the interior face of the wall or floor being penetrated before terminating outdoors.
3. A "cold climate" includes building sites where the 99% HVAC heating design temperature is 32°F or lower. Locations in Oregon with design temperatures above 32°F are limited to coastal municipalities. The condensate drain from a heat pump water heater is coming from an evaporator (cold) coil and is at temperatures commonly below 50 - 55°F during water heating in winter. The flow of condensate drainage is closer to freezing temperature in winter than the discharge from a condensing combustion process (such as a furnace).

Contact: Visit the division website to contact a building code specialist.

Agenda Item VII.A.

State of Oregon **Board memo**

Building Codes Division **January 10, 2024**

To: Residential and Manufactured Structures Board

From: Mark Heizer, PE, mechanical and energy systems engineer, Policy and Technical Services

Subject: Statewide Alternate Method regarding use of 2021 International Energy Conservation Code

Action requested:

Board review and recommendation of the technical and scientific facts of the *2021 International Energy Conservation Code (IECC)* as it relates to energy code provisions for residential structures, to serve as a Statewide Alternate Method.

Background:

Chapter 11 of the *2023 Oregon Residential Specialty Code (ORSC)*, based on Oregon-developed energy code provisions, is the adopted energy code of the State of Oregon. This alternate method will allow designers to voluntarily use the *2021 IECC* as an additional design choice. The US Department of Energy has determined that the 2021 IECC is currently the most advanced model energy code for residential structures and is the target code for all states to achieve.

Options:

- Approve the technical and scientific facts of the proposed alternate method.
- Amend and approve the technical and scientific facts of the proposed alternate method.
- Disapprove the technical and scientific facts of the proposed alternate method and state reasons for disapproval, for the record.

STATEWIDE ALTERNATE METHOD
NO. 24-01

2021 International Energy Conservation Code Residential Provisions

Building Codes Division
Department of Consumer and Business Services

Statewide Alternate Methods are approved by the division administrator in consultation with the appropriate advisory board. The advisory board's review includes technical and scientific facts of the proposed alternate method. In addition:

- *Building officials shall approve the use of any material, design or method of construction addressed in a statewide alternate method;*
- *The decision to use a statewide alternate method is at the discretion of the applicant; and*
- *Statewide alternate methods do not limit the authority of the building official to consider other proposed alternate methods encompassing the same subject matter.*

Code reference:	2023 Oregon Residential Specialty Code (ORSC) – Chapter 11 2021 International Energy Conservation Code (IECC) – Residential Provisions
Date:	TBD
Subject:	Use of the 2021 International Energy Conservation Code (IECC) – Residential Provisions as an alternative to Chapter 11 of the 2023 Oregon Residential Specialty Code (ORSC).

Overview:

Chapter 11 of the 2023 ORSC, based on Oregon-developed energy code provisions, is the adopted energy code of the State of Oregon. This alternate method will allow designers to voluntarily use the 2021 IECC as an additional design choice. The US Department of Energy has determined that the 2021 IECC is currently the most advanced model energy code for residential structures and is the target code for all states to achieve.

Conclusion:

The 2021 IECC – Residential Provisions serves as an acceptable alternative to the Chapter 11 provisions of the 2023 ORSC.

The technical and scientific facts for the statewide alternate method are approved.

Alana Cox, Administrator
Building Codes Division

Date

Contact:

Visit the division website to contact a building code specialist.

Agenda Item VII.B.

State of Oregon **Board memo**

Building Codes Division **January 10, 2024**

To: Residential and Manufactured Structures Board

From: Mark Heizer, PE, mechanical and energy systems engineer, Policy and Technical Services

Subject: Statewide Alternate Method for smart thermostat exception for variable speed compressor equipment under Section N1105.4.1.2

Action requested:

Board review and recommendation of the technical and scientific facts of allowing an additional exception for use of a manufacturer's approved programmable thermostat in lieu of a smart thermostat to serve as a Statewide Alternate Method.

Background:

Chapter 11 of the *2023 Oregon Residential Specialty Code (ORSC)*, contains new Section N1105.1.4.2, requiring use of Energy Star smart thermostats with new HVAC systems. Currently, an exception is included for smaller equipment that could not utilize smart thermostats. The intent is to cover smaller variable speed compressor systems, similar to "mini-splits," which require use of the manufacturer-supplied thermostat for proper operation of the variable speed compressors. Manufacturer thermostats are integral to adjusting the compressor speed, and damage could occur to the condensing unit if its operation is not controlled in a coordinated fashion between the condensing unit and the indoor fan unit. The precise control of the variable speed compressor is critical to the high-efficiency of these systems. Currently there are no readily-available control interfaces to allow use of Energy Star thermostats with typical variable speed compressor systems.

The current exception to Section 1105.4.1.2 stops at mini-splits of 18,000 Btu/h (1.5-ton) nominal capacity. Larger systems with variable speed compressors are not addressed. Requiring these larger systems to use an incompatible thermostat under this section would reduce the efficiency of the HVAC system, void manufacturer warranties or even damage the equipment.

Therefore, an additional exception to the code is proposed to allow use of the manufacturer's programmable thermostat in lieu of an Energy Star smart stat where approved by the building official. The state of Washington also recognizes this application in their residential energy credit list.

Options:

- Approve the technical and scientific facts of the proposed alternate method.
- Amend and approve the technical and scientific facts of the proposed alternate method.
- Disapprove the technical and scientific facts of the proposed alternate method and state reasons for disapproval, for the record.

STATEWIDE ALTERNATE METHOD
NO. 24-02

Smart Thermostat for Variable Speed Compressor Equipment

Building Codes Division
Department of Consumer and Business Services

Statewide Alternate Methods are approved by the division administrator in consultation with the appropriate advisory board. The advisory board's review includes technical and scientific facts of the proposed alternate method. In addition:

- *Building officials shall approve the use of any material, design or method of construction addressed in a statewide alternate method;*
- *The decision to use a statewide alternate method is at the discretion of the applicant; and*
- *Statewide alternate methods do not limit the authority of the building official to consider other proposed alternate methods encompassing the same subject matter.*

Code reference: 2023 Oregon Residential Specialty Code (ORSC)—Section N1105.4.1.2

Date: TBD

Subject: Use of a manufacturer's approved programmable thermostat in lieu of a smart thermostat

Overview:

Chapter 11 of the 2023 Oregon Residential Specialty Code (ORSC), includes new Section N1105.1.4.2, requiring use of ENERGY STAR® smart thermostats with new HVAC systems. Currently, an exception is included for smaller equipment that could not utilize smart thermostats. The intent is to cover smaller variable speed compressor systems, similar to "mini-splits," which require use of the manufacturer-supplied thermostat for proper operation of the variable speed compressors. Manufacturer thermostats are integral to adjusting the compressor speed, and damage could occur to the condensing unit if its operation is not controlled in a coordinated fashion between the condensing unit and the indoor fan unit. The precise control of the variable speed compressor is critical to the high-efficiency of these systems. Currently there are no readily-available control interfaces to allow use of ENERGY STAR thermostats with typical variable speed compressor systems.

The exception to Section N1105.4.1.2 stops at mini-splits of 18,000 Btu/h (1.5-ton) nominal capacity. Larger systems with variable speed compressors are not addressed. Requiring these larger systems to use an incompatible thermostat under this section would reduce the efficiency of the HVAC system, void manufacturer warranties or even damage the equipment.

Therefore, an additional exception to the code is proposed to allow use of the manufacturer's programmable thermostat in lieu of an Energy Star smart stat where approved by the building official. The state of Washington also recognizes this application in their residential energy credit list.

Conclusion:

Systems with variable speed compressors with manufacturer's installation instructions requiring the manufacturer's programmable thermostat is an acceptable alternative to the ENERGY STAR smart thermostat requirement where approved by the building official.

For the purposes of this Statewide Alternate Method Section N1105.1.4.2 of the 2023 ORSC is amended as follows:

N1105.4.1.2 Smart thermostat. For new construction, the thermostat shall meet ENERGY STAR Smart Thermostat criteria with minimum control feature of either integral occupancy sensing or geofencing or *approved* equivalent.

Exception:

1. Individual heating or cooling units with heating capacity of 2 kilowatts (6824 Btu/h) or less or with cooling capacity of less than 5.3 kilowatts (18 000 Btu/h).
2. Systems with variable speed compressors with *manufacturer's installation instructions* requiring the manufacturer's programmable thermostat where *approved*.

The technical and scientific facts for the statewide alternate method are approved.

Alana Cox, Administrator
Building Codes Division

Date

Contact:

Visit the division website to contact a building code specialist.