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February 2022

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Introduction

Welcome to the February 2022 OSFM Engineering Newsletter. Since our September 2021 newsletter, there was a regularly scheduled Building Code Council meeting held December 14th, 2021. The results of the meeting are posted in the BCC minutes, and the results of the D-items are noted, unofficially, in the Building Code Council Approved Rule Changes article below. Of note in this newsletter is an update on the 2020 State Electrical Code status. Please refer to the Current Topics section for an update on that topic. The Code Officials Qualification Board held its guarterly meeting on January 25, 2022.

Current Topics

2020 State Electrical Code – Updated Effective Date, NC Residential Code Applicability The 2020 State Electrical Code went in effect November 1, 2021.

Q-Board testing on 2020 NEC will take effect on March 1, 2022. No amendments are tested. Can only use 2020 NEC. If question is affected by an amendment, the NEC is the governing standard for the exams (same with Electrical Licensing Board).

Link to 2020 State Electrical Code information and interpretations https://www.ncosfm.gov/codes/state-electrical-division/state-electrical-code-and-interpretations

The 2020 State Electrical Code (NEC) is currently not applicable to dwellings and other structures constructed under the 2018 NC Residential Code. The 2017 NEC will remain in effect for such buildings and structures until the 2024 NC Residential Code becomes effective, which can be no earlier than January 1, 2025.

Appliance standards – DOE

The Federal Department of Energy is tasked with reviewing and updating common appliance efficiency standards. Individual states, including NC, do not control those standards. Indeed, states are prevented from establishing their own standards when an appliance is covered by the Federal Standards. Although the appliances are reviewed on a regular basis, there is not a requirement to update the requirements if not financially justified. Also, the review cycle may not correspond with any given model-code writing entity, so the numerical efficiency levels (SEER 15, HSPF 8, etc) usually are not called out in the energy code for 1-and-2 family dwellings, because it could be outdated or otherwise misconstrued. The line-item in the NC Energy Code for 1-and-2 family dwellings simply states — "...New heating and cooling systems shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed." Therefore, since this gets handled at the national level, and is coordinated with manufacturer's well in advance of the effective date, the switchover is largely invisible to code officials.

FIGURE 1: NC RESIDENTIAL ENERGY CODE - APPLIANCE EFFICIENCY

R403.7 Equipment sizing and efficiency rating (Mandatory). Heating and cooling equipment shall be sized in accordance with the *North Carolina Mechanical Code* or the *North Carolina Residential Code*. New heating and cooling systems shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

NCDOI routinely gets a higher volume of phone calls from interested parties, such as licensed HVAC and plumbing contractors, when a new standard is set to engage. The standards cover many, many appliances, but most are appliances that are not regulated in any manner by the Building Code, such as refrigerators and television sets, so they never get any questions generated. However, hvac units and water heaters are regulated by the code, and so questions are generated. The federal process is a lengthy and on-going process, complete with extensive life-cycle costing, public comment periods, manufacturere review and rebuttal periods, etc., so by the time the consumer (or installing contractor) sees the equipment, the update was long in the making. Indeed, if you search long enough, you will find signed letters from all major and minor manufacturers of regulated equipment agreeing to the changes as part of the process.

So, what are those standards? The effective date for heat pumps and air conditioners is January 1, 2023. The split-system heat pump requirements for NC are going to be 15 SEER in cooling mode, and 8.8 HSPF in heating. Straight AC split systems will be required to be 15 SEER if capacity is less than 45,000 Btu/hr, and 14.5 SEER if capacity is greater than or equal to 45,000 Btu/hr. The water heater rule is still being determined as of this writing.

There is a wealth of information, too much in fact, when doing Internet searches. However, in an effort to aid our readers, the following links are provided:

The National Appliance Energy Conservation Act of 1987 established the first minimum efficiency requirements for central air-conditioning and heat pump equipment sold in the United States. These standards went into effect in 1992, and later updates went into effect in 2006 and 2015. (Source: https://www.eia.gov/todayinenergy/detail.php?id=40232)

Link to existing standards: (includes hvac equipment and water heaters) https://www.govinfo.gov/content/pkg/CFR-2012-title10-vol3/pdf/CFR-2012-title10-vol3-sec430-32.pdf

Link to next, or upcoming standards:

https://appliance-standards.org/document/negotiated-rulemaking-results-agreement-new-residential-ac-efficiency-levels

https://www.federalregister.gov/documents/2017/05/26/2017-10869/energy-conservation-program-energy-conservation-standards-for-residential-central-air-conditioners

PUBLISHED DOCUMENT

Table II-1—Amended Energy Conservation Standards for Residential Central Air Conditioners and Heat Pumps Based on the DOE Test Procedure at the Time of the 2015-2016 Negotiations [Recommended TSL]

Product class	National		Southeast *	Southwest **	
	SEER	HSPF	SEER	SEER	EER
Split-System Air Conditioners with a Certified Cooling Capacity <45,000 Btu/h	14		15	15	*** 12.2/10.2
Split-System Air Conditioners with a Certified Cooling Capacity ${\scriptstyle \geq}45{,}000$ Btu/h	14		14.5	14.5	*** 11.7/10.2
Split-System Heat Pumps	15	8.8			
Single-Package Air Conditioners †	14				11.0
Single-Package Heat Pumps †	14	8.0			
Space-Constrained Air Conditioners †	12				
Space-Constrained Heat Pumps †	12	7.4			
Small-Duct High-Velocity Systems †	12	7.2			

^{*}Southeast includes: The states of Alabama, Arkansas, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, Virginia, the District of Columbia, and the U.S. territories.

Key takeaways:

- Beginning Jan 1, 2023, straight AC split systems will be required to be 15 SEER if capacity is less than 45,000 Btu/hr, and 14.5 SEER if capacity is greater than or equal to 45,000 Btu/hr. This date is an installed-by date for the Southeast, which includes North Carolina.
- Beginning Jan 1, 2023, split system heat pumps for NC are going to be 15 SEER in cooling mode, and 8.8 HSPF in heating mode. This date is a manufacturer end date, and product inventory can be used up after this date.
- The NC Energy Code does not set the efficiency values, rather, by reference, it just follows the federal requirements. Therefore, when the federal efficiency levels change, the NC Energy Code simply follows the requirements set by the Federal requirements.
- Manufacturer's routinely phase out the lower-efficiency models prior to the mandatory compliance date for the higher-efficiency models.

Here is a reprint of a response to the Appliance Standards Team concerning manufacturing end date and install-by dates:

There are two compliance provisions for central air conditioners that relate to the January 1, 2023 date. The first is 10 CFR 430.32(c)(5) which states that manufacturers may not manufacturer equipment on or after January 1, 2023 unless it meets the higher standards listed in the table. The second is 10 CFR 430.32(c)(6) which requires that units installed in the southeast and southwest have even higher standards. So starting January 1st 2023 inventory that was manufactured prior to the January 1, 2023 that does not meet the standards outlined in 430.32(c)(5) could not be legally installed in the southeast and southwest states but it is possible that they may legally be installed in other states.

End of Reprint

^{**} Southwest includes the states of Arizona, California, Nevada, and New Mexico.

^{***} The 10.2 EER amended energy conservation standard applies to split-system air conditioners with a seasonal energy efficiency ratio greater than or equal to 16.

[†] The energy conservation standards for single-package, small-duct high-velocity and space-constrained product classes remain unchanged from current levels.

Recurring Articles

Building Code Council Approved Rule Changes

A regularly scheduled quarterly BCC meeting was held on December 14th, 2021. The full agenda can be read at the link listed below. The link will take you to the BCC Minutes webpage and the reader must then click on the .pdf file to open the agenda file. The minutes for this December meeting are available in draft format, as they will get reviewed by the BCC in March. However, the unofficial results of the D-items are posted below.

BCC Meeting Agenda-December, 2021

https://www.ncosfm.gov/bcc-agenda-20211214-december-14-2021

BCC Meeting Minutes-December 2021

https://www.ncosfm.gov/bcc-minutes-december-14-2021-pending-bcc-approval

Once the Building Code Council approved September D-items are also approved by the Rule Review Commission, (sometimes an amendment gets sent back to Building Code Council for various technical reasons) the adopted rules will be placed on the NCDOI Engineering website. Please refer to the Cumulative Supplements article of this newsletter for the link to the cumulative supplements from past meetings.

The full review of the September-approved code amendments is left to the reader, but **the titles of each item** are bulleted below. Remember these are not final until they are through the Rules Review process. The approved September D-items, if approved by Rules Review Commission, will be effective January 1, 2022.

BCC Proposed Amendments-September 2021 (draft results)

- Item D 1 Request by Carl Martin representing the Department of Insurance to amend the NC Administrative Code, Section 204.3.5 as follows (210608 Item B-1): (Remainder not shown for brevity) – approved
- Item D 2 Request by Carl Martin representing the Department of Insurance to amend the NC Administrative Code, Sections 106.3.1 and 106.3.2 as follows (210608 Item B-2): (Remainder not shown for brevity) - approved
- Item D 3 Request from Jeff Griffin and Bob Haynes representing the NC Building Inspector's Association to amend the 2018 NC Residential Building Code, Sections R302.2, R313.1, and R202 as follows (210608 Item B-7): (Remainder not shown for brevity) approved
- Item D 4 Request from Bob Haynes & Jeff Griffin representing the NC Building Inspectors Association to add the 2018 NC Residential Building Code, Appendix Q, delete Section R328, and amend Sections R202 and R305.1 as follows (210608 Item B-8): (Remainder not shown for brevity) approved
- Item D 5 Request from Drew Crawford representing DIYtiny, INC to add to the 2018 NC Building Code, Sections 101.2.6 and amend Section 202 as follows (210309 Item B-6): (Remainder not shown for brevity) This item was withdrawn by the proponent prior to this meeting.
- Item D 6 Request from Drew Crawford representing DIYtiny, INC to amend the 2018 NC Residential Building Code, Sections R202, R305.1, R328 as follows (210309 Item B-7): (Remainder not shown for brevity) **This item was withdrawn by the proponent prior to this meeting.**
- Item D 7 Request from Barry Gupton representing the NC Manufactured Building Division to amend the 2018 NC Residential Code, Sections 4602, and 4605.5 as follows (210608 Item B-9): (Remainder not shown for brevity) approved

Code Officials Qualification Board Updates

The COQB held its regular meeting on January 25, 2022. Staff noted several aspects of the certification program rules that need changes and updates to address current workforce challenges. Rules for education and experience requirements as well as Board courses and continuing education were discussed. A new Rules Committee has been tasked with this project.

Inspector Open Mic-

Most Friday mornings from 8:30 to 9:00, staff host an "Inspector Open Mic" via WebEx. This is an informal forum for code officials to ask questions. The location for the link has been somewhat nomadic, but the latest location is in the Code Officials Qualifications Board – Meeting Dates web page, (COQB – Meeting Dates) The meeting link is on the web page link shown below. You will have to scroll down a little once you get to this page to find the Open Mic Notice and link.

FIGURE 2: WEB PAGE LOCATION AND IMAGE OF OPEN MIC NOTICES

https://www.ncosfm.gov/licensing-cert/code-officials-qualification-board-coqb/coqb-meeting-dates

NCDOI Engineering & Codes Division "INSPECTOR OPEN MIC"

Click here to join Friday mornings 8:30 AM to 9:00 AM



Minutes

The minutes of the Qualifications Board Meeting Minutes are available at the following link, and see Figure below for image from website:

Meeting Minutes and Agendas

https://www.ncosfm.gov/coqb-minutes-october-26-2021-board-meeting

FIGURE 3: IMAGE OF Q'BOARD WEBSITE TABLE OF MINUTES

COQB Minutes - October 26, 2021 Board Meeting COQB Minutes - August 26, 2021 Special Board Meeting COQB Minutes - July 27, 2021 Board Meeting COQB Minutes - April 27, 2021 Board Mtg

- **Sam Whittington**: Certification and Investigator, Complaints 919-647-0028 sam.whittington@ncdoi.gov
- Christopher D. McLamb: Investigator, Complaints 919-647-0105 christopher.mclamb@ncdoi.gov

Department Notes

Engineering Department

Personnel Notes

Mr. Joe Sadler, PE

Congratulations to Joe Sadler, Deputy Commissioner of the Manufactured Building Division, who is retiring after 24 years with OSFM.

Joe was first hired as a Code Consultant and was promoted to Deputy Commissioner 12 years ago. During his time with the department, Joe has served on the Manufactured Housing Consensus Committee (MHCC). Joe also won the "Excellence in Government" award from the NC Manufactured and Modular Home Builders Association. Throughout his career, Joe has led the OSFM Manufactured Buildings and Modular Homes Division as North Carolina has ranked 4th in the country in manufactured homes and 2nd in the country in modular buildings. During his tenure, Joe strived to treat the industry and consumers with fairness and honesty when dealing with dispute resolutions. As Joe embarks on retirement, he plans to continue his education by taking graduate courses focusing on structural engineering at NC State University. In his free time, Joe plans to train to run a 5K.

Congratulations, Joe! Best wishes on your retirement!

David Rittlinger

David has accepted the position of Code Interpretations Supervisor and Chief Building Code Consultant. Previously David was administering the Mechanical and Fuel Gas Code, and will continue to do so until that position is filled.

As of September 2021, here is the staff list and respective responsibilities for the NC Building Code:

- Pak Yip: Building Code (non-accessibility)
- Charlie Johnson: Fire Code (includes Chapter 9 of the NCBC)
 919-647-0094 charlie.johnson@ncdoi.gov
- Pak Yip: Residential Code
 - 919-647-0007 pak.vip@ncdoi.gov
- Jim Rodgers: Residential Code (non-structural)
 919-647-0056, 919-270-3699 (cell) jim.rodgers@ncdoi.gov
- Pam Schooler: Existing Building Code
 - 919-647-0011: pam.schooler@ncdoi.gov
- Tara Barthelmess: Accessibility
 - 919-647-0014 <u>tara.barthelmess@ncdoi.gov</u>
- Mark Burns: Plumbing Code
 - 919-647-0006 mark.burns@ncdoi.gov
- David Rittlinger: Mechanical and Fuel Gas Code 919-647-0008 david.rittlinger@ncdoi.gov
- Dan Dittman: Energy Code
 - 919-647-0012 dan.dittman@ncdoi.gov

State Electrical Division Contacts

• Danny Thomas: **Electrical** Code – General Electrical Code Questions

919-647-0062 daniel.thomas@ncdoi.gov

Joe Starling: State Electrical Engineer
 919-397-6159 joseph.starling@ncdoi.gov

In addition, the following topics will be addressed by:

- Engineering Manager: Carl Martin contact for Statutes, Appeals, Council items (other than meeting minutes and agenda), Engineer Elements and Components,
- David Rittlinger: BCC meeting minutes and agenda, Rules Review Commission, Formal interpretations, Administrative Code (non-statute)

919-647-0008 <u>david.rittlinger@ncdoi.gov</u>

- Sam Whittington: Investigator, Complaints
 919-647-0028 sam.whittington@ncdoi.gov
- Chris McLamb: Investigator, Complaints
 919-647-0105 christopher.mclamb@ncdoi.gov

Link to New Website Personnel Contacts for Codes and Interpretations https://www.ncosfm.gov/codes/contact-codes-and-interpretations

New Code Interpretations, Guidance Papers, and Appeals Posted

Since the prior newsletter, the following web interpretations, guidance papers, or appeals have been posted. Trades not shown did not have new web interpretations posted.

A new sort feature was added to assist users in sorting the interpretations. The "Sort by" and "Order" drop down box sorts the interpretations in order of the posting date to the website. There is "Asc" which sorts it in Ascending calendar time, (oldest to newest) and "Desc" sorts it in Descending calendar time, or newest to oldest. We hope this function allows users of this webpage to easily check on the date any particular interpretation was posted, or if anything new was posted since the last time you used it.

Code, Guidance, Appeals link:

https://www.ncosfm.gov/interpretations

FIGURE 4: NEW LOOK OF CODE INTERPRETATIONS LANDING PAGE



Interpretations

Administrative

Use of the Design Professional Inspection Form - Appendix G

Building

No additional since September 2021 newsletter

Fire Protection

No additional since September 2021 newsletter

Energy

R402.1.2 - Ceilings R-30 vs R-38

C101.2 Shell Buildings-Upfits-and Energy Code Applicability

Plumbing

No additional since September 2021 newsletter

Residential

1102.1.2 - Ceilings R-30 vs R-38

Accessibility Interpretations

No additional since September 2021 newsletter

Electrical Interpretations

Presently, if you use the main Interpretations site, you need to click on "ALL" edition to view the Electrical interpretations on that site. However, if you go to the main Electrical Division site, there are interpretations for the NC Electrical Code, see following link:

State Electrical Division | OSFM (ncosfm.gov)



The link should take you to the above webpage, and you should be able to click on the Code Interpretations Link and see the following line items when you scroll down.

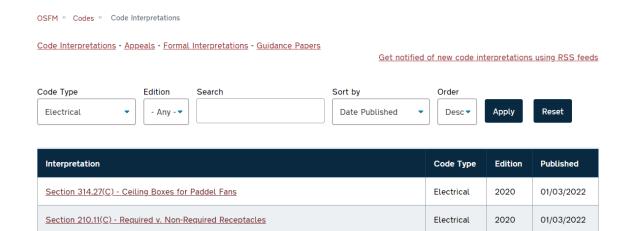


FIGURE 5: MAIN ELECTRICAL CODE INTERPRETATIONS SECTION

Electrical Interpretations (since prior Newsletter)

Section 314.27(C) - Ceiling Boxes for Paddle Fans
Section 210.11(C) - Required v. Non-Required Receptacles
Sections 10.1 and 10.2 - One- and Two-Family Exception Scope

Formal Interpretations and Appeals and Guidance Papers

Here are the Formal Interpretations and Appeals posted since the prior Newsletter:

Formal Interpretations

211018 Timothy Wewer NCRC Appendix AK102 Sound Attenuation Materials 211209 Sunbelt Rentals NCFC 105.1.1 Permit Required by Equipment Rental Company 220106 Womble Bond Dickson LLP NCBC 1029.13.2.2.1 and 1011.5.4 Stepped Aisle and Stairway Riser Uniformity

Appeals

20211026 Fleming - Empire Distributers NCDOI Decision Appeals 20211029 Stan Winstead - Everything Attachments DOI DecisionAppeals 20211209 Burgard - Application of Local Ordinance DOI Decision

Guidance Papers

No additional guidance papers since September 2021 Newsletter

Cumulative Supplements

Cumulative code changes and their adoption dates can be found on the DOI website at:

Cumulative code changes link:

https://www.ncosfm.gov/codes/codes-current-and-past

Each code volume has a file associated with it. The files range in size from three pages (Fuel Gas) to 64 pages (Residential). If the reader would find a table of contents beneficial for the quick perusal of these documents, please contact Rob Roegner Rob.Roegner@ncdoi.gov or Carl Martin Carl.Martin@ncdoi.gov.

FIGURE 6: TABLE OF APPROVED AMENDMENTS

2018 Administrative □	Approved Amendments
2018 Building [□]	Approved Amendments
2018 Residential □	Approved Amendments
2018 Energy Conservation □	Approved Amendments
2018 Existing Building □	Approved Amendments
2018 Fire ^년	Approved Amendments
2018 Fuel Gas [□]	Approved Amendments
2018 Mechanical ☐	Approved Amendments
2018 Plumbing [□]	Approved Amendments
2017 Electrical Code *	<u>Approved Amendments</u>
	* <u>*</u> *

Remember, refer to NC Administrative Code section **102.4 Effective date of rules**, and **102.5 Interim use of approved rules** for clarification of effective dates and the process for using approved rules prior to the effective date.

Education Section

NC Building Code Training

The most up-to-date training schedule for all building codes are available at the following link:

https://www.ncosfm.gov/licensing-cert/code-officials-qualification-board-coqb/coqb-code-education

Once the web page is accessed, click the "FIND A CLASS" button to refine your search. Many in-person classes have been reopened. Please check out the available on-line courses, and carefully read the locations and means of course offering. It is suggested that you contact the organization or individual providing the training to verify the locations and means of training before traveling to any given site or registering for a class. As always, please consider the use of Standard Courses for fulfilling Con-Ed requirements, as they are an underutilized tool for that purpose.

Other websites of Inspector Organizations that offer training

http://www.ncbia.org/ (Building Inspectors Association)
http://ncpia.us/ (Plumbing Inspectors Association)

https://www.nc-mia.com/ (Mechanical Inspectors note new website address – formerly www.ncmia.com)

http://www.ncfma.com/ (Fire Marshals Association)

https://nceia.com/ (Electrical Inspectors, note the new website address)

Reminder: Before signing up for any class, verify the course number. Attendee will not receive credit for courses that they attended within the prior three years. Some courses are taught at multiple sites across multiple years.

Reminders and other Resources

Open Mic

The department (OSFM-Engineering) has been experimenting with better ways to provide updates and outreach to code officials, and one of the methods being given a test-drive is a virtual open – mic Webex meeting. In order to view the times, proceed to the following link, and follow the directions therein:

COQB - Meeting Dates | OSFM (ncosfm.gov)

Please participate as your time allows.

Tentative 2024 NC Code Development Calendar:

The ad hoc process has begun for the 2024 NC Building Codes. The ad hoc committees have begun meeting, or will begin meeting shortly for their respective code volumes. The meeting notices will be published at the following location:

https://www.ncosfm.gov/codes/building-code-council-bcc/bcc-ad-hoc-committee-meeting-information

If a January 1, 2024 date is the goal, then the codes should be submitted as B-Items no later than the December 2022 meeting along with the fiscal notes. The schedule would go as follows:

- December 2022 B-Item
- March 2023 C-Item
- June 2023 D-Item
- Rules Review Approval between June 2023 and September 2023.
- Proof reading and submittal to ICC for printing after Rules Review has approved.

The ad-hoc meetings are announced on the following location:

https://www.ncosfm.gov/codes/building-code-council-bcc/bcc-meeting-dates

Code Amendments Going into Effect

Every January 1st, a number of previously approved code amendments go into effect, but they are approved alternate methods used at the permit holder's discretion until that date. Please refer to the following link:

https://www.ncosfm.gov/codes/codes-current-and-past

Accessibility Newsletters

Note: Previously, it was cited that the interpretations within the Accessibility Newsletters were the equivalent of a web interpretation, but the current Deputy Commissioner, Carl Martin, has deemed them to more appropriately be guidance or informal interpretations. This note will be included in future printings.

With the updating of the NCDOI webpage, the Accessibility Newsletter were removed. If there are any questions about a specific topics or general Accessibility questions, please contact Tara Barthelmess (919-647-0014).