



BRIAN TAYLOR
STATE FIRE MARSHAL

October 3, 2025

Mr. Cliff Isaac, PE
Director of Codes and Construction
North Carolina Home Builders Association
P.O. Box 99090
Raleigh, NC 27624-9090

RE: 2018 NC Fire Code (NCFC), B103.3 Areas without water supply systems

Mr. Isaac:

This letter is in response to your request for a formal interpretation from the Office of State Fire Marshal ("OSFM") dated 9/25/25 and received by OSFM the same day. Requests are addressed below in the order in which they are posed.

Stated in relevant parts of the documentation received in the request:

"I am writing to request a formal letter of interpretation in accordance with NCAC, Section 203.2.1.2 concerning Section B103.3 in Appendix B of the North Carolina Fire Code.

When a local government adopts Appendix B of the North Carolina Fire Code by local ordinance, it establishes standards for fire-flow requirements for buildings and dwellings within that jurisdiction. Section B103.3 specifically addresses the authority of the *fire code official* to apply NFPA 1142, where applicable.

B103.3 Areas without water supply systems. For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the fire code official is authorized to utilize NFPA 1142 or the International Wildland-Urban Interface Code.

I am seeking clarification, through a formal interpretation, as to whether NFPA 1142 may be utilized by the local government when Appendix B of the North Carolina Fire Code has been adopted."

Remarks:

Attachment A comprises of the request for formal interpretation as well as all supporting information submitted with the request.

OFFICE OF STATE FIRE MARSHAL

1202 MAIL SERVICE CENTER | RALEIGH NC 27699 -1202 | TEL 919.647.0000 | FAX 866.851.6508 | NCOSFM.GOV



Code Analysis: 2018 NCFC, Section 507.3 provides multiple methods by which the minimum required fire flow requirements for buildings or portions of buildings and facilities may be determined. 2018 NCFC, Appendix B, if adopted by the local government in accordance with N.C.G.S 143-138(e), provides an additional simplified method that may be used to determine the minimum required fire flow requirements for buildings or portions of buildings and facilities. The simplified method included in 2018 NCFC, Appendix B, is based on the procedures published in the Insurance Services Office (ISO), Guide for Determination of Required Fire Flow. If 2018 NCFC, Appendix B is adopted by the local government in accordance with N.C.G.S 143-138(e), one of the methods listed in 2018 NCFC, Section 507.3 or the simplified method included in 2018 NCFC, Appendix B, shall be used to determine the minimum required fire flow requirements for buildings or portions of buildings and facilities. If 2018 NCFC, Appendix B is not adopted by the local government in accordance with N.C.G.S 143-138(e), only one of the methods listed in 2018 NCFC, Section 507.3 shall be used to determine the minimum required fire flow requirements for buildings or portions of buildings and facilities. 2018 NCFC, Section B103.3 authorizes the use of NFPA 1142 or the International Wildland-Urban Interface Code to be used to determine fire flow requirements for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist. The application of 2018 NCFC, Section B103.3 may be used when the simplified method included in 2018 NCFC, Appendix B and the minimum fire flow rates values listed Table B105.1 cannot be supported by the existing water supply infrastructure. Any method used in 2018 NCFC Section 507.3 and Appendix B is subject to review and approval by the fire code official representing the local government as that official has knowledge of the firefighting needs for that jurisdiction.

....

507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by the ISO Fire Suppression Rating Schedule, NFPA 1142 or other *approved* method.

....

[A] APPROVED. Acceptable to the *fire code official* for compliance with the provisions of the applicable code or referenced standard.

....

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative.

....

B103.3 Areas without water supply systems. For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the *fire code official* is authorized to utilize NFPA 1142 or the International Wildland-Urban Interface Code.

.....



Conclusions: If 2018 NCFC, Appendix B is adopted by the local government in accordance with N.C.G.S 143-138(e), Section B103.3 does authorize use of NFPA 1142, but it does not mandate it. 2018 NCFC, Section 507.3 also authorizes the use of NFPA 1142, but does not mandate it. Any method used in 2018 NCFC Section 507.3 and Appendix B is subject to review and approval by the fire code official representing the local government as that official has knowledge of the firefighting needs for that jurisdiction. Design collaboration early in the development process between all the stakeholders in the project is crucial to establishing a specific method for establishing an approved minimum required fire flow requirement.

Sincerely,

David Rittlinger, PE, LEED AP
Division Chief – Codes & Interpretations
North Carolina Office of State Fire Marshal

cc: Nathan Childs, NCDOJ, counsel for NC Building Code Council, nchilds@ncdoj.gov
Nicki Shaffer, NCDOJ, counsel for NC Residential Code Council, wshaffer@ncdoj.gov
Pak Yip, NCOSFM, Chief Code Consultant, pak.yip@ncdoi.gov



ATTACHMENT A

(see attached pdf)





APPENDIX E

APPEALS

NORTH CAROLINA BUILDING CODE COUNCIL

1429 Rock Quarry Road, Suite 105
Raleigh, North Carolina 27610
(919) 647-0008

david.rittlinger@ncdoi.gov

APPEAL TO NCDO/NCBCC

Hearing Date / /

GS 153A-374, GS 160A-434

GS 143-140, GS 143-141

Formal Interpretation by NCDOI

Appeal of Local Decision to NCBCC

Appeal of Local Decision to NCDOI

Appeal of NCDOI Decision to NCBCC

APPELLANT LIFE ISAC PHONE (919) 676 - 9090 x
REPRESENTING NC HOME BUILDERS ASSOCIATION
ADDRESS 5580 CENTERVIEW DRIVE
CITY RALEIGH STATE NC ZIP 27606
E-MAIL cisaac@ncnba.org FAX (-) - - -

North Carolina State Building Code, Volume Five - Section Appendix B - Section B103.3

REQUEST ONE:

☒ Formal Interpretation by NCDOI
☐ Appeal of Local Decision to NCDOI

☐ Appeal of Local Decision to NCBCC
☐ Appeal of NCDOI Decision to NCBCC

Type or print. Include all background information as required by the referenced General Statutes and the attached policies. Attach additional supporting information.

Please see attached letter, and email.

REASON:

*Clarification on the use of NFPA1142 when Appendix B
has been adopted by a local government.*

APPEAL TO NCDO/NCBCC

Signature *David T*

DATE: 10/3/2025 FORM 3/14/17



NORTH CAROLINA HOME BUILDERS ASSOCIATION

P.O. BOX 99090 • RALEIGH, N.C. 27624-9090

PHONE (919) 676-9090 • FAX (919) 676-0402

www.nchba.org • www.21buildingexpo.com

September 25, 2025

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Executive Vice President

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tminton@nchba.org

Mr. David Rittlinger, PE
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202

Re: Formal interpretation on Appendix B – Section B103.3

Dear Mr. Rittlinger:

I am writing to request a formal letter of interpretation in accordance with NCAC, Section 203.2.1.2 concerning Section B103.3 in Appendix B of the North Carolina Fire Code.

When a local government adopts Appendix B of the North Carolina Fire Code by local ordinance, it establishes standards for fire-flow requirements for buildings and dwellings within that jurisdiction. Section B103.3 specifically addresses the authority of the *fire code official* to apply NFPA 1142, where applicable.

B103.3 Areas without water supply systems.

For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the *fire code official* is authorized to utilize NFPA 1142 or the *International Wildland-Urban Interface Code*.

I am seeking clarification, through a formal interpretation, as to whether NFPA 1142 may be utilized by the local government when Appendix B of the North Carolina Fire Code has been adopted.

If you have any questions, feel free to contract me at 919-676-9090. Thank you in advance for your assistance in this matter.

Sincerely,

Cliff Isaac, PE

Director of Codes and Construction

*EUGENE A. GULLEDGE (1964)
*C. PHIL ROBINSON, JR. (1965-66)
*CARL W. JOHNSON (1967)
*JOHN CROSLAND, JR. (1968)
*J.M. DAUGHTRIDGE (1969)
*HOMER BARRETT (1970)
*JAMES W. LESTER (1971)
CHARLES C. McLAURIN (1972)
*J. VAUGHN KLUTTS (1973)
*C. L. REAVIS (1974)
*Deceased

*JOHN T. BELL (1975)
*WILLIAM T. BOYD (1976)
LaRUE HAMBRICK (1977)
*J. RAY SPARROW (1978)
SHERRILL FAW (1979)
MARK E. TIPTON (1980)
M. DURWOOD STEPHENSON (1981)
J. WATTS ROBERSON (1982)
*NELSON CALLAHAN (1983)
*PAUL D. TROLLINGER (1984)

*RICK BATCHELOR (1985)
BURL LANCE (1986)
*LARRY SUMMER (1987)
HERSCHEL REDDING (1988)
JAMES FORD (1989)
*STEVE NASH (1990)
HARRIS B. GUPTON (1991)
RUSS DAVIS (1992)
CHUCK MILLER (1993)
CHARLES MULLEN (1994)

ROBERT INGRAHAM (1995)
DAVID PRESSLY, JR. (1996)
DONALD W. BETSWORTH (1997)
GEORGE HENSON (1998)
ROBERT YATKO (1999)
DANNY ADAMS (2000)
JONATHAN ELLIOT (2001)
DON CROOM (2002)
GREG ISENHOUR (2003)
RICK JUDSON (2004)

BUDDY HUGHES (2005)
DAVE STORMONT (2006)
PAUL MULLICAN (2007)
RAY RHODES (2008)
FRANK WIESNER (2009)
LYLE GARDNER (2010)
BILL DALEURE (2011)
ERIK ANDERSON (2012)
J. GARY HILL (2013-14)
SEAN SULLIVAN (2015)

BRIAN PACE (2016)
GARY EMBLER (2017)
ALAN BANKS (2018)
PHIL WARRICK (2019)
MARK MARTIN (2020)
MICHAEL ENSCORE (2021)
WES CARROLL (2022)
BRANDON BRYANT (2023)
CODY BYRD (2024)

From: [Isaac, Cliff](#)
To: [Rittlinger, David B](#)
Cc: [Johnson, Charlie E](#)
Subject: [External] Formal Interpretation request - NC Fire Code Appendix B
Date: Thursday, September 25, 2025 4:28:30 PM
Attachments: [image001.png](#)
[Letter to OSFM for formal interpretation on Appendix B use.pdf](#)
[RE External fire flow.msg](#)
Importance: High

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

David: Good afternoon. Attached is a request for a formal interpretation on Appendix B of the North Carolina Fire Code. Charlie has responded to my question on the attached email and is included in this email.

Sincerely,

Cliff Isaac, PE

Director of Codes and Construction



North Carolina Home Builders Association
5580 Centerview Dr., Suite 415, Raleigh, NC 27606
p 919.676.9090
www.nchba.org

Re: [External] Fwd: Formal Interpretation request - NC Fire Code Appendix B



Isaac, Cliff <CIsaac@nchba.org>
To: Rittlinger, David B
Cc: Yip, Pak; Johnson, Charlie E

☺ Reply ↩ Reply All → Forward 📧 ...
Fri 10/3/2025 8:11 PM

📘 If there are problems with how this message is displayed, click here to view it in a web browser.

Start your reply all with: You are very welcome! Thank you! Happy to help! Feedback

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Thanks David. I appreciate your efforts and look forward to getting the formal interpretation soon.

Cliff

Sent from my iPhone

Re: [External] Fwd: Formal Interpretation request - NC Fire Code Appendix B



Isaac, Cliff <CIsaac@nchba.org>
To: Rittlinger, David B
Cc: Yip, Pak; Johnson, Charlie E

☺ Reply ↩ Reply All → Forward 📧 ...
Fri 10/3/2025 8:11 PM

📘 If there are problems with how this message is displayed, click here to view it in a web browser.

Start your reply all with: You are very welcome! Thank you! Happy to help! Feedback

On Oct 3, 2025, at 6:48 PM, Rittlinger, David B <david.rittlinger@ncdoi.gov> wrote:

Cliff,
The letter is completed however I am not able to compile it as the network is down from 5pm Friday through 5pm Saturday.
I will send you the letter either Saturday night or Sunday morning.
My apologies if this has created an inconvenience.
Let me know if you have any questions.
Thank you

<image001.png>
david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes
<https://codes.iccsafe.org/codes/north-carolina>

Re: [External] Fwd: Formal Interpretation request - NC Fire Code Appendix B



Isaac, Cliff <CIsaac@nchba.org>
To: Rittlinger, David B
Cc: Yip, Pak; Johnson, Charlie E

☺ Reply ↩ Reply All → Forward 📧 ...

Fri 10/3/2025 10:41 AM

📘 If there are problems with how this message is displayed, click here to view it in a web browser.

Start your reply all with: Thank you! Got it, thanks! Received, thank you. Feedback

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Thanks!!

Sent from my iPhone

RE: [External] Fwd: Formal Interpretation request - NC Fire Code Appendix B



Rittlinger, David B

To: Isaac, Cliff; Yip, Pak; Johnson, Charlie E



Reply



Reply All



Forward



Fri 10/3/2025 10:30 AM

Cliff,
Received. Perfect timing.
I will attach this to the final response letter when I send it out later today.
Let me know if you have any questions.
Thank you for your work on this.

David Bruce Rittlinger, PE, LEED AP
Division Chief – Codes and Interpretations



North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0008

david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes
<https://codes.iccsafe.org/codes/north-carolina>

From: Isaac, Cliff <CIsaac@nchba.org>

Sent: Friday, October 3, 2025 10:27 AM

To: Rittlinger, David B <david.rittlinger@ncdoi.gov>; Yip, Pak <pak.yip@ncdoi.gov>; Johnson, Charlie E <charlie.johnson@ncdoi.gov>

Subject: [External] Fwd: Formal Interpretation request - NC Fire Code Appendix B

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

David: please see the attached form.

Thanks.
Cliff

Sent from my iPhone

RE: [External] Formal Interpretation request - NC Fire Code Appendix B



Rittlinger, David B

To: 'Isaac, Cliff'

Cc: Johnson, Charlie E; Yip, Pak



Reply

Reply All

Forward



Fri 10/3/2025 6:23 AM

This message was sent with High importance.

Cliff,

Good morning. I hope you are well.

I noticed a completed Appendix E was not included in your request for a formal interpretation.

Please fill out the Appendix E at the link below and return to me at your earliest convenience.

<https://www.ncosfm.gov/appeals-and-formal-interpretations>

Let me know if you have any questions.

Thank you for your work on this.

David Bruce Rittlinger, PE, LEED AP
Division Chief – Codes and Interpretations



North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0008

david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes

<https://codes.iccsafe.org/codes/north-carolina>

From: Rittlinger, David B

Sent: Friday, September 26, 2025 7:16 AM

To: Isaac, Cliff <Clisaac@nchba.org>

Cc: Johnson, Charlie E <charlie.johnson@ncdoi.gov>; Yip, Pak <pak.yip@ncdoi.gov>

Subject: RE: [External] Formal Interpretation request - NC Fire Code Appendix B

Cliff,

Good morning. I hope you are well.

I am in receipt of your request for a formal interpretation.

Our office will evaluate and provide a response at some point next week.

Let me know if you have any questions.

Thank you.

David Bruce Rittlinger, PE, LEED AP
Division Chief – Codes and Interpretations



North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0008

david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes

<https://codes.iccsafe.org/codes/north-carolina>

[External] Formal Interpretation request - NC Fire Code Appendix B

IC

Isaac, Cliff <CIsaac@nchba.org>

To

Rittlinger, David B

Cc

Johnson, Charlie E

☺

↩ Reply

↩ Reply All

➡ Forward

📧

⋮

Thu 9/25/2025 4:28 PM

📧

You replied to this message on 9/26/2025 7:15 AM.
This message was sent with High importance.

📎

Letter to OSFM for formal interpretation on Appendix B use.pdf

125 KB

✉

RE: [External] fire flow

Outlook item

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David: Good afternoon. Attached is a request for a formal interpretation on Appendix B of the North Carolina Fire Code. Charlie has responded to my question on the attached email and is included in this email.

Sincerely,

Cliff Isaac, PE
Director of Codes and Construction

North Carolina Home Builders Association
5580 Centerview Dr., Suite 415, Raleigh, NC 27606
p 919.676.9090
www.nchba.org

RE: [External] fire flow

📧

Johnson, Charlie E <charlie.johnson@ncdoi.gov>

To

Isaac, Cliff

↩ Reply

↩ Reply All

➡ Forward

📧

⋮

Mon 9/22/2025 11:30 AM

Cliff,

I apologize for the delayed response. I was out of the office all last week attending a conference.

I assume the jurisdiction has adopted Appendix B? If so, B103.3 does authorize the fire code official to use NFPA 1142, but it doesn't mandate it.

I am not real familiar with the form below as it is used by our rating staff for their purposes, but certainly could be used if allowed by the local jurisdiction.

Please let me know if additional assistance is needed.

Charlie Johnson

Chief Fire Code Consultant

North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0094

Codes may be viewed for free at: <https://codes.iccsafe.org/codes/north-carolina>

Approved Amendments to these codes: <https://www.ncosfm.gov/codes/codes-current-and-act>

NCDO Web Interpretations: <https://www.ncosfm.gov/inter-pretations>

From: Isaac, Cliff <CIsaac@nchba.org>

Sent: Monday, September 15, 2025 10:28 AM

To: Johnson, Charlie E <charlie.johnson@ncdoi.gov>

Subject: [External] fire flow

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Charlie:

Good morning. I hope you are doing well. There is a situation that involves fire flow. The four homes are located in an area in which adequate and reliable water supply to meet 1000 gpm does not exist. Simply, the Town needs to provide more pressure through construction of a water tower, etc.

B103.1 Decreases.

The fire chief is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

B103.2 Increases.

The fire chief is authorized to increase the fire-flow requirements where conditions indicate an unusual susceptibility to group fires or conflagrations. An increase shall not be more than twice that required for the building under consideration.

B103.3 Areas without water supply systems.

For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the fire code official is authorized to utilize NFPA 1142 or the International Wildland-Urban Interface Code.

In **Appendix B** in the **2018 NC Fire Code**, the fire code official is authorized to use **NFPA 1142**. I have downloaded the following spreadsheet from OSFM:
<https://www.ncosfm.gov/nfpa-1142-water-supply-calc-sheet> I have inputted numbers for a standard home.

Building Foot Print		Length = 30	Width = 40	Sq. Ft. = 1,200
		Total Sq. Ft. = 1,200		
*Add height for each floor	Ceiling Height = 20	Cu. Ft. = 24,000		
*Note: take 1/2 of pitched roof height	Attic Height = 15	Cu. Ft. = 18,000		
Additional space (porch, etc.)	Length = 20	Width = 10	Height = 9	Cu. Ft. = 1,800
				Total Cu. Ft. = 43,800
Total Cu. Ft. = 43,800		OHC = 7	Gallons = 6,257	
Note Occupancy Hazard Classification number is 7 for dwellings, small office complexes and similar constructed facilities. Refer to NFPA 1142 for other types of structures.				
Gallons = 6,257		CCN = 1	Gallons = 6,257	
Note Type II Construction .75. Ex: Cinderblock, approved non-combustible material. Type III Construction 1.0. Ex: Brick veneer, approved non-combustible material etc. Type V Construction 1.5. **Dwellings max 1.0 CCN per NFPA 1142**				
Gallons = 6,257		Exp = 1	Gallons = 6,257.14	
Note Any structure within 50' of burn structure is considered an exposure and requires total gallons to be multiplied by 1.5. DO NOT add .5 for each additional exposures.				

Total Gallons Required	GPM
Up to 2,499 Gallons	250 GPM
2,500 to 9,999 Gallons	500 GPM
10,000 to 19,999 Gallons	750 GPM
20,000 or more	1000 GPM

Total GPM for NFPA 1142 500

In accordance with NFPA 1403, an additional water supply in the amount of 50% of total required fire flow must be available to handle unforeseen situations.

Gallons = 6,257 at 500 GPM for about 13 Minutes

6,257 Gallons x 1.5 = 9,386
 NFPA 1403 requirement

The results show a **500-gpm** requirement. It appears using **B103.3** is this an option given the current water supply is inadequate. Can this be utilized?

Sincerely,

Cliff Isaac, PE
 Director of Codes and Construction



North Carolina Home Builders Association
 5580 Centerville Dr., Suite 415, Raleigh, NC 27606
 p 919.676.9090
www.nchba.org