



MIKE CAUSEY
INSURANCE COMMISSIONER

BRIAN TAYLOR
STATE FIRE MARSHAL

February 1, 2024

Stephen Cassel
Johnson Controls – Fire Protection
540 Civic Blvd.
Raleigh, NC 27610

RE: 2018 NC Fire Code 903.3.1.1 NFPA 13 sprinkler systems and NFPA 13-2013 8.5.5.4 Closets.

Mr. Cassel:

This letter is in response to your request for formal interpretation to the Office of State Fire Marshal (“OSFM”) dated November 13, 2023, which NC OSFM received by email the same day.

Your letter states in relevant part:

“In a new apartment complex we are running into situation where in the unit mechanical closets, they are installing a shelf to separate the HVAC and water heater. The shelf runs wall to wall both front and back, creating two small compartments. We are of the belief that the water from the sprinkler head in the ceiling would flood the top compartment and flow into the lower compartment. NFPA 13 8.5.5.4 Closets- States the following... In all closets and compartments, including those closets housing mechanical equipment, that are not larger than 400 ft³ (11.33 m³) in size, a single sprinkler at the highest ceiling space shall be sufficient without regard to obstructions or minimum distance to the wall.”

Remarks:

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

Code Analysis: An apartment building is an R-2 occupancy classification per 2018 NC Fire Code 203.10.2 Residential Group R-2 and requires an NFPA 13 automatic sprinkler system to be installed per 2018 NC Fire Code 903.2.8 Group R and 903.3.1.1 NFPA 13 sprinkler systems.

903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an *automatic sprinkler system* in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Sections 903.3.1.1.1 and 903.3.1.1.2.

....

OFFICE OF STATE FIRE MARSHAL

1202 MAIL SERVICE CENTER I RALEIGH NC 27699-1202 I TEL 919.647.0500 I Fax

866.851.6508

Code Analysis: NFPA 13-2013 provides instructions on the required sprinkler coverage for all spaces in a building that require protection by an automatic sprinkler system, including mechanical closets. NFPA 13 8.5.5.4 Closets is applicable specifically to mechanical closets.

8.5.5.3* Obstructions that Prevent Sprinkler Discharge from Reaching Hazard.

Continuous or noncontinuous obstructions that interrupt the water discharge in a horizontal plane more than 18 in. (457 mm) below the sprinkler deflector in a manner to limit the distribution from reaching the protected hazard shall comply with 8.5.5.3.

8.5.5.3.1*

Sprinklers shall be installed under fixed obstructions over 4 ft (1.2 m) wide.

8.5.5.3.1.1

Open grate flooring over 4 ft (1.2 m) in width shall require sprinkler protection below the grating.

8.5.5.3.2

Sprinklers shall not be required under obstructions that are not fixed in place, such as conference tables.

8.5.5.3.3*

Sprinklers installed under open gratings shall be of the intermediate level/rack storage type or otherwise shielded from the discharge of overhead sprinklers.

8.5.5.4 Closets.

In all closets and compartments, including those closets housing mechanical equipment, that are not larger than 400 ft³ (11.33 m³) in size, a single sprinkler at the highest ceiling space shall be sufficient without regard to obstructions or minimum distance to the wall.

....

Conclusions: A single sprinkler at the highest ceiling space in the upper compartment of the split-level mechanical closet indicated in the photograph included in Attachment A is sufficient to provide adequate protection of both the upper and lower compartments. NFPA 13 8.5.5.4 Closets permits sprinkler coverage in this manner without regard to obstructions or minimum distance to the wall in the split-level mechanical closet indicated in the photograph included in Attachment A.

Sincerely,

A handwritten signature in black ink that reads "D.B. Rittlinger". The signature is written in a cursive style with a large, stylized initial "D".

David B. Rittlinger, PE, LEED AP
Division Chief and Chief Code Consultant
NC OSFM Codes and Interpretations

cc: Bridget Herring, Chair – BCC
 Mark Matheny, Vice-Chair – BCC
 Michael Ali, Chair, Commercial Super Committee - BCC
 Nathan Childs, Esq., NCDOJ, counsel for NC Building Code Council

ATTACHMENT A



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 NCDOI/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 Stephen Cassel PHONE (704) 726 - 7670 x
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North Carolina State Building Code, Volume - Section

REQUEST ONE: [X] Formal Interpretation by NCDOI [] Appeal of Local Decision to NCBCC
[] Appeal of Local Decision to NCDOI [] 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.

In a new apartment complex we are running into situation where in the unit mechanical closets, they are installing a shelf to separate the HVAC and water heater. The shelf runs wall to wall both front and back, creating two small compartments. We are of the belief that the water from the sprinkler head in the ceiling would flood the top compartment and flow into the lower compartment. NFPA 13 8.5.5.4 Closets- States the following...
In all closets and compartments, including those closets housing mechanical equipment, that are not larger than 400 ft3 (11.33 m3) in size, a single sprinkler at the highest ceiling space shall be sufficient without regard to obstructions or minimum distance to the wall.

REASON:
Is it your conclusion that a sprinkler head would or would not need to be installed below the shelf; see picture for actual condition.

Signature Stephen Cassel DATE: 11/13/23 FORM 3/14/17
APPEAL TO NCDOI/NCBCC

