AGENDA

STATE BUILDING CODE TECHNICAL REVIEW BOARD

Friday, February 16, 2024 – 10:00am

Henrico County Library - Tuckahoe
1901 Starling Drive Henrico, Virginia 23229

I. Roll Call **(TAB 1)**

II. Approval of November 17, 2023 Minutes **(TAB 2)**

III. Approval of Final Order **(TAB 3)**

In Re: Robert Hale Jr.
Appeal No. 23-05

IV. Approval of Final Order **(TAB 4)**

In Re: Junjing (Jim) Song
Appeal No. 23-07

V. Public Comment

VI. Appeal Hearing **(TAB 5)**

In Re: Gregory Black
Appeal No. 22-09

VII. Interpretation Request No. 04.23 **(TAB 6)**

In Re: John Card (City of Newport News)

Single Family Dwelling (R5) used as a family day home

Question 1: Does a single-family dwelling (R5) that is used as a family day home per VCC 2018 Section 313.3 with more than 5 children remain a R5 use group under VCC 2018 Section 310.06 #3?

Question 2: If the answer to Question 1 is no, then would 2018 VCC Section 310.6 #3 require a change of use for family day home with more than 5 children to an R-3 pursuant to 2018 VCC Section 310.4?

VIII. Interpretation Request No. 01.24 **(TAB 7)**

In Re: Phillip Moore (Prince Edward County)

Building Official's authority related to Virginia Department of Health approval and the final inspection for a residential structure.

(Page left blank intentionally)

Question 1: Does VRC Section 104.2 include the Virginia Department of Health for private water supply systems and private onsite sewage systems?

Question 2: In VRC Section 110.1, does "other pertinent laws and ordinances" include the Virginia Department of Health regulations?

Question 3: In VRC Section 113.1.2 does "construction reaches a stage of completion that require an inspection" include the Virginia Department of Health approval for private water supply systems and private onsite sewage systems?

Question 4: In VRC Section 113.8 does "completion of construction for which a permit was issued" include the Virginia Department of Health permit for private water supply systems and private onsite sewage systems since the Virginia Department of Health operational permit is required to issue a building permit?

Question 5: Does VRC Section P2602.1 require approval of the private water supply systems and private onsite sewage systems?

Question 6: Is the only Virginia Department of Health approval provided with an approved operational permit from the Virginia Department of Health?

Question 7: Does VRC Section R306.3 require VDH approval to be "approved"?

Question 8: Does VRC Section R306.4 require VDH approval to be "approved"?

Question 9: Pursuant to VRC Sections 113.1.3 and/or 113.8, can a building official require Virginia Department of Health approval prior to conducting the final inspection?

IX. Secretary's Report

a. March 15, 2024 meeting update
b. Legal updates from Board Counsel

(Page left blank intentionally)

STATE BUILDING CODE TECHNICAL REVIEW BOARD

James R. Dawson, Chair
(Virginia Fire Chiefs Association)

W. Shaun Pharr, Esq., Vice-Chair
(The Apartment and Office Building Association of Metropolitan Washington)

Vince Butler
(Virginia Home Builders Association)

J. Daniel Crigler
(Virginia Association of Plumbing-Heating-Cooling Contractors and the Virginia Chapters of the Air Conditioning Contractors of America)

Alan D. Givens
(Virginia Association of Plumbing-Heating-Cooling Contractors and the Virginia Chapters of the Air Conditioning Contractors of America

David V. Hutchins
(Electrical Contractor)

Christina Jackson
(Commonwealth at large)

Joseph A. Kessler, III
(Associated General Contractors)

R. Jonah Margarella, AIA, NCARB, LEED AP
(American Institute of Architects Virginia)

Eric Mays
(Virginia Building and Code Officials Association)

Joanne D. Monday
(Virginia Building Owners and Managers Association)

James S. Moss
(Virginia Building and Code Officials Association)

Elizabeth C. White
(Commonwealth at large)

Aaron Zdinak, PE
(Virginia Society of Professional Engineers)

(Page left blank intentionally)

STATE BUILDING CODE TECHNICAL REVIEW BOARD
MEETING MINUTES
November 17, 2023
Virginia Housing Center
4224 Cox Road Glen Allen, Virginia 23860

Members Present	Members Absent
Mr. James R. Dawson, Chairman	Mr. Daniel Crigler
Mr. Vince Butler	Ms. Elizabeth White
Mr. Alan D. Givens	
Mr. David V. Hutchins	
Mr. Joseph Kessler (arrived after approval of the Consent Order for Appeal No. 23-01)	
Ms. Christina Jackson	
Mr. R. Jonah Margarella	
Mr. Eric Mays, PE	
Ms. Joanne Monday	
Mr. James S. Moss	
Mr. W. Shaun Pharr, Esq., Vice-Chairman	
Mr. Aaron Zdinak, PE	

Call to Order	The meeting of the State Building Code Technical Review Board ("Review Board") was called to order at approximately 10:00 a.m. by Chair Dawson.
Roll Call	The roll was called by Mr. Luter and a quorum was present. Mr. Justin I. Bell, legal counsel for the Review Board from the Attorney General's Office, was not present.
Approval of Minutes	The draft minutes of the September 22, 2023 meeting in the Review Board members' agenda package were considered. Ms. Monday moved to approve the minutes as presented. The motion was seconded by Mr. Givens and passed with Messrs. Butler, Mays, and Zdinak abstaining.
Consent Order	<u>William Bock: Appeal No. 23-01:</u> After review and consideration of the consent order presented in the Review Board members' agenda package, Ms. Monday moved to approve the consent order as presented. The motion was seconded by Ms. Jackson and passed with Messrs. Butler and Zdinak abstaining.
Final Order	<u>Mazzei Construction Group LLC: Appeal No. 23-02:</u> After review and consideration of the final order presented in the Review Board members' agenda package, Ms. Jackson moved to

(Page left blank intentionally)

approve the final order as presented. The motion was seconded by Ms. Monday and passed with Messrs. Butler, Mays, and Zdinak abstaining.

Fairfax County: Appeal No. 23-03:

After review and consideration of the final order presented in the Review Board members' agenda package, Mr. Mays moved to approve the final order as presented. The motion was seconded by Ms. Jackson and passed with Messrs. Butler and Zdinak abstaining.

Public Comment

Chair Dawson opened the meeting for public comment. Mr. Luter advised that no one had signed up to speak. With no one coming forward, Chair Dawson closed the public comment period.

New Business

Robert Hale Jr.: Appeal No. 23-05:

A hearing convened with Chair Dawson serving as the presiding officer. The hearing was related to the property located at 1820 Charles Street, in the City of Fredericksburg.

The following persons were sworn in and given an opportunity to present testimony:

Robert F. Hale Jr., Property Owner
John Schaffer, City of Fredericksburg Building Official

Also present was:
Donald R. Skinker, Attorney for Robert F. Hale Jr.

After testimony concluded, Chair Dawson closed the hearing and stated a decision from the Review Board members would be forthcoming and the deliberations would be conducted in open session. It was further noted that a final order reflecting the decision would be considered at a subsequent meeting and, when approved, would be distributed to the parties, and would contain a statement of further right of appeal.

Decision: Robert Hale Jr.: Appeal No. 23-05:

After deliberations, Ms. Monday moved to overturn the local appeals board and building official finding that the required test for a building sewer, pursuant to 2018 VCC Section P2503.4, which requires the insertion of a test plug at the point of connection with the public sewer, filling the building sewer with water, and pressurizing the sewer to not less than a 10-foot (3048 mm) head of water, was not properly performed. The motion was seconded by Mr. Givens and passed unanimously.

(Page left blank intentionally)

Junjing (Jim) Song: Appeal No. 23-07:

A hearing convened with Chair Dawson serving as the presiding officer. The hearing was related to the property located at 9089 McClellan Common, in the City of Manassas.

The following persons were sworn in and given an opportunity to present testimony:

Junjing Song, Property Owner
Karen Song, Property Owner
Eric Lowe, City of Manassas Building and Property Maintenance Official
Carlos Perez, City of Manassas Code Enforcement Inspector and Supervisor

After testimony concluded, Chair Dawson closed the hearing and stated a decision from the Review Board members would be forthcoming and the deliberations would be conducted in open session. It was further noted that a final order reflecting the decision would be considered at a subsequent meeting and, when approved, would be distributed to the parties, and would contain a statement of further right of appeal.

Decision: Junjing (Jim) Song: Appeal No. 23-07:

After deliberations, Mr. Mays moved to uphold the local appeals board and property maintenance official finding that the violations cited on page 129 of the agenda package and listed below exist.

- *Broken fence (VMC Section 302.7)*
- *Screen in the window (VMC Section 304.13)*
- *Peeling and chipping paint, the siding of the rear of the house (VMC Section 304.2)*

The motion was seconded by Mr. Margarella and passed unanimously.

Secretary's Report

Mr. Luter presented the Board with the proposed 2024 Review Board meeting calendar, which was reviewed, considered, and approved by the Board.

Mr. Luter informed the Review Board of the current caseload for the upcoming meeting scheduled for January 19, 2024.

Mr. Bell provided legal updates to the Review Board members via telephone call.

Adjournment

There being no further business, the meeting was adjourned by proper motion at approximately 2:00 p.m.

(Page left blank intentionally)

Approved: February 16, 2024

_____
Chair, State Building Code Technical Review Board

_____
Secretary, State Building Code Technical Review Board

(Page left blank intentionally)

VIRGINIA:

BEFORE THE
STATE BUILDING CODE TECHNICAL REVIEW BOARD

IN RE: Appeal of Robert Hale Jr.
Appeal No. 23-05

DECISION OF THE REVIEW BOARD

I. Procedural Background

The State Building Code Technical Review Board (Review Board) is a Governor-appointed board established to rule on disputes arising from application of regulations of the Department of Housing and Community Development. See §§ 36-108 and 36-114 of the Code of Virginia. The Review Board's proceedings are governed by the Virginia Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

II. Case History

On April 11, 2023, the City of Fredericksburg Building Services Division (City), the agency responsible for the enforcement of the 2018 Virginia Uniform Statewide Building Code (Virginia Construction Code or VCC), approved a building sewer test for the residential structure, located at 1820 Charles Street, in the City of Fredericksburg, owned by Robert Hale Jr. (Hale). Hale challenged the approval of the building sewer test stating that the required test, pursuant to VCC Section P2503.4 Building sewer testing, was not properly performed because the required pressurizing of the building sewer to not less than a 10-foot head of water was not performed.

Hale filed an appeal to the City of Fredericksburg Board of Building Code Appeals (local appeals board) which was denied June 15, 2023. Hale further appealed to the Review Board on July 11, 2023.

(Page left blank intentionally)

Appearing at the Review Board meeting for Hale was Robert F. Hale Jr. and his legal counsel, Donald R. Skinker. Appearing at the Review Board meeting for the City was John Schaffer.

III. Findings of the Review Board

A. Whether to overturn the City and local appeals board that the building sewer was properly tested in accordance with VCC Section P2503.4 Building sewer testing.

Hale argued that the City approved the building sewer test where the contractor pressurized the building sewer with a five-foot head of water rather than the required pressurizing of the building sewer with a 10-foot head of water in accordance with VCC Section P2503.4 Building sewer testing.

The City argued that due to the site conditions, potential safety issues, and time of day they allowed and approved pressurizing the building sewer with a five-foot head of water in lieu of the required pressurizing the building sewer with a 10-foot head of water.

The Review Board found that the building sewer test conducted and approved by the City, pressurizing the building sewer with a five-foot head of water, did not meet the minimum testing requirement because the required test for a building sewer, pursuant to 2018 VCC Section P2503.4, requires pressurizing the building sewer to not less than a 10-foot head of water.

IV. Final Order

The appeal having been given due regard, and for the reasons set out herein, the Review Board orders as follows:

B. Whether to overturn the City and local appeals board that the building sewer was properly tested in accordance with VCC Section P2503.4 Building sewer testing.

(Page left blank intentionally)

The decision of the City and local appeals board that a proper building sewer test was conducted and approved pressurizing the building sewer with a five-foot head of water, is overturned, because the required test for a building sewer, pursuant to 2018 VCC Section P2503.4, requires the insertion of a test plug at the point of connection with the public sewer, filling the building sewer with water, and pressurizing the sewer to not less than a 10-foot (3048 mm) head of water; therefore, the test conducted and approved by the City did not meet the minimum testing requirements of the VCC.

_____

Chair, State Building Code Technical Review Board

Date entered _____February 16, 2024_____

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty (30) days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a Notice of Appeal with W. Travis Luter, Sr., Secretary of the Review Board. In the event that this decision is served on you by mail, three (3) days are added to that period.

(Page left blank intentionally)

VIRGINIA:

BEFORE THE
STATE BUILDING CODE TECHNICAL REVIEW BOARD

IN RE: Appeal of Junjing (Jim) Song
Appeal No. 23-07

DECISION OF THE REVIEW BOARD

I. Procedural Background

The State Building Code Technical Review Board (Review Board) is a Governor-appointed board established to rule on disputes arising from application of regulations of the Department of Housing and Community Development. See §§ 36-108 and 36-114 of the Code of Virginia. The Review Board's proceedings are governed by the Virginia Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

II. Case History

On April 26, 2023, the City of Manassas Community Development Department (City), the agency responsible for the enforcement of Part III of the 2018 Virginia Uniform Statewide Building Code (VUSBC or VMC) issued a Corrective Work Order (CWO) to Junjing (Jim) Song (Song) citing several violations of the VMC. On June 20, 2023, the City issued a Notice of Violation (NOV) citing the following violations:

a. *VMC 3-302.7 – Accessory Structures/Estructuras Accesorias: Accessory structures including garages, fences, walls, sheds, etc., shall be maintained structurally sound and in good repair.*
b. *VMC 3-304.13 – Window, skylight, and door frames/Ventanas, tragaluces y marcos de puertas: 1. Every window, skylight, door, and frame shall be kept in sound conditions, good repair, and weather tight. 2. Glazing materials shall be maintained free from cracks and holes. 3. Every window, other than a fixed window, shall be easily openable and capable of being held in position by window hardware.*
c. *VMC 3-304.2 – Exterior Protective Treatment/Tratamiento Protectivo Exterior: Exterior structures including, including but not limited to, doors, door and window frames, cornices, porches, trim, balconies, decks, fence, and*

(Page left blank intentionally)

siding shall be maintained in good condition. Exterior wood surfaces, other than decay-resistant woods, shall be protected from the elements and decay by paint or other treatments. Deteriorated paint shall be removed and surfaces repainted.

Song filed an appeal to the City of Manassas Building Code Board of Appeals (local appeals board) which was denied on July 31, 2023. On August 28, 2023, Song attempted to further appeal to the Review Board. Review Board staff was never able to acquire a completed Review Board appeals application; therefore, staff processed the application as submitted.

Appearing at the Review Board meeting for Song was Junjing Song and Karen Song. Appearing at the Review Board meeting for the City was Eric Lowe and Carlos Perez.

III. Findings of the Review Board

A. Whether to uphold the decision of the City and the local appeals board that a violation of VMC Section 302.7 – Accessory Structures/Estructuras Accesorias exists.

B. Whether to uphold the decision of the City and the local appeals board that a violation of VMC Section 304.13 – Window, skylight, and door frames/Ventanas, tragaluces y marcos de puertas exists.

C. Whether to uphold the decision of the City and the local appeals board that a violation of VMC Section 304.2 – Exterior Protective Treatment/Tratamiento Protectivo Exterior exists.

Song argued that the NOV and cited violations should have referenced §36-105 C.2 & 3 and the Virginia Existing Building Code (VEBC). Song also argued that the NOV and cited violations should not have referenced the VMC.

The City argued that the tenant of the structure filed a complaint with the City for potential violations of the VMC. The City argued that there was a broken fence on the property, a violation of VMC Section 302.7. The City further argued that the structure had windows without the

(Page left blank intentionally)

required screens, a violation of VMC Section 304.13. The City also argued that the structure had chipping and peeling paint on the exterior siding on the rear of the structure, a violation of VMC Section 304.2. Lastly, the City argued that the NOV did not reference §36-105 C.2 & 3 or the VEBC and only referenced the VMC for the violations found and cited.

The Review Board found that violations of VMC Section 302.7, 304.13, and 304.2 exist.

IV. Final Order

The appeal having been given due regard, and for the reasons set out herein, the Review Board orders as follows:

A. Whether to uphold the decision of the City and the local appeals board that a violation of VMC Section 302.7 – Accessory Structures/Estructuras Accesorias exists.

The decision of the City and local appeals board that a violation of VMC Section 302.7 Accessory Structures exists is upheld.

B. Whether to uphold the decision of the City and the local appeals board that a violation of VMC Section 304.13 – Window, skylight, and door frames/Ventanas, tragaluces y marcos de puertas exists.

The decision of the City and local appeals board that a violation of VMC Section 304.13 Window, skylight, and door frames exists is upheld.

C. Whether to uphold the decision of the City and the local appeals board that a violation of VMC Section 304.2 – Exterior Protective Treatment/Tratamiento Protectivo Exterior exists.

The decision of the City and local appeals board that a violation of VMC Section 304.2 exists is upheld.

(Page left blank intentionally)

_____

Chair, State Building Code Technical Review Board

Date entered _____February 16, 2024_____

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty (30) days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a Notice of Appeal with W. Travis Luter, Sr., Secretary of the Review Board. In the event that this decision is served on you by mail, three (3) days are added to that period.

(Page left blank intentionally)

VIRGINIA:

BEFORE THE
STATE BUILDING CODE TECHNICAL REVIEW BOARD

IN RE: Appeal of Gregory Black
Appeal No. 23-09

CONTENTS

(Page left blank intentionally)

VIRGINIA:

BEFORE THE
STATE BUILDING CODE TECHNICAL REVIEW BOARD

IN RE: Appeal of Gregory Black
Appeal No. 23-09

REVIEW BOARD STAFF DOCUMENT

Suggested Statement of Case History and Pertinent Facts

1. On October 11, 2023, the Office of the Building Official for George Mason University (Building Official), the agency responsible for the enforcement of Part 1 of the 2018 Virginia Uniform Statewide Building Code (VUSBC), denied a modification request from Gregory Black, Director of Emergency Management and Fire Safety for George Mason University (Black), submitted on July 26, 2023, for the sequence of events for smoke alarm activation in George Mason University (GMU) owned R1/R2 occupancies, specifically the fire alarm replacement project at Potomac Heights located at 10350 York River Road Fairfax, Virginia 22030[1].

2. On October 26, 2023, Black filed an appeal to the Review Board.

3. This staff document, along with a copy of all documents submitted, will be sent to the parties and opportunity given for the submittal of additions, corrections, or objections to the staff document, and the submittal of additional documents or written arguments to be included in the information distributed to the Review Board members for the hearing before the Review Board.

[1] Potomac Heights at 10350 York River Road Fairfax, Virginia 22030 is located on the GMU campus.

(Page left blank intentionally)

Suggested Issues for Resolution by the Review Board

1. Whether to uphold the decision of the Building Official denying the request for modification from Black for the sequence of events for smoke alarm activation in George Mason University (GMU) owned R1/R2 occupancies, specifically the fire alarm replacement project at Potomac Heights located at 10350 York River Road Fairfax, Virginia 22030.

(Page left blank intentionally)

Basic Documents

(Page left blank intentionally)

Request for Modification from Gregg Black, GMU Director of Emergency Management and Fire Safety

(Page left blank intentionally)

Safety, Emergency, & Enterprise Risk Management

GEORGE MASON UNIVERSITY

MEMORANDUM

TO: **David Kidd, University Building Official**

FROM: **Gregory Black, Director of Emergency Management and Fire Safety**

RE: **Code Modification for VCC 907.2.10.7**

DATE: **07/26/2023- Updated 8/28/2023**

It is the request of George Mason University (Mason) to seek a code modification from the Virginia Construction Code section 907.2.10.7 (3). The intent of this modification is to approve the below sequence of events for smoke alarm activation in Mason owned R1/R2 occupancies.

Sequence of Events

The activation of one smoke detector in a dwelling unit or sleeping unit shall initiate an audible notification in the dwelling unit (visual notification in ADA rooms), a supervisory signal shown on the fire alarm control panel and notification of said signal to the supervising station. If a second smoke detector in the same dwelling or sleeping unit is activated while the first detector is still in supervisory, all alarm notification devices throughout the building shall be activated (general fire alarm), the fire alarm panel shall signal an alarm, and a fire alarm signal shall be transmitted to the supervising station.

Rational for Code Modification

According to the interpretation of VCC 907.2.10.7 (3) by the OUBO, any smoke detection in a sleeping unit or dwelling unit should not signal a building wide fire alarm. This modification is being sought because it is the opinion of the Director of Fire Safety and Emergency Management, and Safety, Emergency, & Enterprise Risk Management that this interpretation is lowering the safety standard[1] that has already been set in R1/R2 occupancies. Mason is seeking the above sequence of events for sleeping units / dwelling units due to the following reasons:

1. The aforementioned sequence of events is how all multi device (more than one device in a single sleeping/dwelling unit) R1/R2 sleeping unit / dwelling units are currently programmed. (See Table 2) Having all R1/R2 occupancies programmed the same way allows for simple blanket training of occupants and staff in all of the buildings. Having some buildings programmed one way and others another leads occupants to determine

[1] OUBO Comment; see Table 1

that the system is 'broken' and that confusion[2] leads to lack of confidence in the system working correctly. Once students / staff have lack of confidence in the system they tend to react slower to general fire alarms assuming that they are due to the system not working properly.

2. Utilizing a second smoke detector to activate a general fire alarm will happen sooner than waiting for the situation to get worse and activate a sprinkler head.[3]
3. This sequence of events allows for faster response from the fire department due to the earlier activation of a general fire alarm, and summonsing of the fire department. It also means that the University Police are not going to be relied upon to respond to a scene so smoky that multiple smoke heads have activated. University Police are not trained fire fighters, nor have the appropriate PPE or tools to properly address this situation. This proposal not being accepted will drastically change the response requirements of University Police to include situations that they are not trained for.
4. This sequence of events will allow for quicker notification of occupants, and allow occupants to start evacuation earlier. In a building where occupants are in various states of alertness throughout the day, early notification allows for the maximum amount of time for occupants to evacuate. Early notification also allows for occupants to evacuate before fire conditions in the building become even more severe. If this is not approved, the fire will have to grow large enough to activate a sprinkler head[4] to notify the occupants of the building. Anytime a sprinkler head activates due to fire, the situation in the building is very unsafe for occupants.
5. The intent of VCC 907.2.10.7(3) is to reduce false alarms and needlessly summonsing the fire department to campus. Since the proposed sequence of events is already in use in R1/R2 occupancies at Mason, the historical fire department requests for service does not show that the configuration creates an issue with false alarms[5].
6. The requested configuration is not anticipated to increase any cost of a fire alarm system.

This code modification request is supported by the State Fire Marshal's office (see attached letter), the Vice President, Facilities and the Associate Vice President of Safety, Emergency, & Enterprise Risk Management.

Frank Strike
Vice President, Facilities

Julie Zobel
Associate Vice President Safety, Emergency, & Enterprise Risk Management

[2] OUBO Comment; see Table 1
[3] OUBO Comment; see Table 1
[4] OUBO Comment; see Table 1
[5] OUBO Comment; see Table 1

Table 1: Comments from OUBO on 8/22/2023 & Mason's Response

Comment Number	OUBO Comment	Response
1	This statement is an opinion with limited evidence of support. This approach is not advised by VCC section 106.3.1 for substantiation of code modification.	This statement is the opinion of a safety professional with years of experience at a Higher Education institution. It is backed by years of looking into fires and fire events in residence halls and understanding how the unique population in R2 dormitories react to fire alarms. VCC 106.3.1 allows for "...other person competent in the subject matter area of application..." to submit a proposed modification. Please specify where in VCC the AHJ has authority to advise an approach for a code modification.
2	Provide a RDP study for verification of all R1/R2 building installations. This approach is conflicting with current GMU Design Standards section 3.3.2.5.	The OUBO office advised that an RDP would not be needed for this modification. As prior discussions have covered, the 2013 Design manual has many faults and often contradicts itself. In the design manual section 28 31 11 (3), Table 7.3(2) clearly outlines what this modification is attempting to attain. See Table 2 for summary of current FACP programming sequence of events.
3	Please indicate what dormitories do not have quick response (QR) sprinklers where system is programmed in this fashion. QR sprinklers (ordinary temperature 135-55 rated) in a typical 8 - 9 foot ceiling height would have a comparable or even lesser response time to initiating a second smoke detector in an adjacent compartment of the same dwelling/sleeping unit.	Most dormitories with kitchen facilities have smoke detectors in the kitchen area, hallway, and living room space. None of those three areas are separated by doors or walls. While your statement about QR sprinklers might be true, the assumption about the layout and only having smoke detectors in separate compartments is not true. Additionally, historical situations on campus have been cooking fires with more smoke than heat/flame. In these instances QR sprinklers would not be comparable to smoke detectors.
4	(1) The approach in the Virginia-adopted code is intended for resident/occupant to evacuate from the dwelling/sleeping unit when single smoke alarm activates. (2) It does not intend to evacuate building for activation in single dwelling/sleeping unit in an effort to reduce unwanted/unintentional alarms caused by detection systems (refer to NFPA study for additional information: https://www.nfpa.org/News-and-Research/Data-research-and-tools/Emergency-Responders/False-alarm-activity-in-the-US). (3) Further, statement is primarily conjecture, as it depends on where fire origin is located within a dwelling/sleeping unit - if in a sleeping room/compartment, it is feasible that the sprinkler would	I have portioned out your statement so I can appropriately respond. (1) I Agree with this approach when talking about a single smoke detector activation. (2) The effort to reduce unwanted alarms is noted. The study referenced here is 10 years old, and relies on national data from all types of building systems and fire alarm types. After review of this study, it provides no conclusion that is specific enough to Higher Education dormitories to inform this modification proposal. (3) Based on my experience as a safety professional, and many years at George Mason University overseeing the Fire Safety program, nothing in my statement is conjecture.

	actually activate prior to the initiation of a second smoke alarm in another location in the unit. There is no justification established for this need, (4) however I would not object to the following which would meet the intent of VCC 907.2.10.7:1. System smoke detectors to provide supervisory signal upon activation (this would also meet requirement of VCC 907.2.9.3) and be equipped with sounder base (providing 520 Hz low frequency sound wave required by NFPA 72:18.4.6.3) and all sounder bases in individual dwelling unit to be interconnected to meet VCC 907.2.10.5.2. (5) If desired by GMU SEERM AND GMU Facilities (to be verified by VP of both departments), cross-zoning system detectors in separate, individual and adjacent dwelling/sleeping units on a floor could transmit an alarm signal, and would meet the intent of VCC 907.2.10.7.3. Activation of system detectors outside dwelling/sleeping units shall transmit alarm signal, consistent with VCC 907.2.9.3.4. Activation of flow switch/pressure switch shall transmit alarm signal, consistent with VCC 903.4.2.	(4) This is already the case. If there are 7 smoke detectors in a suite, all of the sounder bases will activate upon one smoke detector sensing smoke. We are not looking to change this configuration. (5) I don't understand the rationale behind allowing cross zoning among multiple units on the same floor and not allowing it within a single unit. Practically what this means is that a general fire alarm will be triggered when two cups of easy-mac are cooked without water at the same time in separate areas within the building. Why would two low hazard events need to equal a building evacuation, yet a growing situation with multiple detector activation within one suite should only be a supervisory alarm? Please clarify.
5	Submit data over the last 5 years, as available to justify this statement, per VCC section 106.3.1.	I am inquiring if this data exists, however it would require a clear definition of when the fire department shouldn't respond to a building. I would assert that any situation in which multiple code required smoke detectors (meaning that Mason has not needless added detectors) should elicit a response from the fire department. Per my definition above the numbers would be zero. In addition, SEERM keeps a close relationship with the fire department, and as of today there are no complaints about false alarms.

Table 2: Current R1/R2 Sequence of Operations review

Building	Building Number	Notes
Amherst Hall	0060	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes
Brunswick Hall	0061	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes

Carroll Hall	0062	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes
Dickenson Hall	0063	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes
Essex Hall	0064	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes
Franklin Hall	0065	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes
Grayson Hall	0066	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 3 minutes
Blue Ridge Hall	0106	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Commonwealth Hall	0051	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Dominion Hall	0052	Smoke Detectors only send Supervisory Alarms (On the short list for replacement)
Eastern Shore	0118	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Hampton Roads	0119	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Northern Neck	0110	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Piedmont Hall	0108	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Sandridge Hall	0107	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Tidewater Hall	0109	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Adams Hall	0086	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Harrison Hall	0084	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Jackson Hall	0090	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Jefferson Hall	0082	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Kennedy Hall	0088	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Lincoln Hall	0089	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Madison Hall	0081	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Monroe Hall	0083	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Roosevelt Hall	0091	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Taylor Hall	0125	One smoke detector = supervisory signal; upgrades to general fire alarm if not cleared in 2 minutes

Truman Hall	0087	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Washington Hall	0080	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Wilson Hall	0085	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Liberty Square	0094-0098	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Mason Global Center	0103	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Potomac Heights	0099	Smoke Detectors only send Supervisory Alarms (On the short list for replacement)
Rogers Hall	0123	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Whitetip Hall	0124	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated
Beacon Hall	0512	Has 120V smoke detectors; no integration with fire alarm system
SMSC Dorm	0800	One smoke detector = supervisory signal; upgrades to general fire alarm when adjacent smoke detector is activated

MEMORANDUM

TO: **Travis Luter, State Building Code Technical Review Board**

FROM: **Gregg Black, Director of Emergency Management and Fire Safety**

RE: **SBCTRB Appeal 23-09**

DATE: 11/28/2023

Mr. Luter-

Per our conversation today, the request for relief in appeal 23-09 is specifically in reference to a fire alarm replacement project at Potomac Heights (10350 York River Road, Fairfax VA 22030). The project number for the replacement is 247-221549.

The code modification that was submitted to the George Mason University OUBO, was specifically left generic so that it could be applied to future projects without having to repeat the same code modification process. We have many fire alarm systems at Mason in R2 occupancies and are constantly upgrading systems to keep them in working order.

Please let me know if you have any further questions.

Gregg Black
751-220-2487
Gblack2@gmu.edu

(Page left blank intentionally)

Decision of the
David Kidd, GMU
Building Official

(Page left blank intentionally)

Gregg Black

From: David M Kidd
Sent: Wednesday, October 11, 2023 1:36 PM
To: Gregg Black
Cc: David A Farris; Justin Biller; Megan Healy; Kenneth D Walsh; Frank Strike; Shannon N Jordan; Julie Zobel; Carl Rowan
Subject: RE: Code Modification request
Attachments: NFPA - osdorms.pdf; Code Modification- Residential Fire Alarms-Signed.pdf

Folks,

I met with Dr. Jordan to review and discuss the code modification request. A code modification under the USBC is a means to demonstrate equivalent level of safety be provided to meet the spirit and functional intent of the code, per VCC 106.3. After further review and discussion with peers from Va Tech OUBO and DHCD, I will not consider the request for modification based on insufficient relevant information justifing the code modification request. The primary intent of the VCC requirements in this regard are to prevent occupants from unnecessary evacuation therefore becoming complacent of fire events not affecting them whether due to nuisance/unwanted alarms or legitimate alarms that were confined to individual dwelling spaces. Refer to attached NFPA data (2023) on dorm fires wherein 9 out of 10 fires (88 percent) were confined to the area of origin. Rated separation construction along with sprinkler protection are the primary means of protecting occupants during the initial fire development, and their introduction into R occupancies have drastically reduced fire deaths over the last few decades. If you feel this decision is in error, please consider taking the matter to DHCD TRB for review. I have copied multiple folks as notification.

Thank you,

David

David M. Kidd P.E., MCP, CBO
University Building Official
Office of University Building Official
George Mason University
www.oubo.gmu.edu | 703.993.6070

From: Gregg Black <gblack2@gmu.edu>
Sent: Friday, October 6, 2023 12:50 PM
To: David M Kidd <dkidd7@gmu.edu>
Cc: David A Farris <dfarris@gmu.edu>; Justin Biller <jbiller@gmu.edu>
Subject: RE: Code Modification request

David-

I am a little confused on your request. Table 2 in the modification request has a total summary of all fire alarm system programming in R2. Do you need me to count what is in that table?

I am also not sure about which fire alarm notification devices you are referencing.

If you are free for a call, Please give me one.

Thanks.

Gregg Black
Director of Emergency Management and Fire Safety
Emergency Management
Safety, Emergency, & Enterprise Risk Management
George Mason University
P: (703) 993-2795
C: (571) 220-2487
https://Ready.gmu.edu
CliftonStrengths: Strategic, Achiever, Deliberative, Relator, Adaptability

---

From: David M Kidd <dkidd7@gmu.edu>
Sent: Thursday, October 5, 2023 10:02 AM
To: Gregg Black <gblack2@gmu.edu>
Cc: David A Farris <dfarris@gmu.edu>; Justin Biller <jbiller@gmu.edu>
Subject: RE: Code Modification request

Gregg,

Can you provide the number of building fire alarms on a newer dorm bldg with the sequence you are requesting approval for? Can you also provide the number of building fire alarms on a dorm bldg that does NOT have the sequence?

Can you show the type of alarm notification device? Smoke det, smoke alarm, pull station, duct det, water flow, etc…?

This information will help support my decision to show no increased nuisance calls due to the sequence that is suggested and recommended by the SFMO and CFFD for early response time improvements.

Sorry for this late request.

Thank you,

David

David M. Kidd P.E., MCP, CBO
University Building Official
Office of University Building Official
George Mason University
www.oubo.gmu.edu | 703.993.6070

From: Gregg Black <gblack2@gmu.edu>
Sent: Tuesday, August 22, 2023 5:54 AM
To: David M Kidd <dkidd7@gmu.edu>
Subject: RE: Code Modification request

Hi David-

Just wanted to follow up on this and see if you or Justin have any questions.

Thanks.

Gregg Black
Director of Emergency Management and Fire Safety
Emergency Management
Safety, Emergency, & Enterprise Risk Management
George Mason University
P: (703) 993-2795
C: (571) 220-2487
https://Ready.gmu.edu
CliftonStrengths: Strategic, Achiever, Deliberative, Relator, Adaptability

From: Gregg Black
Sent: Thursday, August 3, 2023 12:43 PM
To: David M Kidd <dkidd7@GMU.EDU>
Subject: Code Modification request

David-

Please see attached for the code modification request for the sequence of operations for smoke detectors in dwelling units in R2 occupancies. Please let me know if there are any questions or any clarification is needed.

Gregg Black
Director of Emergency Management and Fire Safety
Emergency Management
Safety, Emergency, & Enterprise Risk Management
George Mason University
P: (703) 993-2795
C: (571) 220-2487
https://Ready.gmu.edu
CliftonStrengths: Strategic, Achiever, Deliberative, Relator, Adaptability

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
State Building Codes Office and Office of the State Technical Review Board
Main Street Centre, 600 E. Main Street, Suite 300, Richmond, Virginia 23219
Tel: (804) 371-7150, Fax: (804) 371-7092, Email: sbco@dhcd.virginia.gov

APPLICATION FOR ADMINISTRATATIVE APPEAL

Regulation Serving as Basis of Appeal (check one):

☑ Uniform Statewide Building Code
- ☑ Virginia Construction Code
- ☐ Virginia Existing Building Code
- ☐ Virginia Maintenance Code

☐ Statewide Fire Prevention Code

☐ Industrialized Building Safety Regulations

☐ Amusement Device Regulations

RECEIVED
October 26, 2023 WTZ
OFFICE OF THE REVIEW BOARD

Appealing Party Information (name, address, telephone number and email address):

Gregory Black, 571-220-2487; gblack2@gmu.edu
4400 University Drive MS:5E2
Fairfax, VA 22030

Opposing Party Information (name, address, telephone number and email address of all other parties):

David Kidd, 276-698-6070, dkidd7@gmu.edu
4400 University Dr MS: 1E4
Fairfax, VA 22030

Additional Information (to be submitted with this application)
- Copy of enforcement decision being appealed
- Copy of the decision of local government appeals board (if applicable)
- Statement of specific relief sought

CERTIFICATE OF SERVICE

I hereby certify that on the 25 day of October, 2023, a completed copy of this application, including the additional information required above, was either mailed, hand delivered, emailed or sent by facsimile to the Office of the State Technical Review Board and to all opposing parties listed.

Note: This application must be received by the Office of the State Technical Review Board within five (5) working days of the date on the above certificate of service for that date to be considered as the filing date of the appeal. If not received within five (5) working days, the date this application is actually received by the Office of the Review Board will be considered to be the filing date.

Signature of Applicant: Gregory Black

Name of Applicant: Gregory Black
(please print or type)

MEMORANDUM

TO: State Building Code Technical Review Board

FROM: Gregory Black, Director of Emergency Management and Fire Safety

RE: Statement of Relief

DATE: 10/25/2023

I am respectively asking the review board to review George Mason University's Building Code Official's rejection on October 11th of the code modification that was submitted on July 26th and updates on August 28th, and deem the modification request to be compliant with the USBC.

(Page left blank intentionally)

Documents Submitted by Gregg Black, GMU Director of Emergency Management and Fire Safety

(Page left blank intentionally)

COMMONWEALTH of VIRGINIA

Brad Creasy
EXECUTIVE DIRECTOR

Nicholas Nanna
DEPUTY DIRECTOR

Virginia Department of Fire Programs

William "Billy" Hux
CHIEF STATE FIRE MARSHAL

August 28, 2023

Mr. Gregg Black
Director of Emergency Management and Fire Safety
George Mason University
4400 University Drive
Fairfax, VA 22030

Dear Mr. Black,

I am in receipt of your code modification response. My interpretation of VCC section 907.2.10.7 (3) addresses activation of (a) smoke detector, not multiple smoke detectors, therefore the future applied interpretation would not be applying the intent of the code and would not create the utmost safety of occupants within George Mason University Dorms. Furthermore, this does not align with other University dorms fire alarm system programing across the Commonwealth.

The current programing (smoke detector monitoring process) is more in line with the intent of the code and provides ***faster*** notification to residents within the building, which provides a safer and faster evacuation of the building.

Referencing past incidents; The fatal fire at the Seton Hall dorm, which started with a fire on a wall mounted display board that spread to furniture in a corridor. Delay in the fire alarm and in response from the residents gave the fire time to block the corridor and there by resulting in a fatal fire for residents within.

The Virginia State Fire Marshal's Office does not enforce the Virginia Construction Code and therefore is not in the position to grant a code modification. With that said, the position of the Virginia State Fire Marshal's Office is not in a position to grant a code modification. Our stance would be to remain with the current smoke detector monitoring and building notification for the safety of early notification of residents and the building.

1005 Technology Park Drive, Glen Allen, VA 23059-4500
Phone: (804) 612-7266 or Fax: (804) 371-3444
www.vafire.com

Regards,

William "Billy" Hux
Chief State Fire Marshal
Commonwealth of Virginia

CC:
Joshua Davis – Assistant Chief State Fire Marshal – Field Operations
Troy Bower – Assistant Chief State Fire Marshal – Special Operations
Steven Sites – Chief Fire Marshal – Fairfax City Fire Marshals Office

1005 Technology Park Drive, Glen Allen, VA 23059-4500
Phone: (804) 612-7266 or Fax: (804) 371-3444
www.vafire.com

City of Fairfax
Fire Department
Fire Marshal's Office

10455 ARMSTRONG STREET, FAIRFAX, VA 22030

September 6, 2023

Gregory Black, Director of Emergency Management and Fire Safety
George Mason University
4400 University Drive, MS 5E2
Fairfax, Virginia 22030

Ref: Fire Alarm System Signal Disposition in George Mason University Residence Halls

Mr. Black:

In response to your inquiry about the City of Fairfax Fire Department's (CFFD) stance on notification of in-building fire alarm system – alarm signals at George Mason University (GMU), I offer the following.

- CFFD understands that the current sequence of operation for residence hall individual dwelling unit / sleeping unit smoke detector(s) (in lieu of single- and multiple-station smoke alarms, as permitted by the Virginia Uniform Statewide Building Code (USBC)) is:
    1. A (single) smoke detector activation creates a supervisory signal on the Fire Alarm Control Panel (FACP).
    2. The supervisory signal is immediately transmitted to the supervising station.
    3. A GMU Police Officer is dispatched to investigate the signal.
    4. If at anytime a second smoke detector within the same dwelling unit / sleeping unit activates; or activation of manual fire alarm box, automatic fire detector (outside original unit), waterflow from automatic sprinkler system, or activation of other fire suppression system a fire alarm signal is created on the FACP and the building wide occupant notification/evacuation system is initiated.
    5. The fire alarm signal is immediately transmitted to the supervising station.
    6. The supervising station immediately notifies the Fairfax County Department of Public Safety Communications Center (DPSCC)
- The above-described sequence of operation, better described as Alarm Signal Verification, for a (single) smoke detector activation includes 180 second of delay prior to supervising station's requirement to notify the DPSCC. This delay is permitted by NFPA 72.

Given the construction type and fire protection structures and systems of GMU's residence halls, coupled with adequate water supply and proximity of fire department response assets the 180 second delay is acceptable.

City of Fairfax
Fire Department
Fire Marshal's Office

10455 ARMSTRONG STREET, FAIRFAX, VA 22030

The City of Fairfax Fire Department does not support any change to residence hall fire alarm system sequence of operation, or the alarm signal verification algorithm that would create a longer delay in notification of an alarm signal to the Fairfax County Department of Public Safety Communication Center. Additional delay to dispatching fire department assets can be detrimental to the safety of building occupants.

Furthermore, it is vitally important to life safety and property conservation that any two smoke detectors activation create a fire alarm signal. The alarm signal verification process requires a human response – in GMUs case from personnel with primary obligation to respond to an act of violence.

Thank you for the opportunity to comment on this subject. Please contact me with any questions or concerns.

Respectfully,

Steven Sites, Assistant Chief

Chief Fire Marshal / Building Official

Documents Submitted
By David Kidd, GMU
Building Official

(Page left blank intentionally)

Office of University Building Official
4400 University Drive, MS 1E4; Fairfax, VA 22030
Telephone: (703) 993-6070

Dormitory Fire Alarm System: VCC 2018 Requirements

Pertinent code requirements related to requirements for fire alarm systems in Residential Dormitories, designed to meet R-1 and R-2 requirements (CPSM section 4.1.2.1, as excerpted below) are provided for reference in this document with comments from the VCC and NFPA 72.

It is our stance (George Mason University, Office of the University Building Official – GMU OUBO) that dwelling/sleeping unit fire alarm system detectors used as an alternate to single- or multiple-station smoke alarms shall be used **solely for notification within individual units** and shall send a supervisory signal only to the building fire alarm control unit (FACU), per VCC, 2018 section 907.2.10.7 and NFPA 72, 2016 sections 29.5, 29.5.2.1.1, and 29.5.2.2. Building fire alarm system alarm signaling shall also extend to notification equipment (notification appliances, sounder bases, etc.) within individual units to sound, per VCC section 907.2.9.3. Alternatively, single- or multiple-station smoke alarms (NFPA 72 chapter 29) would be required to be interconnected with fire alarm system to send supervisory signal upon activation within the dwelling/sleeping unit or to activate upon building fire alarm system activation (FACU alarm signal), as also prescribed in this VCC section (907.2.9.3) and NFPA 72 section 29.8.2.1.

We understand and appreciate the desire of GMU Safety, Emergency, and Enterprise Risk Management (SEERM) to provide an enhanced level of safety for the student population. However, as the Building Official for the University, we believe the proposed approach under the code modification request by SEERM could actually result in the opposite overall effect – potentially decreasing the level of safety by introducing the opportunity for additional nuisance/unwanted alarms in the building that can further contribute to student apathy/alarm fatigue of fire alarm conditions (refer to NFPA 72 advisory language in Annex A - A.29.5.2.2 excerpted below for additional information). This was indicated to SEERM, first by providing previous NFPA Research report on the Foundation's ongoing research efforts to reduce unwanted alarms that resulted in changes to NFPA 72 that are included in the currently adopted editions of NFPA 72 and the VCC. Further, evidence was provided to SEERM that NFPA Research (attached) on "Fires in Dormitory-Type Properties" established that data of fires in these type of occupancies (2017 – 2021) resulted in conclusion that "*approximately 9 out of 10 fires (88 percent) were confined fires that did not extend beyond the object of origin*." Based on this evidence, we believe the approach in the currently adopted edition of the VCC for

dormitories, which includes a fire sprinkler system with quick-response sprinklers and fire resistance-rated construction between units, affords an appropriate level of safety to confine fires to individual dwelling units. When coupled with the additional fire detection required outside of individual units (i.e., VCC 907.9.3 requires detection in corridors, common areas, laundry, mechanical and storage rooms), a high-level of overall safety is provided in a dormitory building, under the VCC.

The detection/alarm equipment within the individual unit then, is **intended primarily to facilitate awakening sleeping residents** when smoke is detected within that that individual dwelling or sleeping unit. Additionally, with proper training, student(s) within the individual unit would more readily evacuate – staff, in-turn, would be alerted to the supervisory signal to further investigate the condition. This would eliminate the need to evacuate the building from a fire confined to individual dwelling/sleeping unit, and prevent fire department unnecessary emergency response.

As presented to SEERM initially, it is probable that quick-response sprinklers within the dwelling unit would likely activate in the event where a fire grew in intensity large enough to activate a second alarm device, thereby initiating an alarm signal to evacuate the building and notify emergency responders, which provides the level of protection sought by SEERM in the modification request. Additional information was requested to substantiate a varying position, but the subsequent submission did not address further.

Summary: The OUBO denied the code modification due to insufficient evidence to support the requested code modification. I requested an official opinion from Travis Lutter via email on 10-26-23 of which he indicated someone from DHCD would reach out to me with support. I did NOT receive any outreach from DHCD.

It is my hope the TRB will rule in my favor of not being required to grant the code modification, yet still provide an opinion of the subject matter herein for clarification.

GEORGE MASON UNIVERSITY

David M. Kidd P.E., MCP, VCCO, CBO
University Building Official
Office of University Building Official
4400 University Drive MS 1E4, Fairfax, VA 22030
Office: (703) 993-6070 | oubo.gmu.edu
OUBO Team Contact Information

Code Excerpts

Construction and Professional Services Manual (CPSM) – Dept. of General Services (DGS), Division of Engineering and Buildings (DEB)

4.1.2 Code Clarifications

Code clarification requests should be made in writing to the DEB Director. The following are code clarifications that shall be applied to state-owned buildings and structures.

"4.1.2.1 Buildings at Colleges and Universities

…4. Dormitories, Fraternity and Sorority Houses and similar dwelling units with sleeping accommodations – provide one of the following:

a. Written University Policy which prohibits the use of these residences as housing for persons / groups / occupants for periods of less than 30 days, or

b. Design that complies with the most stringent requirements of both Group R-1 (Hotels) and Group R-2 (Dormitory)…"

Virginia Construction Code (VCC)

907.2.9.3 Group R-2 college and university buildings.

An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies operated by a college or university for student or staff housing in all of the following locations:

1. Common spaces outside of dwelling units and sleeping units.

2. Laundry rooms, mechanical equipment rooms and storage rooms.

3. All interior corridors serving sleeping units or dwelling units.

Exception: An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units or dwelling units and where each sleeping unit or dwelling unit either has a means of egress door opening directly to an exterior exit access that leads directly to an exit or a means of egress door opening directly to an exit.

Required smoke alarms in dwelling units and sleeping units in Group R-2 occupancies operated by a college or university for student or staff housing shall be interconnected with the fire alarm system in accordance with NFPA 72.

ICC Volume I Commentary: "This section requires an automatic smoke detection system be provided in Group R-2 occupancies operated by a college or university for student or staff housing. It also requires the smoke alarms in individual units to be interconnected with the fire alarm system. This interconnection is only for the purpose of making occupants within each unit aware of the fire alarm activation in the building. The intent is not to activate the building fire alarm system by smoke alarms in each unit. This is more restrictive than a Group R-2 occupancy in general, as typically the requirements are limited to a manual fire alarm system and smoke alarms in the individual sleeping or dwelling units."

907.2.10 Single- and multiple-station smoke alarms.

Listed single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.10.1 through 907.2.10.7 and NFPA 72.

907.2.10.1 Group R-1.

Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

1.In sleeping areas.

2.In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.

3.In each story within the sleeping unit, including basements. For sleeping units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.2.10.2 Groups R-2, R-3, R-4 and I-1.

Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of occupant load at all of the following locations:

1.On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.

2.In each room used for sleeping purposes.

3.In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.2.10.7 Smoke detection system.

Smoke detectors listed in accordance with UL 268 and provided as part of the building fire alarm system shall be an acceptable alternative to single- and multiple-station smoke alarms and shall comply with the following:

1.The fire alarm system shall comply with all applicable requirements in Section 907.

2.Activation of a smoke detector in a dwelling unit or sleeping unit shall initiate alarm notification in the dwelling unit or sleeping unit in accordance with Section 907.5.2.

3.Activation of a smoke detector in a dwelling unit or sleeping unit shall not activate alarm notification appliances outside of the dwelling unit or sleeping unit, provided that a supervisory signal is generated and monitored in accordance with Section 907.6.6.

> ICC Volume I Commentary: "This section specifically allows the use of an automatic smoke detection system as an alternative to smoke alarms. In the past, when this concept was proposed, it was only allowed through an alternative method and materials approach (see Section 104.11 of this code), even though, in concept, it provided the same level of protection. Such systems provide the same safety features necessary for occupants but are simply part of a fire alarm system. Note that if a detector activates within a sleeping or dwelling unit, the occupant notification system is not intended to activate. This is consistent with the operation of smoke alarms. Item 3 specifically requires the notification to be only to occupants of the sleeping unit or dwelling unit."

NFPA 72, National Fire Alarm and Signaling Code, 2016

29.5 Detection and Notification.

The use of fire alarm system smoke detectors and notification appliances shall be permitted to meet the fire-warning requirements for smoke alarms specified in 29.5.1.

29.5.2.1 Fire-warning equipment used to provide required or optional detection shall produce audible fire alarm signals that comply with 29.5.2.1.1 or 29.5.2.1.2.

29.5.2.1.1* Smoke and Heat Alarms.

Unless exempted by applicable laws, codes, or standards, smoke or heat alarms used to provide a fire-warning function, and when two or more alarms are installed within a dwelling unit,

suite of rooms, or similar area, shall be arranged so that the operation of any smoke or heat alarm causes all alarms within these locations to sound.

29.5.2.2* Unless otherwise permitted by the authority having jurisdiction, audible fire alarm signals shall sound only in an individual dwelling unit, suite of rooms, or similar area and shall not be arranged to operate fire-warning equipment or fire alarm systems outside these locations. Remote annunciation shall be permitted.

> **A.29.5.2.2** One of the common problems associated with smoke alarms and detectors is the nuisance alarms that are usually triggered by products of combustion from cooking, smoking, or other household particulates. While an alarm for such a condition is anticipated and tolerated by the occupant of a dwelling unit through routine living experience, the alarm is not permitted where it also sounds alarms in other dwelling units or in common use spaces. Nuisance alarms caused by cooking are a very common occurrence, and inspection authorities should be aware of the possible ramifications where the coverage is extended beyond the limits of the dwelling unit.

29.5.2.1.2 Household Fire Alarm System.

Where a household fire alarm system is used to provide a fire-warning function, notification appliances shall be installed to meet the performance requirements of 29.3.6.

29.8.2.1* The interconnection of smoke or heat alarms shall comply with the following:

(1) Smoke or heat alarms shall not be interconnected in numbers that exceed the manufacturer's published instructions.

(2) In no case shall more than 18 initiating devices be interconnected (of which 12 can be smoke alarms) where the interconnecting means is not supervised.

(3) In no case shall more than 64 initiating devices be interconnected (of which 42 can be smoke alarms) where the interconnecting means is supervised.

(4) Smoke or heat alarms shall not be interconnected with alarms from other manufacturers unless listed as being compatible with the specific model.

(5) When alarms of different types are interconnected, all interconnected alarms shall produce the appropriate audible response for the phenomena being detected or remain silent.

RESEARCH

Fires in Dormitory-Type Properties

Tucker McGree

July 2023

Key Findings

- United States fire departments responded to an estimated average of 3,379 structure fires in dormitories, fraternity houses, sorority houses, and barracks each year during 2017–2021.
- Fires in dormitory-type properties caused an annual average of 23 civilian injuries and $12 million in direct property damage during that period.
- There was an average of two civilian fatalities per year over the five-year period.
- Most of these fires occurred in unclassified dormitory-type occupancies, with smaller shares of the fires occurring in barracks, dormitory properties, and sorority or fraternity houses.
- Approximately three out of four fires in these properties began in the kitchen or cooking area. Cooking equipment was involved in nearly 9 out of 10 fires.
- Unattended equipment was the most common factor contributing to the ignition of these fires.
- Approximately 9 out of 10 fires (88 percent) were classified as confined fires that did not extend beyond the object of origin.
- Saturday and Sunday were the peak days for these fires. However, fires that occurred on weekdays accounted for larger shares of injuries.
- The peak time of day for fires in dormitory-type properties was between 4 p.m. and midnight when over half of the fires occurred.
- Fires were least likely to occur between midnight and 8 a.m., but these fires accounted for a greater share of the injuries and direct property damage.
- February, September, and October were the peak months for fires in dormitory-type properties, while the fewest number of fires were recorded in June and July.

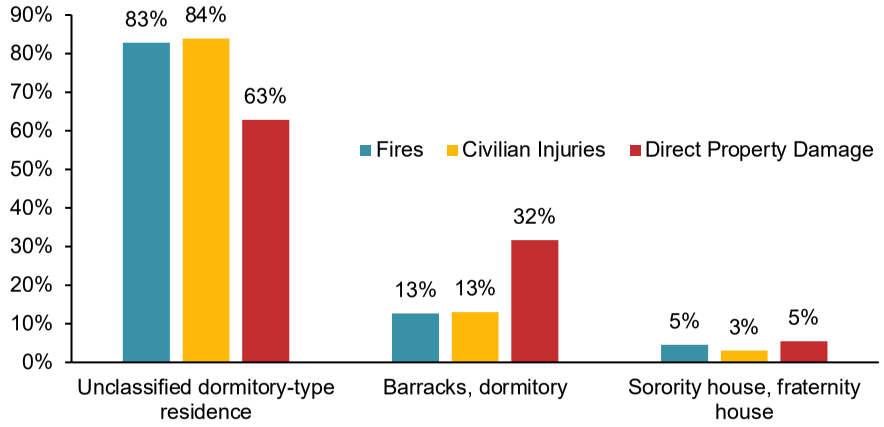
Structure Fires in Dormitory-Type Properties

This report includes information about structure fires in dormitories, fraternity and sorority houses, monasteries, bunkhouses, barracks, and nurses' quarters or related properties reported to local fire departments. In the National Fire Incident Reporting System (NFIRS), these are identified with property use codes 460–469. For convenience, they are collectively referred to in this report as dormitory-type properties. Estimates in this report were derived from NFIRS and the NFPA fire experience survey. For more information on the methodology used, see *How NFPA's National Estimates Are Calculated for Fires.* Additional details can be found in the companion supporting tables.

During the five-year period of 2017–2021, US fire departments responded to an estimated average of 3,379 structure fires in dormitories, fraternity houses, sorority houses, and barracks each year. These fires caused an annual average of 23 civilian injuries and $12 million in direct property damage. There was an average of two civilian fatalities per year over the five-year period. Due to low numbers, civilian deaths are not included in any further analysis.

Most fires occurred in unclassified dormitory-type occupancies (83 percent), while 13 percent of the fires occurred in barracks or dormitory properties and 5 percent occurred in sorority or fraternity houses. (See Figure 1 and Table 12 in the supporting tables. Totals do not equal 100 percent due to rounding.)

Figure 1. Structure Fires in Dormitory-Type Properties by Property Use: 2017–2021 Annual Averages

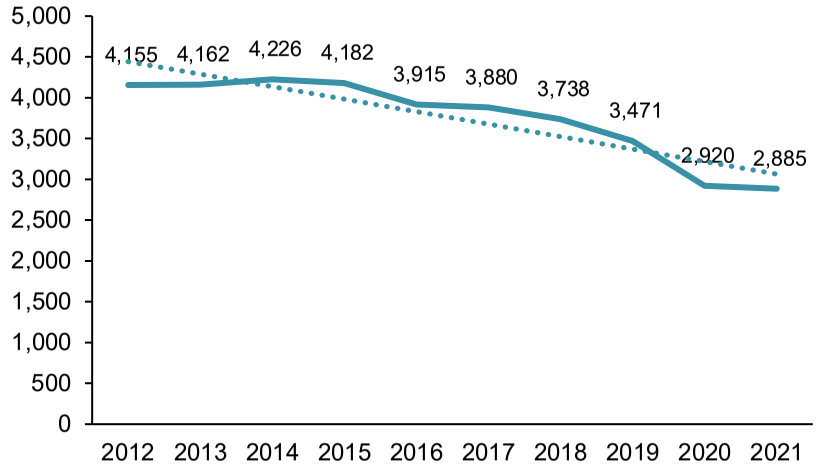


Fires in Dormitory-Type Properties by Year

As shown in Figure 2, the number of structure fires that occur annually in dormitory-type properties has steadily declined since 2012. The sharp drop in the 2020 and 2021 numbers can most likely be attributed to a large percentage of colleges and universities operating remotely.

Table 1 in the tables accompanying this report shows the annual fires and losses caused by fires in dormitory-type properties since 1999. The data indicates that the number of annual fires was at its peak in 2014 (4,226). The annual number of fires in these properties has steadily declined since that year with the sharp drop-off occurring in 2020.

Figure 2. Structure Fires in Dormitory-Type Properties by Year: 2012–2021



Timing of Fires in Dormitory-Type Properties

Fires in dormitory-type property structures were somewhat more common on weekends than during the week. As shown in Figure 3, Saturday and Sunday were the peak days for these fires (15 percent and 16 percent, respectively). However, the fires that occurred on weekdays generally accounted for larger shares of injuries. This may potentially be because some occupants are away from these residences on weekends and a greater occupancy of residences during the week.

Figure 3. Structure Fires in Dormitory-Type Properties by Day of Week: 2017–2021 Annual Averages

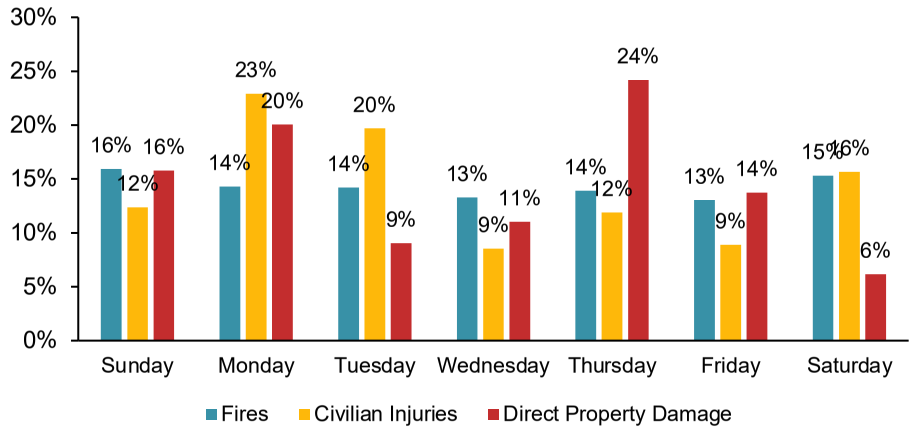
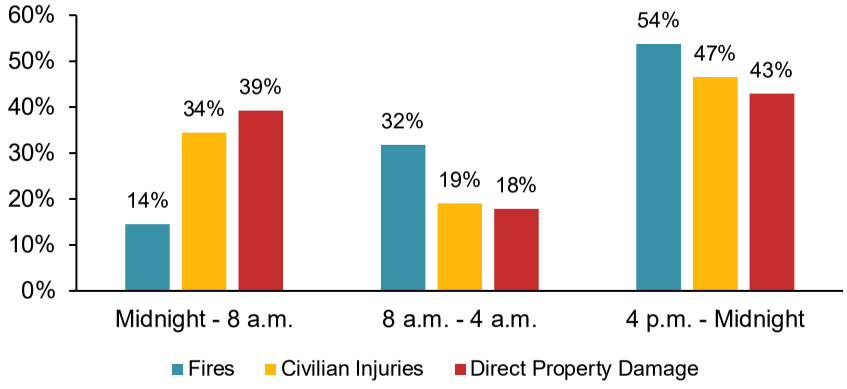


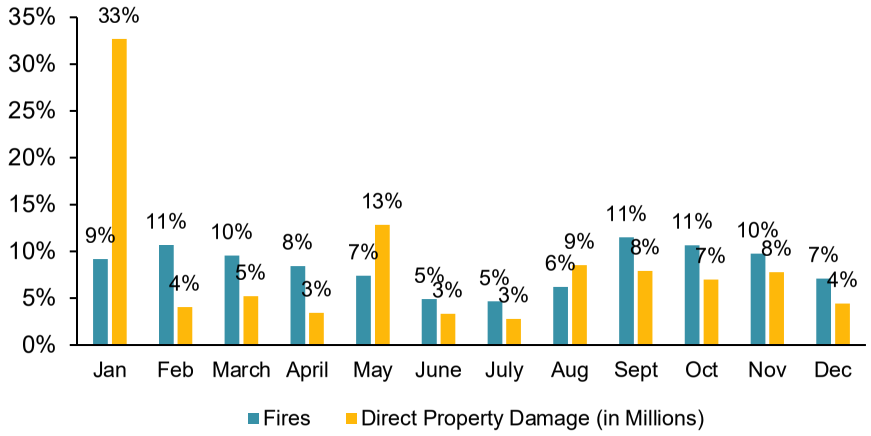
Figure 4 shows that the peak time of day for fires in dormitory-type properties was between 4 p.m. and midnight; over half of the fires occurred during this time (54 percent). Fires were least likely to occur between midnight and 8 a.m., but these fires accounted for disproportionate shares of the injuries and direct property damage. Occupants are more likely to be asleep during fires in the overnight hours, providing more time for fires to spread and become more destructive.

Figure 4. Structure Fires in Dormitory-Type Properties by Time of Day: 2017–2021 Annual Averages



February, September, and October were the peak months for fires in dormitory-type properties, and the lowest number of fires was recorded in June and July. As indicated in Figure 5, direct property damage was disproportionately high relative to the share of fires in January, May, and August when dormitory-type properties have lower occupancy. This was not true, however, for July, which saw the fewest fires. See Table 2 for additional details.

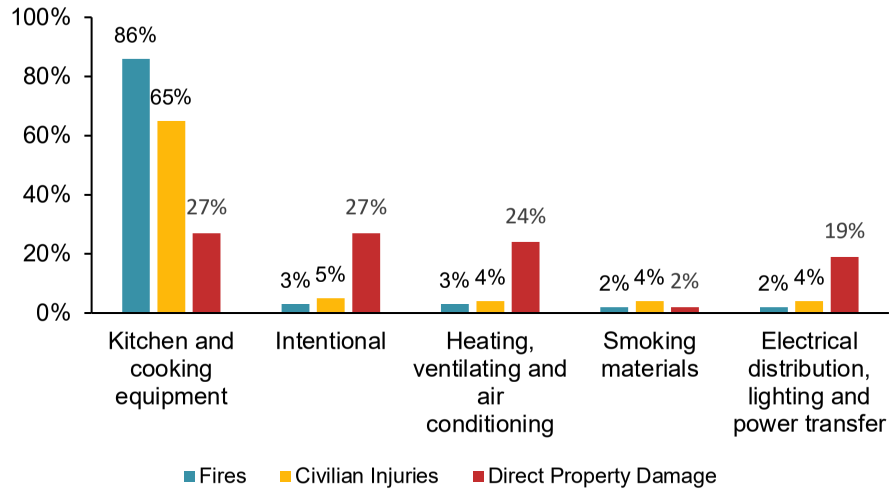
Figure 5. Structure Fires in Dormitory-Type Properties by Month: 2017–2021 Annual Averages



Leading Causes of Fires in Dormitory-Type Properties

Cooking equipment was involved in nearly 9 out of 10 reported fires in dormitory-type properties (86 percent). Although cooking equipment was involved in most of the fires, fires with other causes were responsible for disproportionately larger shares of the direct property damage. Intentionally set fires accounted for 27 percent of the property damage. Fires involving heating, ventilating, and air conditioning equipment and those involving electrical distribution, lighting, and power transfer equipment accounted for 24 percent and 19 percent of the fires, respectively. See Figure 6.

Figure 6. Structure Fires in Dormitory-Type Properties by Leading Cause: 2017–2021 Annual Averages



Factors Contributing to Fires in Dormitory-Type Properties

Unattended equipment was the most common factor that contributed to the ignition of these fires. Figure 7 shows that unattended equipment was a factor in roughly one quarter (24 percent) of all the fires, and these fires accounted for 1 in 10 (10 percent) of the civilian injuries and 6 percent of the property damage.

Unclassified misuse of a material or product was a factor in 15 percent of the fires and accounted for more than a fifth (22 percent) of the civilian injuries. Abandoned or discarded materials were a factor in 12 percent of the fires but none of the civilian injuries. A heat source that was too close to combustible materials was a factor in 7 percent of these fires but was responsible for 27 percent of the injuries.

Figure 7. Structure Fires in Dormitory-Type Properties by Factor Contributing to Ignition: 2017–2021 Annual Averages

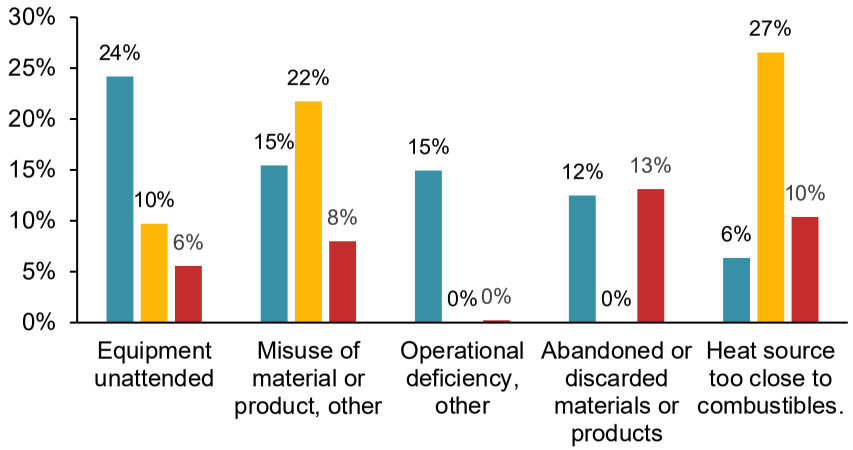
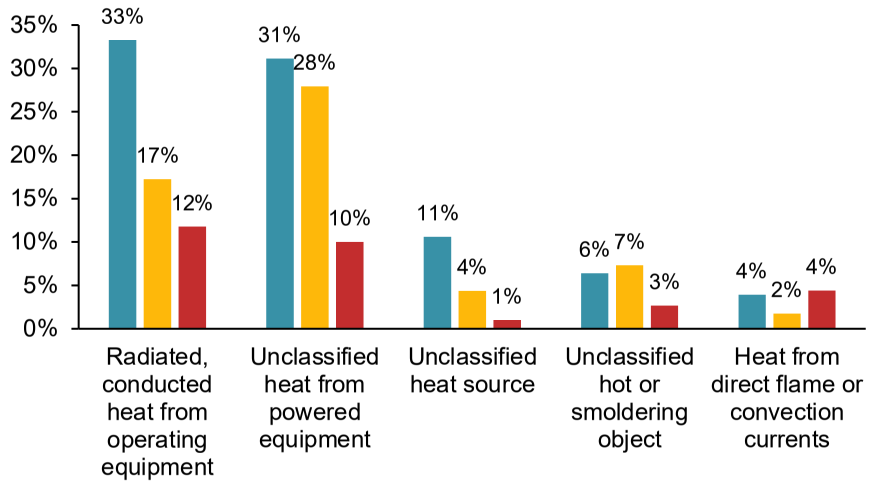


Figure 8. Structure Fires in Dormitory-Type Properties by Heat Source: 2017–2021 Annual Averages



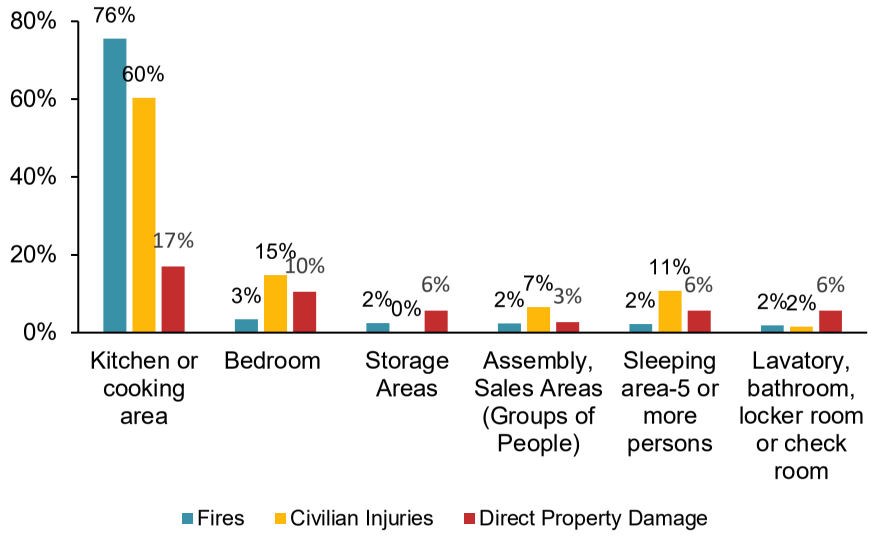
Heat Sources of Fires in Dormitory-Type Properties

Radiated heat from operating equipment and unclassified heat from powered equipment were the leading heat sources in these fires. Radiated or conducted heat from operating equipment provided the heat source for approximately one-third (33 percent) of the fires, while approximately 3 in 10 fires (31 percent) were started by unclassified heat from powered equipment and 1 in 10 (11 percent) by an unclassified heat source, as indicated in Figure 8.

Area of Origin for Fires in Dormitory-Type Properties

Approximately three out of four (76 percent) fires in these properties began in the kitchen or cooking area, accounting for 60 percent of the civilian injuries and 17 percent of the direct property damage, as shown in Figure 9. Bedrooms (3 percent) and other sleeping areas (2 percent) together accounted for 5 percent of the fires. These fires were associated with just over one-fourth (26 percent) of the civilian injuries and 16 percent of the direct property damage. Smaller shares of the fires originated in lavatories or bathrooms, assembly areas, and storage areas (Figure 9 and Table 10).

Figure 9. Structure Fires in Dormitory-Type Properties by Area of Origin: 2017–2021 Annual Averages



Additional information

NFPA has additional resources available for those interested in safety issues in these properties. Combined information about fire incidents, safety tips, related articles, and links to other organizations can be found at www.nfpa.org/campussafety.

Acknowledgments

The National Fire Protection Association thanks all the fire departments and state fire authorities who participate in the National Fire Incident Reporting System (NFIRS) and the annual NFPA fire experience survey. These firefighters are the original sources of the detailed data that makes this analysis possible. Their contributions allow us to estimate the size of the fire problem.

We are also grateful to the US Fire Administration for its work in developing, coordinating, and maintaining NFIRS.

To learn more about research at NFPA visit nfpa.org/research.

Email: research@nfpa.org.

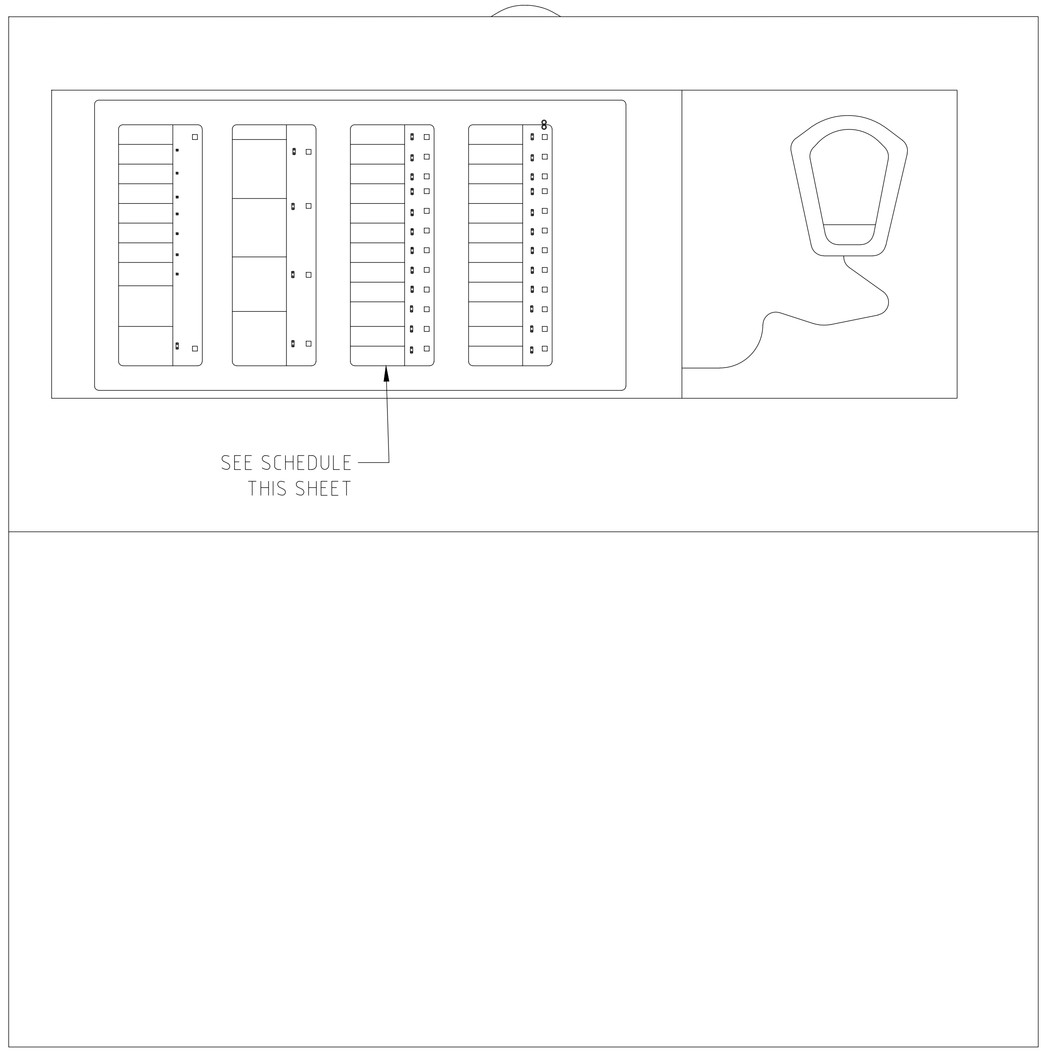
NFPA No. PKG04

Additional Documents Submitted by Gregg Black, GMU Director of Emergency Management and Fire Safety

(Page left blank intentionally)

		System Outputs																						
		Control Unit			Notification					Annunciation														
	System Inputs	Actuate common audible alarm and visual alarm signal indicator via LCD display indicating device, type and location	Actuate common audible supervisory and visual supervisory signal indicator via LCD display indicating device, type and location	Actuate common audible trouble and visual trouble signal indicator	Actuate general evacuation signals throughout building	Transmit alarm signal via dialer to monitoring station	Transmit supervisory signal via dialer to monitoring station	Transmit trouble signal via dialer to monitoring station	Sound Speakers and Actuate Strobes Throughout Affected Sleeping Unit	Actuate LED's and audible tone on graphic annunciator displaying device, floor & zone	Actuate LED's and audible tone on graphic annunciator displaying trouble	Display/Printe change of status	Recall Elevator 1 to primary recall floor - Ground Floor	Recall Elevator 1 to alternate recall floor - First Floor	Recall Elevators 2 and 3 to primary recall floor - First Floor	Recall Elevator 2 and 3 to alternate recall floor - Second Floor	Shutdown associated air handling unit	Shunt trip power to associated elevator	Energize pre-action sprinkler system - after time out	Send smoke damper closure signal to BACS	Activate coiling door closure	Unlock electric doors	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
1	Manual Pull Station	X			X	X				X		X										X	1
2	Smoke Detector - Outside Sleeping Unit	X			X	X				X		X								X		X	2
3	Smoke Detector - Within Sleeping Unit		X				X		X	X		X											3
4	Smoke Detector - Two Detectors in Same Sleeping Unit	X			X	X			X	X		X											4
5	Smoke Detector - Elevator 1 Lobby - Ground Floor	X			X	X				X		X		X						X		X	5
6	Smoke Detector - Elevator 1 Lobby - First Floor	X			X	X				X		X	X							X		X	6
7	Smoke Detector - Elevators 2 and 3 Lobby - First Floor	X			X	X				X		X				X				X		X	7
8	Smoke Detector - Elevators 2 and 3 Lobby - Second Floor	X			X	X				X		X			X					X		X	8
10	Heat Detector - Elevator Machine Room/Pit	X			X	X				X		X						X	X	X			9
11	Duct Detector - AHU	X			X	X				X		X					X			X		X	10
12	Duct Detector - Smoke Damper	X			X	X				X		X								X			11
13	Sprinkler Water Flow Switch	X			X	X				X		X										X	12
14	Sprinkler Valve Tamper Switch		X				X			X		X											13
15	Fire Alarm Panel Trouble			X				X			X	X											14
16	Fire Alarm System Low Battery			X							X	X											15
17	Open Circuit			X				X			X												16
18	Ground Fault			X				X			X												17
19	Notification Appliance Circuit Short			X				X			X												18
20	Fire Pump Running		X		X			X															19
21	Fire Pump Loss of Power		X		X			X															20
22	Fire Pump Phase Reversal		X																				21
23	Elevator Shunt Trip Loss of AC Power		X																				22
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	

1 **FIRE ALARM OPERATION MATRIX**
NOT TO SCALE



2 **LOCAL OPERATING CONSOLE (LOC)**
NOT TO SCALE

FIRE ALARM SYSTEM CIRCUIT SCHEDULE								
LOCATION	ZONE	CONTROL EQUIPMENT	SLC	NAP	NAP CIRCUIT	AMP	AMP CIRCUIT	NAP/AMP LOCATION
OUTSIDE	N/A	FACP	N/A	N/A	Bell Circuit(FACP)	N/A	N/A	MECHANICAL F039
GROUND FLOOR	1	NAP-1	1	1	1-1 1-2	1	1-1	MECHANICAL F039
1ST FLOOR	2	NAP-2	2	2	2-1 2-2 2-3	1	1-2 1-3 1-4	TELECOM F125B
2ND FLOOR	3	NAP-3	3	3	3-1 3-2 3-3 3-4	2	2-1 2-2 2-3	TELECOM F219
3RD FLOOR	4	NAP	4, 5	4, 5	4-1 4-2 4-3 5-1 5-2	3	3-1 3-2 3-3	TELECOM F319
4TH FLOOR	5	NAP	6, 7	6, 7	6-1 6-2 6-3 7-1 7-2 7-3	4	4-1 4-2 4-3	TELECOM F419
5TH FLOOR	6	NAP	8	8	8-1 8-2 8-3 8-4	5	5-1 5-2 5-3	TELECOM F530A
STAIR 1	NA	FACU	N/A	N/A	N/A	6	6-1	MECHANICAL F039
STAIR 2	NA	FACU	N/A	N/A	N/A	6	6-2	MECHANICAL F039
STAIR 3	NA	FACU	N/A	N/A	N/A	6	6-3	MECHANICAL F039
STAIR 4	NA	FACU	N/A	N/A	N/A	6	6-4	MECHANICAL F039
STAIR 5	NA	FACU	N/A	N/A	N/A	6	6-5	MECHANICAL F039
STAIR 6	NA	FACU	N/A	N/A	N/A	6	6-6	MECHANICAL F039
ELEVATORS	NA	NAP	N/A	N/A	N/A	6	6-7	MECHANICAL F039

3 **FIRE ALARM CIRCUIT SCHEDULE**
NOT TO SCALE

SELECTOR SWITCH SCHEDULE		
SELECTOR SWITCH	AREA CONTROLLED	FIRE ALARM ZONES
1	Ground Floor	1
2	First Floor	2
3	Second Floor	3
4	Third Floor	4
5	Fourth Floor	5
6	Fifth Floor	6
7	Stairwells	Stair 1, 2, 3, 4, 5, & 6
8	Elevators	Elevators 1, 2, & 3
9	All Call	All Zones

4 **NOTIFICATION ZONES**
NOT TO SCALE

WORKING DRAWINGS

No.	Issue		Checked	Approved	Date
1	WORKING DRAWINGS		MP	IYS	07/14/2023
Author	N. SAAH	Drafting Check	M. WHITELEY	Project Manager	I. SAAH
Designer	C. BARNES	Design Check	M. WHITELEY	Project Director	M. POLLEY

GEORGE MASON UNIVERSITY

Bar is one inch on original size sheet
0 1"

COMMONWEALTH OF VIRGINIA
ISA Y. SAAH
Lic. No. 030521
7/14/2023
PROFESSIONAL ENGINEER

GHD Inc.
14501 George Carter Way, Suite 102
Chantilly VA 20151 USA
T 1 703 488 9990 F 1 703 488 9994 W www.ghd.com
www.ghd.com

Client GEORGE MASON UNIVERSITY

Project POTOMAC HEIGHTS FIRE ALARM REPLACEMENT

Project No.	Project Code	Date	Scale
12602761	247-221549	2023-06-09	AS SHOWN

Title MATRIX AND SCHEDULES

Size ARCH E1

Status Code S0

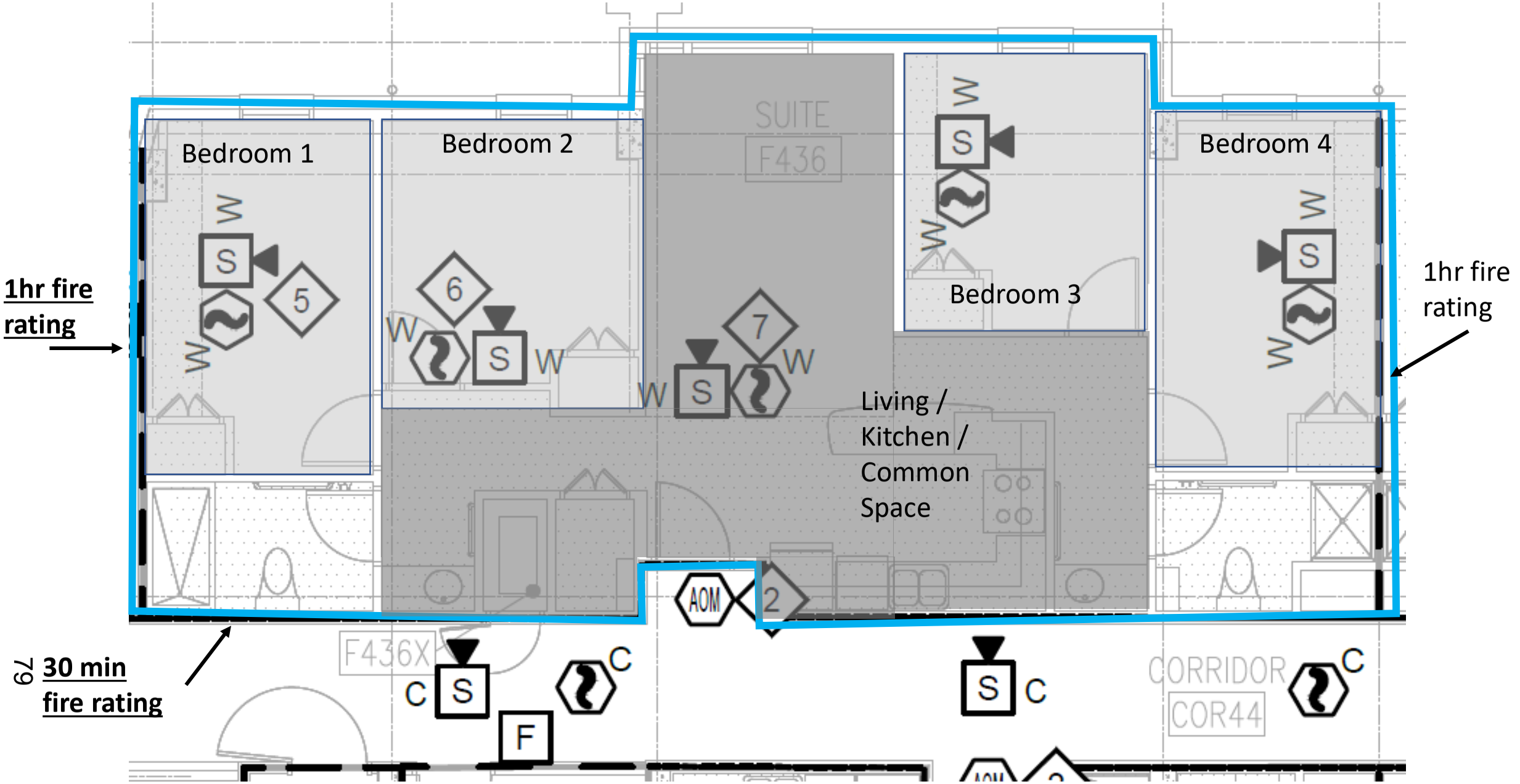
Sheet No. FA601

Sheet 36 of 37

Plot Date: 13 July 2023 - 10:46 AM Plotted By: Chris Barnes
Path and Filename: \\ghdnet\ghd\US\Chantilly\Projects\55\12602761\Digital_Design\ACAD\Sheets\12602761-GHD-DWG-FA601.dwg

Typical Floor Arrangement, Full sprinkler coverage

Typical Suite Arrangement, Full sprinkler coverage



Mason Fire Alarm Response in R2

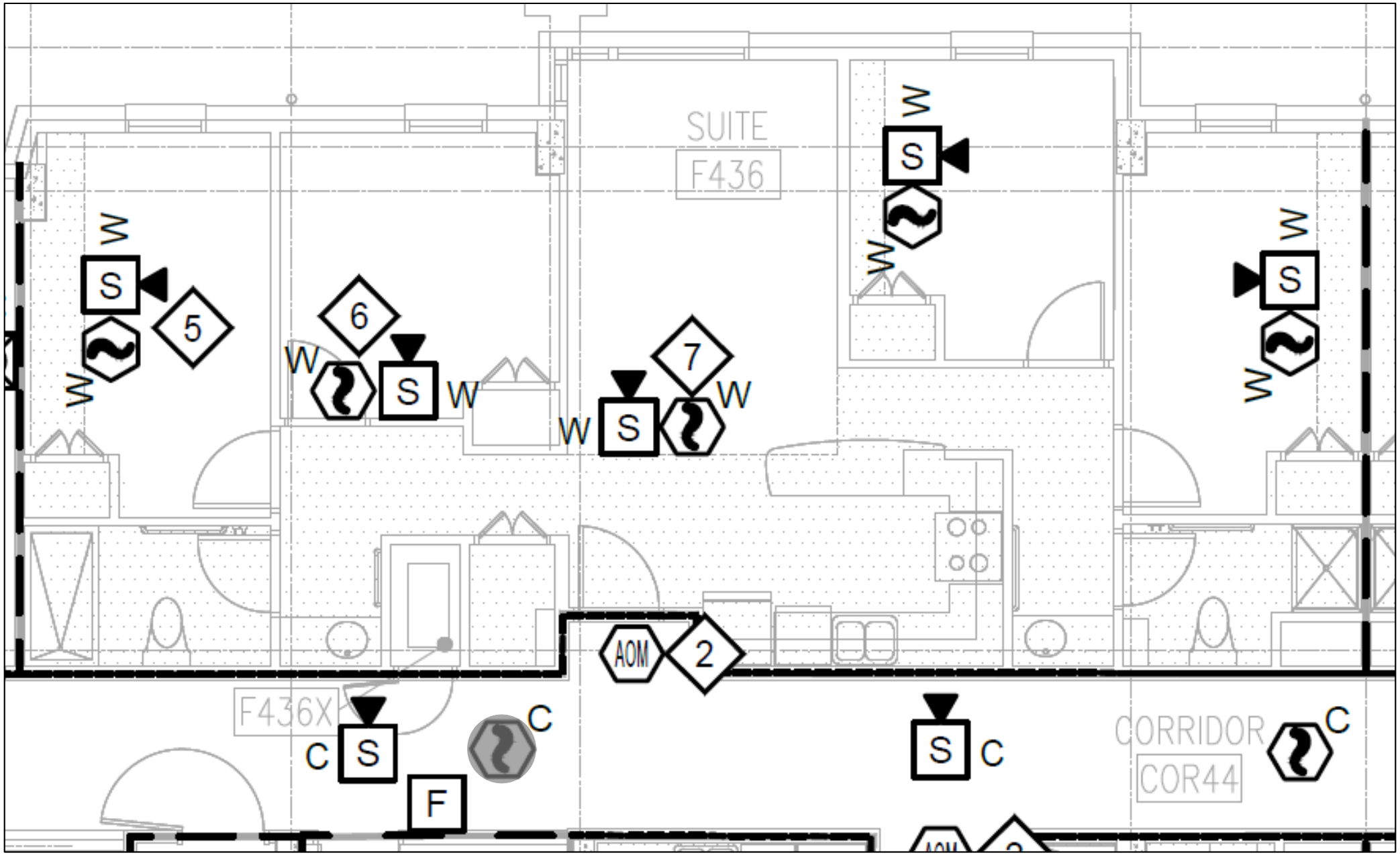
Supervisory Alarm

- Signal received by University Police
- Police Officer dispatched to the building

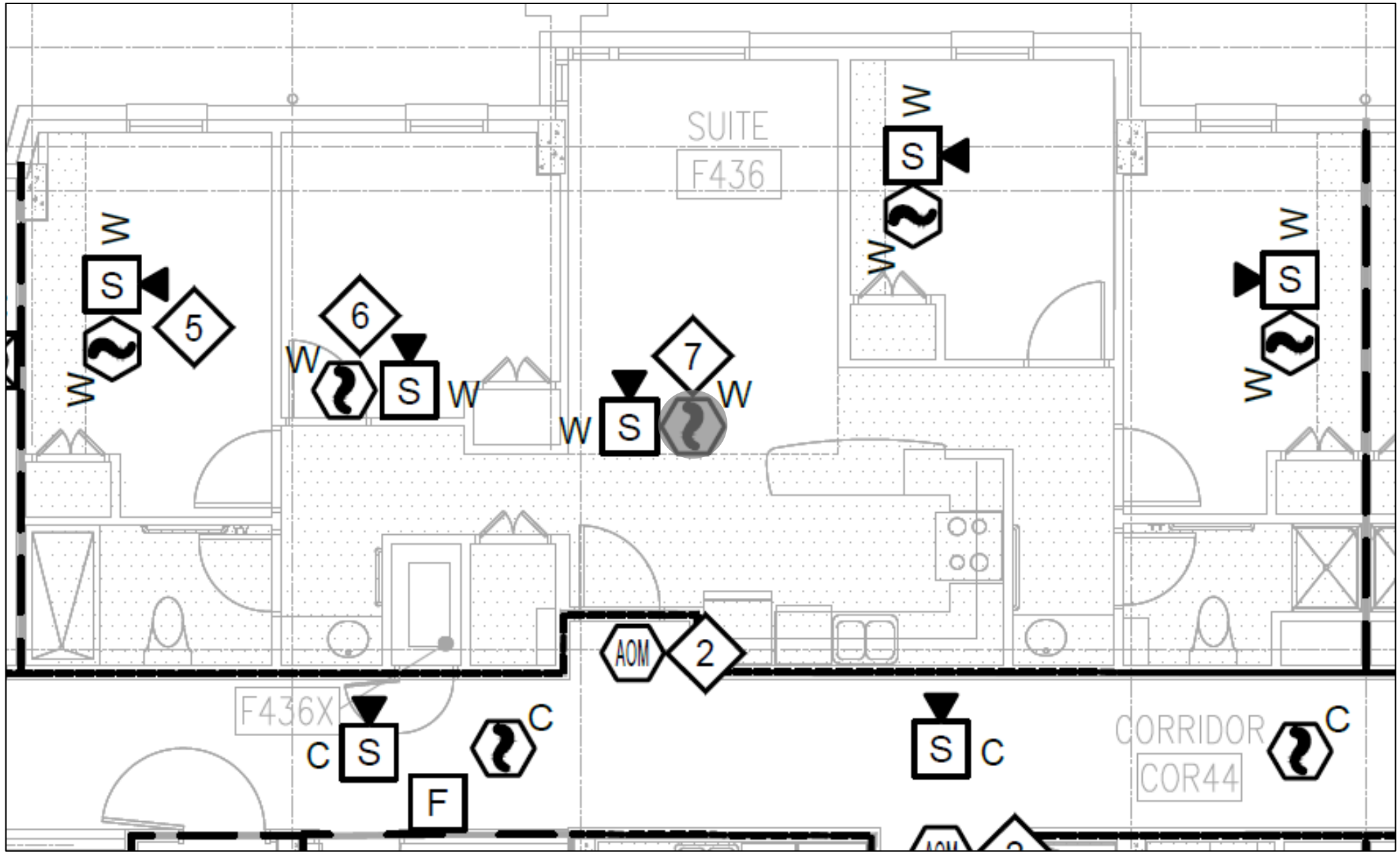
General Building Fire Alarm

- Signal received by University Police
- Fire Department dispatched
- Police Officer dispatched to building

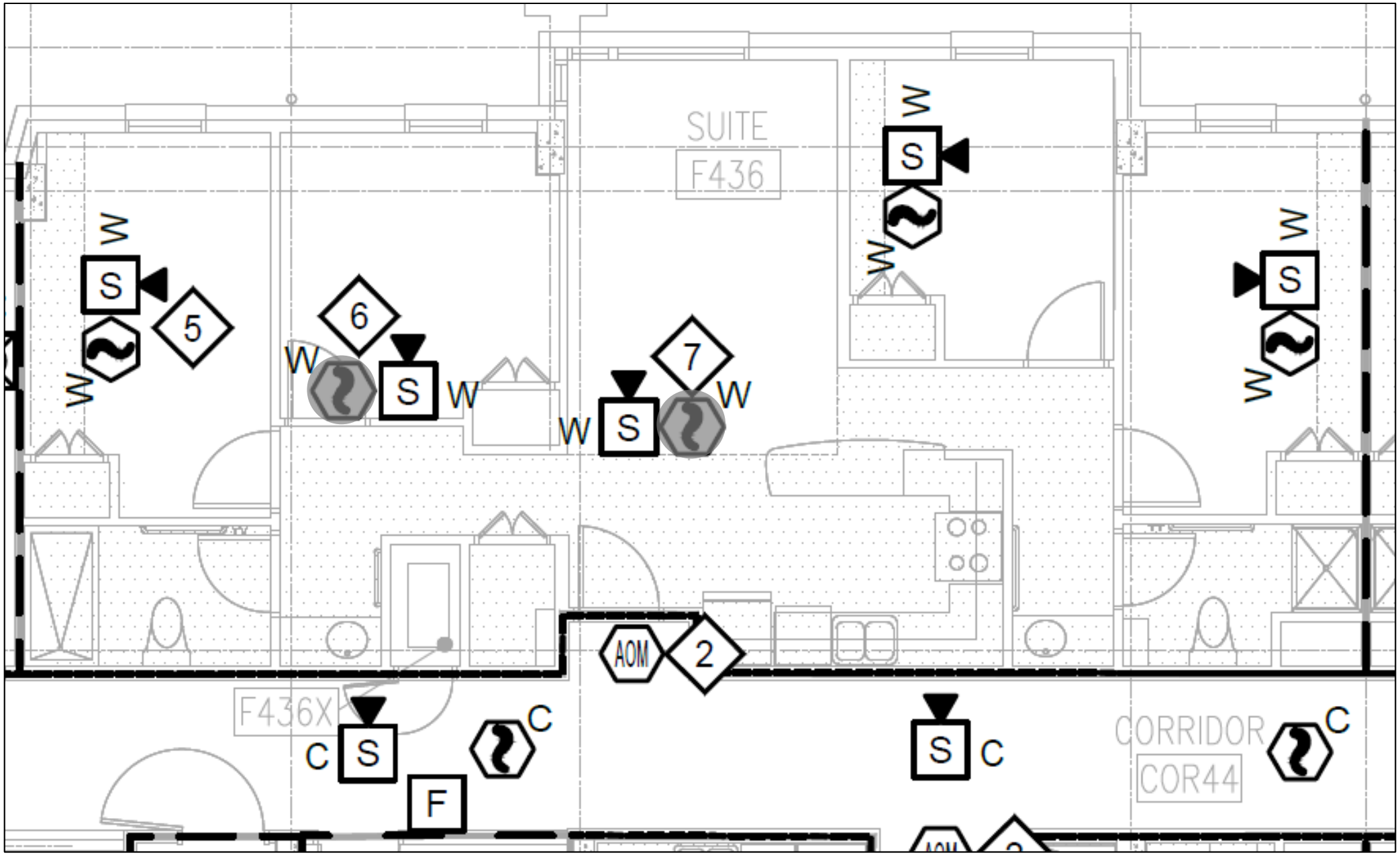
If one smoke detector in the common area is activated



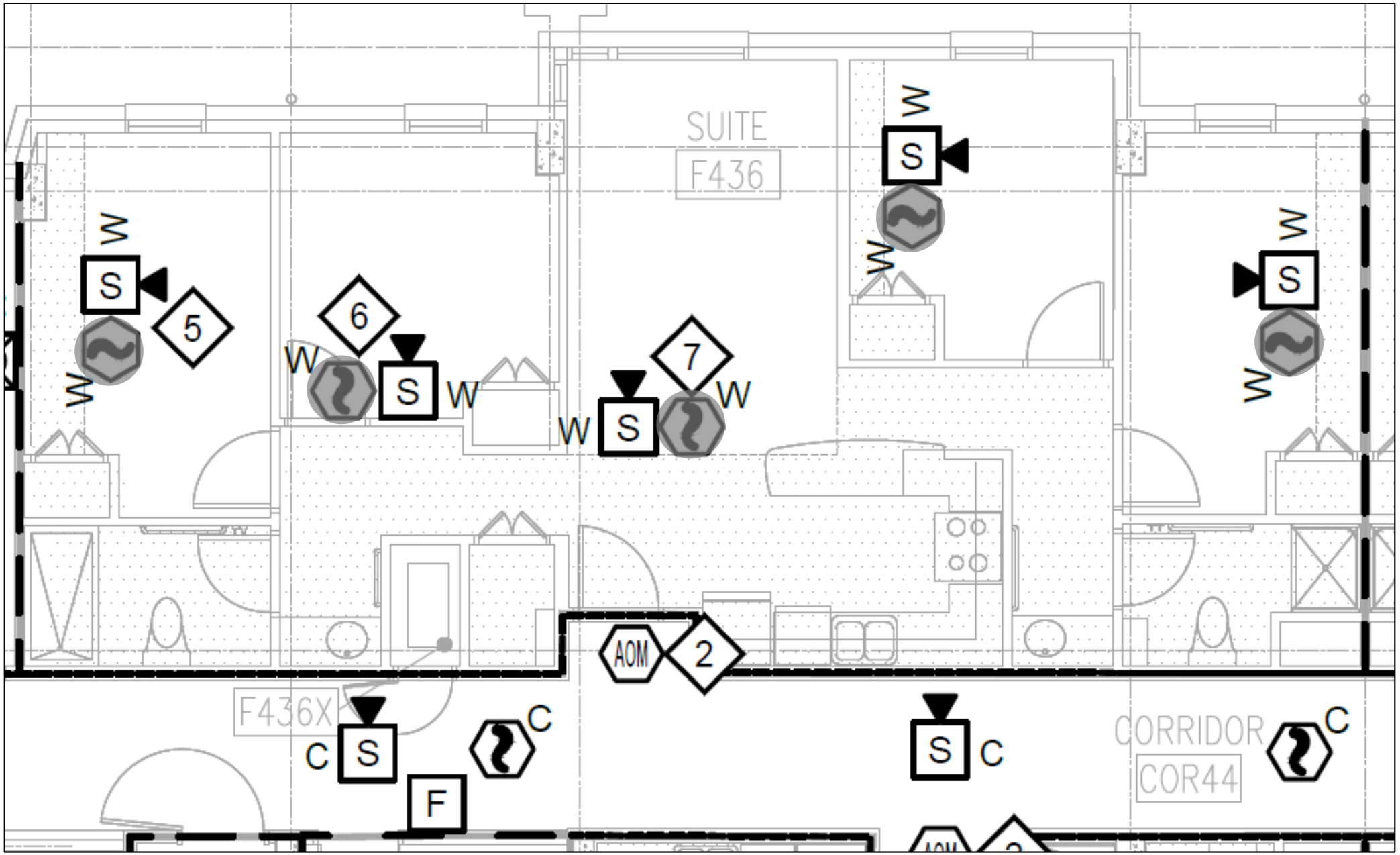
If one smoke detector in the suite is activated



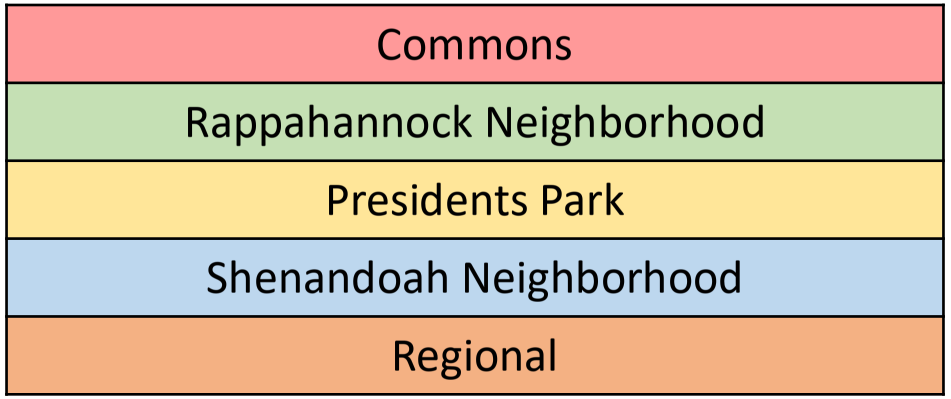
If two or more smoke detectors in a suite are activated



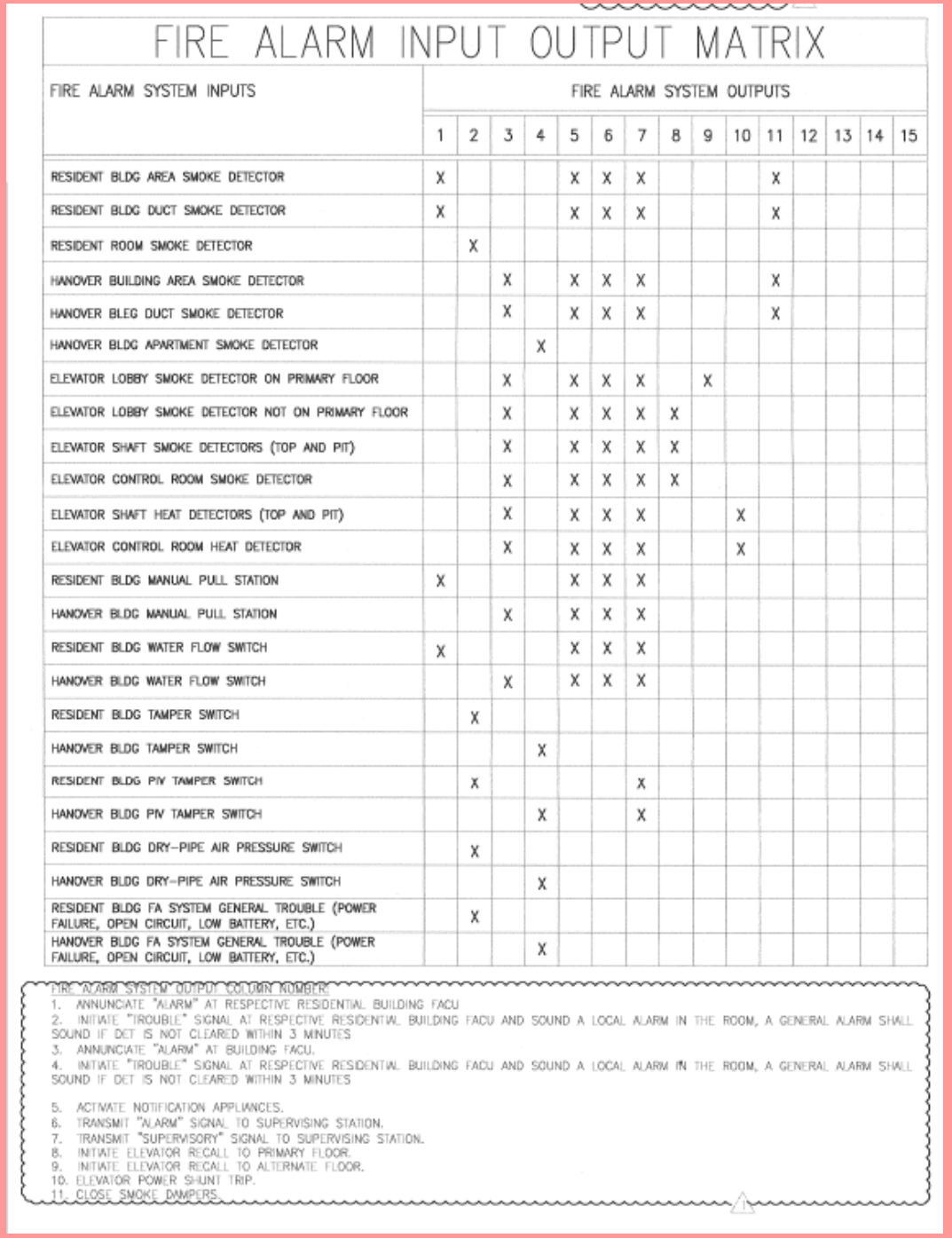
Without the Code Modification, If two or more smoke detectors in a suite are activated



Residential Buildings: Fire Alarm Systems



The Commons, including Hanover Hall



FIRE ALARM INPUT OUTPUT MATRIX

FIRE ALARM SYSTEM INPUTS	FIRE ALARM SYSTEM OUTPUTS														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RESIDENT BLDG AREA SMOKE DETECTOR	X				X	X	X				X				
RESIDENT BLDG DUCT SMOKE DETECTOR	X				X	X	X				X				
RESIDENT ROOM SMOKE DETECTOR		X													
HANOVER BUILDING AREA SMOKE DETECTOR			X		X	X	X				X				
HANOVER BLEG DUCT SMOKE DETECTOR			X		X	X	X				X				
HANOVER BLDG APARTMENT SMOKE DETECTOR				X											
ELEVATOR LOBBY SMOKE DETECTOR ON PRIMARY FLOOR			X		X	X	X		X						
ELEVATOR LOBBY SMOKE DETECTOR NOT ON PRIMARY FLOOR			X		X	X	X	X							
ELEVATOR SHAFT SMOKE DETECTORS (TOP AND PIT)			X		X	X	X	X							
ELEVATOR CONTROL ROOM SMOKE DETECTOR			X		X	X	X	X							
ELEVATOR SHAFT HEAT DETECTORS (TOP AND PIT)			X		X	X	X			X					
ELEVATOR CONTROL ROOM HEAT DETECTOR			X		X	X	X			X					
RESIDENT BLDG MANUAL PULL STATION	X				X	X	X								
HANOVER BLDG MANUAL PULL STATION			X		X	X	X								
RESIDENT BLDG WATER FLOW SWITCH	X				X	X	X								
HANOVER BLDG WATER FLOW SWITCH			X		X	X	X								
RESIDENT BLDG TAMPER SWITCH		X													
HANOVER BLDG TAMPER SWITCH				X											
RESIDENT BLDG PIV TAMPER SWITCH		X					X								
HANOVER BLDG PIV TAMPER SWITCH				X			X								
RESIDENT BLDG DRY-PIPE AIR PRESSURE SWITCH		X													
HANOVER BLDG DRY-PIPE AIR PRESSURE SWITCH				X											
RESIDENT BLDG FA SYSTEM GENERAL TROUBLE (POWER FAILURE, OPEN CIRCUIT, LOW BATTERY, ETC.)		X													
HANOVER BLDG FA SYSTEM GENERAL TROUBLE (POWER FAILURE, OPEN CIRCUIT, LOW BATTERY, ETC.)				X											

FIRE ALARM SYSTEM OUTPUT COLUMN NUMBER

1. ANNUNCIATE "ALARM" AT RESPECTIVE RESIDENTIAL BUILDING FACU
2. INITIATE "TROUBLE" SIGNAL AT RESPECTIVE RESIDENTIAL BUILDING FACU AND SOUND A LOCAL ALARM IN THE ROOM, A GENERAL ALARM SHALL SOUND IF DET IS NOT CLEARED WITHIN 3 MINUTES
3. ANNUNCIATE "ALARM" AT BUILDING FACU.
4. INITIATE "TROUBLE" SIGNAL AT RESPECTIVE RESIDENTIAL BUILDING FACU AND SOUND A LOCAL ALARM IN THE ROOM, A GENERAL ALARM SHALL SOUND IF DET IS NOT CLEARED WITHIN 3 MINUTES
5. ACTIVATE NOTIFICATION APPLIANCES.
6. TRANSMIT "ALARM" SIGNAL TO SUPERVISING STATION.
7. TRANSMIT "SUPERVISORY" SIGNAL TO SUPERVISING STATION.
8. INITIATE ELEVATOR RECALL TO PRIMARY FLOOR.
9. INITIATE ELEVATOR RECALL TO ALTERNATE FLOOR.
10. ELEVATOR POWER SHUNT TRIP.
11. CLOSE SMOKE DAMPERS.

Blue Ridge Hall & Sandbridge Hall

INITIATING DEVICES / ACTION TAKEN	TRANSMITT SIGNAL TO CAMPUS REMOTE STATION RECEIVING STATION		TRANSMIT FAN SHUTDOWN SIGNAL TO BMS	GENERAL ALARM ON ALL FLOORS	ACTUATE EXTERIOR STROBE AT F.D RESPONCE POINT.	RECORD EVENT OF SYSTEM PRINTER.	REPORT INCIDENT TO FIRE ALARM PANEL	REPORT INCIDENT TO SECURITY SYSTEM.	CARD ACCESS DOOR RELEASE.	RELEASE ALL SMOKE DOORS (10 SECOND DELAY).	TRANSMIT RECALL SIGNAL TO ELEVATOR CONTROLLERS.	ACTUATE ELEVATOR SHUNT TRIP. REFER TO SPECS FOR DETAILS		TURN ON LIGHTING CONTROLED BY DIMMING AND RELAY PANELS.	OPEN ELECTRICALLY OPERATED BLINDS.	SOUND LOCAL STUDENT BEDROOM ALARM. AS OUTLINED IN VUSBC 2000 SECTION 907.2.10.3
FIRE ALARM INITIATING DEVICES																
MANUAL FIRE ALARM STATIONS	X		X	X	X	X	X	X	X	X	–	–		X	X	–
ELEVATOR LOBBY DETECTORS	X		X	X	X	X	X	X	X	X	X	–		X	X	–
SMOKE DETECTORS	X		X	X	X	X	X	X	X	X	–	–		X	X	–
DUCT MOUNTED SMOKE DETECTORS	–		X	–	–	X	X	–	–	–	–	–		–	–	–
SPRINKLER WATER FLOW SWITCHES	X		X	X	X	X	X	X	X	X	–	–		X	X	–
DETECTORS IN ELEVATOR SHAFT AND M/C RM.	X		X	X	X	X	X	X	X	X	X	X		X	X	–
STUDENT ROOM DETECTORS SMOKES	–		–	–	–	X	X	–	–	–	–	–		–	–	X
SECOND ADJACENT STUDENT ROOM DETECTOR	X		X	X	X	X	X	X	X	X	–	–		X	X	–
TROUBLE AND SUPERVISORY ALARM DEVICES																
SPRINKLER TAMPER SWITCH	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
DRY SPRINKLER SYSTEM LOW AIR PRESSURE CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP LOW WATER PRESSURE CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP PHASE LOSS	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP RUNNING CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP PHASE REVERSAL CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
CONTROLLER CONNECTED TO ALTERNATE SOURCE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE ALARM LOSS OF POWER.	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR MALFUNCTION CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR RUNNING CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR HIGH GAS PRESSURE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR LOW GAS PRESSURE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR BATTERY SYSTEM LEVEL CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR BATTERY SYSTEM LOSS OF AC POWER CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
ATS NORMAL POSITION STATUS CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
ATS EMERGENCY POSITION STATUS CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–

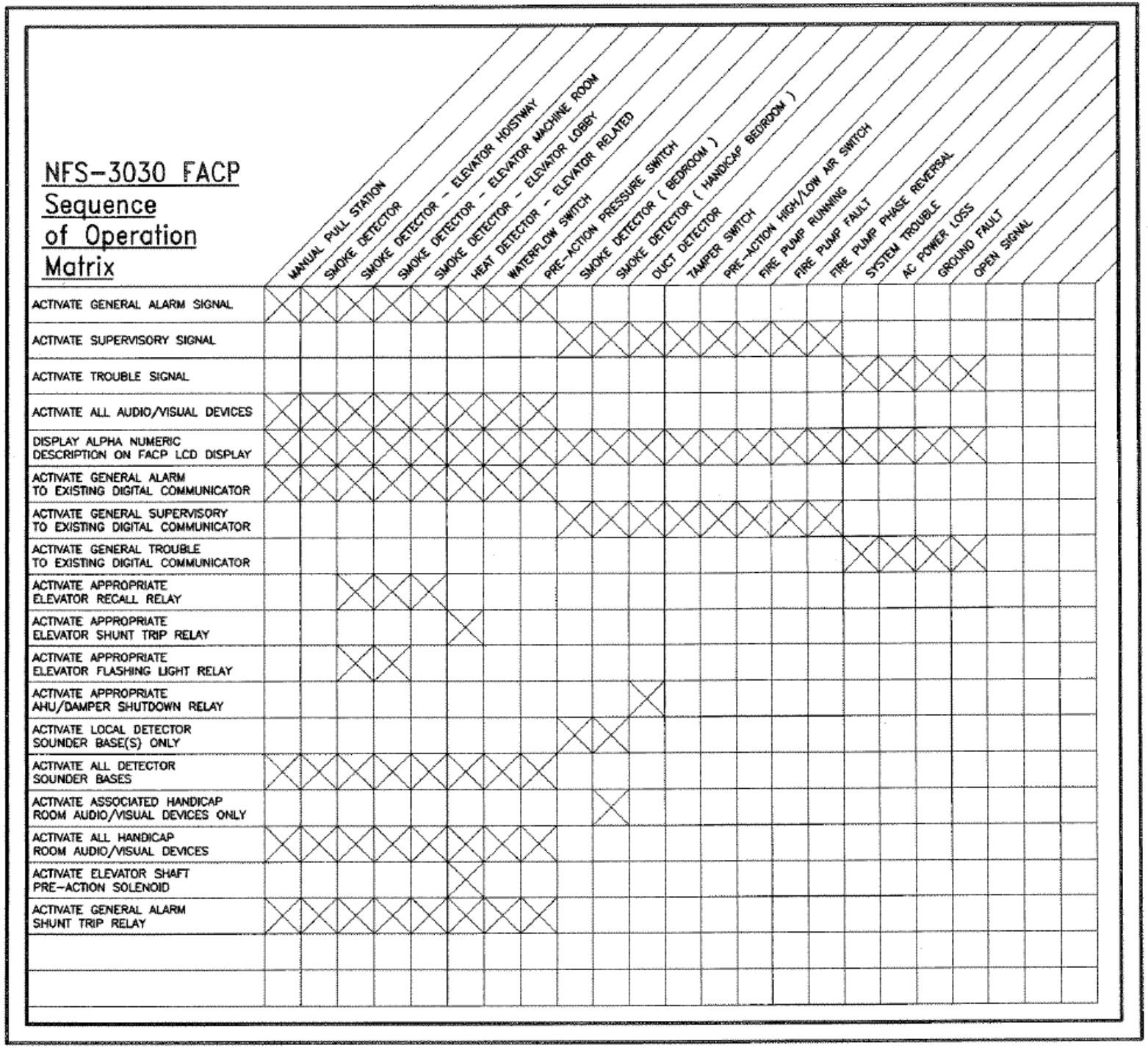
2 FIRE ALARM SEQUENCE OF OPERATION
NTS

Commonwealth Hall

		System Outputs																		
		Control Unit Annunciation							Notification						Required Fire Safety Control						
	System Inputs	Actuate common alarm signal indicator	Actuate audible alarm signal	Actuate common supervisory signal indicator	Actuate audible supervisory signal	Actuate common trouble signal indicator	Actuate audible common trouble signal	Actuate Associated Indicator on Graphic Annunciator	Actuate General Evacuation Signals Throughout Building	Actuate All Affected Dwelling Unit Speakers	Transmit supervisory signal to campus police station	Transmit trouble signal to campus police station	Transmit fire alarm signal to campus police station	Display/Print change of status	Release magnetically held doors	Recall elevators to primary recall floor (1st Floor)	Recall elevators to alternate recall floor (2nd Floor)	Shunt Trip Power to Associated Elevator Bank	Shutdown Associated Air Handling Unit	Open vent at top of hoistway	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	Manual Fire Alarm Boxes	X	X					X	X				X	X	X						1
2	Smoke Detectors - Outside Dwelling Unit	X	X					X	X		X			X							2
3	Smoke Detector - Dwelling Unit			X	X			X		X	X			X							3
4	Smoke Detector - Two or More Dwelling Unit Smoke Detectors in Alarm	X	X					X	X		X			X							4
5	Smoke Detectors - 1st Floor Elevator Lobby	X	X					X	X				X	X	X		X				5
6	Smoke Detectors - Elevator Lobby Other Than 1st Floor	X	X					X	X				X	X	X	X				X	6
7	Smoke Detectors - Elevator Machine Room	X	X					X	X				X	X	X	X				X	7
8	Heat Detectors - Elevator Machine Room/Pit	X	X					X	X				X	X	X			X			8
9	Duct smoke detector - AHU Return Ducts			X	X			X			X			X					X		9
10	Sprinkler Water Flow Switch	X	X					X	X				X	X	X						10
11	Sprinkler Valve Tamper			X	X			X			X			X				X			11
12	Fire Alarm AC Power Failure			X	X						X			X							12
13	Fire Alarm System Low Battery					X	X					X		X							13
14	Open circuit					X	X					X									14
15	Ground fault					X	X					X									15
16	Notification Appliance Circuit Short					X	X					X									16
17	Fire Pump Running			X	X			X	X		X										17

Dominion Hall

See of there is an updated Ops Matrix



Eastern Shore

BUILDING FIRE ALARM CONTROL PANEL MATRIX	ANNUNCIATION			NOTIFICATION		CONTROL								
INITIATING DEVICES	Alarm Annunciation FACP, Remote Annunciator & Send status to Central Station	Supervisory Annunciation FACP, Printer, Graphic Annunciator & Send status to Central Station	Trouble Annunciation FACP, Printer, Graphic Annunciator & Send status to Central Station	Sound General Evacuation Horns, Strobes, an Audible Bases Throughout Building	Sound Audible Bases Throughout Associated Dwelling Unit (Also Activate Strobes in Dwelling Unit if ADA or HI Unit)	Activate Elevator Recall Primary Floor	Activate Elevator Recall Alternate Floor	Elevator Shunt Trip After Associated Time Delay	Release Elevator Preaction Valve After Associated Time Delay	Activate Exterior Electric Bell Device	Close Applicable Smoke Damper	Open Smoke Damper Asscociated with Vent at Top of Elevator Hoistway	Shutdown Applicable Air Handling Unit and associated dampers	Disconnect Power to Access Control Power Supply
Manual Station	X			X										X
General Area Smoke Sensor	X			X										X
First Dwelling Unit Smoke Sensor		X			X									
Second Dwelling Unit Smoke Sensor	X			X										X
Elev Lobby Smoke Sensor (all except First Floor)	X			X		X						X		X
First Floor Elevator Lobby Smoke Sensor	X			X			X					X		X
Elevator Machine Room Smoke Sensor	X			X		X						X		
Elevator Pit/Hoistway Smoke Sensor	X			X		X						X		
Elevator Machine Room Heat Sensor	X			X		X		X	X					X
Elevator Pit/Hoistway Heat Sensor	X			X		X		X	X					X
Duct Smoke Sensor for Smoke Damper		X									X			
Duct Smoke Sensor for AHU		X											X	
Sprinkler Flow (Floor)	X			X						X				
Sprinkler Tamper Switch		X												
High/Low Air Pressure (Preaction System)		X												
Pressure Alarm Switch (Preaction System)	X			X						X				
Fire Pump Running		X												
Fire Pump Phase Reversal		X												
Fire Pump Phase Loss		X												
Fire Pump on Emergency Power		X												
Fire Alarm AC Power Fail		X												
Fire Alarm System Low Battery			X											
Fire Alarm Panel Open Circuit			X											
Fire Alarm Panel Ground Fault			X											
Fire Alarm Panel Circuit Short			X											

Hampton Roads

BUILDING FIRE ALARM CONTROL PANEL MATRIX	ANNUNCIATION			NOTIFICATION		CONTROL								
INITIATING DEVICES	Alarm Annunciation FACP, Remote Annunciator & Send status to Central Station	Supervisory Annunciation FACP, Printer, Graphic Annunciator & Send status to Central Station	Trouble Annunciation FACP, Printer, Graphic Annunciator & Send status to Central Station	Sound General Evacuation Horns, Strobes, and Audible Bases Throughout Building	Sound Audible Bases Throughout Associated Dwelling Unit (Also Activate Strobes in Dwelling Unit if ADA or HI Unit)	Activate Elevator Recall Primary Floor	Activate Elevator Recall Alternate Floor	Elevator Shunt Trip Initiate		Activate Exterior Electric Bell Device	Close All Corridor Smoke Dampers	Open Smoke Damper Asscociated with Vent at Top of Elevator Hoistway	Shutdown Applicable Air Handling Unit and associated dampers	Disconnect Power to Access Control Power Supply
Manual Station	X			X										X
General Area / Corridor Smoke Sensor	X			X								X		X
First Dwelling Unit Smoke Sensor		X			X									
Second Dwelling Unit Smoke Sensor	X			X										X
Elev Lobby Smoke Sensor (all except First Floor)	X			X		X						X		X
First Floor Elevator Lobby Smoke Sensor	X			X			X					X		X
Elevator Machine Room Smoke Sensor	X			X		X						X		
Elevator Machine Room Heat Sensor	X			X		X		X						X
Sprinkler Flow (Top of Hoistway/Elevator Closet)	X			X		X		X						X
Duct Smoke Sensor for AHU		X											X	
Sprinkler Flow (Floor)	X			X						X				
Sprinkler Tamper Switch		X												
Fire Pump Running		X												
Fire Pump Phase Reversal		X												
Fire Pump Phase Loss		X												
Fire Pump on Emergency Power		X												
Fire Alarm AC Power Fail		X												
Fire Alarm System Low Battery			X											
Fire Alarm Panel Open Circuit			X											
Fire Alarm Panel Ground Fault			X											
Fire Alarm Panel Circuit Short			X											

Northern Neck

INITIATING DEVICES / ACTION TAKEN	TRANSMITT SIGNAL TO CAMPUS REMOTE STATION RECEIVING STATION		TRANSMIT FAN SHUTDOWN SIGNAL TO BMS	GENERAL ALARM ON ALL FLOORS	ACTUATE EXTERIOR STROBE AT F.D RESPONCE POINT.	RECORD EVENT OF SYSTEM PRINTER.	REPORT INCIDENT TO FIRE ALARM PANEL	REPORT INCIDENT TO SECURITY SYSTEM.	CARD ACCESS DOOR RELEASE.	RELEASE ALL SMOKE DOORS (10 SECOND DELAY).	TRANSMIT RECALL SIGNAL TO ELEVATOR CONTROLLERS.	ACTUATE ELEVATOR SHUNT TRIP. REFER TO SPECS FOR DETAILS		TURN ON LIGHTING CONTROLED BY DIMMING AND RELAY PANELS.	OPEN ELECTRICALLY OPERATED BLINDS.	SOUND LOCAL STUDENT BEDROOM ALARM. AS OUTLINED IN VUSBC 2000 SECTION 907.2.10.3
FIRE ALARM INITIATING DEVICES																
MANUAL FIRE ALARM STATIONS	X		X	X	X	X	X	X	X	X	–	–		X	X	–
ELEVATOR LOBBY DETECTORS	X		X	X	X	X	X	X	X	X	X	–		X	X	–
SMOKE DETECTORS	X		X	X	X	X	X	X	X	X	–	–		X	X	–
DUCT MOUNTED SMOKE DETECTORS	–		X	–	–	X	X	–	–	–	–	–		–	–	–
SPRINKLER WATER FLOW SWITCHES	X		X	X	X	X	X	X	X	X	–	–		X	X	–
DETECTORS IN ELEVATOR SHAFT AND M/C RM.	X		X	X	X	X	X	X	X	X	X	X		X	X	–
STUDENT ROOM DETECTORS SMOKES	–		–	–	–	X	X	–	–	–	–	–		–	–	X
SECOND ADJACENT STUDENT ROOM DETECTOR	X		X	X	X	X	X	X	X	X	–	–		X	X	–
TROUBLE AND SUPERVISORY ALARM DEVICES																
SPRINKLER TAMPER SWITCH	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
DRY SPRINKLER SYSTEM LOW AIR PRESSURE CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP LOW WATER PRESSURE CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP PHASE LOSS	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP RUNNING CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP PHASE REVERSAL CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
CONTROLLER CONNECTED TO ALTERNATE SOURCE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE ALARM LOSS OF POWER.	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR MALFUNCTION CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR RUNNING CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR HIGH GAS PRESSURE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR LOW GAS PRESSURE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR BATTERY SYSTEM LEVEL CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR BATTERY SYSTEM LOSS OF AC POWER CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
ATS NORMAL POSITION STATUS CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
ATS EMERGENCY POSITION STATUS CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–

2 FIRE ALARM SEQUENCE OF OPERATION
NTS

Piedmont Hall & Tidewater Hall

INITIATING DEVICES / ACTION TAKEN	TRANSMITT SIGNAL TO CAMPUS REMOTE STATION RECEIVING STATION		TRANSMIT FAN SHUTDOWN SIGNAL TO BMS	GENERAL ALARM ON ALL FLOORS	ACTUATE EXTERIOR STROBE AT F.D RESPONCE POINT.	RECORD EVENT OF SYSTEM PRINTER.	REPORT INCIDENT TO FIRE ALARM PANEL	REPORT INCIDENT TO SECURITY SYSTEM.	CARD ACCESS DOOR RELEASE.	RELEASE ALL SMOKE DOORS (10 SECOND DELAY).	TRANSMIT RECALL SIGNAL TO ELEVATOR CONTROLLERS.	ACTUATE ELEVATOR SHUNT TRIP. REFER TO SPECS FOR DETAILS		TURN ON LIGHTING CONTROLED BY DIMMING AND RELAY PANELS.	OPEN ELECTRICALLY OPERATED BLINDS.	SOUND LOCAL STUDENT BEDROOM ALARM. AS OUTLINED IN VUSBC 2000 SECTION 907.2.10.3
FIRE ALARM INITIATING DEVICES																
MANUAL FIRE ALARM STATIONS	X		X	X	X	X	X	X	X	X	–	–		X	X	–
ELEVATOR LOBBY DETECTORS	X		X	X	X	X	X	X	X	X	X	–		X	X	–
SMOKE DETECTORS	X		X	X	X	X	X	X	X	X	–	–		X	X	–
DUCT MOUNTED SMOKE DETECTORS	–		X	–	–	X	X	–	–	–	–	–		–	–	–
SPRINKLER WATER FLOW SWITCHES	X		X	X	X	X	X	X	X	X	–	–		X	X	–
DETECTORS IN ELEVATOR SHAFT AND M/C RM.	X		X	X	X	X	X	X	X	X	X	X		X	X	–
STUDENT ROOM DETECTORS SMOKES	–		–	–	–	X	X	–	–	–	–	–		–	–	X
SECOND ADJACENT STUDENT ROOM DETECTOR	X		X	X	X	X	X	X	X	X	–	–		X	X	–
TROUBLE AND SUPERVISORY ALARM DEVICES																
SPRINKLER TAMPER SWITCH	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
DRY SPRINKLER SYSTEM LOW AIR PRESSURE CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP LOW WATER PRESSURE CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP PHASE LOSS	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP RUNNING CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE PUMP PHASE REVERSAL CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
CONTROLLER CONNECTED TO ALTERNATE SOURCE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
FIRE ALARM LOSS OF POWER.	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR MALFUNCTION CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR RUNNING CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR HIGH GAS PRESSURE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR LOW GAS PRESSURE	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR BATTERY SYSTEM LEVEL CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
EMERGENCY GENERATOR BATTERY SYSTEM LOSS OF AC POWER CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
ATS NORMAL POSITION STATUS CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–
ATS EMERGENCY POSITION STATUS CONTACT	–	–	–	–	–	X	X	–	–	–	–	–		–	–	–

2 FIRE ALARM SEQUENCE OF OPERATION
NTS

Adams Hall

FIRE ALARM SYSTEM CONTROL MATRIX

NOTE 1: FIRST ACTIVATION IS A SUPERVISORY AND SHOULD TRANSMIT SUPERVISORY TO THE SUPERVISING STATION. SECOND ACTIVATION IS AN ALARM CONDITION.

SYSTEM INPUTS	SYSTEM OUTPUTS: CONTROL UNIT ANNUNCIATION							NOTIFICATION						REQUIRED FIRE SAFETY CONTROL					SUPPLEMENTARY							
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ALARM INDICATOR	ACTUATE EVACUATION SIGNALS (AUDIO & VISUAL)	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION (1)	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION (1)	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION (1)		CLOSE SMOKE DAMPERS IN RATED WALLS	CLOSE/RELEASE DOORS IN SMOKE BARRIERS	CLOSE/RELEASE FIRE DOORS	UNLOCK EXITS		SHUTDOWN HVAC UNITS						
MANUAL FIRE ALARM STATIONS ALL FLOORS	X	X						X	X	X							X								1
SMOKE DETECTORS ALL FLOORS	X	X						X	X	X				X	X	X	X								2
DUCT SMOKE DETECTOR			X	X					X		X			X					X						3
SPRINKLER FLOW SWITCH	X	X						X	X	X				X	X	X	X								4
SPRINKLER TAMPER SWITCH			X	X					X		X														5
SPRINKLER POST INDICATOR VALVE			X	X					X		X														6
CONTROL PANEL AC POWER FAILURE					X	X			X		X														7
CONTROL PANEL LOW BATTERY					X	X			X			X													8
OPEN CIRCUIT					X	X			X			X													9
GROUND FAULT					X	X			X			X													10
NOTIFICATION APPLIANCE CIRCUIT FAULT					X	X			X			X													11
SMOKE DETECTOR WITH SOUNDER BASE – NOTE 1	X	X	X	X		X	X																		12
	A	B	C	D	E	F	G		H	I	J	K	L	M		N	O	P	Q	R		S	T	U	V	W	X

NOTE: (1) CONTRACTOR SHALL CONNECT TO CAMPUS WIDE KELTRON SYSTEM

FIRE ALARM CONTROL PANEL SEQUENCE OF OPERATIONS	ANNUNCIATION			NOTIFICATION					CONTROL			
INITIATING DEVICES	Alarm Annunciation FACP & Graphic Annunciator, Send Status to Campus Police Station via DACT	Supervisory Annunciation FACP & Graphic Annunciator, Send Status to Campus Police Station via DACT	Trouble Annunciation FACP & Graphic Annunciator, Send Status to Campus Police Station via DACT	Sound Speakers and Strobes Throughout Building Except Stairwell Speaker	Sound Sleeping Unit Speaker/Strobe(if Applicable) ONLY via Unit Addressable Outout Module and Main Amplifier	Sound Speakers Throughout the Building Including th Stairwell Speaker	Overide Fire Alarm	Activate Exterior Electric Bell Appliance	Shutdown Applicable Air Handling Unit	Close Applicalbe Fire/Smoke Dampers	Unlock All Controlled Access Doors.	
Manual Station	X			X							X	
Smoke Detector - Outside Sleeping Unit	X			X							X	
Smoke Detector - Sleeping Unit		X			X							
Smoke Detector - Two or more Sleeping Unit Smoke Detectors in ALARM	X			X							X	
Heat Detector	X			X							X	
Duct Smoke Detector - Fire/Smoke Damper		X								X		
Duct Smoke Detector - AHU Supply Duct		X							X			
Sprinkler Flow Switch	X			X				X			X	
Sprinkler Tamper		X										
Live Voice Message		X				X	X					
Notification Appliance Booster Panel Trouble			X									
Fire Alarm AC Power Fail			X									
Fire Alarm System Low Battery			X									
Fire alarm panel open circuit			X									
Fire alarm panel ground fault			X									
Notification Appliance Circuit Short			X									
SLC/Initiating Device Circuit Short			X									

1 / FA11 FIRE ALARM OPERATIONAL MATRIX

SCALE: NOT TO SCALE

Jackson Hall & Roosevelt Hall

FIRE ALARM SYSTEM CONTROL MATRIX

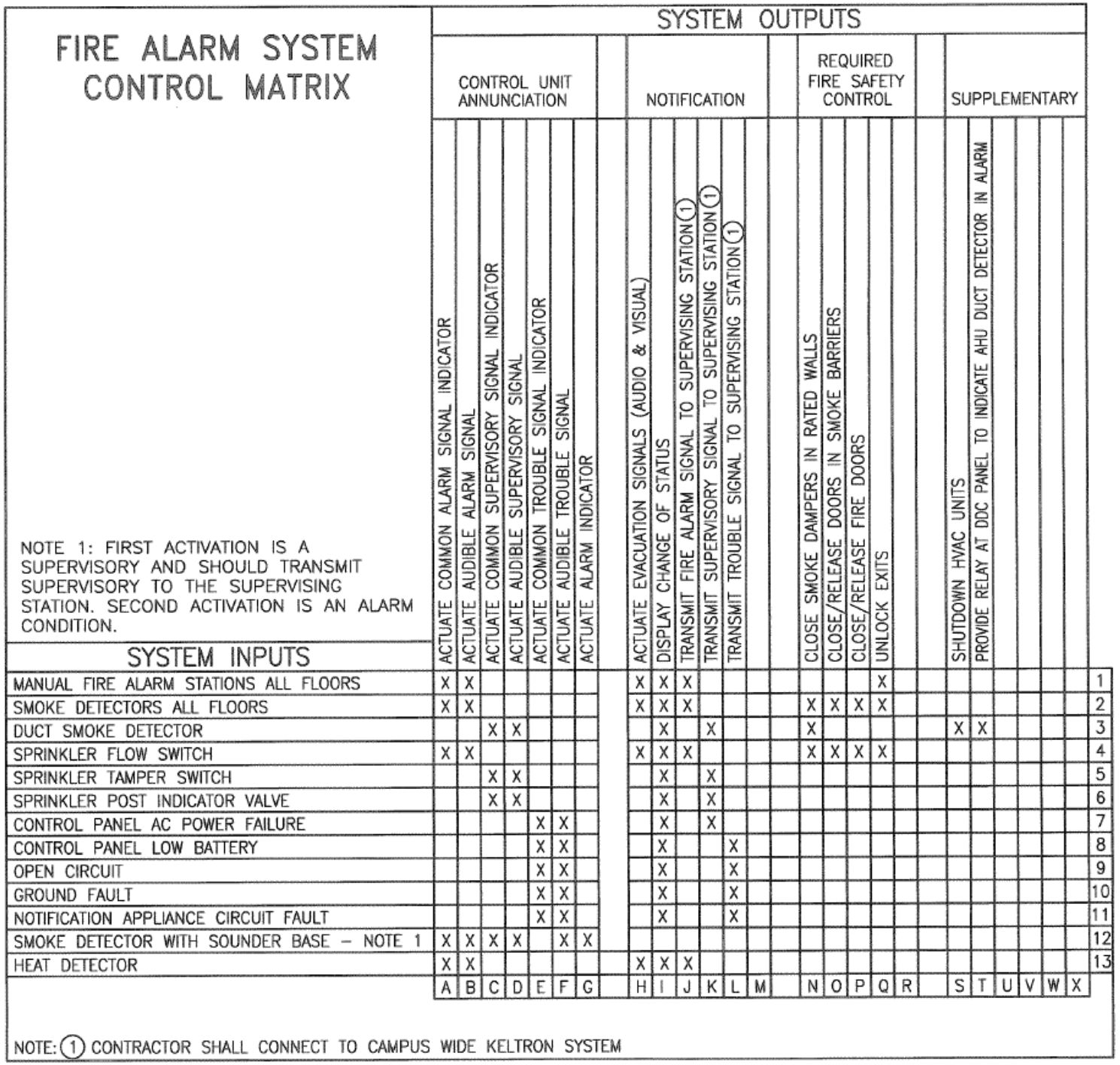
NOTE 1: FIRST ACTIVATION IS A SUPERVISORY AND SHOULD TRANSMIT SUPERVISORY TO THE SUPERVISING STATION. SECOND ACTIVATION IS AN ALARM CONDITION.

SYSTEM INPUTS	SYSTEM OUTPUTS: CONTROL UNIT ANNUNCIATION								NOTIFICATION							REQUIRED FIRE SAFETY CONTROL						SUPPLEMENTARY							
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ALARM INDICATOR		ACTUATE EVACUATION SIGNALS (AUDIO & VISUAL)	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION (1)	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION (1)	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION (1)			CLOSE SMOKE DAMPERS IN RATED WALLS	CLOSE/RELEASE DOORS IN SMOKE BARRIERS	CLOSE/RELEASE FIRE DOORS	UNLOCK EXITS			SHUTDOWN HVAC UNITS							
MANUAL FIRE ALARM STATIONS ALL FLOORS	X	X							X	X	X								X									1
SMOKE DETECTORS ALL FLOORS	X	X							X	X	X					X	X	X	X									2
DUCT SMOKE DETECTOR			X	X						X		X				X						X						3
SPRINKLER FLOW SWITCH	X	X							X	X	X					X	X	X	X									4
SPRINKLER TAMPER SWITCH			X	X						X		X																5
SPRINKLER POST INDICATOR VALVE			X	X						X		X																6
CONTROL PANEL AC POWER FAILURE					X	X				X		X																7
CONTROL PANEL LOW BATTERY					X	X				X			X															8
OPEN CIRCUIT					X	X				X			X															9
GROUND FAULT					X	X				X			X															10
NOTIFICATION APPLIANCE CIRCUIT FAULT					X	X				X			X															11
SMOKE DETECTOR WITH SOUNDER BASE – NOTE 1	X	X	X	X		X	X																					12
HEAT DETECTOR	X	X							X	X	X																	13
	A	B	C	D	E	F	G		H	I	J	K	L	M		N	O	P	Q	R		S	T	U	V	W	X	

NOTE: (1) CONTRACTOR SHALL CONNECT TO CAMPUS WIDE KELTRON SYSTEM

FIRE ALARM CONTROL PANEL SEQUENCE OF OPERATIONS	ANNUNCIATION			NOTIFICATION					CONTROL		
INITIATING DEVICES	Alarm Annunciation FACP & Graphic Annunciator, Send Status to Campus Police Station via DACT	Supervisory Annunciation FACP & Graphic Annunciator, Send Status to Campus Police Station via DACT	Trouble Annunciation FACP & Graphic Annunciator, Send Status to Campus Police Station via DACT	Sound Speakers and Strobes Throughout Building Except Stairwell Speaker	Sound Sleeping Unit Speaker/Strobe(if Applicable) ONLY via Unit Addressable Output Module and Main Amplifier	Sound Speakers Throughout the Building Including th Stairwell Speaker	Overide Fire Alarm	Activate Exterior Electric Bell Appliance	Shutdown Applicable Air Handling Unit	Close Applicable Fire/Smoke Dampers	Unlock All Controlled Access Doors.	
Manual Station	X			X							X	
Smoke Detector - Outside Sleeping Unit	X			X							X	
Smoke Detector - Sleeping Unit		X			X							
Smoke Detector - Two or more Sleeping Unit Smoke Detectors in ALARM	X			X							X	
Heat Detector	X			X							X	
Duct Smoke Detector - Fire/Smoke Damper		X								X		
Duct Smoke Detector - AHU Supply Duct		X							X			
Sprinkler Flow Switch	X			X				X			X	
Sprinkler Tamper		X										
Live Voice Message		X				X	X					
Notification Appliance Booster Panel Trouble			X									
Fire Alarm AC Power Fail			X									
Fire Alarm System Low Battery			X									
Fire alarm panel open circuit			X									
Fire alarm panel ground fault			X									
Notification Appliance Circuit Short			X									
SLC/Initiating Device Circuit Short			X									

Kennedy Hall & Truman Hall



FIRE ALARM SYSTEM CONTROL MATRIX

NOTE 1: FIRST ACTIVATION IS A SUPERVISORY AND SHOULD TRANSMIT SUPERVISORY TO THE SUPERVISING STATION. SECOND ACTIVATION IS AN ALARM CONDITION.

SYSTEM INPUTS	SYSTEM OUTPUTS: CONTROL UNIT ANNUNCIATION								NOTIFICATION							REQUIRED FIRE SAFETY CONTROL						SUPPLEMENTARY							
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ALARM INDICATOR		ACTUATE EVACUATION SIGNALS (AUDIO & VISUAL)	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION (1)	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION (1)	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION (1)			CLOSE SMOKE DAMPERS IN RATED WALLS	CLOSE/RELEASE DOORS IN SMOKE BARRIERS	CLOSE/RELEASE FIRE DOORS	UNLOCK EXITS			SHUTDOWN HVAC UNITS	PROVIDE RELAY AT DDC PANEL TO INDICATE AHU DUCT DETECTOR IN ALARM						
MANUAL FIRE ALARM STATIONS ALL FLOORS	X	X							X	X	X							X										1
SMOKE DETECTORS ALL FLOORS	X	X							X	X	X					X	X	X	X									2
DUCT SMOKE DETECTOR			X	X						X		X				X						X	X					3
SPRINKLER FLOW SWITCH	X	X							X	X	X					X	X	X	X									4
SPRINKLER TAMPER SWITCH			X	X						X		X																5
SPRINKLER POST INDICATOR VALVE			X	X						X		X																6
CONTROL PANEL AC POWER FAILURE					X	X				X		X																7
CONTROL PANEL LOW BATTERY					X	X				X			X															8
OPEN CIRCUIT					X	X				X			X															9
GROUND FAULT					X	X				X			X															10
NOTIFICATION APPLIANCE CIRCUIT FAULT					X	X				X			X															11
SMOKE DETECTOR WITH SOUNDER BASE – NOTE 1	X	X	X	X		X	X																					12
HEAT DETECTOR	X	X							X	X	X																	13
	A	B	C	D	E	F	G		H	I	J	K	L	M		N	O	P	Q	R		S	T	U	V	W	X	

NOTE: (1) CONTRACTOR SHALL CONNECT TO CAMPUS WIDE KELTRON SYSTEM

Lincoln Hall

FIRE ALARM SYSTEM CONTROL MATRIX

NOTE 1: FIRST ACTIVATION IS A SUPERVISORY AND SHOULD TRANSMIT SUPERVISORY TO THE SUPERVISING STATION. SECOND ACTIVATION IS AN ALARM CONDITION.

SYSTEM INPUTS	SYSTEM OUTPUTS: CONTROL UNIT ANNUNCIATION								NOTIFICATION							REQUIRED FIRE SAFETY CONTROL						SUPPLEMENTARY							
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ALARM INDICATOR		ACTUATE EVACUATION SIGNALS (AUDIO & VISUAL)	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION (1)	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION (1)	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION (1)			CLOSE SMOKE DAMPERS IN RATED WALLS	CLOSE/RELEASE DOORS IN SMOKE BARRIERS	CLOSE/RELEASE FIRE DOORS	UNLOCK EXITS			SHUTDOWN HVAC UNITS							
MANUAL FIRE ALARM STATIONS ALL FLOORS	X	X							X	X	X								X									1
SMOKE DETECTORS ALL FLOORS	X	X							X	X	X					X	X	X	X									2
DUCT SMOKE DETECTOR			X	X						X		X				X						X						3
SPRINKLER FLOW SWITCH	X	X							X	X	X					X	X	X	X									4
SPRINKLER TAMPER SWITCH			X	X						X		X																5
SPRINKLER POST INDICATOR VALVE			X	X						X		X																6
CONTROL PANEL AC POWER FAILURE					X	X				X		X																7
CONTROL PANEL LOW BATTERY					X	X				X			X															8
OPEN CIRCUIT					X	X				X			X															9
GROUND FAULT					X	X				X			X															10
NOTIFICATION APPLIANCE CIRCUIT FAULT					X	X				X			X															11
SMOKE DETECTOR WITH SOUNDER BASE – NOTE 1	X	X	X	X		X	X																					12
HEAT DETECTOR	X	X							X	X	X																	13
	A	B	C	D	E	F	G		H	I	J	K	L	M		N	O	P	Q	R		S	T	U	V	W	X	

NOTE: (1) CONTRACTOR SHALL CONNECT TO CAMPUS WIDE KELTRON SYSTEM

Madison Hall & Washington Hall

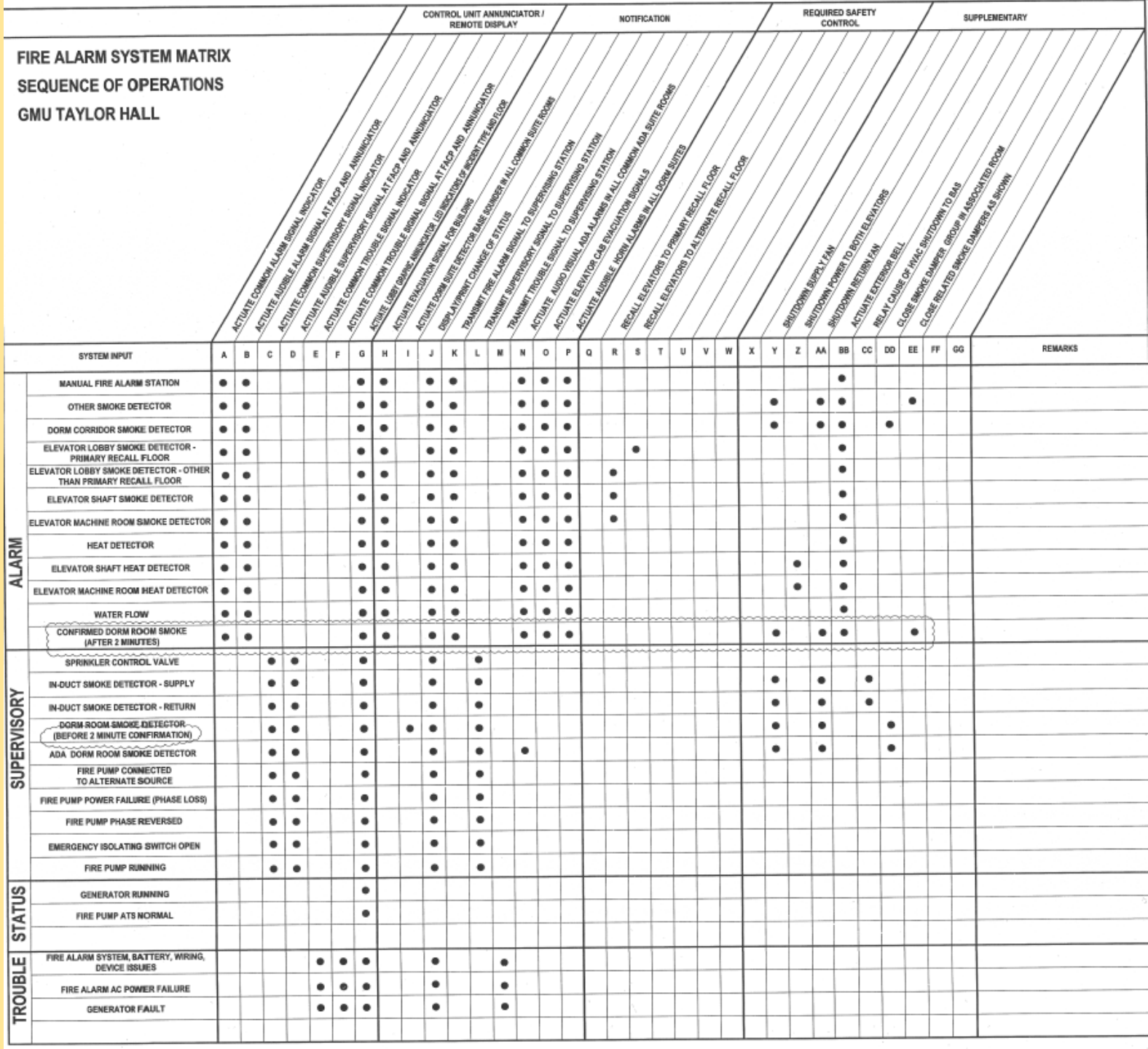
FIRE ALARM SYSTEM CONTROL MATRIX

NOTE 1: FIRST ACTIVATION IS A SUPERVISORY AND SHOULD TRANSMIT SUPERVISORY TO THE SUPERVISING STATION. SECOND ACTIVATION IS AN ALARM CONDITION.

SYSTEM INPUTS	SYSTEM OUTPUTS: CONTROL UNIT ANNUNCIATION								NOTIFICATION								REQUIRED FIRE SAFETY CONTROL							SUPPLEMENTARY							
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ALARM INDICATOR		ACTUATE EVACUATION SIGNALS (AUDIO & VISUAL)	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION (1)	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION (1)	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION (1)				CLOSE SMOKE DAMPERS IN RATED WALLS	CLOSE/RELEASE DOORS IN SMOKE BARRIERS	CLOSE/RELEASE FIRE DOORS	UNLOCK EXITS			SHUTDOWN HVAC UNITS							
MANUAL FIRE ALARM STATIONS ALL FLOORS	X	X							X	X	X									X										1
SMOKE DETECTORS ALL FLOORS	X	X							X	X	X						X	X	X	X										2
DUCT SMOKE DETECTOR			X	X						X		X					X						X							3
SPRINKLER FLOW SWITCH	X	X							X	X	X						X	X	X	X										4
SPRINKLER TAMPER SWITCH			X	X						X		X																		5
SPRINKLER POST INDICATOR VALVE			X	X						X		X																		6
CONTROL PANEL AC POWER FAILURE					X	X				X		X																		7
CONTROL PANEL LOW BATTERY					X	X				X			X																	8
OPEN CIRCUIT					X	X				X			X																	9
GROUND FAULT					X	X				X			X																	10
NOTIFICATION APPLIANCE CIRCUIT FAULT					X	X				X			X																	11
SMOKE DETECTOR WITH SOUNDER BASE – NOTE 1	X	X	X	X		X	X																							12
	A	B	C	D	E	F	G		H	I	J	K	L	M			N	O	P	Q	R		S	T	U	V	W	X		

NOTE: (1) CONTRACTOR SHALL CONNECT TO CAMPUS WIDE KELTRON SYSTEM

Taylor Hall



FIRE ALARM SYSTEM MATRIX
SEQUENCE OF OPERATIONS
GMU TAYLOR HALL

CONTROL UNIT ANNUNCIATOR / REMOTE DISPLAY | NOTIFICATION | REQUIRED SAFETY CONTROL | SUPPLEMENTARY

	SYSTEM INPUT	A: ACTUATE COMMON ALARM SIGNAL INDICATOR	B: ACTUATE AUDIBLE ALARM SIGNAL AT FACP AND ANNUNCIATOR	C: ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	D: ACTUATE AUDIBLE SUPERVISORY SIGNAL AT FACP AND ANNUNCIATOR	E: ACTUATE COMMON TROUBLE SIGNAL INDICATOR	F: ACTUATE COMMON TROUBLE SIGNAL AT FACP AND ANNUNCIATOR	G: ACTUATE LOBBY GRAPHIC ANNUNCIATOR LED INDICATORS OF INCIDENT TYPE AND FLOOR	H: ACTUATE EVACUATION SIGNAL FOR BUILDING	I: ACTUATE DORM SUITE DETECTOR BASE SOUNDER IN ALL COMMON SUITE ROOMS	J: DISPLAY/PRINT CHANGE OF STATUS	K: TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	L: TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION	M: TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION	N: ACTUATE AUDIO VISUAL ADA ALARMS IN ALL COMMON ADA SUITE ROOMS	O: ACTUATE ELEVATOR CAB EVACUATION SIGNALS	P: ACTUATE AUDIBLE HORN ALARMS IN ALL DORM SUITES	Q: RECALL ELEVATORS TO PRIMARY RECALL FLOOR	R: RECALL ELEVATORS TO ALTERNATE RECALL FLOOR	S: SHUTDOWN SUPPLY FAN	T: SHUTDOWN POWER TO BOTH ELEVATORS	U: SHUTDOWN RETURN FAN	V: ACTUATE EXTERIOR BELL	W: RELAY CAUSE OF HVAC SHUTDOWN TO BAS	X: CLOSE SMOKE DAMPER GROUP IN ASSOCIATED ROOM	Y: CLOSE RELATED SMOKE DAMPERS AS SHOWN	REMARKS
ALARM	MANUAL FIRE ALARM STATION	●	●					●	●		●	●			●	●	●									●					
	OTHER SMOKE DETECTOR	●	●					●	●		●	●			●	●	●								●		●	●		●	
	DORM CORRIDOR SMOKE DETECTOR	●	●					●	●		●	●			●	●	●								●		●	●	●		
	ELEVATOR LOBBY SMOKE DETECTOR - PRIMARY RECALL FLOOR	●	●					●	●		●	●			●	●	●					●						●			
	ELEVATOR LOBBY SMOKE DETECTOR - OTHER THAN PRIMARY RECALL FLOOR	●	●					●	●		●	●			●	●	●			●								●			
	ELEVATOR SHAFT SMOKE DETECTOR	●	●					●	●		●	●			●	●	●			●								●			
	ELEVATOR MACHINE ROOM SMOKE DETECTOR	●	●					●	●		●	●			●	●	●			●								●			
	HEAT DETECTOR	●	●					●	●		●	●			●	●	●											●			
	ELEVATOR SHAFT HEAT DETECTOR	●	●					●	●		●	●			●	●	●									●		●			
	ELEVATOR MACHINE ROOM HEAT DETECTOR	●	●					●	●		●	●			●	●	●									●		●			
	WATER FLOW	●	●					●	●		●	●			●	●	●											●			
	CONFIRMED DORM ROOM SMOKE (AFTER 2 MINUTES)	●	●					●	●		●	●			●	●	●								●		●	●		●	
SUPERVISORY	SPRINKLER CONTROL VALVE			●	●			●			●		●																	
	IN-DUCT SMOKE DETECTOR - SUPPLY			●	●			●			●		●												●		●		●		
	IN-DUCT SMOKE DETECTOR - RETURN			●	●			●			●		●												●		●		●		
	DORM ROOM SMOKE DETECTOR (BEFORE 2 MINUTE CONFIRMATION)			●	●			●		●	●		●												●		●			●	
	ADA DORM ROOM SMOKE DETECTOR			●	●			●			●		●		●										●		●			●	
	FIRE PUMP CONNECTED TO ALTERNATE SOURCE			●	●			●			●		●																	
	FIRE PUMP POWER FAILURE (PHASE LOSS)			●	●			●			●		●																	
	FIRE PUMP PHASE REVERSED			●	●			●			●		●																	
	EMERGENCY ISOLATING SWITCH OPEN			●	●			●			●		●																	
	FIRE PUMP RUNNING			●	●			●			●		●																	
STATUS	GENERATOR RUNNING							●																						
	FIRE PUMP ATS NORMAL							●																						
TROUBLE	FIRE ALARM SYSTEM, BATTERY, WIRING, DEVICE ISSUES					●	●	●			●			●																
	FIRE ALARM AC POWER FAILURE					●	●	●			●			●																
	GENERATOR FAULT					●	●	●			●			●																

Liberty Square

		System Outputs																		
		Control Unit Annunciation							Notification						Required Fire Safety Control						
	System Inputs	Actuate common alarm signal indicator	Actuate audible alarm signal	Actuate common supervisory signal indicator	Actuate audible supervisory signal	Actuate common trouble signal indicator	Actuate audible common trouble signal	Actuate Associated Indicator on Graphic Annunciator	Actuate General Evacuation Signals Throughout Building	Sound Speakers in Affected Dwelling Unit	Transmit supervisory signal to campus police station	Transmit trouble signal to campus police station	Transmit fire alarm signal to campus police station	Display/Print change of status	Release magnetically held doors	Recall elevators to primary recall floor (Lower Level)	Recall elevators to alternate recall floor (1st Floor)	Shunt Trip Power to Associated Elevator Bank	Shutdown Associated Air Handling Unit	Open vent at top of hoistway	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	Manual Fire Alarm Boxes	X	X					X	X				X	X	X						1
2	Smoke Detectors - Outside Dwelling Unit	X	X					X	X				X	X							2
3	Smoke Detector - Dwelling Unit			X	X			X		X	X			X							3
4	Smoke Detector - Two Smoke Detectors in Same Dwelling Unit	X	X					X	X				X	X							4
5	Smoke Detectors - Lower Level Elevator Lobby	X	X					X	X				X	X	X		X				5
6	Smoke Detectors - Elevator Lobby Except Lower Level	X	X					X	X				X	X	X	X				X	6
7	Smoke Detectors - Elevator Machine Room	X	X					X	X				X	X	X		X			X	7
8	Heat Detectors - Elevator Machine Room/Pit	X	X					X	X				X	X	X			X			8
9	Duct Smoke Detector - AHU Return Ducts			X	X			X			X			X					X		9
10	Sprinkler Water Flow Switch	X	X					X	X				X	X	X						10
11	Sprinkler Valve Tamper			X	X			X			X			X							11
12	Fire Alarm AC Power Failure			X	X						X			X							12
13	Fire Alarm System Low Battery					X	X					X		X							13
14	Open Circuit					X	X					X									14
15	Ground Fault					X	X					X									15
16	Notification Appliance Circuit Short					X	X					X									16
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	

Mason Global Center

*TIME-DELAY ACTIVATION OF ELEVATOR SHUNT TRIP AND PRE-ACTION SYSTEM ACTIVATION IN ACCORDANCE WITH CPSM SECTION 701.9.15 SHALL BE ACHIEVED BY A LISTED MODULE OR PROGRAMMING WHICH IS INCORPORATED WITHIN THE LISTING AND MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR AN APPROVED NFPA 72-2007 COMPLIANT CONTROL PANEL.

FIRE ALARM MATRIX OF OPERATIONS

		NOTIFICATION								AUXILIARY							
		A: ALARM SIGNAL TO FIRE CONTROL ROOM AND REMOTE ANNUNCIATOR	B: SUPERVISORY SIGNAL TO FIRE CONTROL ROOM AND REMOTE ANNUNCIATOR	C: SOUND LOCAL SOUNDER BASE	D: TROUBLE SIGNAL FIRE CONTROL ROOM AND REMOTE ANNUNCIATOR	E: EVACUATION MESSAGE TO ALL FLOORS (GENERAL EVACUATION ALARM)	F: STROBE ACTIVATION (GENERAL EVACUATION ALARM)	G: ALARM SIGNAL TO PROPRIETARY SUPERVISING STATION AT THE GMU CAMPUS POLICE STATION	H: TROUBLE SIGNAL TO PROPRIETARY SUPERVISING STATION AT THE GMU CAMPUS POLICE STATION	I: SUPERVISORY SIGNAL TO PROPRIETARY SUPERVISING STATION AT THE GMU CAMPUS POLICE STATION	J: RECALL ELEVATOR TO ALTERNATE FLOOR	K: RECALL ELEVATOR TO PRIMARY FLOOR	L: *ELEVATOR SHUNT TRIP AND PRE-ACTION SYS. ACTIVATION IN ACCORDANCE WITH CPSM SECTION 701.9.15	M: AHU SHUTDOWN FOR THIS HVAC ZONE	N: RELEASE MAGNETIC DOOR HOLD-OPENS	O: SHUTDOWN CONFERENCE/ MTG, ROOM AUDIO SYSTEMS	P: RECORD EVENT ON PRINTER AND IN FIRE ALARM MEMORY	
MANUAL PULL STATION	1	●				●	●	●								●	●	●	1
AREA SMOKE DETECTOR	2	●				●	●	●								●	●	●	2
ELEVATOR LOBBY SMOKE DETECTOR - PRIMARY RECALL FLOOR	3	●				●	●	●			●					●	●	●	3
ELEVATOR LOBBY SMOKE DETECTOR - NOT PRIMARY RECALL FLOOR	4	●				●	●	●				●				●	●	●	4
ELEVATOR SMOKE DETECTOR – ELEVATOR MACHINE ROOM	5	●				●	●	●				●				●	●	●	5
ELEVATOR SHAFT OR MACHINE ROOM HEAT DETECTOR	6	●				●	●	●				●	●			●	●	●	6
ONE (1) GUEST ROOM SMOKE DETECTOR	7	●	●							●								●	7
TWO (2) GUEST ROOM SMOKE DETECTORS ON THE SAME FLOOR	8	●	● [2]			●	●	●								●	●	●	8
DUCT SMOKE DETECTOR	9		●							●				●				●	9
SPRINKLER WATERFLOW	10	●				●	●	●								●	●	●	10
STANDPIPE WATERFLOW	11		●							●								●	11
SPRINKLER VALVE TAMPER	12		●							●								●	12
EMERGENCY GENERATOR RUN	13		●							●								●	13
EMERGENCY GENERATOR LOSS OF PHASE	14				●				●									●	14
EMERGENCY GENERATOR PHASE REVERSAL	15				●				●									●	15
EMERGENCY GENERATOR TRANSFER SWITCH OPERATION	16		●							●								●	16
FIRE PUMP RUN	17		●							●								●	17
FIRE PUMP LOSS OF PHASE	18				●				●									●	18
FIRE PUMP PHASE REVERSAL	19				●				●									●	19
FIRE PUMP ALTERNATE POWER SOURCE	20		●							●								●	20
SYSTEM TROUBLE CONDITION	21				●				●									●	21
OPEN CIRCUIT	22				●				●									●	22
GROUND FAULT	23				●				●									●	23
AC POWER FAILURE	24				●				●									●	24
SYSTEM LOW BATTERY	25				●				●									●	25
NOTIFICATION APPLIANCE CIRCUIT SHORT	26				●				●									●	26
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		

Potomac Heights

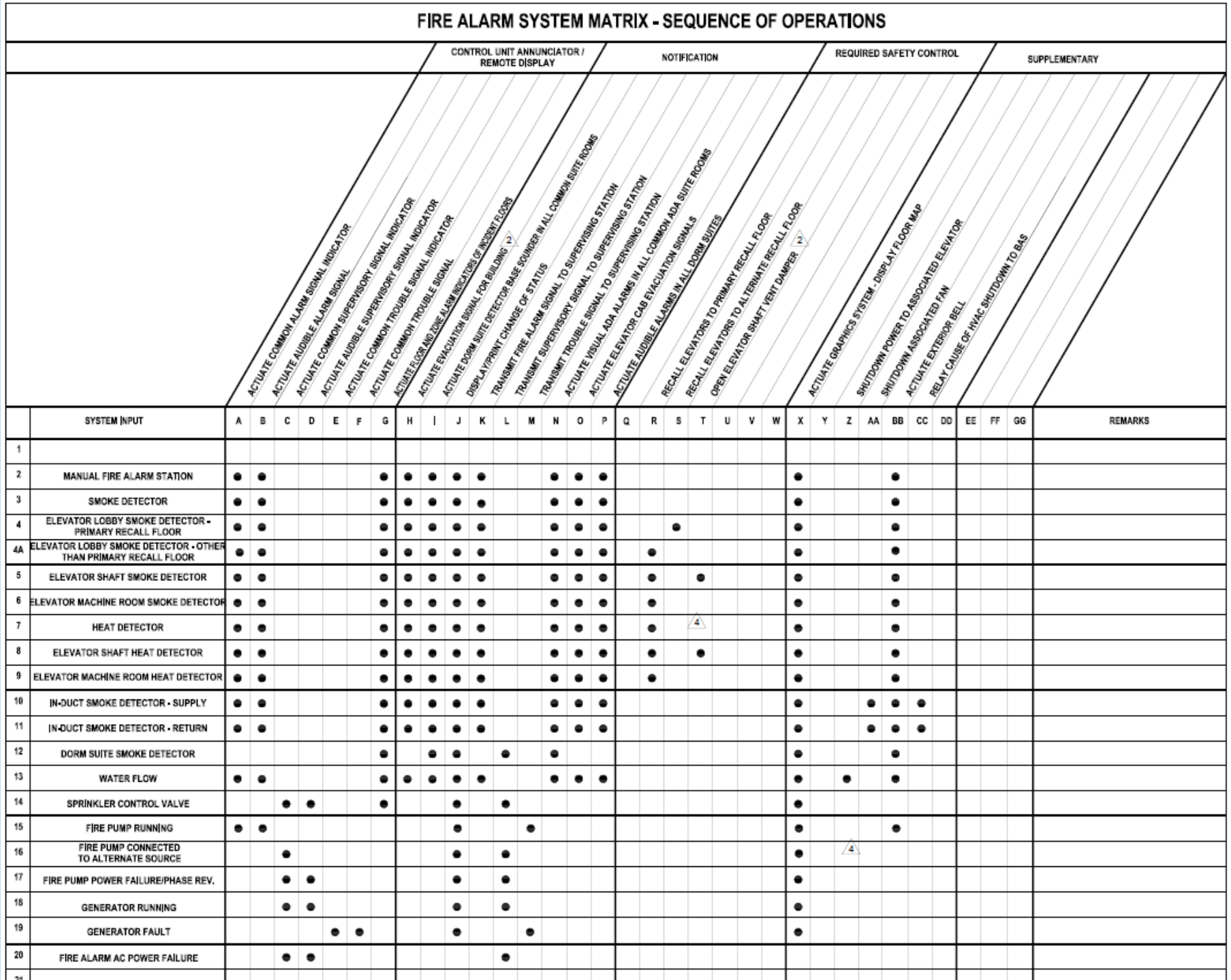
	Control Unit			Notification				Annunc									
	Actuate Common Audible Alarm and Visual Alarm Signal Indicator via LCD Display Indicating Device, Type and Location with Unique Custom Descriptor	Actuate Common Audible Supervisory and Visual Supervisory Signal Indicator via LCD Display Indicating Device, Type and Location with Unique Custom Descriptor	Actuate Common Audible Trouble and Visual Trouble Signal Indicator	Actuate All Audio Notification Appliances	Transmit Alarm Signal via Dialer to Monitoring Station (Provided by Others)	Transmit Supervisory Signal via Dialer to Monitoring Station (Provided by Others)	Transmit Trouble Signal via Dialer to Monitoring Station (Provided by Others)	Actuate LED's and Audible Tone on Graphic Annunciator displaying Device, Floor & Zone	Actuate LED's and Audible Tone on Graphic Annunciator displaying Trouble	Recall Elevator to Pri Floor	Recall Elevator to Alt Floor	Shut Down Associated AHU	Elevator Shunt Trip	Actuate Sounder Base(s) In Room Of Origin Only	Energize Pre-Action Sprinkler System - After Time Out	Send Smoke Damper Closure Signal To B A C S	Activate Coiling Door Closure	Unlock Electric Doors
Manual Station	X			X	X			X				X				X		X
Smoke Det	X			X	X			X				X				X		X
Heat Det	X			X	X			X				X				X		X
Flow Switch	X			X	X			X				X						X
Duct Smoke Detector	X			X	X			X				X				X		X
Tamper Switch		X				X		X										
Heat Det Elev Pit/ EMR													X		X	X		
Elevator Lobby Smk Det Primary	X			X	X			X			X	X				X		X
Elevator Lobby & Smk Det Alt	X			X	X			X		X		X				X		X
Coiling Door Smoke Det	X			X	X			X				X				X	X	X
Room Smoke Detector(s)		X			X			X						X				
Panel Trouble			X				X		X									

Note

Suite smoke detectors with sounder base shall be interlocked within suites The activation of a single detector within a particular suite shall initiate audible alarm signals within that suite **This shall be accomplished via programming**

In addition to an audible alarm signal withi a particular suite, the activation of a single suite smoke detector with sounder base s also provide supervisory signal at the fire control panel

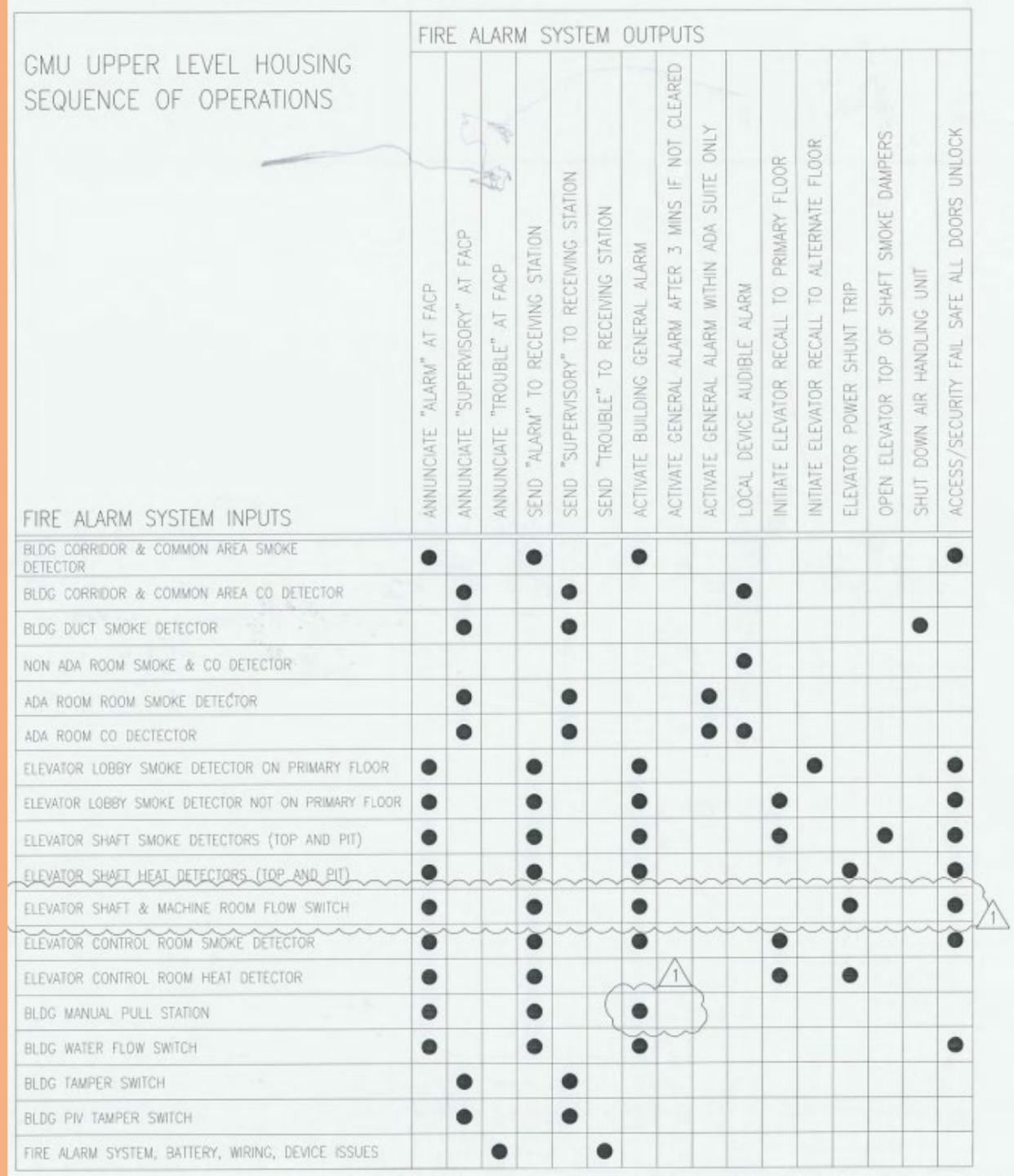
Rogers Hall
Whitetop Hall



FIRE ALARM SYSTEM MATRIX - SEQUENCE OF OPERATIONS

		CONTROL UNIT ANNUNCIATOR / REMOTE DISPLAY							NOTIFICATION								REQUIRED SAFETY CONTROL								SUPPLEMENTARY				
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL INDICATOR	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE COMMON TROUBLE SIGNAL	ACTUATE FLOOR AND ZONE ALARM INDICATORS OF INCIDENT FLOORS	ACTUATE EVACUATION SIGNAL FOR BUILDING (2)	ACTUATE DORM SUITE DETECTOR BASE SOUNDER IN ALL COMMON SUITE ROOMS	DISPLAY/PRINT CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION	ACTUATE VISUAL ADA ALARMS IN ALL COMMON ADA SUITE ROOMS	ACTUATE ELEVATOR CAB EVACUATION SIGNALS	ACTUATE AUDIBLE ALARMS IN ALL DORM SUITES	RECALL ELEVATORS TO PRIMARY RECALL FLOOR	RECALL ELEVATORS TO ALTERNATE RECALL FLOOR	OPEN ELEVATOR SHAFT VENT DAMPER (2)	ACTUATE GRAPHICS SYSTEM - DISPLAY FLOOR MAP	SHUTDOWN POWER TO ASSOCIATED ELEVATOR	SHUTDOWN ASSOCIATED FAN	ACTUATE EXTERIOR BELL	RELAY CAUSE OF HVAC SHUTDOWN TO BAS				
	SYSTEM INPUT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	REMARKS
1																																			
2	MANUAL FIRE ALARM STATION	●	●					●	●	●	●	●			●	●	●								●				●						
3	SMOKE DETECTOR	●	●					●	●	●	●	●			●	●	●								●				●						
4	ELEVATOR LOBBY SMOKE DETECTOR - PRIMARY RECALL FLOOR	●	●					●	●	●	●	●			●	●	●			●					●				●						
4A	ELEVATOR LOBBY SMOKE DETECTOR - OTHER THAN PRIMARY RECALL FLOOR	●	●					●	●	●	●	●			●	●	●		●						●				●						
5	ELEVATOR SHAFT SMOKE DETECTOR	●	●					●	●	●	●	●			●	●	●		●		●				●				●						
6	ELEVATOR MACHINE ROOM SMOKE DETECTOR	●	●					●	●	●	●	●			●	●	●		●						●				●						
7	HEAT DETECTOR	●	●					●	●	●	●	●			●	●	●		●		(4)				●				●						
8	ELEVATOR SHAFT HEAT DETECTOR	●	●					●	●	●	●	●			●	●	●		●			●			●				●						
9	ELEVATOR MACHINE ROOM HEAT DETECTOR	●	●					●	●	●	●	●			●	●	●		●						●				●						
10	IN-DUCT SMOKE DETECTOR - SUPPLY	●	●					●	●	●	●	●			●	●	●								●			●	●	●					
11	IN-DUCT SMOKE DETECTOR - RETURN	●	●					●	●	●	●	●			●	●	●								●			●	●	●					
12	DORM SUITE SMOKE DETECTOR							●		●	●		●		●										●				●						
13	WATER FLOW	●	●					●	●	●	●	●			●	●	●								●		●		●						
14	SPRINKLER CONTROL VALVE			●	●			●			●		●												●										
15	FIRE PUMP RUNNING	●	●								●			●											●				●						
16	FIRE PUMP CONNECTED TO ALTERNATE SOURCE			●							●		●												●		(4)								
17	FIRE PUMP POWER FAILURE/PHASE REV.			●	●						●		●												●										
18	GENERATOR RUNNING			●	●						●		●												●										
19	GENERATOR FAULT					●	●				●			●											●										
20	FIRE ALARM AC POWER FAILURE			●	●								●																						

Beacon Hall

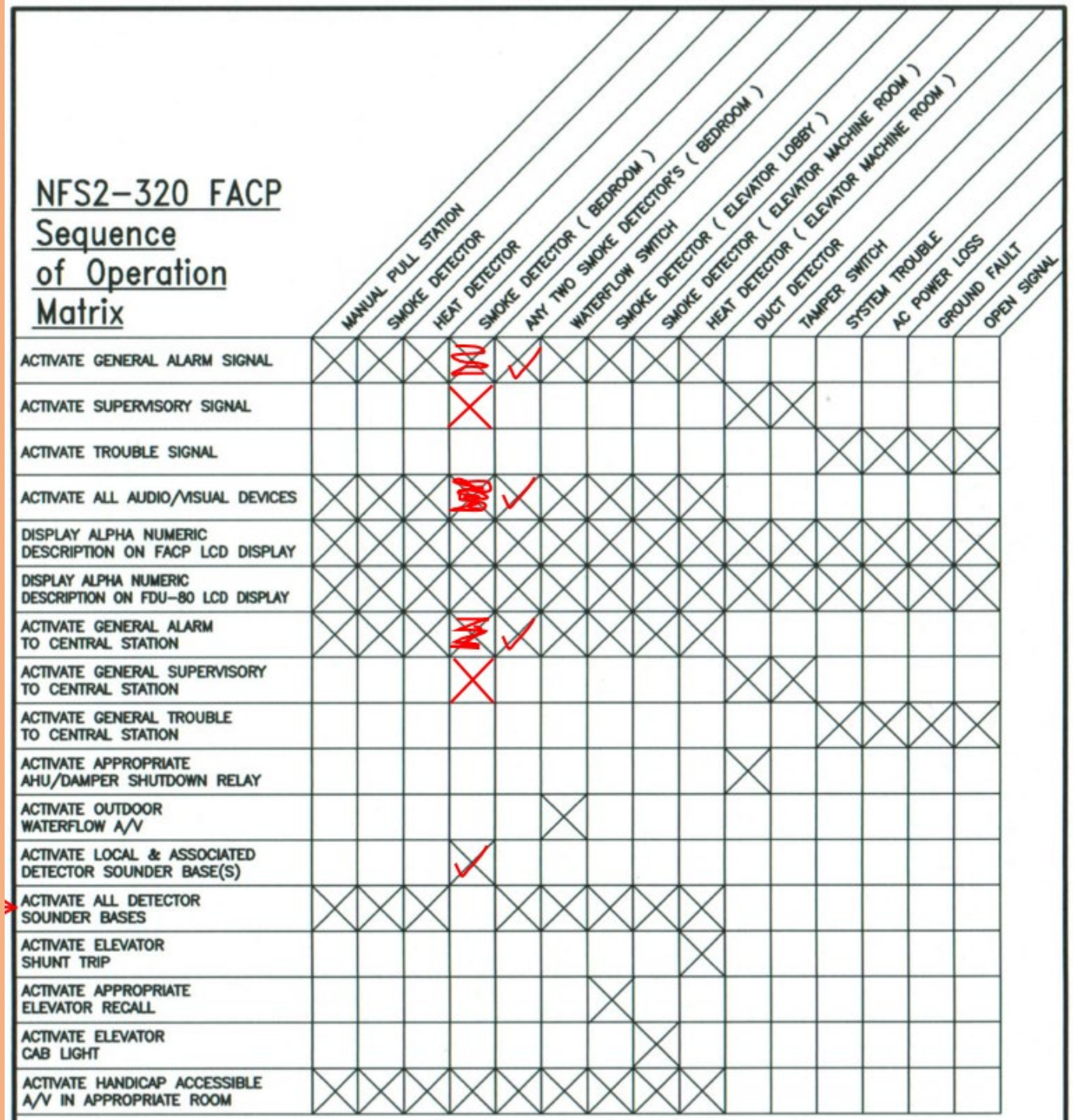


GMU UPPER LEVEL HOUSING
SEQUENCE OF OPERATIONS

FIRE ALARM SYSTEM INPUTS	ANNUNCIATE "ALARM" AT FACP	ANNUNCIATE "SUPERVISORY" AT FACP	ANNUNCIATE "TROUBLE" AT FACP	SEND "ALARM" TO RECEIVING STATION	SEND "SUPERVISORY" TO RECEIVING STATION	SEND "TROUBLE" TO RECEIVING STATION	ACTIVATE BUILDING GENERAL ALARM	ACTIVATE GENERAL ALARM AFTER 3 MINS IF NOT CLEARED	ACTIVATE GENERAL ALARM WITHIN ADA SUITE ONLY	LOCAL DEVICE AUDIBLE ALARM	INITIATE ELEVATOR RECALL TO PRIMARY FLOOR	INITIATE ELEVATOR RECALL TO ALTERNATE FLOOR	ELEVATOR POWER SHUNT TRIP	OPEN ELEVATOR TOP OF SHAFT SMOKE DAMPERS	SHUT DOWN AIR HANDLING UNIT	ACCESS/SECURITY FAIL SAFE ALL DOORS UNLOCK
BLDG CORRIDOR & COMMON AREA SMOKE DETECTOR	●			●			●									●
BLDG CORRIDOR & COMMON AREA CO DETECTOR		●			●					●						
BLDG DUCT SMOKE DETECTOR		●			●										●	
NON ADA ROOM SMOKE & CO DETECTOR										●						
ADA ROOM ROOM SMOKE DETECTOR		●			●				●							
ADA ROOM CO DECTECTOR		●			●				●	●						
ELEVATOR LOBBY SMOKE DETECTOR ON PRIMARY FLOOR	●			●			●					●				●
ELEVATOR LOBBY SMOKE DETECTOR NOT ON PRIMARY FLOOR	●			●			●				●					●
ELEVATOR SHAFT SMOKE DETECTORS (TOP AND PIT)	●			●			●				●			●		●
ELEVATOR SHAFT HEAT DETECTORS (TOP AND PIT)	●			●			●						●			●
ELEVATOR SHAFT & MACHINE ROOM FLOW SWITCH	●			●			●						●			●
ELEVATOR CONTROL ROOM SMOKE DETECTOR	●			●			●				●					●
ELEVATOR CONTROL ROOM HEAT DETECTOR	●			●				1			●		●			
BLDG MANUAL PULL STATION	●			●			●									
BLDG WATER FLOW SWITCH	●			●			●									●
BLDG TAMPER SWITCH		●			●											
BLDG PIV TAMPER SWITCH		●			●											
FIRE ALARM SYSTEM, BATTERY, WIRING, DEVICE ISSUES			●			●										

1

SMSC Dorms


NFS2-320 FACP
Sequence
of Operation
Matrix
MANUAL PULL STATION
SMOKE DETECTOR
HEAT DETECTOR
SMOKE DETECTOR (BEDROOM)
ANY TWO SMOKE DETECTOR'S (BEDROOM)
WATERFLOW SWITCH
SMOKE DETECTOR (ELEVATOR LOBBY)
SMOKE DETECTOR (ELEVATOR MACHINE ROOM)
HEAT DETECTOR (ELEVATOR MACHINE ROOM)
DUCT DETECTOR
TAMPER SWITCH
SYSTEM TROUBLE
AC POWER LOSS
GROUND FAULT
OPEN SIGNAL
ACTIVATE GENERAL ALARM SIGNAL
ACTIVATE SUPERVISORY SIGNAL
ACTIVATE TROUBLE SIGNAL
ACTIVATE ALL AUDIO/VISUAL DEVICES
DISPLAY ALPHA NUMERIC DESCRIPTION ON FACP LCD DISPLAY
DISPLAY ALPHA NUMERIC DESCRIPTION ON FDU-80 LCD DISPLAY
ACTIVATE GENERAL ALARM TO CENTRAL STATION
ACTIVATE GENERAL SUPERVISORY TO CENTRAL STATION
ACTIVATE GENERAL TROUBLE TO CENTRAL STATION
ACTIVATE APPROPRIATE AHU/DAMPER SHUTDOWN RELAY
ACTIVATE OUTDOOR WATERFLOW A/V
ACTIVATE LOCAL & ASSOCIATED DETECTOR SOUNDER BASE(S)
ACTIVATE ALL DETECTOR SOUNDER BASES
ACTIVATE ELEVATOR SHUNT TRIP
ACTIVATE APPROPRIATE ELEVATOR RECALL
ACTIVATE ELEVATOR CAB LIGHT
ACTIVATE HANDICAP ACCESSIBLE A/V IN APPROPRIATE ROOM

(Page left blank intentionally)

Additional Documents
Submitted By
David Kidd, GMU
Building Official

(Page left blank intentionally)

The following data was initially requested by the Office of the University Building Official (OUBO) from the GMU office of Safety, Emergency, and Enterprise Risk Management (SEERM) during the review of the code modification request. While this information was not available during this review, the following information was recently provided from the Housing & Residency Life (HRL) department at George Mason University (GMU). The table below (**table 1**) is a list of the reports that GMU Dispatch tracked for 2018-2022 (last 5 years) with the top 3 buildings highlighted – also provided in this correspondence is the full report from GMU Dispatch. Of the number of alarms that GMU PD, the only actual fires in 2018-2022 indicated by GMU HRL in an analysis of the university's annual report were on 1/13/18 in Northern Neck (intentionally set), 5/26/18 in Hampton Roads (unknown), 2/7/19 in Dominion (repair work); 11/24/19 in Liberty Square (cooking), 4/20/21 in Kennedy Hall (electrical), and 4/22/22 in Potomac Heights (improper cigarette disposal). So only six incidents of actual fire and all were listed as $0-99 in actual damages. From this data provided, the remaining alarms could be considered "unwanted" or "nuisance" alarms. What this data does not indicate is how many of these fires resulted in a full building evacuation, as that is not a data entry point.

Based on this additional data, it remains OUBO's contention that unwanted/nuisance alarms can be detrimental to the health and safety of the student population, by eroding confidence in a fire alarm system. Smoke alarm strategy within individual dwellings is the proper approach for dormitory fire safety in awakening sleeping residents. While smoke detection technology continues to advance, and newer regulations in the VCC/NFPA codes and standards work at reducing "alarm fatigue," the OUBO does not agree that GMU SEERM's requested approach will increase fire and life safety in these buildings, and there is insufficient data to establish that SEERM's concerns presented in code modification request are warranted.

Building	2018	2019	2020	2021	2022	Totals
Adams	0	0	0	0	1	**1**
Amherst	3	1	0	0	0	**4**
ACGC	8	5	3	1	9	**26**
Carroll	6	6	0	0	5	**17**
Commonwealth	3	0	2	1	1	**7**
Dominion	5	4	2	7	12	**30**
Eastern Shore	0	1	0	1	0	**2**
Eisenhower *No residents live	0	1	0	0	0	**1**
Franklin	0	1	0	0	0	**1**
Grayson	0	0	3	0	1	**4**
Hampton Roads	3	0	1	0	0	**4**
Hanover (no residents)	0	1	5	1	1	**8**
Harrison	0	0	1	0	0	**1**
Jackson	0	0	1	0	0	**1**
Jefferson	0	2	0	0	0	**2**
Liberty Square	15	12	16	16	24	**83**
Lincoln	2	0	0	1	1	**4**
Madison	0	0	1	0	0	**1**
Northern Neck	8	11	5	6	9	**39**
Piedmont	6	2	1	2	4	**15**
Potomac Heights	7	37	25	17	19	**105**
Rogers	0	0	8	5	12	**25**
Roosevelt	0	2	0	0	0	**2**
Sandbridge/Blueridge	4	8	10	12	14	**48**
Taylor	7	6	4	5	4	**26**
Whitetop	2	4	1	1	2	**10**
Wilson	0	1	1	0	1	**3**
Totals	**79**	**105**	**90**	**76**	**120**	

Table 1 – Alarm Totals for GMU Residence Halls (2018 – 2022)

REQUEST FOR INTERPRETATION

TO: OFFICE OF THE STATE BUILDING CODE TECHNICAL REVIEW BOARD
VIRGINIA DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT
Main Street Centre
600 E. Main Street, Suite 300
Richmond, Virginia 23219-1321
Tel: (804) 371-7150 Fax: (804) 371-7092
Email: sbco@dhcd.virginia.gov

From: John Card, MCP, CBO , City of Newport News Codes Enforcement Administrator

Phone Number : 757-926-8895

Email Address: 2400 Washington Ave. Newport News VA 23607

Applicable Code: VCC2018

Code Section(s): 310.6 #3 and 313.3

Submitted by (signature): John W. Card Jr, Building Official Digitally signed by John W. Card Jr, Building Official DN: C=US, E=cardjw@nnva.gov, O="City of NN, Dept.of Codes Compliance ", CN="John W. Card Jr, Building Official" Date: 2023.11.16 09:58:38-05'00' Date: 11/16/2023

QUESTION(S):

Does a single-family dwelling (R5) that is used as a family day home per VCC2018 section 313.3 with more than 5 children remain a R5 use group under VCC 2018 Section 310.6 #3?

If the answer to Question 1 is no, then would 2018 VCC Section 310.6 #3 require a change of use for family day home with more than 5 children to an R-3 pursuant to 2018 VCC Section 310.4?

The codes section in question are VCC 2018 sections 313, 313.3, 310.6 #3, and 310.4

(Page left blank intentionally)

Card, John W

From: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Sent: Tuesday, November 14, 2023 1:26 PM
To: Card, John W
Cc: Prisco, Jr., Philip; Brown, Jeff (DHCD)
Subject: RE: codes question
Attachments: proposal_269.pdf

Thanks John, there was a residential uses subworkgroup for the 2018 cycle that worked on the attached proposal. The intent was primarily to clarify and clean up.

Take care,
Richard

From: Card, John W <cardjw@nnva.gov>
Sent: Tuesday, November 14, 2023 1:17 PM
To: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Cc: Prisco, Jr., Philip <peprisco@hampton.gov>
Subject: RE: codes question

Richard, thanks for all your hard work. The issues VCC2018 took out the number of kids in section 313.3 and added #3 to section 310.6 which only allows 5 or fewer care facilities as an R-5.
So as per DHCD opinion, the intent was to allow family day home to stay as R-5 use and not to cause a change in use to an R-3. The code is always so gray.
Thanks for your help and time again.

John W. Card Jr.
Codes Enforcement Administrator
(Building Code Official)
City of Newport News
Department of Codes Compliance
3rd Floor
2400 Washington Ave.
Newport News, VA. 23607
757-926-8895 office 757-926-8311 fax
www.nnva.gov

From: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Sent: Tuesday, November 14, 2023 12:51 PM
To: Card, John W <cardjw@nnva.gov>
Cc: Prisco, Jr., Philip <peprisco@hampton.gov>; Brown, Jeff (DHCD) <Jeff.Brown@dhcd.virginia.gov>
Subject: RE: codes question

Hi John,
The short answer would be yes, my opinion is the USBC would allow up to 12 children and still be an R-5 as a family day home. The 12 number is a DOE limitation based on the definition they provide. The section for family day homes (313.3) does not provide a cap on the number of children.
%
8683838Kfr mq~%if~%mtr jx3%
Kfr mq~%if~%mtr jx%wjlnxyjwji%tw%qhjsxji%g~%ymj%[nwlnsnf%Ijufwyr jsy%tk%Xthnfq%Xjw{hjx%xmfq%gj
hqfxxnknji%fx%Lwtzu%W27%W28%twn%W2:3%

As we discussed in the call, the section in 2015 prior to being moved and reworded had a note that said these homes may generally care for up to 12 children. Notes are not part of the USBC, but are usually provided to clue the reader in on a related requirement or info (reg, law, etc.) outside of the USBC. I don't remember the exact reason it was taken out, but it can be a correlation nightmare crosschecking numbers like this and frankly, it's unnecessary since the USBC isn't enforcing that number. All you need to know is that it's "registered or licensed" by DOE (previously DSS).

Again, these are my opinions are you are responsible for making the decision, but hopefully this helps.

Take care,
Richard

Richard Potts, CBO
Code Development and Technical Support Administrator
Virginia Department of Housing and Community Development (DHCD)
(804) 786-1157
richard.potts@dhcd.virginia.gov

From: Card, John W <cardjw@nnva.gov>
Sent: Tuesday, November 14, 2023 11:03 AM
To: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Cc: Prisco, Jr., Philip <peprisco@hampton.gov>
Subject: RE: codes question

Richard, would the family day home be allowed up to 12 children as an R5 based on the VA Dept of Ed definition?
Thanks again,

John W. Card Jr.
Codes Enforcement Administrator

(Building Code Official)
City of Newport News
Department of Codes Compliance
3rd Floor
2400 Washington Ave.
Newport News, VA. 23607
757-926-8895 office 757-926-8311 fax
www.nnva.gov

From: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Sent: Tuesday, November 14, 2023 10:55 AM
To: Card, John W <cardjw@nnva.gov>
Subject: RE: codes question

Hi John, thanks for the follow up and great to speak with you. Section 302.1 item 8. says to see section **313** for state regulated care facilities. My opinion is that if it's a registered or licensed family day home under 313.3 it could be classified as an R-5.

Take care,
Richard

Richard Potts, CBO
Code Development and Technical Support Administrator
Virginia Department of Housing and Community Development (DHCD)
(804) 786-1157
richard.potts@dhcd.virginia.gov

From: Card, John W <cardjw@nnva.gov>
Sent: Tuesday, November 14, 2023 9:06 AM
To: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Subject: RE: codes question

Richard, thanks. I still have this issue with 310.6 #3, if they are providing daycare as a family day home would the 5 or more as a care facility or are family day homes exempt from this section?
Thanks again,

John W. Card Jr.
Codes Enforcement Administrator
(Building Code Official)
City of Newport News
Department of Codes Compliance
3rd Floor
2400 Washington Ave.
Newport News, VA. 23607
757-926-8895 office 757-926-8311 fax
www.nnva.gov

From: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Sent: Tuesday, November 14, 2023 8:57 AM
To: Card, John W <cardjw@nnva.gov>
Subject: RE: codes question

Hi John, good to hear from you and thanks for contacting me with your question. Family day homes are (now) regulated by the Virginia Department of Education. I've provided their definition below. The USBC doesn't list a maximum under section 313.3, but it looks like their definition says up to 12 children under the age of 13. However, if this is a state regulated care facility (SRCF) or licensed assisted living facility (DSS), my opinion is that section 313.2.6 would apply and limits those receiving care to 8 with up to 5 requiring physical assistance to still be able to have an R-5 use. There aren't many details to go by, so let me know if you have any follow up questions.

"Family day home" means a child day program offered in the residence of the provider or the home of any of the children in care for one through 12 children under the age of 13, exclusive of the provider's own children and any children who reside in the home, when at least one child receives care for compensation. The provider of a licensed or registered family day home shall disclose to the parents or guardians of children in their care the percentage of time per week that persons other than the provider will care for the children. Family day homes serving five through 12 children, exclusive of the provider's own children and any children who reside in the home, shall be licensed. However, no family day home shall care for more than four children under the age of two,

including the provider's own children and any children who reside in the home, unless the family day home is licensed or voluntarily registered. However, a family day home where the children in care are all related to the provider by blood or marriage shall not be required to be licensed.

313.2.6 Group R-2, R-3, or R-5. Facilities with no more than eight persons receiving care, with one or more resident counselors, and all persons are capable of responding to an emergency situation without physical assistance from staff, may be classified as Group R-2, R-3, or R-5. Up to five of the persons may require physical assistance from staff to respond to an emergency situation when in compliance with the following:
1. All residents that require physical assistance from staff reside on a level of exit discharge and the path of egress to the exit does not include steps.
2. The *building* is protected by an automatic sprinkler system installed in accordance with Section 903.3 of this code or Section P2904 of the IRC.

Take care,

Richard

From: Card, John W <cardjw@nnva.gov>
Sent: Monday, November 13, 2023 9:03 AM
To: Potts, Richard (DHCD) <richard.potts@dhcd.virginia.gov>
Subject: codes question

Richard Potts,
I have a code question to walk through and need your help. VCC2018 313.3 Family day homes (can be R-2, R-3, or R-5), R-5 use with more than 5 under care. Would this make the use of an R-3 as per VCC2018 310.6 and 310.4?
Thanks

John W. Card Jr.
Codes Enforcement Administrator
(Building Code Official)
City of Newport News
Department of Codes Compliance
3rd Floor
2400 Washington Ave.
Newport News, VA. 23607
757-926-8895 office 757-926-8311 fax
www.nnva.gov

SECTION 310
RESIDENTIAL GROUP R

310.1 Residential Group R.

Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the International Residential Code.

310.2 Residential Group R-1.

Residential occupancies containing *sleeping units* or more than two *dwelling units*, and:

1. The occupants are primarily transient, and
2. There are more than 10 occupants.

310.3 Residential Group R-2.

Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are not primarily transient.

310.4 Residential Group R-3.

Residential occupancies containing no more than two *dwelling units* and where the occupancy is not classified as Group R-1, R-2, R-4, R-5, or I, and:

1. The occupants are not primarily transient, or
2. There are no more than 10 transient occupants per *dwelling unit*.

310.4.1 Radon-resistant construction.

Group R-3 *buildings* and *structures* shall be subject to the radon-resistant *construction* requirements in Appendix F of the International Residential Code (IRC) in localities enforcing such requirements pursuant to Section R328 of the IRC.

310.4.2 Lodging houses.

Owner-occupied or proprietor-occupied lodging houses and other transient boarding facilities not more than three stories above grade plane in height, with five or fewer guest rooms and 10 or fewer total occupants shall be permitted to be classified as either Group R-3 or R-5, provided that smoke alarms are installed in compliance with Section 907.2.10.2 for Group R-3, or Section R314 of the IRC for Group R-5.

310.5 Residential Group R-4.

Residential occupancies with more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive *custodial care*. *Buildings* of Group R-4, other than assisted living facilities licensed by the Virginia Department of Social Services, shall be classified as the occupancy condition indicated in Section 310.5. Assisted living facilities licensed by the Virginia Department of Social Services shall be classified as one of the occupancy conditions indicated in Section 310.5.1 or 310.5.2.

310.5.1 Condition 1.

This occupancy condition shall include *buildings* in which all persons receiving *custodial care* who, without any assistance, are capable of responding to an emergency situation to complete *building* evacuation or, in which not more than five of the residents may require physical assistance from staff to respond to an emergency situation when all residents who may require the physical assistance from staff reside on a level of exit discharge and the path of egress to the exit does not include steps.

310.5.2 Condition 2.

This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.

310.5.3 Radon-resistant construction.

Group R-4 *buildings* and *structures* shall be subject to the radon-resistant *construction* requirements in Appendix F of the VRC in localities enforcing such requirements pursuant to Section R328 of the VRC.

310.6 Residential Group R-5.

Residential occupancies within the scope of the VRC, other occupancies specifically permitted in this code to be classified as Group R-5, and *manufactured homes* in accordance with the Virginia Manufactured Home Safety Regulations (23VAC5-91).

The provisions of the IRC for one- and two-family dwellings shall apply to the *construction*, *alteration*, movement, enlargement, replacement, repair, *equipment*, use and occupancy, location, removal and demolition of the following when classified as Group R-5:

1. Detached single-family and two-family dwellings
2. Townhouses
3. Care facilities for five or fewer people
4. Owner- or proprietor-occupied lodging houses with no more than five guest rooms and 10 or fewer total occupants.
5. Accessory structures of Group R-5 occupancies.

The amendments to the IRC set out in Section 310.8 shall be made to the IRC for its use as part of this code. In addition, all references to the IRC and the International Building Code (IBC) shall be considered to be references to this section.

310.6.1 Additional requirements.

Methods of *construction*, materials, systems, *equipment* or components for Group R-5 structures not addressed by prescriptive or performance provisions of the IRC shall comply with applicable IBC requirements.

310.7 Radon-resistant construction in Groups R-3 and R-4 structures.

Groups R-3 and R-4 *structures* shall be subject to the radon-resistant *construction* requirements in Appendix F of the IRC in localities enforcing such requirements pursuant to Section R328 of the IRC.

310.8 Amendments to the IRC.

The following changes shall be made to the IRC for its use as part of this code:

(DHCD Note: The changes to the IRC are available in the *Virginia Residential Code* published by the ICC, or the pamphlet form of the VCC published by the DHCD. They are not included in the printing of the VCC.)

SECTION 313
STATE REGULATED CARE FACILITIES (SRCF)

313.1 General.

Notwithstanding any other requirements of this code, this section applies to the use and occupancy classification of state regulated care facilities addressed in this section.

313.2 Assisted living facilities.

Assisted living facilities licensed by the Virginia Department of Social Services shall be classified as one of the occupancies specified in Sections 313.2.1 through 313.2.6.

313.2.1 Group I-1 Condition 1.

Facilities with more than sixteen persons receiving care, in which all persons receiving care, without any assistance, are capable of responding to an emergency situation to complete *building* evacuation, shall be classified as Group I-1 Condition 1. Not more than five of the persons may require physical assistance from staff to respond to an emergency, provided all persons requiring assistance reside on a level of exit discharge and the path of egress to the exit does not include steps.

313.2.2 Group I-1 Condition 2.

Facilities with more than sixteen persons receiving care, in which there are persons who require assistance by not more than one staff member while responding to an emergency situation to complete *building* evacuation, shall be classified as Group I-1 Condition 2. Not more than five of the persons may require physical assistance from more than one staff member to respond to an emergency situation.

313.2.3 Group I-2 Condition 1.

Facilities with more than five persons receiving care who require assistance by more than one staff member when responding to an emergency situation to complete *building* evacuation, shall be classified as Group I-2 Condition 1.

313.2.4 Group R-4 Condition 1.

Facilities with nine to sixteen persons receiving care, where all persons receiving care, without any assistance, are capable of responding to an emergency situation to complete building evacuation shall be classified as Group R-4 Condition 1. Not more than five of the persons may require physical assistance from staff to respond to an emergency, provided all persons requiring assistance reside on a level of exit discharge and the path of egress to the exit does not include steps.

313.2.5 Group R-4 Condition 2.

Buildings with nine to sixteen persons receiving care, who may require assistance by not more than one staff member when responding to an emergency situation to complete *building* evacuation, shall be classified as Group R-4 Condition 2. Not more than five of the persons may require physical assistance from staff to respond to an emergency situation.

313.2.6 Groups R-2, R-3 or R-5.

Facilities with no more than eight persons receiving care, with one or more resident counselors, and all persons are capable of responding to an emergency situation without physical assistance from staff, may be classified as Groups R-2, R-3 or R-5. Up to five of the persons may require physical assistance from staff to respond to an emergency situation when in compliance with the following:

1. All residents that require physical assistance from staff reside on a level of exit discharge and the path of egress to the exit does not include steps.
2. The *building* is protected by an automatic sprinkler system installed in accordance with Section 903.3 or Section P2904 of the IRC.

313.3 Family day homes.

Family day homes registered or licensed by the Virginia Department of Social Services shall be classified as Group R-2, R-3 or R-5.

313.4 Group homes.

Group Homes licensed by the Virginia Department of Behavioral Health and Developmental Services shall be classified as one of the occupancies specified in Sections 313.4.1 through 313.4.3.

313.4.1 Groups R-2, R-3, R-4 Condition 1 or 2 or R-5.

Facilities with no more than eight persons receiving care, with one or more resident counselors, shall be classified as Group R-2, R-3, R-4 (Condition 1 or 2) or R-5. Not more than five of the persons may require physical assistance from staff to respond to an emergency situation.

313.4.2 Group R-4 Condition 1.

Facilities with eight to sixteen persons receiving care, where all persons, without any assistance, are capable of responding to an emergency situation to complete *building* evacuation shall be classified as Group R-4 Condition 1. Not more than five of the persons may require physical assistance from staff to respond to an emergency, provided all persons requiring assistance reside on a level of exit discharge and the path of egress to the exit does not include steps.

313.4.3 Group R-4 Condition 2.

Facilities with eight to sixteen persons receiving care or facilities with more than five persons requiring physical assistance from staff to respond to an emergency situation shall be classified as Group R-4 Condition 2.

313.5 Hospice facilities.

Hospice facilities licensed by the Virginia Department of Health shall be classified as one of the occupancies specified in Sections 313.5.1 through 313.5.3.

313.5.1 Group I-2.

Facilities with sixteen or more persons receiving care shall be classified as Group I-2.

313.5.2 Group R-4 Condition 1.

Facilities with less than sixteen persons receiving care shall be classified as Group R-4 Condition 1.

313.5.3 Group R-5.

Facilities with five or fewer persons receiving care are permitted to be classified as Group R-5.

(Page left blank intentionally)

REQUEST FOR INTERPRETATION

TO: OFFICE OF THE STATE BUILDING CODE TECHNICAL REVIEW BOARD
VIRGINIA DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT
Main Street Centre
600 E. Main Street, Suite 300
Richmond, Virginia 23219-1321
Tel: (804) 371-7150 Fax: (804) 371-7092
Email: sbco@dhcd.virginia.gov

RECEIVED
December 22, 2023
WTZ
OFFICE OF THE REVIEW BOARD

From: Phillip Moore - Prince Edward County Building Official

Phone Number : (B) 434-393-8838 (C) 434-664-8021

Email Address: pmoore@co.prince-edward.va.us

Applicable Code: 2018 Virginia Construction Code

Code Section(s): See below

Submitted by (signature): Phillip Moore Date: 01/12/2024

QUESTION(S):

Does VRC Section 104.2 include Virginia Department of Health for private water supply and on-site sewage systems?

In VRC Section 110.1, Does "other pertinent laws and ordinances" include the Virginia Department of Health Approval for private water supply systems and on-site sewage systems?

In VRC 113.1.2 Does "construction reaches a stage of completion that require an inspection" include the Virginia Department of Health Approval for on-site water supply and sewage systems?

In Virginia 113.8 Does " completion of construction for which a permit was issued" include the Virginia Department of Health permit for private water supply systems and private on-site sewage systems since the Virginia Department of Health operational permit is required to issue a building permit?

Does VRC Section P2602.1 require the approval of the private water supply systems and private on-site sewage systems?

(Page left blank intentionally)

REQUEST FOR INTERPRETATION

TO: OFFICE OF THE STATE BUILDING CODE TECHNICAL REVIEW BOARD
VIRGINIA DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT
Main Street Centre
600 E. Main Street, Suite 300
Richmond, Virginia 23219-1321
Tel: (804) 371-7150 Fax: (804) 371-7092
Email: sbco@dhcd.virginia.gov

From: Phillip Moore - Prince Edward County Building Official

Phone Number : (B) 434-393-8838 (C) 434-664-8021

Email Address: pmoore@co.prince-edward.va.us

Applicable Code: 2018 Virginia Construction Code

Code Section(s): Page 2

Submitted by (signature): Phillip Moore Date: 01/12/2024

QUESTION(S):

Is the only Virginia Department of Health approval provided with an operational permit from the Virginia Department of Health?

Does VRC Section R306.3 require VDH approval to be approved?

Does VRC section R306.4 require VDH approval to be approved?

Pursuant to VCC Sections 113.1.3 and/or 113.8, can a building official require Virginia Department of Health approval prior to conducting the final inspection?

(Page left blank intentionally)

Final Inspection (residential): In accordance with the Virginia Department of Health regulation for private sewage systems, it shall be the policy that no final inspection will be completed until the building department has received a copy of the written operations permit from the Virginia Department of Health authorizing discharge into the system under their regulation.

Also, any required duct leakage test or blower door test must be submitted and approved before the final.

Above is part of my current inspection policy. Is it outside my authority as a Building Official to set guidelines for when a final is considered complete? Can I require VDH approval prior to conducting a final inspection for a residential house? The purpose of my inspection is to inspect for **completeness and code compliance.** I have referenced many codes below that I believe support my ability to administer the code as long as it is within my authority and not a violation of the code. Please see the following highlighted areas and the comments.

In my experience. My best code decisions are when I am staying as grounded in the code (VCC) as I can. This policy is a great example in my opinion. The policy is code based and I believe code supported. It provides clarity to the contractors when a project is complete. They are provided a copy of my policy upon permit issuance, so it's not a secret.

The policy promotes completeness. It removes human error and emotion. It supports consistency. It doesn't show partiality. Above all it pursues completeness and code compliance to protect the health, safety and welfare of the public.

104.1 Scope of enforcement.
This section establishes the requirements for enforcement of the USBC in accordance with § 36-105 of the Code of Virginia. Enforcement of the provisions of the USBC for *construction* and rehabilitation shall be the responsibility of the *local building department*. Whenever a county or municipality does not have such a *building* department, the *local governing body* shall enter into an agreement with the *local governing body* of another county or municipality or with some other agency, or a state agency *approved* by DHCD for such enforcement. For the purposes of this section, towns with a population of less than 3,500 may elect to administer and enforce the USBC; however, where the town does not elect to administer and enforce the code, the county in which the town is situated shall administer and enforce the code for the town. In the event such town is situated in two or more counties, those counties shall administer and enforce the USBC for that portion of the town situated within their respective boundaries.

This provides the authority and responsibility in administering the code. Each locality has this authority to administer the provisions of the VCC.

104.2 Interagency coordination.
When any inspection functions under this code are assigned to a local agency other than the *local building department*, such agency shall coordinate its reports of inspection with the *local building department.* (In my opinion this includes the Health Department)

110.1 Approval and issuance of permits.
The *building official* shall examine or cause to be examined all applications for permits or amendments to such applications within a reasonable time after filing. If the applications or amendments do not comply with the provisions of this code or all pertinent laws and ordinances, the permit shall not be issued and the permit applicant shall be notified in writing of the reasons for not issuing the permit. If the application complies with the applicable requirements of this code, a permit shall be issued as soon as practicable. The issuance of permits shall not be delayed in an effort to control the pace of *construction* of new detached one- or two-family dwellings.

The Heath Department permit is an amendment to the building permit. I cannot issue a permit for a single-family house without VDH approved system.

113.1 General.
In accordance with § 36-105 of the Code of Virginia, any *building* or *structure* may be inspected at any time before completion, and shall not be deemed in compliance until *approved* by the inspecting authority. Where the *construction* cost is less than $2,500, however, the inspection may, in the discretion of the inspecting authority, be waived. The *building official* shall coordinate all reports of inspections for compliance with the USBC, with inspections of fire and health officials delegated such authority, prior to the issuance of an occupancy permit.

The health permit is required to issue the building permit. VDH has the responsibility to determine when the septic and well are in compliance. This involves the inspection and approval of the system. So, I'm waiting for the results of their inspection. The purpose of a final inspection is to issue a Certificate of Occupancy. We inspect for completeness and code compliance for any particular inspection. If a footing is scheduled and it's not ready at the time of inspection, I fail the inspection on the basis that it is not ready. The well and septic system are components of a house and the inspection needs to be completed prior to a final. I think the general public expects potable water and the ability to flush the commode and shower legally.

113.1.2 Duty to notify.
When *construction* reaches a stage of completion that requires an inspection, the *permit holder* shall notify the *building official*

Completion is not defined by the building code. **The definition I obtained online is the state of being finished.**

Approved in the building code is defined as: **[A] APPROVED.** Acceptable to the *building official.*

113.1.3 Duty to inspect.
Except as provided for in Section 113.7, the *building official* shall perform the requested inspection in accordance with Section 113.6 when notified in accordance with Section 113.1.2.

I agree with the duty to inspect. My policy provides clarity on when a residential home is complete. The duty to inspect hinges on completeness.

113.3 Minimum inspections.
The following minimum inspections shall be conducted by the *building official* when applicable to the *construction* or permit:

1. 1.Inspection of footing excavations and reinforcement material for concrete footings prior to the placement of concrete.
2. 2.Inspection of foundation systems during phases of *construction* necessary to assure compliance with this code.
3. 3.Inspection of preparatory work prior to the placement of concrete.
4. 4.Inspection of structural members and fasteners prior to concealment.
5. 5.Inspection of electrical, mechanical and plumbing materials, *equipment* and systems prior to concealment.
6. 6.Inspection of energy conservation material prior to concealment.
7. 7.Final inspection.

I'm only required to perform an inspection when the required work is **complete**. This means complete and compliant per the VBC and any applicable codes for the work being done.

Complete: The state of being finished.

113.8 Final inspection.
Upon completion of *construction* for which a permit was issued, a final inspection shall be conducted to ensure that any defective work has been corrected and that all work complies with the USBC and has been *approved*, including any work associated with modifications under Section 106.3. The *building official* shall be permitted to require the electrical service to a *building* or *structure* to be energized prior to conducting the final inspection. Approval of the final inspection indicates that all work associated with the permit complies with this code and the permit is complete. Prior to occupancy or change of occupancy of a *building* or *structure*, a certificate of occupancy shall be issued in accordance with Section 116.

I would argue the septic field and well etc. are essential components of the construction for a residential home. The operational permit from VDH states that the field cannot receive waste until approved by VDH and the same for the use of the well. The house, septic, well etc. are all part of the construction process and they are part of the plumbing. The purpose for a final is to determine completeness and in the case of a residential house, to issue a Certificate of Occupancy.

116.1 General; when to be issued.
Prior to occupancy or change of occupancy of a *building* or *structure*, a certificate of occupancy shall be obtained in accordance with this section. The *building official* shall issue the certificate of occupancy within five *working days* after approval of the final inspection and when the *building* or *structure* or portion thereof is determined to be in compliance with this code and any pertinent laws or ordinances, or when otherwise entitled.

Exceptions:

1. 1.A certificate of occupancy is not required for an accessory *structure* as defined in the IRC.
2. 2.A new certificate of occupancy is not required for an *addition* to an existing Group R-5 building that already has a certificate of occupancy.

The following codes support my view that the plumbing system is an integral part of a home and the plumbing system. They are required for the proper function of any home. Again, I think the average homeowner assumes they will have safe drinking water and be able to legally flush the commode.

P2602.1 General. (Virginia Residential Code)
The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.5 of Part I of the *Virginia Uniform Statewide Building Code* (13VAC5-63) for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the "Related Laws Package," which is available from the Virginia Department of Housing and Community Development.

If no certificate of operation is issued then it's not in compliance with VDH and/or VDEQ requirements; therefore, it is not in compliance with the USBC (VCC).

R306.3 Sewage disposal.
Plumbing fixtures shall be connected to a sanitary sewer or to an *approved* private sewage disposal system.

R306.4 Water supply to fixtures.
Plumbing fixtures shall be connected to an *approved* water supply. Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water.

R306.5 Water supply sources and sewage disposal systems.
The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.5 of Part I of the Virginia Uniform Statewide Building Code (13VAC5-63), for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.
Note: See also the Memorandums of Agreement in the "Related Laws Package," which is available from the Virginia Department of Housing and Community Development.

P2901.1 Potable water required.
Potable water shall be supplied to plumbing fixtures and plumbing *appliances* except where treated rainwater, treated graywater or municipal reclaimed water is supplied to water closets, urinals and trap primers. The requirements of this section shall not be construed to require signage for water closets and urinals.

VDH provides me with a well inspection report stating if the well is ok for private use.

In my opinion without VDH approval I can fail a final without leaving my desk, so is it complete? Let's not forget the purpose of the VCC as stated below.

102.1 Purpose.
In accordance with § 36-99 of the Code of Virginia, the purpose of the USBC is to protect the health, safety and welfare of the residents of the Commonwealth of Virginia, provided that buildings and *structures* should be permitted to be constructed at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged.

I feel strongly that pursuing the above purpose to the best of my abilities is essential. The purpose of my policy is to that end. Again, my job is to inspect for completeness and code compliance. It is not my job to provide a punch list. The aim and purpose of my policy to require VDH approval for a final inspection is essential for that purpose.

Is my policy in favorable code standing?

Code of Virginia
Title 36. Housing
Chapter 6. Uniform Statewide Building Code
Article 1. General Provisions

§ 36-105. Enforcement of Code; appeals from decisions of local department; inspection of buildings; inspection warrants; inspection of elevators; issuance of permits

A. Enforcement generally. Enforcement of the provisions of the Building Code for construction and rehabilitation shall be the responsibility of the local building department. There shall be established within each local building department a local board of Building Code appeals whose composition, duties and responsibilities shall be prescribed in the Building Code. Any person aggrieved by the local building department's application of the Building Code or refusal to grant a modification to the provisions of the Building Code may appeal to the local board of Building Code appeals. No appeal to the State Building Code Technical Review Board shall lie prior to a final determination by the local board of Building Code appeals. Whenever a county or a municipality does not have such a building department or board of Building Code appeals, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by the Department for such enforcement and appeals resulting therefrom.

For the purposes of this section, towns with a population of less than 3,500 may elect to administer and enforce the Building Code; however, where the town does not elect to administer and enforce the Building Code, the county in which the town is situated shall administer and enforce the Building Code for the town. In the event that such town is situated in two or more counties, those counties shall administer and enforce the Building Code for that portion of the town situated within their respective boundaries. Additionally, the local governing body of a county or municipality may enter into an agreement with the governing body of another county or municipality for the provision to such county or municipality's local building department of technical assistance with administration and enforcement of the Building Code.

B. New construction. Any building or structure may be inspected at any time before completion, and shall not be deemed in compliance until approved by the inspecting authority. Where the construction cost is less than $2,500, however, the inspection may, in the discretion of the inspecting authority, be waived. A building official may issue an annual permit for any construction regulated by the Building Code. The building official shall coordinate all reports of inspections for compliance with the Building Code, with inspections of fire and health officials delegated such authority, prior to issuance of an occupancy permit. Fees may be levied by the local governing body in order to defray the cost of such enforcement and appeals. With the exception of the levy imposed pursuant to § 36-137, any fees levied pursuant to this subsection shall be used only to support the functions of the local building department.

C. Existing buildings and structures.

1. Inspections and enforcement of the Building Code. The local governing body may also inspect and enforce the provisions of the Building Code for existing buildings and structures, whether occupied or not. Such inspection and enforcement shall be carried out by an agency or department designated by the local governing body.

2. Complaints by tenants. However, upon a finding by the local building department, following a complaint by a tenant of a residential dwelling unit that is the subject of such complaint, that there may be a violation of the unsafe structures provisions of the Building Code, the local building department shall enforce such provisions.

3. Inspection warrants. If the local building department receives a complaint that a violation of the Building Code exists that is an immediate and imminent threat to the health or safety of the owner, tenant, or occupants of any building or structure, or the owner, occupant, or tenant of any nearby building or structure, and the owner, occupant, or tenant of the building or structure that is the subject of the complaint has refused to allow the local building official or his agent to have access to the subject building or structure, the local building official or his agent may make an affidavit under oath before a magistrate or a court of competent jurisdiction and request that the magistrate or court grant the local building official or his agent an inspection warrant to enable the building official or his agent to enter the subject building or structure for the purpose of determining whether violations of the Building Code exist. After issuing a warrant under this section, the magistrate or judge shall file the affidavit in the manner prescribed by § 19.2-54. After executing the warrant, the local building official or his agents shall return the warrant to the clerk of the circuit court of the city or county wherein the inspection was made. The local building official or his agent shall make a reasonable effort to obtain consent from the owner, occupant, or tenant of the subject building or structure prior to seeking the issuance of an inspection warrant under this section.

4. Transfer of ownership. If the local building department has initiated an enforcement action against the owner of a building or structure and such owner subsequently transfers the ownership of the building or structure to an entity in which the owner holds an ownership interest greater than 50 percent, the pending enforcement action shall continue to be enforced against the owner.

5. Elevator, escalator, or related conveyance inspections. The local governing body shall, however, inspect and enforce the Building Code for elevators, escalators, or related conveyances, except for elevators in single- and two-family homes and townhouses. Such inspection shall be carried out by an agency or department designated by the local governing body.

6. A locality may require by ordinance that any landmark, building or structure that contributes to a district delineated pursuant to § 15.2-2306 shall not be razed, demolished or moved until the razing, demolition or moving thereof is approved by the review board, or, on appeal, by the governing body after consultation with the review board unless the local maintenance code official consistent with the Uniform Statewide Building Code, Part III Maintenance, determines that it constitutes such a hazard that it shall be razed, demolished or moved.

For the purpose of this subdivision, a contributing landmark, building or structure is one that adds to or is consistent with the historic or architectural qualities, historic associations, or values for which the district was established pursuant to § 15.2-2306, because it (i) was present during the period of significance, (ii) relates to the documented significance of the district, and (iii) possesses historic integrity or is capable of yielding important information about the period.

7. Fees may be levied by the local governing body in order to defray the cost of such enforcement and appeals. For purposes of this section, "defray the cost" may include the fair and reasonable costs incurred for such enforcement during normal business hours, but shall not include overtime costs unless conducted outside of the normal working hours established by the locality.

A schedule of such costs shall be adopted by the local governing body in a local ordinance. A locality shall not charge an overtime rate for inspections conducted during the normal business hours established by the locality. With the exception of the levy imposed pursuant to § 36-137, any fees levied pursuant to this subdivision shall be used only to support the functions of the local building department. Nothing herein shall be construed to prohibit a private entity from conducting such inspections, provided the private entity has been approved to perform such inspections in accordance with the written policy of the maintenance code official for the locality.

D. Issuance of permits.

1. Fees may be levied by the local governing body to be paid by the applicant for the issuance of a building permit as otherwise provided under this chapter; however, notwithstanding any provision of law, general or special, if the applicant for a building permit is a tenant or the owner of an easement on the owner's property, such applicant shall not be denied a permit under the Building Code solely upon the basis that the property owner has financial obligations to the locality that constitute a lien on such property in favor of the locality. If such applicant is the property owner, in addition to payment of the fees for issuance of a building permit, the locality may require full payment of any and all financial obligations of the property owner to the locality to satisfy such lien prior to issuance of such permit. For purposes of this subdivision, "property owner" means the owner of such property as reflected in the land records of the circuit court clerk where the property is located, the owner's agent, or any entity in which the owner holds an ownership interest greater than 50 percent.

2. In the event that a local building department denies an application for the issuance of a building permit, the local building department shall provide to the applicant a written explanation detailing the reasons for which the application was denied. The applicant may submit a revised application addressing the reasons for which the application was previously denied, and if the applicant does so, the local building department shall be encouraged, but not required, to limit its review of the revised application to only those portions of the application that were previously deemed inadequate and that the applicant has revised.

1972, c. 829; 1974, c. 433; 1977, cc. 423, 613; 1978, c. 578; 1981, c. 498; 1982, c. 267; 1992, c. 73; 1993, c. 328; 1994, cc. 214, 256, 574;1995, cc. 95, 523, 702, 827;1999, cc. 333, 341;2001, c. 119; 2002, c. 720;2003, c. 650;2004, c. 851;2006, c. 424;2007, c. 291;2009, cc. 181, 184, 551, 586;2010, c. 63;2012, cc. 494, 607;2014, c. 354;2018, c. 222;2019, c. 698.

The chapters of the acts of assembly referenced in the historical citation at the end of this section(s) may not constitute a comprehensive list of such chapters and may exclude chapters whose provisions have expired.

MEMORANDUM OF AGREEMENT

Between the
Virginia Department of Housing and Community Development (VDHCD)
and the Virginia Department of Health (VDH)

June 14, 2013

In accordance with Va. Code §§ 36-98 et seq., 32.1-12, and 32.1-163 et seq., the VDH and the VDHCD agree to coordinate jurisdictional responsibilities through the *Virginia Uniform Statewide Building Code* (13 VAC 5-62, the "building code") and applicable VDH regulations ("VDH regulations")[1] as follows:

Codes and Regulations: Adoption and Enforcement

1. VDHCD adopts and promulgates the building code. The local building department enforces the building code.
2. The Board of Health adopts and promulgates VDH regulations. The Board of Health and VDH jointly enforce VDH regulations.

Definitions:

"Alternative Discharging System" means a treatment works that requires a permit from VDH pursuant to 12 VAC5-640.

"Onsite Sewage System" means a conventional or alternative onsite sewage system as defined in Va. Code 32.1-163, which requires a permit from VDH pursuant to 12 VAC5-610 or 12 VAC5-613.

"Treatment works" means any device or system used in the storage, treatment, disposal or reclamation of sewage or combinations of sewage and industrial wastes, including but not limited to pumping, power and other equipment and appurtenances, septic tanks, and any works, including land, that are or will be (i) an integral part of the treatment process or (ii) used for ultimate disposal of residues or effluents resulting from such treatment.

"Graywater system" means treatment works that disperses untreated wastewater from bathtubs, showers, lavatory fixtures, wash basins, washing machines, and laundry tubs. A graywater system does not include wastewater from toilets, urinals, kitchen sinks, dishwashers, or laundry water from soiled diapers.

Treatment works applicability

1. The VDHCD and VDH agree on the following interpretation of their relevant regulations: The building code will apply to all internal service plumbing components of a treatment works up to the point of connection of the building drain to the building sewer.
2. The building code will apply to electrical and structural components of a treatment works, except as provided below.
    a. The VDH regulations will apply to control panels for the treatment works and its functional treatment components, including electrical devices for pump stations, master disconnect switches, manual override switches, motor control panels, and separate motor control centers when specified by the designer or required by VDH.

1. VDH implements the Sewage Handling and Disposal Regulations (12 VAC 5-610); Alternative Discharging Sewage Treatment Regulations for Individual Single Family Dwellings (12 VAC 5-640); Regulations for Alternative Onsite Sewage systems (12 VAC5-613); Private Well Regulations (12 VAC5-630)

   b. VDH regulations and policies do not consider cord and plug connections associated with a treatment works. If allowed by the building code, cord and plug connections for the treatment works must be located in a weather proof box when outside of the wet well to prevent exposure to weather conditions.
3. The VDH regulations will apply to the treatment and functional components of a treatment works regardless of location (inside or outside of the building or structure), except as provided below.
   a. The building code will apply to graywater systems not regulated by VDH, such as building or structures connected to a public sewer system.
4. The VDH regulations will apply to components of a treatment works that are external to the building or structure. External components include the septic tank, pump station, distribution box or mechanism, piping, or additional treatment devices such as blowers and associated electrical devices.

Reviews pursuant to Va. Code § 32.1-165

The VDHCD and VDH commit to ensure no county, city, town or employee thereof shall issue a building permit for the construction of a new building designed for human occupancy without the prior written notification of the State Health Commissioner or agent that safe, adequate, and proper sewage treatment is or will be made available to such building.

1. VDH approves a treatment works three ways; by issuing: (1) a certification letter that recognizes a treatment works can be designed sometime in the future, which does not expire; (2) a subdivision letter that describes future treatment works for each subdivision lot, which also does not expire; or (3) a construction permit, which describes the actual construction of the treatment works and is valid for 18 months with one 18 month renewal under certain conditions.
2. Pursuant to Va. Code § 32.1-165, the local building official may use the certification letter, subdivision letter, or construction permit to issue a building permit. The local building official understands that a treatment works cannot be constructed until the local health department issues a construction permit. The footprint of the building or structure cannot interfere with the setbacks required by the VDH regulations.
3. Pursuant to Va. Code § 32.1-165, the local building official will contact the local health department as provided by local and routine processes, which might differ in various jurisdictions, upon finding that issuance of the building permit might have an impact on the function of an existing treatment works already installed. If VDH requests an application for review of the installed treatment works, then the application must be completed before VDH can determine whether the treatment works is acceptable.
   a. If the wastewater flow, capacity, or effluent strength increases for the existing treatment works, then Pursuant to Va. Code § 32.1-165, the building official must rely on a valid construction permit from VDH before issuing the building permit. A certification letter or subdivision approval will not be sufficient.
4. VDH will only approve a treatment works if it complies with VDH regulations and associated policies. VDH will notify the local building official as soon as practical whether a treatment works was installed correctly by issuance of an operation permit. Pursuant to Va. Code § 32.1-165, the local building official will not issue a certificate of occupancy until after VDH has issued the operation permit.

Conflict Resolution

Both VDH and DHCD will cooperate in resolving any technical conflicts between VDH regulations and the building code. The agencies will develop and implement procedures as needed to ensure collaboration between local building officials and local health departments. Appropriate amendments, edits, additions, or deletions will be made to the VDH regulations and the building code when necessary. This MOA is a statement of the intentions of VHDCD and VDH to coordinate their efforts in order to carry out their statutory duties. It is not a contract and it is not enforceable

in any judicial or administrative forum: it does not create any rights or duties of any third party. It does not purport to modify the statutory duty of either signatory agency.

This Agreement is effective as of the date written above and is in effect until terminated either by mutual written consent of the parties or by one signatory party with 60 days' written notice to the other party. This Agreement may be amended by mutual written consent of the parties.

The undersigned agree to the Conditions of this Agreement.

William, C. Shelton, Director
Department of Housing and
Community Development

Cynthia Romero, MD, FAAFP
State Health Commissioner
Department of Health

104.2 Interagency coordination.

When any inspection functions under this code are assigned to a local agency other than the*local building department*, such agency shall coordinate its reports of inspection with the *local building department*.

110.1 Approval and issuance of permits.

The building official shall examine or cause to be examined all applications for permits or amendments to such applications within a reasonable time after filing. If the applications or amendments do not comply with the provisions of this code or all pertinent laws and ordinances, the permit shall not be issued and the permit applicant shall be notified in writing of the reasons for not issuing the permit. If the application complies with the applicable requirements of this code, a permit shall be issued as soon as practicable. The issuance of permits shall not be delayed in an effort to control the pace of *construction* of new detached one- or two-family dwellings.

SECTION 113 INSPECTIONS

113.1 General.

In accordance with § 36-105 of the Code of Virginia, any *building* or *structure* may be inspected at any time before completion and shall not be deemed in compliance until approved by the inspecting authority. Where the *construction* cost is less than $2,500, however, the inspection may, in the discretion of the inspecting authority, be waived. The building official shall coordinate all reports of inspections for compliance with the USBC, with inspections of fire and health officials delegated such authority, prior to the issuance of an occupancy permit.

113.1.1 Equipment required.

Any ladder, scaffolding or test *equipment* necessary to conduct or witness a requested inspection shall be provided by the *permit holder*.

113.1.2 Duty to notify.

When *construction* reaches a stage of completion that requires an inspection, the *permit holder* shall notify the building official.

113.1.3 Duty to inspect.

Except as provided for in Section 113.7, the building official shall perform the requested inspection in accordance with Section 113.6 when notified in accordance with Section 113.1.2.

113.2 Prerequisites.

The building official may conduct a site inspection prior to issuing a permit. When conducting inspections pursuant to this code, all personnel shall carry proper credentials.

113.3 Minimum inspections.

The following minimum inspections shall be conducted by the building official when applicable to the *construction* or permit:

1. Inspection of footing excavations and reinforcement material for concrete footings prior to the placement of concrete.
2. Inspection of foundation systems during phases of *construction* necessary to assure compliance with this code.
3. Inspection of preparatory work prior to the placement of concrete.
4. Inspection of structural members and fasteners prior to concealment.
5. Inspection of electrical, mechanical and plumbing materials, *equipment* and systems prior to concealment.
6. Inspection of energy conservation material prior to concealment.
7. Final inspection.

113.3.1 Equipment changes.

Upon the replacement or new installation of any fuel-burning appliances or *equipment* in existing Group R-5 occupancies, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with the IRC.
2. Vent or chimney systems are clean, free of any obstruction or blockages, defects, or deterioration, and are in operable condition. Where not inspected by the *local building department*, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

113.3.2 Lowest floor elevation.

In *flood hazard areas*, upon placement of the lowest floor, including the basement, and prior to further vertical *construction*, the elevation certification required in Section 1612.4 shall be submitted to the building official.

113.3.3 Flood hazard documentation.

If located in a *flood hazard area*, documentation of the elevation of the lowest floor as required in Section 1612.4 shall be submitted to the building official prior to the final inspection.

113.4 Additional inspections.

The building official may designate additional inspections and tests to be conducted during the *construction* of a *building* or *structure* and shall so notify the *permit holder*.

113.5 In-plant and factory inspections.

When required by the provisions of this code, materials, *equipment* or assemblies shall be inspected at the point of manufacture or fabrication. The building official shall require the submittal of an evaluation report of such materials,

equipment or assemblies. The evaluation report shall indicate the complete details of the assembly, including a description of the assembly and its components, and describe the basis upon which the assembly is being evaluated. In addition, test results and other data as necessary for the building official to determine conformance with the USBC shall be submitted. For factory inspections, an identifying label or stamp permanently affixed to materials, *equipment* or assemblies indicating that a factory inspection has been made shall be acceptable instead of a written inspection report, provided the intent or meaning of such identifying label or stamp is properly substantiated.

113.6 Approval or notice of defective work.

The building official shall either approve the work in writing or give written notice of defective work to the *permit holder*. Upon request of the *permit holder*, the notice shall reference the USBC section that serves as the basis for the defects and such defects shall be corrected and reinspected before any work proceeds that would conceal such defects. A record of all reports of inspections, tests, examinations, discrepancies and approvals issued shall be maintained by the building official and shall be communicated promptly in writing to the *permit holder*. Approval issued under this section may be revoked whenever it is discovered that such approval was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC. Notices issued pursuant to this section shall be permitted to be communicated electronically, provided the notice is reasonably calculated to get to the *permit holder*.

113.7 Approved inspection agencies.

The building official may accept reports of inspections and tests from individuals or inspection agencies approved in accordance with the building official's written policy required by Section 113.7.1. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Under circumstances where the building official is unable to make the inspection or test required by Section 113.3 or 113.4 within 2 *working days* of a request or an agreed upon date or if authorized for other circumstances in the building official's written policy, the building official shall accept reports for review. The building official shall approve the report from such approved individuals or agencies unless there is cause to reject it. Failure to approve a report shall be in writing within 2 *working days* of receiving it stating the reason for the rejection. Reports of inspections conducted by approved third-party inspectors or agencies shall be in writing, shall indicate if compliance with the applicable provisions of the USBC have been met and shall be certified by the individual inspector or by the responsible officer when the report is from an agency. Reports of inspections conducted for the purpose of verifying compliance with the requirements of the USBC for elevators, escalators, and related conveyances shall include the name and certification number of the elevator mechanic performing the tests witnessed by the third-party inspector or agency.

Exception: The licensed mechanical contractor installing the mechanical system shall be permitted to perform duct tests required by Section R403.3.5 of the IECC or Section N1103.3.5 of the IRC. The contractor shall have been trained on the *equipment* used to perform the test.

Note: Photographs, videotapes or other sources of pertinent data or information may be considered as constituting such reports and tests.

113.7.1 Third-party inspectors.

Each building official charged with the enforcement of the USBC shall have a written policy establishing the minimum acceptable qualifications for third-party inspectors. The policy shall include the format and time frame required for submission of reports, any prequalification or preapproval requirements before conducting a third-party inspection and any other requirements and procedures established by the building official.

113.7.2 Qualifications.

In determining third-party inspector qualifications, the building official may consider such items as *DHCD* inspector certification, other state or national certifications, state professional registrations, related experience, education and any other factors that would demonstrate competency and reliability to conduct inspections.

113.8 Final inspection.

Upon completion of *construction* for which a permit was issued, a final inspection shall be conducted to ensure that any defective work has been corrected and that all work complies with the USBC and has been approved, including any work associated with modifications under Section 106.3. The building official shall be permitted to require the electrical service to a *building* or *structure* to be energized prior to conducting the final inspection. Approval of the final inspection indicates that all work associated with the permit complies with this code and the permit is complete. Prior to occupancy or *change of occupancy* of a *building* or *structure*, a certificate of occupancy shall be issued in accordance with Section 116.

SECTION R306
SANITATION

R306.1 Toilet facilities.

Every *dwelling unit* shall be provided with a water closet, lavatory, and a bathtub or shower.

R306.2 Kitchen.

Each *dwelling unit* shall be provided with a kitchen area and every kitchen area shall be provided with a sink.

R306.3 Sewage disposal.

Plumbing fixtures shall be connected to a sanitary sewer or to an*approved* private sewage disposal system.

R306.4 Water supply to fixtures.

Plumbing fixtures shall be connected to an*approved* water supply. Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water.

R306.5 Water supply sources and sewage disposal systems.

The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.5 of Part I of the *Virginia Uniform Statewide Building Code* (13VAC5-63), for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the “Related Laws Package,” which is available from the Virginia Department of Housing and Community Development.

P2602.1 General.

The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.5 of Part I of the *Virginia Uniform Statewide Building Code* (13VAC5-63) for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the “Related Laws Package,” which is available from the Virginia Department of Housing and Community Development.