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October 18, 2018

RE: Cause Number DHS-1811-FPBSC-011

Appeal of a Fire Prevention and Building Safety Commission Regulation
State Project Release Number 391539
32 Union Apartments
State Road 32 and Union Chapel Road
Noblesville, IN 46060

TO: Hon. Chelsea E. Smith
Administrative Law Judge
Indiana Department of Homeland Security
302 W. Washington Street
Indiana Government Center South, E208
Indianapolis, IN 46204
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Below is the Petitioner Ryan Fireprotection, Inc.'s Verified response to the brief filed by the Respondent dated, September 21, 2018. This brief explains the Petitioner's position that it is not in violation of Indiana Fire Code Section 903.3.1.2.1, and that the Petitioner proceeded with its work assuming the Respondent had confirmed from the beginning of the project that there were no code violations. This brief concludes with a summary to reaffirm that the evidence supports the Petitioner's arguments, and that the Respondent has failed to satisfy its burden of proof and has not put forth substantial and reliable evidence that the Petitioner committed the violation stated in the Respondent's order dated July 5, 2018. The Petitioner disputes the Respondent's analysis that an eave or overhang over a balcony constitutes a roof. The Petitioner also maintains that in order for a sprinkler protecting an exterior balcony to have any chance of operating during a fire, a roof or deck must completely cover the balcony in order to capture enough heat to operate the sprinklers fusible activating mechanism. The Petitioner also maintains that an eave or overhang is not sufficient to capture enough heat to operate a sprinkler.

The petitioners qualifications include:

Certification as a Level IV Fire Sprinkler Layout Technician by the National Institute for Certification in Engineering Technologies. A program sponsored by the Society of Professional Engineers. Certification # 102523 Status: Active

Certification as Fire Inspector by the International Code Council, Certification # 0824023-67. Status: Active

Certification as a Plans Examiner by the International Code Council, Certification # 0824023-B3. Status: Active

Former Chief Deputy State Fire Marshal for the State of Indiana.

Former Director of Training and Education for the National Fire Sprinkler Association.

Former Commission Appointee of the Indiana Fire Prevention and Building Safety Commission.

Past Firefighter for the Wayne Township Fire Department in Indianapolis, Indiana.

Current Licensed Fire Sprinkler Contractor in the Multiple States.

The Petitioner's facts are as follows:

1. The Noblesville Fire Department has a codified ordinance enacting the Noblesville Fire Prevention Code 92 within the Noblesville Code of Ordinances. Document 1 is attached for reference.
2. The Noblesville Fire Prevention Code has been presented and accepted by the State of Indiana Fire Prevention and Building Safety Commission. Document 1 is attached for reference .
3. Section 92.02 of the Noblesville Fire Prevention Code Defines Inspection as "Visual inspection of a building, system, design, or installation to verify that it meets the standards of all applicable codes of the jurisdiction and/or is in acceptable operating condition and free of defects." Document 1 is attached for reference.
4. Section 92.03 of the Noblesville Fire Prevention Code establishes a Fire Prevention Bureau and assigns the Fire Chief or his designee to conduct fire and life safety inspections for the purpose of ascertaining and causing to be corrected any violation of the Indiana Codes. Document 1 is attached for reference.
5. Section 92.06 of the Noblesville Fire Prevention Code establishes procedures and requires that fire sprinkler system plans submitted for the purpose of a plan review and inspection of plans prior to the rough in of a fire sprinkler system. This section also requires a copy of the Construction Design Release from the Indiana Department of Homeland Security. Document 1 is attached for reference

6. Section 92.09 of the Noblesville Fire Prevention Code prescribes information needed for Certificate of Occupancy Requirements.

In summary items 1 – 6 above provide clarification that the Noblesville Fire Department requires submittal of plans for the purpose of reviewing and inspecting them for compliance with Fire Safety and Building Safety regulations prior to the start of construction. Document 1 is attached for reference.

7. Prior to August, 2017 Petitioner created a set of Fire Sprinkler Plans for all of the 32 Union Apartment Buildings. The plans depicted sprinkler protection as required by the State adopted Sprinkler Regulations. Specifically, all balconies with balconies above them and all balconies with roofs completely covering them were provided with Sprinkler Protection. For the balconies protected with sprinklers, the sprinkler is noted on the plans with a solid infilled triangle. For balconies without protection, there is no symbol shown on the drawings. For ease of locating the areas without sprinkler protection, a specific note has been added with a clouded notation at all balconies without overhead roofs stating no protection is being provided. The reason balconies without roofs, decks or balconies above them that completely covered them are not provided with sprinklers is because the intent of the Building Code recognizes in the event of a fire on an outside balcony there is no method to trap enough heat from the fire to operate the sprinkler and the code specifically exempts them from being installed. Document 2 is attached for reference
8. On August 21, 2017 Petitioner obtained a Construction Design Release from the Indiana Department of Homeland Security for the Fire Sprinkler Plans. The Design Release did not reflect comments depicting the need for additional sprinkler protection at balconies without roofs. The Petitioner assumed the State Plan reviewer understood sprinklers were not necessary. Common practice form past releases would have resulted in having The State Release would be put on hold until further clarification was provided or released with a stipulation if the State Plan reviewer felt sprinklers were necessary for these areas. Document 3 is attached for reference.
9. On August 7, the same Fire Sprinkler Plans were submitted electronically to Matt Mitchell, Assistant Fire Chief of the Noblesville Fire Department for their review to determine compliance with the State adopted fire, building and life safety regulations. Document 4 is attached for reference.
10. On August 7, 2017 the Fire Sprinkler Plans were forwarded to Noblesville Fire Marshal Darrel Cross for review to determine compliance with the State adopted fire and building and life safety regulations. Document 4 is attached for reference
11. From the time plans were submitted in 2017 to the Noblesville Fire Department, Ryan Fireprotection was not made aware by the Noblesville Fire Department that there were any concerns or suspected deficiencies related to the adopted fire and life safety regulations.

12. Petitioner proceeded with the survey, fabrication and installation of the fire sprinkler system as submitted and in compliance with all State adopted Fire and Building Safety Standards, including sprinkler protection of balconies as required by the Indiana Code, assuming that the State and Local Government Officials agreed there were no code violations. Fire Sprinklers were provided for balconies having balconies above them. The question regarding the need for fire sprinklers to protect balconies when only eaves or soffits are above the balcony has been answered by the National Fire Protection Association, and the National Fire Sprinkler Association, as explained later in this brief.
13. On July 5, 2018 Fire Marshal Darrel Cross submitted an inspection report stating his findings during an inspection, and requesting additional sprinkler protection under the balconies without roofs covering the balconies. Document 5 is attached for reference.
14. Enforcement of the July 5, 2018 inspection report would create an undue hardship, due to the fact that the building is complete and occupants are ready to occupy the building. The addition of sprinklers would require removal of portions of the completed building along with a complete redesign and reconstruction of these areas in order to incorporate sprinkler protection in a manner that would avoid freezing of the water in pipe during the winter season. Petitioner having submitted plans for review and inspection to both the State and Local Authorities (with special notations regarding balcony protection) proceeded with the installation assuming that if there were concerns regarding non-compliance with fire and building safety regulations, they would have been brought to the attention of all parties during the plan review process.
15. On July 12, Petitioner appealed the violation and sent the appeal electronically to Douglas Boyle, Director of the Indiana Fire Prevention and Building Safety Commission. Mr. Boyle provided a response indicating the appeal needed to be submitted via the postal service or hand delivered by July 20, 2018. Mr. Boyle received the appeal via UPS on July 17, 2018. Document 5 attached for reference.
16. A variance petition was also submitted to the Fire Prevention and Building Safety Commission. The variance was requested due to the fact that the Respondent had acted so late during the process that it was delaying occupancy of the building and causing a loss of revenue to the owner. The variance was requested in hopes that the Commission would understand that the Code did not require sprinklers in these areas, and to determine "no variance was required." Submitting variance request at the same time as the Appeal was suggested by State Officials as a possible solution to keeping the project moving forward without making unnecessary and costly changes to the fire protection system. Unfortunately, due to time limitations placed on the testimony by Commission Chairman, the Petitioner feels there was not enough time to adequately present the facts. The Chairman would only allow 5 minutes which was simply an unreasonable amount of time to explain and describe the situation based on the complexity of the circumstances. Commission members commented that the Code section was unclear. The result was denial of the request by Commission members. The Attorney General's Office counsel had concerns

about how the outcome was reached. The Appeal was not requested as a result of the denial of the variance request. The Appeal was the first step. The variance was only requested based on a suggestion by State Officials as a method for a quicker resolution as previously stated.

17. The undue hardship created by the Commission's denial and the Fire Department's inspection report is the additional cost for installing additional sprinklers along with the cost to remove, replace, rebuild and install new construction and sprinklers. Currently there are 7 buildings with 12 areas in each building that are affected. It is estimated the cost of construction and installing a dry type barrel sprinkler to avoid freezing will be \$750.00 per unit. Total cost is \$63,000.00. It should be noted that the cost to install sprinklers is approximately \$2,100.00 per unit. The additional cost of \$750.00 would represent an additional 35% to the total sprinkler system cost.
18. On June 21, 2018, the Respondent sent a request for interpretation of IFC Section 903.3.1.2.1 to the International Code Council (ICC). The ICC responded on July 2, 2018. Rather than provide the Respondent with an interpretation as requested, the ICC referred the Respondent to a section of the Code in Chapter One that was deleted by the State of Indiana as a part of its amendments when the Code was adopted in Indiana. Therefore, the Section referenced by the ICC is not applicable or enforceable in Indiana. Additionally, the ICC interpretation referred the Respondent to a section of NFPA 13 R that was amended in the 2013 Edition. The ICC mentions that the NFPA 13R revision was added to match the section 903.3.1.2.1 IFC Section. The interpretation of NFPA 13 R in the NFPA Handbook on page 259 states the intent of the rule is NOT to require sprinklers where there is an eave, overhang or soffit above. The National Fire Sprinkler Association offered an informal interpretation (noted as document 7) affirming that the construction of an eave, overhang or soffit does not require sprinkler protection of the balcony below. Document 6 is attached for reference.
19. The intent of the Code that has been adopted in Indiana Building Codes is to not require sprinkler protection under balconies without roofs over them. A response from the National Fire Sprinkler Association describes the intent of the Code. Their position is that the roof must cover the balcony and that an eave or soffit will not trap enough heat to operate the sprinkler. Document 7 provided for reference.
20. The NFPA 13R handbook explains why sprinklers are not required under balconies with eaves or soffits. The Indiana Building Code references NFPA 13R as the appropriate design Standard for this project. Requiring a sprinkler to be installed in locations not recommended by the NFPA Standards creates a false sense of security, and there is a strong possibility the sprinkler may not operate properly. Refer to page 259 of the NFPA Handbook. Document 8 attached for reference.

21. The Indiana Building Code is an amended version of the International Building Code 2012 Edition. The International Building Code contains specific regulations based on proposals submitted by persons representing organizations that are concerned about building and fire safety. The first edition of the International Building Code, issued in 2000, did not have any provisions requiring sprinkler protection of balconies. In the 2003 Edition of the International Building Code, new language was added to require balconies and patios to be protected with sprinklers. This code change proposal was F9302. F9302 is referenced later in this brief. Code change proposal F9302 did not contain provisions to require a roof or deck above the balcony. This Code change proposal F9302 caused major concerns because there was no requirement for a construction feature on the building that would trap enough heat to operate a sprinkler. In the 2009 Edition of the International Building Code additional provisions were added to fix the problem. A code change proposal for section 903.1.2.1 (IBC (F)903.1.2.1) for the 2009 Edition was submitted by a Proponent Kevin Kelly, the National Fire Sprinkler Association proposal known as F9706/07. The reason for code proposal F9706/07 was to clarify that there must be a roof or deck above the balcony constructed in a manner to entirely cover the balcony in order for heat to collect and operate the sprinkler protecting the balcony. Document 10 is provided for reference which contains both code change proposal F9302 and F 9706/07. This code change proposal was accepted and became a part of the International Building Code. . Document 9 is provided for reference.
22. In an electronic message to National Fire Sprinkler Association proponent, Kevin Kelly, inquiring about the intent of the code change, he replied that the intent of the code change was to have a roof or deck abounding the balcony below and to not to require sprinkler protection involving only eaves, soffits or overhangs. Document 10 is provided for reference.
23. The Respondent's basis for issuing a citation to the Petitioner comes from references to some full scale fire tests conducted by TYCO. The test report is dated 2013 indicating. that the test was not conducted until after the 2009 Edition of the International Building Code and could not have been used as supporting evidence for code change F9706/07 submitted by the National Fire Sprinkler Association. Additionally this test could not have been the basis for Code Change F9302 because it was conducted 10 years after the code change. The Petitioner contends that the TYCO test does not relate or correspond with to code change proposal that adds language to require a roof or deck above the balcony. The purpose of the TYCO test was to determine sprinkler effectiveness to protect balconies with balconies above them. It was not the purpose of the test to determine sprinkler effectiveness with eaves, soffits or overhangs above them. It is important to note that the Petitioner did provide sprinkler protection of balconies having balconies above them.

Upon further investigation of the TYCO test, it is very apparent that the testing scenarios had to be completely modified well outside of normal construction practices in order for the sprinkler to have any chance of operating. The TYCO test was not a Underwriters Laboratories or Factory Mutual Test. In order for the fire test to create enough heat to operate the sprinkler, a number of modifications had to be made to the test model. These modifications are completely outside the scope of how an exterior balcony would typically be constructed. After considering the following modifications it is very evident that the test model is not representative of an actual balcony on the exterior of an apartment building. For example:

- The test was conducted indoors which does not account for exterior environmental factors.
- The information admits that sprinklers are not effective when fires are adjacent to the open end of balconies.
- The wall assemblies had to be reduced to ¼ inch combustible plywood in order for the test assembly to catch on fire.
- The test did not compensate for environmental conditions all of which would affect both the activation of the sprinkler and its water spray distribution pattern.
- Actual conditions must compensate for wind, atmospheric pressure, temperature, snow, and rain.
- There were no tests for balconies that had 3 sides open.
- Some of the tests were conducted with 3 sides enclosed which is not realistic.
- The balcony construction above the protected balcony was created in a manner to trap heat and direct it to the sprinkler by creating joist channels and enclosing the end with a rim joist soffit deeper than the joist to direct heat toward the the sprinkler and away from the opening.
- The test was conducted using liquefied petroleum having flames directly on the wall with flame heights of 1'6 inches which is not representative of the flames from a outdoor barbeque grill.
- The test fire was directly adjacent to the sprinkler 5 feet away.
- An actual fire sprinkler would be expected to flow 11 gpm and this test method flowed 23 gpm from the sprinkler which is not realistic.
- In 3 of the tests, it is questionable that sprinklers did not operate.
- In one of the tests, it took 20 minutes for the sprinkler to operate.

24. It is for these reasons that this test does not satisfy the Respondent's burden of proof to require sprinklers under eaves, soffits or overhangs. The referenced test was constructed in a manner that is not reflective of actual methods for construction. In fact, the test results confirm that it would be impossible for sprinklers to perform satisfactory with just an eave or overhang to capture heat. The indoor test required numerous construction modifications (none of which would be found for ordinary apartment construction) in order for the sprinkler to operate. Document 11 is provided for reference. The only common factor with the test and the Petitioners claim is that the test was conducted with the balcony completely covered by a roof or deck and even with the a total overhead enclosure, it was nearly impossible to trap enough heat to operate the sprinkler. . Document 11 is provided for reference.
25. The NFPA 13 R Standard recognizes that not all areas of an apartment building will be protected. The Standard was created to balance cost with an achievable level of life safety protection from fire and to prevent flashover. The Standard is based on 113,000 fires and studying areas where fires happened and the areas where there were casualties. Balconies without roofs were not an area of concern. To date there has not been an example of a fire on a balcony without a roof overhead that caused flashover or casualties. According to the Indiana Building Code, NFPA 13R is the appropriate Standard for this project. The requirements of NFPA 13R are based on 60 full scale fire tests and establishing a goal to save lives by preventing flashover. To be effective sprinklers need to open closest to the fire before the fire exceeds the ability of the sprinklers discharge of water to extinguish or control the fire. Without a means to trap hot gases, the sprinklers activation time is affected.
26. Sprinklers are not designed to work under overhangs, soffits or eaves. The purpose of the sprinkler requirements in both the Building Code and NFPA Standards for midrise type residential occupancies (up to and including 4 stories) are to save lives with active fire protection. The history of the development of a cost effective method of providing active fire protection began in the 1970's by the Federal Government. They recognized the life saving abilities of fire sprinklers, combined with regulations that were cost effective, could help solve the fire problem in the United States. Over time, the internationally recognized model Fire and Building Regulations and the NFPA Standards were modified to allow for the construction of residential occupancies with active fire protection. These regulations studied over 100,000 fire incidents and are based on providing fire protection in areas where there is evidence of fires starting, evidence of fire casualties and the need to prevent flashover. The regulations also recognized that to be cost effective, not all areas need to be protected. As examples, although there were 2,120 fires in closets, 2,510 fires in bathrooms, 1,490 fires in crawl spaces, 1,100 fires involving attics, these areas do not require sprinkler protection in order to prevent flashover and save lives. The fire incidents that were studied also involved 1,880 balcony fires. Based on the fire reports, balconies did not require fire sprinklers. It should also be noted that closets can be constructed on balconies without sprinkler protection. Document 12 attached for reference.

To specifically address the Repondent's brief by number, Petitioner offers the following comments:

1. Item 1 of the Respondents brief is explanatory only and does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule.
2. Item 2 of the Respondents brief is explanatory only and does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule.
3. Item 3 of the Respondent's brief is explanatory only and does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. The August 20 electronic message from the National Fire Sprinkler Associations references the roof definition in Merriam-Webster's Dictionary as the cover of a building. The National Fire Sprinkler Associations response includes the intent of the roof definition as it relates to the specific code section. The NFPA Handbook and the ICC interpretation both explain further that sprinkler protection of balconies is not required when below overhangs, soffits and eaves.
4. Item 4 of the Respondent's brief is explanatory only and does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. The Respondent states that neither definition of "Roof Deck" or "Roof Assembly" excludes a soffit or eave from the definition. The Petitioner would conclude that neither definition of Roof Deck or Roof Assembly "includes" a soffit or eave. Again, interpretations from ICC, NFSA and the NFPA all agree the intent of Section 903.3.1.2.1 IFC is not to require sprinkler protection of balconies having soffits or eaves or overhangs above. Furthermore the testing conducted by TYCO proved that even with a roof above it would be next to impossible to activate a sprinkler involving a balcony fire.
5. Item 5, 6, 7 and 8 of the Respondent's brief does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. The information provided by the National Fire Sprinkler Association not only provides for the definition of a eave or soffits but also provides an explanation of its intent in terms of how it is to be interpreted as a part of the meaning of the rule.
6. Item 9 of the Respondent's brief does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. The minutes of the Commission's meeting are not accurate. Specifically, the minutes include comments that the State Building Commissioner mentioned a percentage of overhang at 15% which is incorrect. The Respondent also mentions percentages of overhang coverage. That analogy would suggest that if the balcony was increased in size there would be no violation. This is certainly not the intent.
7. Item 10 of the Respondent's brief does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. As explained earlier, the variance petition was filed based on a suggestion by Doug Boyle in order to reach a favorable conclusion quickly, in addition to proceeding with the Appeal. The decision to appeal the alleged violation was always the original plan because there is no violation and the Petitioner's only recourse is the Appeal process.

8. Item 11 of the Respondent's brief does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. The State Building Commissioner did not have all of the facts necessary to make a proper decision. His decision was based on a hurried presentation and misleading information that had been provided to the Respondent summarizing a test by TYCO, dated in 2013 that was suggested as supplemental information to a code change proposal 10 years earlier in 2003. Regardless, the TYCO test conclusion has no factual basis. The State Building Commissioner was not provided with all of the facts that are now available from the National Fire Protection Association, The National Fire Sprinkler Association and the International Code Council.
9. Item 12 of the Respondent's brief does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. As explained earlier, the Code requirement in 2009 that required a roof of deck over the balcony, was presented by a representative of the National Fire Sprinkler Association and not by Jeffery Shapiro. The Code Change submitted by the National Fire Sprinkler Association is F9706/07. Mr. Shapiro is referring to a code change F9302, which is not the applicable Code Change. Additionally, the test relied upon by Mr. Shapiro is misleading and does not represent this situation in any form or fashion.
10. Item 13 of the Respondent's brief does not satisfy the burden of proof that the Petitioner violated a Fire or Building Safety rule. The Standard in question is NFPA 13R and not NFPA 13. Furthermore, the Respondent's interpretation of NFPA 13 is incorrect. There is no requirement in NFPA 13 to install sprinklers below overhangs over 24" in width unless they are used for "storage". Furniture on a balcony is not considered "storage". [Citation to any authority?] The Respondent provided this misleading information and mis-interpretation to the Fire Prevention and Building Safety Commission during its variance testimony, which could have been the basis for the Commission's actions (which is unfortunate).

Based on the information set forth in this document and submitted herewith, we ask that the Indiana Fire Prevention and Building Safety Commission and the Noblesville Fire Department remove the condition requiring sprinklers over balconies that are notably only eaves or soffits, and that the Respondent's finding that the Petitioner violated IFC §903.3.1.2.1 be reversed. Further, the Respondent's proposed sanction should be determined to be unfeasible and inappropriate. We offer this information as professionals having the necessary qualifications and certifications by the National Institute for Certification in Engineering Technologies, National Fire Protection Association and the International Code Council certified as Fire Inspectors and Plan Reviewers for the purposes of applying Codes and Standards.

I AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS SET FORTH HEREIN ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read 'Mark Riffey', with a long horizontal flourish extending to the right.

Mark Riffey, CET
Executive Vice President Ryan Fireprotection

cc:

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**NOBLESVILLE FIRE DEPARTMENT
FIRE PREVENTION BUREAU
INSPECTION DIVISION**
MATT MITCHELL – DIVISION CHIEF
DARREL CROSS – FIRE INSPECTOR
RYAN FLORA – PT FIRE INSPECTOR



**PLAN REVIEW REQUIREMENT
SPRINKLER SYSTEMS
FIRE ALARM SYSTEMS**

Design Professional for _____ :

Please provide the following *highlighted* documents prior to the time of the first *rough-in* inspection:

1. One (1) full set of Sprinkler System Plans
2. One (1) full set of Sprinkler System Calculations
3. The Sprinkler System Construction Design Release (CDR)
4. *Cut-sheets* for each type of sprinkler head in the sprinkler system design
5. One (1) full set of Fire Alarm Plans
6. One (1) set of Fire Alarm Battery Calculations
7. The Fire Alarm System Construction Design Release (CDR)
8. *Cut-sheets* for the Fire Alarm Control Panel (FACP) and Fire Alarm Components
9. One (1) Fire Alarm Performance Matrix

For Questions, please contact:

Matt Mitchell, CFM
City of Noblesville Fire Department
Division Chief / Fire Marshal
(317) 776-6336 Ext. 1412
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ORDINANCE # 50-10-09

**AN ORDINANCE AMENDING ORDINANCE 3-1-09 WHICH REVISED
THE NOBLESVILLE FIRE PREVENTION CODE §92
OF THE NOBLESVILLE CODE OF ORDINANCES**

WITNESS THAT:

WHEREAS, Ordinance 3-1-09, which substantially overhauled the City's Fire Prevention Code, was passed by the City of Noblesville Common Council on February 10,; and,

WHEREAS, Ordinance 3-1-09 was then sent on to the State Fire Prevention and Building Safety Commission; and,

WHEREAS, the Fire Prevention and Building Safety Commission recommended the amendment of certain provisions of Ordinance 3-1-09; and

WHEREAS, the recommended amendments have been made and are incorporated into Ordinance 50-10-09 for consideration by Council.

NOW, THEREFORE, BE IT ORDAINED by the Common Council of the City of Noblesville, Hamilton County, Indiana (meeting in regular session), as follows:

- A. That this Ordinance be adopted and codified under Chapter 92 of the Noblesville Code of Ordinances.
- B. This Ordinance shall be in full force and effect from and upon its adoption, publication, and approval by the Fire Prevention and Building Safety Commission in accordance with the law.
- C. The intent of the Noblesville Common Council is to ensure that the City is not left without a Fire Code during the timeframe before Ordinance 50-10-09 becomes effective. Therefore, upon adoption by the Common Council, publication and approval by the Fire Prevention and Building Safety Commission of this new, revised Fire Prevention Code, established by Ordinance 50-10-09, and at such time as Ordinance 50-10-09 becomes legally effective and enforceable, the prior provisions of the old Fire Prevention Code codified under Chapter 92 shall be repealed and replaced by the provisions of Ordinance 50-10-09.

C. APPLICABILITY:

The provisions of this Fire Prevention Code shall be supplemental to the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, and Indiana Fuel Gas Code as adopted by the Indiana Fire Prevention and Building Safety Commission. The provisions of this chapter shall apply to maintenance of Fire Prevention and Life Safety Features as herein described. The provisions of this chapter shall apply to existing conditions as well as to the conditions arising after the adoption thereof. Buildings, systems, uses, processes, and equipment legally in existence on the effective date of this section shall be permitted to continue so long as they are maintained in a condition that is equivalent to the quality and fire-resistive characteristics that existed when the building was constructed, altered, added to, or repaired.

D. CONFLICTING PROVISIONS:

When any provision of this chapter is found to be in conflict with any Building, Zoning, Safety, Health, or other applicable law or Ordinance of the City of Noblesville existing on the effective date of this code or hereafter adopted, the provision which establishes the higher standard for the promotion and protection of the safety and welfare of the public shall prevail.

E. MINIMUM STANDARDS:

All rules of the Indiana Fire Prevention and Building Safety Commission as set out in Articles 13, 18, 22, 25, and Title 675 of the Indiana Administrative Code are hereby incorporated in this Fire Prevention Code and shall include later amendments to that article as the same are published in the Indiana Register or the Indiana Administrative Code with effective dates as fixed therein.

Any special processes or procedures not addressed in the Indiana Fire Code (675 IAC 22) or this chapter shall be subject to applications found in Fire Safety Standards recognized by Indiana Fire Code (675 IAC 22) Referenced Standards and as approved by the Fire Chief, or his designee, of the City of Noblesville Fire Department.

Any special processes or procedures not addressed in this chapter shall be subject to applications found in the current editions of the National Fire Protection Association (NFPA) Standards or other recognized Fire Safety Standards—subject to the rules of the Indiana Fire Prevention and Building Safety Commission.

A copy of these standards shall be available in the City of Noblesville Fire Inspection Division for inquiry and review by the members of the public during normal business hours.

§92.02 - DEFINITIONS

For the purposes of this chapter, the following terms are defined as follows:

Automated External Defibrillator (AED): A computerized medical device which can check a person's heart rhythm, recognize a rhythm that requires a shock, advise a rescuer when a shock is needed, and uses voice prompts, lights, and text messages to tell the rescuer the steps to take.

Approved: Acceptable to the Fire Chief, or his designee.

Building Code: Indiana Building Code (675 IAC 13).

Burning: To be on fire, to give forth light and heat during combustion, or to be charred or scorched by action of fire or heat.

Certificate of Occupancy: A certificate issued by the City of Noblesville Planning Department to the owner or tenant of a Class 1 structure indicating that the building is in proper condition to be occupied.

Class 1 Structure: Buildings and structures as defined in I.C. 22-12-1-4.

Class 2 Structure: Buildings and structures as defined in I.C. 22-12-1-5.

Compliance Affidavit Card: A card that is issued with a Notice of Violation wherein the property owner, manager, or other responsible person states that compliance with said Notice of Violation has been attained.

Consumer Fireworks: As defined by I.C. 22-11-14.

Emergency Vehicle Lane (or, Fire Lane): A road or other passageway developed to allow the passage of fire apparatus. An emergency vehicle lane is not necessarily intended for vehicular traffic other than fire apparatus.

FAAP: A Fire Alarm Annunciator Panel.

FACP: A Fire Alarm Control Panel.

FPBSC: The Fire Prevention and Building Safety Commission of the State of Indiana as established by I.C. 22-12-2-1.

Fire: The combustion of material other than deliberate combustion for cooking, heating, recreation, incineration, or purposes incidental to normal operation of a property.

Fire Apparatus: Vehicles, i.e., pumpers, aerial ladder trucks, elevated platforms, rescues, squads, ambulances, administrative vehicles, or other firefighting or rescue equipment.

Fire Chief: Fire Chief of the City of Noblesville Fire Department.

Fire Code: Indiana Fire Code (675 IAC 22).

Fire Department: The City of Noblesville Fire Department.

Fire Department Access Road: A road that provides fire apparatus access from a fire station to a facility, building, or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane, and access roadway.

Fire Department Connection (FDC): A connection through which the Fire Department can pump water into a standpipe and/or sprinkler system.

Fire Exit Hardware: Panic Hardware that is listed for use on fire-rated door assemblies.

Fire Flow: The flow rate of a water supply (measured at twenty (20) pounds per square inch (PSI) residual pressure) which is available for firefighting.

Fire Hazard: Any act or thing which increases or may increase the possibility or menace of fire to a greater degree than that customarily recognized as normal by the City of Noblesville Fire Department; or which may obstruct, delay, hinder, or interfere with the operations of the Fire Department or the egress of occupants in the event of fire.

Fuel Gas Code: Indiana Fuel Gas Code (675 IAC 25).

GAR: General Administrative Rules (675 IAC 12) of the Indiana Fire Prevention and Building and Safety Commission.

Garbage: Food wastes such as fruit, vegetables, meat, cooking greases, dried cereal, bread, beverages, and semi-solid waste resulting from processing, handling, preparation, and cooking of dead animals, animal waste, and the like.

Gas Light: Any lighting device that utilizes a flammable or combustible gas (or liquid) to fuel an open flame.

Hazardous Condition: The presence of a structural condition, equipment, utility connection, materials that constitute or pose a recognized threat of fire or other injury to persons or property.

IAC: Indiana Administrative Code.

I.C.: Indiana Code of the Indiana General Assembly.

Inspection: Visual inspection of a building, system, design, or installation to verify that it meets the standards of all applicable codes of the jurisdiction, and/or is in acceptable operating condition and free of defects.

Jurisdiction: Fire service district consisting of the City of Noblesville and Noblesville Township.

Knox Company: A private organization that supplies the rapid entry systems for the City of Noblesville.

Mechanical Code: Indiana Mechanical Code (675 IAC 18).

NFD: Noblesville Fire Department.

NFPA: National Fire Protection Association (publishes the volumes of the National Fire Codes).

Notice of Violation: A written notice issued by the Fire Department usually in the form of an inspection report listing violations.

Notification Device: A Fire Alarm System component that provides audible and/or visual notification upon activation of a fire alarm initiating device.

Occupant Load: The number of persons for which the means of egress of a building or portion thereof is designed.

Occupancy Classification: As defined by the Indiana Building Code (675 IAC 13).

Order: A written report that orders the property owner, occupant, or tenant to cease and correct identified violations of the Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, or this Fire Prevention Code.

Panic Hardware: A door latching assembly incorporating a device that releases the latch upon the application of a force in the direction of egress travel.

Person: Shall mean person, firm, corporation, partnership, association and bodies—political and corporate.

Prohibit: To stop or prevent.

Public Display of Fireworks: Supervised display of Class 1.3G fireworks (non-consumer fireworks) which requires a permit from the State of Indiana under I.C. 22-11-14-2.

Rubbish: Any substance that is not readily combustible such as rubber, oily liquids, cloth, plastics, glass, metal, aluminum, and leather.

Testing: A functional test of all components to verify proper operation of the system, design, installation, or use.

Trash: Something readily flammable that would not emit toxic or offensive substances or would emit them in quantities too small to be annoying or dangerous to health or safety.

Wall-Rough Inspection: A new construction inspection required by the City of Noblesville Planning Department prior to installing gypsum board, paneling, or other acceptable material on unfinished walls.

Yard Waste: Leaves, grass, weeds, brush, and the like.

TERMS NOT DEFINED: *Where terms are not defined in this Fire Prevention Code and are defined in the Indiana Building Code, Indiana Fire Code, Indiana Mechanical Code, or Indiana Fuel Gas Code, such terms shall have the meanings ascribed to them as in those codes. Where terms are not defined through the methods authorized, such terms shall have ordinarily accepted meanings such as the context implies.*

§92.03 – ADMINISTRATION

A. FIRE PREVENTION BUREAU ESTABLISHED:

There is hereby established a local Fire Prevention Bureau within the City of Noblesville Fire Department. The Fire Prevention Bureau, established within the City of Noblesville Fire Department, shall have jurisdiction within the Noblesville Fire Services district.

B. FIRE PREVENTION BUREAU ORGANIZATION:

The Fire Prevention Bureau of the City of Noblesville Fire Department shall be under the supervision of the Administrative Assistant Chief and consist of an Inspection Division and an Investigation/Fire Prevention Division.

C. FIRE SCENE AUTHORITY:

The Fire Chief, or his designee, at any fire, explosion, rescue, emergency medical, hazardous materials incident, or any other emergency which poses imminent threat to life, environment, or property, shall have the authority to direct operations as necessary to control, mitigate, or eliminate the emergency. It shall be unlawful for any person to impede the emergency operations of the City of Noblesville Fire Department.

D. EMERGENCY LINES AND LIMITS:

The Fire Chief, or his designee, may establish emergency lines and limits; and, barricade or guard from the general public such emergency lines and limits. The Fire Chief, or his designee, may create an area in which only firefighters, law enforcement personnel, other emergency responders, other people, or agencies having a direct interest in any property threatened by a fire, explosion, hazardous material incident, other emergency, other people, or agencies at the discretion of the Fire Chief, or his designee, shall be admitted. It shall be unlawful for any unauthorized person to cross such emergency lines or limits.

E. EMERGENCY ENTRY:

The Fire Department shall have the authority to enter any building or premises without permission or warrant in the event of an emergency situation constituting a threat to life, property, or the public safety for the purpose of eliminating, controlling, or abating the hazardous condition or situation.

F. LIABILITY:

At no time will the City of Noblesville Fire Department or any of its agents be responsible for any damages as a result of an emergency entry. The Fire Department will notify the owner, occupant, or tenant of such an event and it will be the responsibility of the owner, occupant, or tenant to assure that the building is re-secured.

G. FIRE INVESTIGATIONS:

The Fire Chief, or his designee, shall perform fire investigations pursuant to I.C. 36-8-17. The Fire Chief, or his designee, is authorized to conduct an origin and cause investigation of all fires and explosions within the service district of the City of Noblesville Fire Department. It shall be unlawful for any person to impede the Fire Chief, or his designee, from conducting an origin and cause investigation.

H. FIRE AND LIFE SAFETY INSPECTIONS:

The Fire Chief, or his designee, shall conduct fire and life safety inspections in Class 1 structures pursuant to I.C. 36-8-17. The Fire Chief, or his designee, shall inspect Class 1 structures as often as necessary for the purpose of ascertaining and causing to be corrected any violation of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction.

§92.04 – ENFORCEMENT

A. ENFORCEMENT AUTHORITY:

The Fire Chief, or his designee, shall possess the authority to enforce the provisions of this Fire Prevention Code.

The Fire Chief, or his designee, shall have the authority to enforce provisions of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other code of the jurisdiction within the City of Noblesville and Noblesville Township. Such enforcement shall include, but is not limited to:

1. The prevention of fires.
2. The handling, storage, sale, and use of flammable liquids, explosives, combustible, and hazardous materials.
3. The adequacy of means of egress from all places in which numbers of people live, work, or congregate from time to time for any purpose.
4. The location, installation, and maintenance of smoke alarms, fire alarm systems, and fire suppression systems.
5. The existence of recognized hazardous conditions that present a clear and immediate hazard to life and property.

The Fire Chief, or his designee, shall have the authority to institute legal actions in cases of non-compliance. The Fire Chief, or his designee, shall have the authority to issue citations covering the violations of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction. Violators of these codes may be cited into the court having jurisdiction.

B. DETERMINATION OF VIOLATION:

Whenever a duly authorized member of the City of Noblesville Fire Department determines by inspection that a violation of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, any other Fire Safety Code of the jurisdiction or a hazardous condition exists upon any Class 1 structure within the City of Noblesville and Noblesville Township, the person making such determination shall issue such Notice of Violation or order as may be necessary for the enforcement of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction.

C. TIME LIMIT:

Orders shall set forth a time limit for compliance dependent upon the hazard created by the violation(s).

D. NOTICE OF VIOLATION:

Under I.C.-36-8-17-9, the enforcement of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction, which is within the jurisdiction, the Fire Department may seek the correction of any violation or the elimination of any hazardous condition by the methods specified in this code or by any other appropriate remedy or procedure provided by law. The failure of the Fire Department to inspect or to issue a Notice of Violation or order in accordance

with this chapter shall not constitute approval of any violation or non-compliance. Any Notice of Violation or order issued pursuant to this section shall be conveyed upon the owner, operator, occupant, or other person responsible for the building or property. Conveyance of such order shall be by one of the following methods: Personal service (by affixing a copy thereof in a conspicuous place at the entrance of said building or premises), by mailing a copy thereof to such responsible person by first-class mail to his or her last known address, by fax, or electronic mail pursuant to I.C. 4-21.5-3.

E. IMMINENT DANGER:

The Chief of the Fire Department, or his designee, may stop the operation or require the evacuation of any Class 1 structure or portion thereof under the provisions of I.C. 36-8-17-9 when it is determined that conduct or conditions of the property:

1. Present a clear and immediate hazard of death or serious bodily injury to any person other than a trespasser.
2. Is prohibited without a permit, registration, certification, authorization, variance, exemption, or other license required under I.C. 22-14 or another statute administered by the Department of Fire and Building Services and the license has not been issued; or, will conceal a violation of law.

F. DUTY TO CORRECT VIOLATIONS:

The owner or person in control of any premises or building upon which a violation or hazard exists shall:

1. Cease and correct the violation.
2. Protect persons and property from the hazards of the violation and correct the violation.
3. Require persons to leave the area that is affected by a violation and prohibit people from entering the area until the violation is corrected.

G. APPEAL FROM ORDERS:

An owner or occupant who remains aggrieved by an order or decision issued pursuant to this Fire Prevention Code and the matter involves a rule of the Indiana Fire Prevention and Building Safety Commission, may appeal to the Indiana Fire Prevention and Building Safety Commission as set forth by I.C. 36-8-17.

H. VARIANCES/APPEAL:

1. An owner or occupant requesting a variance from Indiana Adopted Fire and Building Laws as set forth by I.C. 22-13-2-11 shall apply for the variance with the Indiana Fire Prevention and Building Safety Commission in accordance with the 675 IAC 12-5 (General Administrative Rules).
2. An owner or occupant requesting a variance from a specific provision of this Fire Prevention Code or an appeal from a Notice of Violation or order that are not part of the state adopted fire and building laws as set forth by I.C. 22-13-2-11 shall apply in writing to the Fire Chief, or his designee, within five (5) working days of the date of the Notice of Violation or order. The granting of a variance shall be considered only upon the written application of the owner of the property stating that:
 - a. Practical difficulties have been encountered in the implementation of specific requirements of this chapter.
 - b. Compliance with specific requirements of this chapter will cause unnecessary hardship to the owner.
 - c. The owner desires to take advantage of new methods or equipment which are recognized as adequate for the purpose for which they are to be substituted.
3. A variance may be granted only if the Fire Chief, or his designee, determines in writing that:
 - a. The requested modification will conform to fundamental requirements for safety.
 - b. The granting of the variance does not increase the risk of fire or danger to the public. A copy of any variance granted shall be retained by the Fire Prevention Bureau.
4. The Fire Chief, or his designee, within ten (10) business days following receipt of a variance or an appeal made under this section, shall either sustain or overrule the order(s). A written copy of the decision shall be sent by certified mail to the appellant.
5. Any owner or occupant may appeal the decision of the Fire Chief, or his designee. Such an appeal shall be made in writing to the Board of Public Works and Safety within ten (10) business days following receipt of a decision rendered by the Fire Chief, or his designee.

6. The Board of Public Works and Safety shall hold a hearing after which they shall sustain, modify, or override the decision of the Fire Chief, or his designee. A written copy of the decision shall be sent by certified mail to the appellant. Decisions rendered by the Board of Public Works and Safety shall be final.
7. A variance pertaining to the requirements of this Fire Prevention Code shall be enforced in the same manner as a Notice of Violation or order issued under this Fire Prevention Code.
8. Whenever the City of Noblesville Fire Department learns that an owner is in violation of the terms of a variance issued pursuant to this section, the Fire Chief, or his designee, may order compliance as provided in the Fire Prevention Code.
9. An owner or occupant requesting a variance or an appeal from a specific provision of this Fire Prevention Code that are not part of the state adopted fire and building laws as set forth by I.C. 22-13-2-11 shall be subject to an administrative fee of Fifty Dollars (\$50.00).

I. FALSE REPORTING:

It is a violation of this Fire Prevention Code for a person, firm, or corporation to willfully and knowingly sign a compliance affidavit card or other compliance affidavit document attesting that a code violation has been corrected when such person, firm, or corporation has actual knowledge that the code violation has not been corrected.

J. PRACTICAL DIFFICULTIES:

The Fire Chief, or his designee, is authorized to modify any of the provisions of this Fire Prevention Code upon application in writing by the owner, a lessee, or duly authorized representative where there is practical difficulty in the way of carrying out the provisions of this Fire Prevention Code provided that the intent of the code shall be complied with and public safety is secured.

§92.05 – WATER SUPPLY

A. WATER MAINS:

All water mains hereafter installed in or adjacent to the City of Noblesville or Noblesville Township with respect to which fire protection shall be required or requested for the benefit of owners of property adjoining or served from such mains shall be made with approved pipe of not less than six inches (6”) inside diameter.

B. REQUIRED WATER SUPPLY FOR FIRE PROTECTION:

All Class 1 structures or portions of Class 1 structures hereafter constructed shall be provided with a water supply capable of providing the required fire flow for firefighting purposes for a minimum of two (2) hours. In setting the requirements for the fire flow, the Fire Chief, or his designee, may utilize the International Fire Code (IFC), as in effect from time to time, Appendix B entitled "Fire Flow Requirements for Buildings" as a guide.

C. FIRE HYDRANTS:

1. All private fire hydrants and water mains shall be installed and maintained as set forth in the NFPA 24 2007 Edition. In determining the location and spacing of fire hydrants, the Fire Chief, or his designee, may utilize the International Fire Code (IFC), as in effect from time to time, Appendix C entitled "Fire Hydrant Locations and Distribution" as a guide.
2. All fire hydrants required by the Fire Chief or his designee, shall be approved by the City of Noblesville Fire Department and accepted by the water utility having jurisdiction prior to any construction above the foundation.
3. Within the fire protection district of the Noblesville Fire Department, all new and existing fire hydrants shall be equipped with connections that are compatible with the Noblesville Fire Department hydrant adapters.
4. Whenever the provisions of this Ordinance require the installation of a public or private fire hydrant, such hydrant shall meet the specifications outlined in the Noblesville Fire Department Fire Hydrant Specifications list which is maintained at the office of the Noblesville Fire Prevention Bureau Inspection Division.

D. DEAD-END WATER MAINS:

1. Six inch (6") dead-end private water mains that supply one (1) fire hydrant shall not exceed one hundred fifty feet (150').
2. An eight inch (8") dead-end private water main that supplies one (1) fire hydrant shall not exceed five hundred feet (500').
3. A dead-end private water main that supplies a fire sprinkler system (and/or a standpipe system) and two (2) or three (3) fire hydrants shall have a minimum inner diameter of eight inches (8").
4. A fire service private water main that supplies four (4) or more fire hydrants shall be tapped off a distribution supply main in two (2) separate areas (looped).

5. A Class 1 structure with private water mains that has a required fire flow of four thousand (4,000) gallons per minute (GPM), regardless of the number of required fire hydrants, shall be designed as a loop system. When determining the required fire flow, the Fire Chief, or his designee, shall utilize the International Fire Code Appendix B, "Fire Flow Requirements for Buildings" as a guide.

E. NFPA 24 – PRIVATE FIRE SERVICE MAINS:

NFPA 24: The Standard for the Installation of Private Fire Service Mains and their Appurtenances 2007 Edition is hereby adopted as the minimum standard to be applied pursuant to this Fire Prevention Code.

§92.06 – FIRE DEPARTMENT ACCESS

A. RAPID ENTRY KEY BOXES:

Any Class 1 structure built after May 17, 2003, that is protected by an automatic sprinkler system and/or fire alarm system, and access to, or within a structure, or an area on that property is unduly difficult because of secured openings, and where immediate access is necessary for lifesaving or firefighting purposes or property preservation, the Fire Chief, or his designee, shall require a key box to be installed in an approved location; *e.g., a secured community pool area*. The key box shall be manufactured by the Knox Company and be compatible with the system utilized by the Noblesville Fire Department. The key box shall house a key for each area protected by the automatic sprinkler and/or fire alarm system, key(s) to locked points of ingress whether on the interior or exterior of such buildings, and key(s) to the Fire Alarm Control Panel (FACP), Fire Alarm Annunciator Panel (FAAP) and manual pull stations (*if applicable*).

B. SECURITY GATES:

When a property is protected by a locked fence or gate and where immediate access to the property of a Class 1 structure or residential neighborhood is necessary for life saving, firefighting purposes, or property preservation, the Fire Chief, or his designee, shall require a Knox Key Switch, Knox Padlock, or other approved device to be installed at a location approved by the Fire Chief, or his designee. The electric key switch or padlock shall be manufactured by the Knox Company and keyed to the Noblesville Fire Department Knox Key.

C. ALERT DECALS:

Alert decals to advise fire companies to the presence of access features covered by this Ordinance shall be displayed on any outside door or window as approved by the Fire Chief, or his designee.

D. SECURITY CAPS:

When a newly constructed Class 1 structure is protected by a water-based fire protection system with a Fire Department Connection (FDC), the Fire Chief, or his designee, shall require the property owner or tenant to install a Knox FDC Plug, FDC Storz Cap, or similar product manufactured by the Knox Company.

E. ELEVATOR KEY BOXES:

When a building is equipped with an elevator(s) and required by local, state, or national code to install an elevator key box, the owner, or his duly authorized agent, shall contact the City of Noblesville Fire Department for approval of the location of the elevator key box. After installation, the owner, or his duly authorized agent, shall contact the City of Noblesville Fire Department to secure the necessary keys in the box. The necessary keys shall include, but not be limited to, elevator door key, elevator equipment room key, and Fire Department emergency access elevator control keys.

F. OBSTRUCTIONS TO FIRE DEPARTMENT ACCESS:

Fire protection equipment, including, but not limited to, fire hydrants, Fire Department connections, and dry hydrants shall be clearly marked in a manner approved by the Fire Chief, or his designee, to prevent the presence of any obstructions.

G. EMERGENCY VEHICLE LANES:

1. The location of emergency vehicle lanes shall be established by the Fire Chief, or his designee. The Fire Chief, or his designee, can require signage or striping, or any combination. When striping is required by the Fire Chief, or his designee, Emergency Vehicle Lanes shall comply with the specification outlined in the Noblesville Fire Department Fire Lane Specifications List which is maintained at the office of the Noblesville Fire Prevention Bureau Inspection Division. The erection and maintenance of emergency lane signs and striping shall be the responsibility of the property owner. All markings shall remain in good visible condition as determined by the Fire Chief, or his designee.
2. The parking, stopping, or standing of any object or personal property, including motor vehicles, or any other obstruction in established fire lanes on private or public property, shall be prohibited.

3. Any vehicle or personal property found to be obstructing an emergency vehicle lane shall, with the consent of the owner, lessee, or other person in possession or control of the real estate where the emergency vehicle lane has been established, be towed away or removed at the request of the Fire Chief, or his designee, or law enforcement officer. The owner of the towed or removed property shall be responsible for all towing charges and resulting storage charges incurred during the process of removing the obstruction. The owner of any personal property or motor vehicle found in violation of this section shall be subject to a fine in the amount of Fifteen Dollars (\$15.00)—up to a maximum of One Hundred Dollars (\$100.00).
4. In non-emergency situations, the Fire Chief, or his designee, shall obtain from each property owner, lessee, or person in possession of property covered by this Fire Prevention Code, an affidavit granting permission and their consent to the towing away or removal of any obstruction or personal property which is obstructing emergency vehicle lanes. The original affidavit from each property owner shall be filed in the Clerk-Treasurer's Office with copies on file in the offices of the Fire Chief and the Police Chief.
5. In emergency situations, the Fire Chief, or his designee, can order the towing away or removal of any obstruction or personal property which is obstructing emergency vehicle lanes without permission from the property owner or lessee.

H. MARKING:

Approved signage, including signage for vertical hazards, shall be provided and maintained for Fire Department access roads to identify such roads and prohibit the obstruction of these access roads.

I. FIRE PROTECTION EQUIPMENT IDENTIFICATION:

1. Fire protection equipment including fire hydrants, Fire Department connections, dry hydrants, etc., shall be clearly identified in a manner approved by the Fire Chief, or his designee, to prevent obstruction by vehicles or other obstructions.
2. In all new and existing Class 1 structures, all interior or exterior doors that lead to fire protection equipment, electrical panels or equipment, HVAC equipment, elevator equipment, hazardous materials storage or process areas, interior roof access, or equipment that controls other building functions shall be identified for use by the Fire Department.

J. EXTERIOR DOORS:

Exterior doors, or their function, shall not be eliminated without prior approval of the Fire Chief, or his designee. Exterior doors which have been rendered non-functional, as approved by the Fire Chief, or his designee, and which retain a functional door appearance shall have a sign affixed to the exterior of the door stating, "THIS DOOR BLOCKED." Required exit doors or Fire Department access doors shall not be eliminated.

K. ABATEMENT OF HAZARDS:

Whenever the Fire Chief, or his designee, finds in any Class 1 structure, combustible or explosive matter, dangerous or unnecessary accumulation of rubbish, wastepaper, boxes, shavings, or any highly-flammable material that may endanger property, or shall find obstructions to or on fire escapes, stairs, passageways, doors, or windows that may interfere with Fire Department operations or the egress of occupants in case of fire or other emergency, or finds any other fire hazard, the Fire Chief, or his designee, shall order the same to be removed or remedied.

L. HIGH-RISE FIRE SAFETY PLAN:

In a high-rise structure, as defined by the Indiana Building Code, a complete, updated copy of the required Fire Safety and Evacuation Plan shall be kept in the Fire Command Center or other approved location.

M. TRAFFIC SIGNALS:

Any time a new development is required to install a traffic control signal device, or upgrade an existing signal, the developer shall be responsible for installing approved emergency vehicle pre-emption signaling equipment on the new signal. Approved product identification and signaling information is available from the City of Noblesville Fire Department.

N. FIRE APPARATUS ACCESS:

Plans for fire apparatus access roads shall be submitted to the Fire Department for review.

O. TIMING OF INSTALLATION:

Required fire hydrants and temporary-surfaced access roads within the site shall be installed and made serviceable prior to construction of a building or structure and such hydrants and roads shall be maintained during construction.

P. ONE OR TWO-FAMILY RESIDENTIAL DEVELOPMENTS:

Developments of one (1) or two (2) family dwellings having more than one-hundred (100) dwelling units shall be equipped with two (2) or more separate fire apparatus access roads that enter the development.

Q. TURNING RADIUS:

The turning radius of a fire apparatus access road shall be determined after the consultation with the City of Noblesville Fire Department. Such roads shall be designed and constructed to permit turning of the longest piece of fire apparatus available to the Noblesville Fire Department.

R. DEAD-ENDS:

Dead-end fire apparatus access roads in excess of one hundred fifty feet (150') in length shall be designed and constructed to allow the turning around of the longest piece of fire apparatus available to the Noblesville Fire Department. The installation, method of construction, and material of the turnaround must be approved by the Fire Chief, or his designee, and the City of Noblesville Planning Department.

§92.07 – FIRE PROTECTION SYSTEMS AND EQUIPMENT

A. COMMERCIAL KITCHEN EXHAUST AND FIXED FIRE SUPPRESSION SYSTEMS:

1. Any new installation of a fixed-fire suppression system installed under a Type I exhaust hood shall be inspected by the Fire Chief, or his designee, prior to the cooking equipment being placed into service. The installer of the fixed-fire suppression system shall:
 - a. Adhere to all manufacturers' recommendations for the installation.
 - b. Notify the City of Noblesville Fire Department Inspection Division at least forty eight (48) hours in advance of the system being completed for system testing.
 - c. Provide written documentation to the City of Noblesville Fire Department that states the system has been installed per the manufacturer's specifications and successfully tested by the installer.
2. In existing commercial kitchen hood and exhaust systems, the property owner or tenant shall contact the Fire Chief, or his designee, prior to modifying any portion of the kitchen hood or exhaust system (i.e. cutting

access panels into existing exhaust ductwork). The Fire Chief, or his designee, shall inspect all work performed on existing systems.

B. FIRE EXTINGUISHERS:

1. Portable fire extinguishers shall be installed and maintained in all Class 1 structures as set forth in the latest edition of NFPA 10 and as required by the Fire Chief, or his designee.
2. In all Group R-2 occupancies, a 2A:20B:C rated fire extinguisher shall be required in each unit or placed at intervals not to exceed seventy-five feet (75') maximum travel distance from each unit in all common areas on each level.

C. PLANS FOR FIRE PROTECTION EQUIPMENT:

1. Plans for Fire Alarms Systems, Water-Based Fire Protection Systems, Fire Pumps, Special Hazard Fire Suppression Systems, High-piled Storage Arrangements and Firestop Systems shall be submitted to the City of Noblesville Fire Department prior to the request for a required *wall rough* inspection. Each respective submittal shall contain the following information:

a. Sprinkler Systems:

- (1) One (1) Full Set of Sprinkler / Standpipe Plans.
- (2) One (1) Full Set of Sprinkler / Standpipe Calculations.
- (3) One (1) Copy of the Sprinkler Construction Design Release (CDR).
- (4) One (1) Set of Manufacturer's *Cut-Sheets* for all sprinkler heads in the design.

b. Fire Alarm Systems:

- (1) One (1) Full Set of Fire Alarm Plans (1/8" – 1' Scale).
- (2) One (1) Set of Battery Calculations.
- (3) One (1) Copy of the Fire Alarm Construction Design Release (CDR).
- (4) One (1) Set of Manufacturer's *Cut-Sheets* for the Fire Alarm Control Panel (FACP) and Fire Alarm Components.
- (5) One (1) Fire Alarm Performance Matrix.

- c. Special Hazard Fire Protection Systems:
 - (1) One (1) Set of Plans (if applicable).
 - (2) One (1) Set of Engineering Data (if applicable).
 - (3) One (1) Copy of the Construction Design Release (if applicable).
 - (4) One (1) Set of Manufacturer's *Cut-Sheets* for System Components.

- d. Fire Pumps:
 - (1) One (1) Copy of the Manufacturer's Fire Pump Specifications.
 - (2) One (1) Copy of the Manufacturer's Certified Pump Test Characteristic Curve

- e. Firestop Systems:
 - (1) Through-Penetration Firestop Systems.
 - (2) Membrane-Penetration Firestop Systems.
 - (3) Fire-Resistant Joint Systems.
 - (4) Perimeter Fire Barrier Systems.
 - (5) Fire-Rated Duct and Air-Transfer Openings.

D. FIRE ALARM SYSTEMS:

- 1. The location of the fire alarm devices must match the design professional's approved plans. All deviations without revised plans shall be approved by the Fire Chief, or his designee, and shall be filed with State Plan Review.
- 2. All required Fire Alarm Systems shall be monitored by an approved supervising station in accordance with NFPA 72.
- 3. Fire Alarm initiating devices, alarm signaling devices, annunciators, or control panels shall not be concealed, obstructed, or impaired.
- 4. All Fire Alarm Systems required to be installed per the Indiana Building Code shall be equipped with addressable Fire Alarm Components that can have their respective status individually identified or that is used to individually control other functions.

5. Access panels shall be provided to facilitate the testing, inspection, and cleaning of HVAC Duct Detectors.
6. A posted diagram of all HVAC Duct Detectors shall be provided at the main electrical panel or a location approved by the Fire Chief, or his designee.
7. HVAC Duct Detectors that are not accessible from the finished floor shall be provided with remote test buttons. The location of the remote test buttons shall be approved by the Fire Chief, or his designee.
8. A copy of the as-built Fire Alarm Plans for all required fire alarm installations shall be kept permanently on-site in an approved location near the Fire Alarm Control Panel (FACP).
9. In all newly-constructed Class 1 structures, a listed Fire Alarm notification device shall be required in all walk-in freezers and coolers that exceed one hundred (100) square feet.

E. SPRINKLER SYSTEMS:

1. If a sprinkler system has multiple zones, an approved zone diagram or map shall be mounted adjacent to the sprinkler riser.
2. A copy of the as-built sprinkler plans and hydraulic calculations for every sprinkler system shall be kept permanently on-site in an approved location.
3. Instructions for the assignment of an impairment coordinator shall be posted adjacent to the sprinkler riser(s). An impairment coordinator shall be assigned when required by the Indiana Fire Code.

F. SMOKE DETECTORS:

1. Smoke detectors and smoke alarms shall be installed as required by the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, Indiana Residential Code, I.C. 22-11-18, and any other code of the jurisdiction.
2. If required by the Indiana Building Code, Indiana Fire Code, this Fire Prevention Code or any other Fire Safety Code of the jurisdiction, single-station and multi-station smoke alarms shall be installed as follows:
 - a. R-2 occupancies shall be equipped with a minimum of one (1) ionization smoke alarm and one photoelectric smoke alarm. Alternatively, one (1) ionization/photoelectric combination smoke alarm may be used instead.

§92.09 – CERTIFICATE OF OCCUPANCY REQUIREMENTS

A. ACCEPTANCE TEST:

Prior to the issuance of the Certificate of Occupancy for a newly-constructed, renovated, or remodeled Class 1 structure, the City of Noblesville Fire Department is required to witness a successful acceptance or performance test in accordance with the appropriate installation standard or manufacturer's specifications for the following systems:

1. Fire Alarm System.
2. Sprinkler and Standpipe System.
3. Special Hazard Fire Suppression System.
4. Private Fire Service Underground Piping Hydrostatic Test and Flush.
5. Fire Pump.
6. Smoke Control System.
7. Above-Ground Piping Hydrostatic Test.
8. Emergency Lighting System.
9. Underground Storage Tank Tightness Test.
10. Grease Duct Leakage Test (Type I Hood Exhaust System)

B. WRITTEN VERIFICATION:

Prior to the issuance of the Certificate of Occupancy for a newly-constructed, renovated, or remodeled Class 1 structure, the City of Noblesville Fire Department requires written verification that each Fire Protection and Life-Safety System has been installed in complete agreement with the terms of the listing, manufacturer's instructions, and the applicable installation standard.

C. INSTALLATION DOCUMENTATION:

Prior to the issuance of the Certificate of Occupancy for a newly-constructed, renovated, or remodeled Class 1 structure, the City of Noblesville Fire Department requires the following documentation (if applicable):

1. Record of Completion for Fire Alarm Systems as required by NFPA 72.
2. Contractor's Material and Test Certificate for Aboveground Piping for Sprinkler and Standpipe Systems as required by NFPA 13.

3. Contractor's Material and Test Certificate for Underground Piping for Private Fire Service Mains, Fire Hydrants, and Piping as required by NFPA 13 and 24.
4. Certificate of Completion / Installation for all Special Hazard Automatic Fire Extinguishing Systems.
5. Field Acceptance Test Report and Manufacturer's Certified Test Characteristic Curve for Fire Pumps as required by NFPA 20.
6. Air Balance Test Report (Type I and II Exhaust Hoods).
7. Verification on the non-combustibility or flame-resistance of all applicable Interior Finish, Decorative Materials, and Furnishings.
8. Inspection and Drop Test Record for vertically and horizontally closing fire-rated doors and shutters.
9. Affidavit for (ninety) 90-Minute Emergency Lighting Test for all emergency lighting systems.
10. Smoke Control System Engineered Analysis and Test Report.
11. Tank Tightness Report for all Underground Storage Tank installations for Flammable and Combustible Liquids.
12. Architect's Statement of Substantial Completion (*if a design professional is required by 675 IAC 12-6-9*).
13. Prepared Fire Safety and Evacuation Plan.
14. Material Safety Data Sheets for all Flammable and Combustible Liquids.
15. As-Built Construction Drawings on computer disk.
16. Completed Noblesville Fire Department Emergency Contact Form.
17. Backflow Prevention Test Certification.
18. Grease Duct Leakage Test Report (Type I Hood Exhaust Systems)
19. Completed City of Noblesville Alarm Permit Application.
20. Fire Stopping Affidavit including the specific firestop systems utilized for each application.

§92.14 – INSPECTION AND PERMITTING

I. INSPECTION

A. RIGHT TO ENTER:

As authorized by I.C. 36-8-17, the Chief of the Noblesville Fire Department, or any duly authorized member of such Fire Department may, at all reasonable hours, enter the interior of any Class 1 structure for the purpose of making an inspection. The Fire Chief, or his designee, shall have the authority to inspect or cause to be inspected as often as necessary for the purpose of ascertaining and causing to be corrected any violation of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction.

B. SCOPE OF INSPECTIONS:

New construction or work for which Fire Department approval is required shall be subject to inspection by the Fire Chief, or his designee. It shall be the duty of the permit applicant or contractor to both cause the work to remain accessible and exposed for inspection purposes. Neither the Fire Chief, nor his designee, nor the City of Noblesville shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. It shall be the duty of the person requesting any required inspections to provide access to and means for proper inspection of such work, i.e., ladder, etc.

C. INSPECTION APPROVAL:

Approval, as a result of an inspection, shall not be construed to be an approval of a violation of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction. Inspections presuming to give authority to violate or cancel provisions of the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other Fire Safety Code of the jurisdiction shall not be valid.

D. OCCUPANT INFORMATION:

Each building owner, occupant, or tenant is required to supply the City of Noblesville Fire Department with emergency contact information. For new construction projects, it is the responsibility of the building owner, occupant, or tenant to provide this information prior to the issuance of the Certificate of Occupancy. This emergency contact information is required anytime there is a change in the ownership of or new tenants inhabit a Class 1 structure. The required information shall be submitted on the NFD Emergency Contact Form.

E. CERTIFICATE OF OCCUPANCY INSPECTION:

Prior to the issuance of the Certificate of Occupancy by the City of Noblesville Planning Department for a Class 1 structure, the Fire Chief, or his designee, shall conduct a Final Inspection with a building official from the City of Noblesville. All Fire Protection Systems shall be successfully inspected and tested prior to the issuance of the Certificate of Occupancy.

F. STOP WORK ORDER:

Whenever the Fire Chief, or his designee, finds any new construction work in a Class 1 structure regulated by the Indiana Fire Code, Indiana Building Code, Indiana Mechanical Code, Indiana Fuel Gas Code, this Fire Prevention Code, or any other code of the jurisdiction being performed in a manner contrary to the provisions of those codes or in a dangerous or unsafe manner, the Fire Chief, or his designee, is authorized to issue a Stop Work Order. A failure to comply with a Stop Work Order issued by the City of Noblesville Fire Department may result in a Two Hundred Fifty Dollar (\$250.00) fine per day.

G. LIABILITY FOR DAMAGES:

This Fire Prevention Code shall not be construed to hold the public entity, any officer, or employee responsible for any damage to persons or property by reason of the inspection authorization herein provided or by reason of the approval or disapproval of any equipment or process authorized herein.

H. WALL ROUGH INSPECTIONS:

Plans for Fire Alarm Systems, Water-based Fire Protection Systems, Fire Pumps, Special Hazard Fire Suppression Systems, High-piled Storage Arrangements and Firestop Systems shall be submitted to the City of Noblesville Fire Department prior to the request for the required *wall-rough* inspection. The request for the *wall rough* inspection will not be honored by the City of Noblesville Planning Department without the proper submittal of all required Fire Protection Plans.

I. HINDERANCE TO INSPECTIONS:

It shall be unlawful for any person to prevent, interfere with, or in any manner hinder the Fire Chief, or his designee, while engaged in the discharge of his/her inspection duties.

J. UNDERGROUND INSPECTIONS:

The Fire Chief, or his designee, shall inspect all underground private fire service and underground Fire Department Connection installations. The contractor shall notify the Fire Department forty-eight (48) hours in advance of this required inspection.

II. PERMITTING

A. BUILDING PERMIT:

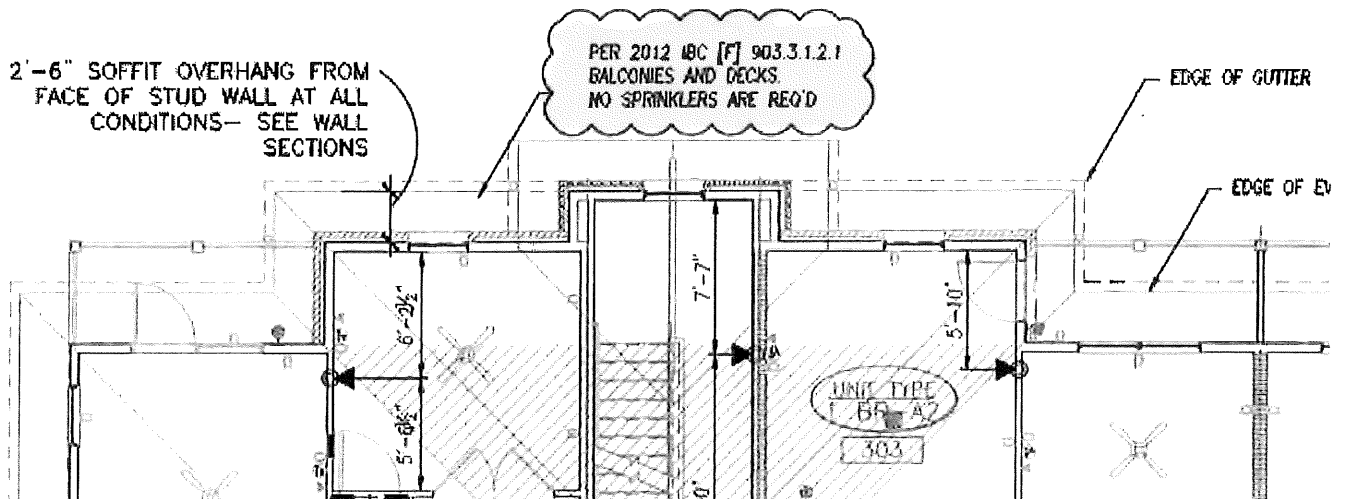
1. No building permit for the construction of, alteration, or addition to a Class 1 structure shall be issued by the City of Noblesville Planning Department without the prior Life Safety Plan Review of the Fire Chief, or his designee.
2. All information deemed necessary for a complete Life Safety Plan Review shall be submitted by the design professional upon request prior to release of the building permit.
3. No building permit shall be issued by the City of Noblesville Planning Department until such time that notification has been received from the water utility having jurisdiction for a project stating the water mains have been accepted and are in service; and, the fire hydrant connections and locations have been approved by the Fire Chief, or his designee. (Ordinance #42-5-05).
4. No building permit shall be issued by the City of Noblesville Planning Department until such time that notification has been received by the City of Noblesville Fire Department indicating that fire apparatus access roads have been constructed and approved; and, the temporary or permanent street signs have been installed.
5. No Improvement Location Permit (ILP) shall be issued by the City of Noblesville Planning Department until such time that the Fire Chief, or his designee, has received approved site and utility plans for all projects that require approval.

B. OPEN BURING PERMITS:

As required by this Fire Prevention Code, prior approval from the Fire Chief, or his designee, is required for recreational open burning. Prior approval is further defined in this section as requiring an Open Burn Permit issued by the City of Noblesville Fire Department. The required Burn Permit shall be kept at the site of the fire during burning operations.

Mark Riffey

From: Justin Fetters
Sent: Friday, July 27, 2018 10:34 AM
To: Mark Riffey
Subject: Suplmental info for Variance 18653 32 Union



Justin Fetters, CET
Design Engineer

ELECTRONICALLY FILE YOUR PROJECT WITH STATE OF INDIANA at <http://www.in.gov/dhs/2650.htm>.

This on-line filing is through a secure site, you can use it to submit your project information, pay the fees and upload your project plans.

Use Internet Browser to View this report, other browsers are not compatible to view this report



CONSTRUCTION DESIGN RELEASE

State Form 41191 (R9/5-98)

Report Printed on: August 21, 2017

Project number	391355	Release date	08/21/17
Construction type	*SEE BELOW	Occupancy classification	*SEE BELOW

Scope of release

SPK

Type of release

Partial

Project name

32 Union

Street address

Highway 32 and Union Chapel Rd

City

NOBLESVILLE

County

HAMILTON



Available At Your Local Licence Branch
SUPPORT HOOSIER SAFETY

Indiana Department of Homeland Security
DIVISION OF FIRE & BUILDING SAFETY
PLAN REVIEW DIVISION
402 W. Washington St., Room E245
Indianapolis, IN 46204

To: Owner / Architect / Engineer
Ryan Fireprotection
Justin Fetters AR00000000
9740 E. 148th St.
Noblesville IN 46060

Fax & e-mail: 3177700100, jfetters@ryanfp.com

The plans, specifications and application submitted for the above referenced project have been reviewed for compliance with the applicable rules of the Fire Prevention and Building Safety Commission. The project is released for construction subject to, but not necessarily limited to, the conditions listed below. THIS IS NOT A BUILDING PERMIT. All required local permits and licenses must be obtained prior to beginning construction work. All construction work must be in full compliance with all applicable State rules. Any changes in the released plans and/or specifications must be filed with and released by this Office before any work is altered. This release may be suspended or revoked if it is determined to be issued in error, in violation of any rules of the Commission or if it is based on incorrect or insufficient information. This release shall expire by limitation, and become null and void, if the work authorized is not commenced within one (1) year from the above date.

CONDITIONS:

Note :(A1A & A1B): In accordance with the affidavit sworn under penalties of perjury in the application for construction design release the plans and specifications filed in conjunction with this project shall comply with all of the applicable rules and laws of Fire Prevention and Building Safety Commission. Providing false information constitutes an act of perjury, which is a Class D felony punishable by a prison term and a fine up to \$10,000.

In accordance with Section 19 of the General Administrative Rules (675 IAC 12-6-19) a complete set of plans and specifications that conform exactly to the design that was released by the office of the state building commissioner shall be maintained on the construction jobsite as well as a copy of the design release.

Construction Type V-A (SPK) Occupancy Group R-2 / 7 Replicated

- 10F13 The applicable standard in use by the Indiana Fire Prevention and Building Safety Commission for sprinkler design is NFPA 13, 2010 edition (675 IAC 28-1-5).
- 10FA045 Only listed devices and materials as indicated in NFPA 13R shall be used in accordance with Section 4.5, NFPA 13R, 2010 edition (675 IAC 28-1-6).
- 10FA066 Concealed spaces are exempt from sprinkler protection in accordance with Section 6.6, NFPA 13R, 2010 edition (675 IAC 28-1-6).
- 10FA0662 Bathrooms shall be sprinklered or shall comply with Section 6.6.2, NFPA 13R, 2010 edition (675 IAC 28-1-6).
- 10FA0663 Closets shall be sprinklered or shall comply with Section 6.6.3, NFPA 13R, 2010 edition (675 IAC 28-1-6).

Please be advised that if an administrative review of this action is desired, a written petition for review must be filed at the above address with the Fire Prevention and Building Safety Commission identifying the matter for which a review is sought no later than eighteen (18) days from the above - stated date, unless the eighteenth day falls on a Saturday, a Sunday, a legal holiday under State statute, or a day in which the Department of Fire and Building Services is closed during normal business hours. In the latter case, the filing deadline will be the first working day thereafter. If you choose to petition, and the before-mentioned procedures are followed, your petition for review will be granted, and an administrative proceeding will be conducted by an administrative law judge of the Fire Prevention and Building Safety Commission. If a petition for review is not filed, this Order will be final, and you must comply with its requirements.

ELECTRONICALLY FILE YOUR PROJECT WITH STATE OF INDIANA at <http://www.in.gov/dhs/2650.htm>.

This on-line filing is through a secure site, you can use it to submit your project information, pay the fees and upload your project plans.

Use Internet Browser to View this report, other browsers are not compatible to view this report

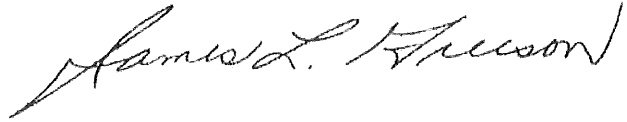
Code review official GERALD KELLEY
gkelley@dhs.in.gov

Director, Division of Fire and Building Safety

Address (name, title of local official, street, city, state and ZIP code)

DEPARTMENT OF PLANNING
Daniel Sheposh
16 SOUTH 10th STREET Ste 150
NOBLESVILLE, IN 46060

Fax & e-mail: 3177764638, dsheposh@noblesville.in.us

A handwritten signature in black ink, appearing to read "James L. Gibson". The signature is written in a cursive style and is positioned to the right of the typed name "James L. Gibson".

Justin Feters

From: Matt Mitchell <Mmitchell@noblesville.in.us>
Sent: Monday, August 07, 2017 8:52 AM
To: Justin Feters
Subject: RE: 32 Union Apts Fire Suppression Drawings

I've forwarded these drawings to our Fire Marshal, Darrel Cross.

Thanks,

Matt Mitchell, FM, CFM
Assistant Fire Chief



City of Noblesville Fire Department
135 S. 9th Street
Noblesville, IN 46060

(317) 776-6336 Ext. 1402
(317) 776-6376 FAX
mmitchell@noblesville.in.us
www.cityofnoblesville.org

From: Justin Feters [mailto:jfeters@ryanfp.com]
Sent: Monday, August 07, 2017 8:32 AM
To: Matt Mitchell <Mmitchell@noblesville.in.us>
Cc: Nathan Sommers (nsommers@twgdev.com) <nsommers@twgdev.com>
Subject: 32 Union Apts Fire Suppression Drawings

Good Morning Matt,

Attached is our fire suppression drawings and calculations for the 32 Union project.

Please review and feel free to call with questions,

Justin Feters, CET
Design Engineer



O: 800-409-7606 | D: 317-339-0229
Sprinklers | Alarms | Extinguishers | Special Hazards

Stay Connected with our Customer Portal



NOBLESVILLE FIRE DEPARTMENT

CODE ENFORCEMENT DIVISION

135 S. 9th Street • Noblesville, IN 46060

Telephone: 317-776-6336 • Fax: 317-776-6376

www.cityofnoblesville.org/fire • fireinspections@noblesville.in.us

Thursday July 5, 2018

NEWCONST- Wall Rough

32 UNION - BUILDING 7
17492 FERRIS ST
NOBLESVILLE, IN 46060

Notes:

Inspection generated at request of Ryan Fire Protection (Mark Riffey) regarding 3rd floor balcony sprinkler issue.

2014IFC 903.3.1.2.1 Balconies and Decks

Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

3RD FLOOR BALCONIES WITH A ROOF ABOVE DO NOT HAVE SPRINKLER PROTECTION.
PLEASE PROVIDE SPRINKLER PROTECTION FOR 3RD FLOOR BALCONIES WITH A ROOF ABOVE.

Working to keep Noblesville safe,

Darrel Cross
Noblesville Fire Department
317-776-6336
317-776-6376 FAX



RECEIVED
IDHS

LEGAL AND CODE
SERVICES

July 12, 2018

TO: Douglas Boyle, Director Fire Prevention and Building Safety Commission

RE: Appeal of a Fire Prevention and Building Safety Commission Regulation

State Project Release Number 391539

32 Union Apartments

State Road 32 and Union Chapel Road

Noblesville, IN 46060

Douglas:

Attached is a inspection report from the Noblesville fire department regarding the fire sprinkler installation at the Apartment Project referenced above. The inspection report sites a deficiency wherein the fire inspector is requesting fire sprinklers to be installed under the eaves or soffits above the upper level balcony. According to cited section of the regulations adopted by the Fire Prevention and Building Safety Commission, sprinklers are required under roofs that extend over the balcony. We disagree with the Municipalities application of this rule to eaves and soffits. Attempts to reach a resolution have been unsuccessful. Pursuant to Indiana Code 4-21.5 and Indiana Code 22-12-7 we are appealing this citation to Fire Prevention and Building Safety Commission. We understand that a part of the process involves the commission scheduling a hearing for this appeal. And look forward to additional information so that we can prepare.

Cordially,

A handwritten signature in cursive script, appearing to read "Mark Riffey".

A large, stylized handwritten signature in cursive script, appearing to read "Mark Riffey".

Mark Riffey, CET

Vice President Ryan Fireprotection

ERIC J. HOLCOMB, Governor
STATE OF INDIANA

INDIANA DEPARTMENT OF HOMELAND SECURITY
302 West Washington Street
Indianapolis, IN 46204



July 20, 2018
By U.S. Mail

Mark Riffey
Ryan Fire Protection, Inc.
9740 E 148th Street
Noblesville, IN 46060

**Re: Petition for Review – Ryan Fire Protection, Inc. Appeal of Noblesville Fire Department's
7/5/18 Inspection Report**

Dear Mr. Riffey:

The Commission is in receipt of your petition for review of the Noblesville Fire Department's inspection report, dated 7/5/2018, regarding fire sprinkler installation at 32 Union Apartments. The petition for review is timely and has been granted by the Commission. The petition has been assigned to the Commission's administrative law judge. The judge's office will contact you to make arrangements for further proceedings.

Sincerely,

A handwritten signature in black ink, appearing to read "D. J. Boyle", is positioned above the typed name of the Director.

Douglas J. Boyle, Director
Fire Prevention and Building Safety Commission
Indiana Department of Homeland Security
302 W. Washington Street, Room E-208
Indianapolis, IN 46204
doboyle@dhs.in.gov
(317) 650-7720

cc: Justin K. Guedel, IDHS Staff Attorney
Noblesville Fire Department (by U.S. Mail)
ALJ
File

Darrel Cross

From: Keith Enstrom <kenstrom@ICCSafe.ORG>
Sent: Monday, July 02, 2018 11:39 AM
To: Darrel Cross
Cc: Renee Testroet
Subject: RE: Section 903.3.1.2.1 - 2012 IFC

Darrel,

Here is the response to your code opinion request:

Code: 2012 IFC Section 903.3.1.2.1

Question: Does a 2' 6" roof overhang constitute a "roof or deck" requiring sprinkler protection? Please see the attached PDF. This is a 3 story building with sprinkler protection being provided for the first and second floor balconies with decks above, however the 3rd floor balcony only has the overhang, thus the question as to whether the 3rd floor balcony requires sprinkler protection.

Answer: IFC Section 903.3.1.2.1 states that sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch to 6 inches below the structural members and a maximum distance of 14 inches below the deck of the exterior balconies and decks that are constructed of open wood joist construction. As you have noted, that there is no specific minimum overhang width that is listed in the section requirement. Since it is not listed in the section requirement, IFC Section 104.1 would apply. It states that the fire code official is hereby authorized to enforce the provisions of this code and shall have the authority to render interpretations of this code, and to adopt policies, procedures, rules and regulations in order to clarify the application of its provisions. Such interpretations, policies, procedures, rules and regulations shall be in compliance with the intent and purpose of this code and shall not have the effect of waiving requirements specifically provided for in this code.

Additionally note that Section 903.3.1.2 states that automatic sprinkler systems in Group R occupancies up to and including four stories in height shall be permitted to be installed throughout in accordance with NFPA 13R. However the 2010 edition of NFPA 13R does address this specific requirement but in the 2013 edition, Section 6.6.5.1 was added. In agreement with IFC Section 903.3.1.2.1, it states that where a roof or deck is provided above, sprinklers shall be installed to protect attached exterior balconies, attached exterior decks, and ground floor patios serving dwelling units in buildings of Construction Type V.

Code opinions issued by ICC staff are based on ICC-published codes and do not include local, state or federal codes, policies or amendments. This opinion is based on the information which you have provided. We have made no independent effort to verify the accuracy of this information nor have we conducted a review beyond the scope of your question. This opinion does not imply approval of an equivalency, specific product, specific design, or specific installation and cannot be published in any form implying such approval by the International Code Council. As this opinion is only advisory, the final decision is the responsibility of the designated authority charged with the administration and enforcement of this code.

"Copyright © 2018 International Code Council, Inc. All rights reserved."

Please contact me if you have any more questions.

Sincerely,

Keith Enstrom, P.E.
Staff Engineer
International Code Council, Inc.
PH: 1.888.422.7233 ext. 4342
kenstrom@iccsafe.org
www.iccsafe.org

From: Renee Testroet
Sent: Friday, June 22, 2018 12:00 PM
To: dcross@noblesville.in.us
Cc: Keith Enstrom <kenstrom@ICCSafe.ORG>
Subject: Section 903.3.1.2.1 - 2012 IFC

Darrel,

I have forwarded your code opinion request to Keith Enstrom. Typical turn-around time for a written response is 5 working days.

Please let me know if you have any questions.

Renee Testroet
Senior Secretary II
International Code Council
Chicago District Office
4051 W. Flossmoor Road
Country Club Hills, IL 60478
rtestroet@iccsafe.org
Phone: (888) 422-7233, Ext. 4312
Fax: (708) 799-0310

From: ICC [<mailto:no-reply@iccsafe.org>]
Sent: Thursday, June 21, 2018 3:00 PM
To: Renee Testroet
Subject: Darrel Cross

Hi Renee Testroet, new submission for request code opinion has been received from **Darrel Cross**.

Details
submitted by
user:

Record ID 8067373

Requestor Full Name Darrel Cross

Job Title Division Chief/Fire Marshal

Requestor email address dcross@noblesville.in.us

Phone Number 3175578453

Requestor Address 135 S 9th St,
Noblesville, IN, 46060
UNITED STATES

Code Reference International Fire Code

Code Edition 21012

Code Section 903.3.1.2.1

Questions Does a 2' 6" roof overhang constitute a "roof or deck" requiring sprinkler protection?
Please see the attached PDF. This is a 3 story building with sprinkler protection being provided for the first and second floor balconies with decks above, however the 3rd floor balcony only has the overhang, thus the question as to whether the 3rd floor balcony requires sprinkler protection.

Attachments [Roof-Overhang.pdf](#)

View more [Click here](#)

Thanks

Register now for ICC's **2018 Annual Conference, Code Hearings & Expo**, Oct. 21 - 31, in Richmond, VA. Join us for expert-led educational sessions, networking opportunities, hoarding expert Matt Paxton & more. [#ICCAC18](#)

Steve Schipp

From: Bob Upson <upson@nfsa.org>
Sent: Monday, August 20, 2018 11:36 AM
To: Steve Schipp
Cc: Ron Ritchey
Subject: RE: Sprinkler Requirement for Balcony Under an Eave

Dear Mr. Schipp,

This email is in response to your request for an informal interpretation sent via eod@nfsa.org.

You describe a situation where a Type V building balconies meeting the criteria of **IBC Section [F] 903.3.1.2.1** is to be protected with an **NFPA 13R** sprinkler system. No edition of **IBC** has been specified; the 2018 edition will be cited below as the most current published edition.

[F] 903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* and *sleeping units* where either of the following conditions exists:

1. The building is of Type V construction, provided that there is a roof or deck above.
2. Exterior balconies, decks and ground floor patios of dwelling units and sleeping units are constructed in accordance with Section 705.2.3.1, Exception 3.

Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

You ask if sprinklers are required by **[F] 903.3.1.2.1, item 1** for a balcony extending 5 feet from the building with an eave extending 2 ½ feet from the building over the balcony.

The answer to your question is "no, by strict definition, a partially overhanging eave is neither a roof nor a deck". If the presence of an eave over a balcony was considered sufficient to meet the intent of this section, the extent of the overhang would be irrelevant. The intent of the section is to provide a sprinkler where a roof has been expressly provided to shelter the balcony; not for an incidental overhang created by another construction feature.

Both **IBC (2018) 903.3.1.2.1** and **NFPA 13R (2016) 6.6.5** refer to conditions where a balcony is provided with a 'roof' or 'deck' although it is presumably clear that the issue in question is whether or not an eave partially overhanging a balcony necessarily constitute a 'roof'.

6.6.5* Except as provided for in 6.6.5.1, sprinklers shall not be required in any porches, balconies, corridors, carports, porte cocheres, and stairs that are open and attached.

6.6.5.1 Where a roof or deck is provided above, sprinklers shall be installed to protect attached exterior balconies, attached exterior decks, and ground floor patios serving dwelling units in buildings of Construction Type V.

Where a term is not defined, **IBC (2018) 201.4** refers to 'ordinarily accepted meanings' while **NFPA 13R (2016) 3.1** specifically references Merriam-Webster's Collegiate Dictionary, 11th edition as the source for 'ordinarily accepted meanings'.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

In this context, Webster defines an eave as "*the lower border of a roof that overhangs the wall —usually used in plural*" and roof as "*the cover of a building*". As the eave is just a portion of a roof, it is not a roof in and of

itself. Its presence above the deck does not constitute a roof above the deck but simply a part of an overhanging construction feature. The deck is still clearly open to the weather and, functionally, not provided with a covering that would reliably collect sufficient heat and smoke in the event of fire to activate a sprinkler.

It should be noted that **NFPA 13 (2016)**, a more stringent sprinkler installation standard than **NFPA 13R**, does not typically require sprinklers under combustible projections extending 4 feet or less from the building. If this same structure were to be protected with an **NFPA 13** system, no sprinklers would be required under the overhanging eave.

8.15.7.1 Unless the requirements of 8.15.7.2, 8.15.7.3, or 8.15.7.4 are met, sprinklers shall be installed under exterior projections exceeding 4 ft (1.2 m) in width.

If you have any further questions, please feel free to contact me.

It should be noted that the above is my opinion. It has not been processed as a formal interpretation in accordance with the **NFPA Regulations Governing Committee Projects** and should therefore not be considered, nor relied upon, as the official position of the **NFPA** or its Committees.

Best regards,

Bob Upson

Bob Upson, Manager of Engineering Services
National Fire Sprinkler Association
Office: 845-878-4200 ext. 143
Cell: 410-525-6138



From: Steve Schipp <sschipp@ryanfp.com>
Sent: Wednesday, August 8, 2018 9:53 AM
To: Expert Oday <eod@nfsa.org>
Subject: Sprinkler Requirement for Balcony Under an Eave

We are requesting your assistance in obtaining an interpretation of section 903.3.1.2.1 of the International Building Code 2012 Edition. Section 903.3.1.2.1 states "Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units where the building is Type V construction provided there is a roof of deck above. Our question is as follows:

Does an Eave or Overhang that measures 2'-6" over a balcony that is 5 feet in width qualify as a "roof" over a balcony therefore requiring sprinkler protection of the balcony?

We are requesting a yes or no answer.

An interpretation from the International Code Council is preferred, but we can begin with a response from the National Fire Sprinkler Association.

We can provide further information if necessary to obtain the yes or no answer.

Your timely response is greatly appreciated as this matter is scheduled for an informal legal hearing with an authority having jurisdiction on August 22, 2018.

Thanks!

Steve Schipp, SET
Design Manager



O: 800-409-7606 | D: 317-557-2554

General Requirements

Chapter 4, as in most NFPA documents, sets up the general rules that apply to all systems being designed and installed in accordance with the document. These general rules are not intended to be specific installation rules. Instead, the statements in this chapter are intended to set up the broad performance goals and objectives of the system.

4.1 Sprinklered Throughout

A building provided with a fire sprinkler system designed and installed in accordance with the requirements of this standard, including its allowable omissions, shall be considered fully sprinklered throughout.

▶ FAQ

Where a building is protected in accordance with NFPA 13R, is it considered sprinklered throughout?

The intent of Section 4.1 is to tie together the terminology used in building codes and fire codes regarding sprinkler protection. Most building codes and fire codes require buildings to be "sprinklered throughout," and then reference NFPA 13R for the sprinkler requirements. Section 4.1 makes it clear that where a code requires that a building be protected in accordance with NFPA 13R and all of the requirements of NFPA 13R are met, the building is considered sprinklered throughout. For example, a building that is sprinklered in accordance with NFPA 13R, and where no sprinklers are installed in the attic, concealed spaces, dwelling unit bathrooms, or dwelling unit closets (and other spaces where NFPA 13R permits sprinklers to be omitted), is considered sprinklered throughout.

♥ AHJ FAQ

How can a building protected using NFPA 13R be considered "protected throughout" when there are concealed spaces and attic spaces that are not protected?

ANSWER: Often, building codes will require a building to be "protected throughout" in accordance with NFPA 13R. Section 4.1 is added to NFPA 13R to let the building code user know that the building can comply with the building code even though there are areas allowed unprotected by NFPA 13R, and that "protected throughout" does not necessarily mean that all spaces must have sprinkler protection and that the design of the sprinklers in concealed spaces would follow the maximum four head calculation and residential sprinkler density requirements. A residential sprinkler system design approach throughout a combustible concealed space has not been contemplated by any of the NFPA standards and is unlikely to be able to control a fire in such spaces.

4.2 Compartments

See 3.3.2.

The definition of the term *compartment*, which in previous editions was located in Chapter 4, was moved to Chapter 3 in the 2010 edition in an effort to consolidate the definitions in one chapter of the standard. The section number and title were retained in order to provide a reference to the new location in Chapter 3 and avoid confusion.

4.3 Basic Requirements

The requirements for spacing, location, and position of sprinklers shall be based on the following principles:

6.6.5.1 Where a roof or deck is provided above, sprinklers shall be installed to protect attached exterior balconies, attached exterior decks, and ground floor patios serving dwelling units in buildings of Construction Type V.

The committee has made a major shift regarding porches, balconies, decks, and ground floor patios serving dwelling units in buildings of Type V construction. Type V construction applies to the entire building, and not just the construction of the balcony. This rule applies to the exterior or "open" spaces accessible only from the dwelling unit itself, and not a corridor or breezeway that is shared among multiple dwelling units. During one of the model building code development process hearings, there was a major debate about allowing a Type V construction multifamily residential building protected with an NFPA 13R system to qualify for a one story height increase. Many of the building code proponents are extremely concerned about property protection. There is a history of fires starting on exterior open porches that have traveled up through each unprotected balcony and that eventually breached the attic, causing a total loss of the building. The main causes of these fires have generally been discarded cigarettes or unattended or improperly extinguished cooking grills. The fire codes do not allow grilling on porches, but this can be difficult to enforce. The fatality rates from these incidents are very low and are within the parameters of the scope and purpose of NFPA 13R. However, the committees that develop the model building codes agreed that, in order to recognize the height increase for an NFPA 13R system, these porches would be required to be sprinkler protected.

The NFPA 13R committee has resisted requiring sprinklers on these porches for several cycles, citing various concerns. The concerns range from the need for freeze protection to the question of the effectiveness of dry sidewall sprinklers installed under obstructed construction, considering exterior factors such as how wind might affect the spray pattern or response times. However, for the 2013 edition, the committee acquiesced to correlate with the model building code. Many sprinkler contractors and fire officials are unaware of the requirements found in the building code in regards to these porches, decks, patios, and balconies, often only finding out the details of the requirement from a building official around the time they attempt to get a certificate of occupancy. So, this correlation with the building code helps make sprinkler contractors aware of the requirements on these open areas before they begin working. This section also is explicit in that if there is not a roof or deck above the balcony or porch, no protection is required; a balcony under an eave with a soffit or fascia board would not be mandated to have sprinklers added.

6.6.5.1.1 Where sidewall sprinklers are installed beneath decks or balconies constructed with open wood joists, sprinklers shall be permitted to be installed with deflectors not less than 1 in. (25 mm) or more than 6 in. (152 mm) below the structural members, provided that the deflector is not more than 14 in. (356 mm) below the underside surface of the deck.

In conjunction with the requirements of 6.6.5.1, the committee added some additional guidance on how to install sidewall sprinklers beneath porches, balconies, decks, or patios constructed with open wood joists. Sidewall sprinklers are listed for use under smooth, flat horizontal ceilings of unobstructed construction. Porches, balconies, decks, or patios constructed with exposed wood joists in freezing environments would prohibit the use of dry sidewall sprinklers and thus require expensive dry pipe, antifreeze, or listed heat tracing systems. Using dry sidewall sprinklers attached to wet piping systems is by far the most economical approach to protecting these exterior spaces when freezing is a danger.

The rules of 6.6.5.1.1 mirror those found in one of the model building codes. The requirement that sprinklers be installed with a deflector distance within 1 in. (25 mm) to 6 in. (152 mm) below the bottom of the joist emulates the requirements of standard upright and pendent sprinklers below obstructed construction found in NFPA 13. Although this installation

flammable liquids are heavier than air so there is a concern in situations described by 8.15.6.2(4) that flammable or combustible gases could collect in the space below ground floors and become an explosion or fire hazard.

8.15.7* Exterior Projections.

A.8.15.7 Small loading docks, covered platforms, ducts, or similar small unheated areas can be protected by dry pendent sprinklers extending through the wall from wet sprinkler piping in an adjacent heated area. Where protecting covered platforms, loading docks, and similar areas, a dry pendent sprinkler should extend down at a 45 degree angle. The width of the area to be protected should not exceed 7½ ft (2.3 m). Sprinklers should be spaced not over 12 ft (3.7 m) apart. Exterior projections include, but are not limited to, exterior roofs, canopies, porte-cocheres, balconies, decks, or similar projections. (See Figure A.8.15.7.)

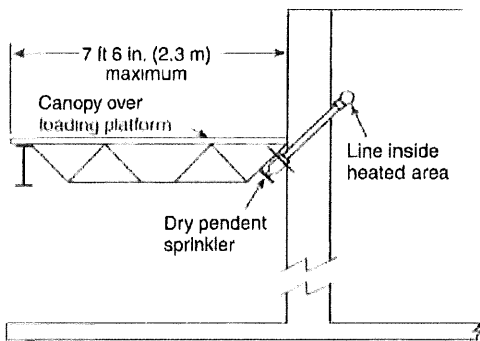


FIGURE A.8.15.7 Dry Pendent Sprinklers for Protection of Covered Platforms, Loading Docks, and Similar Areas.

8.15.7.1 Unless the requirements of 8.15.7.2, 8.15.7.3, or 8.15.7.4 are met, sprinklers shall be installed under exterior projections exceeding 4 ft (1.2 m) in width.

Exterior canopies exceeding 4 ft (1.2 m) in width that are constructed of combustible materials must be sprinklered, unless they meet the requirements of 8.15.7.4 and they do not have combustible goods stored or handled underneath them. Canopies less than 4 ft (1.2 m) in width do not need to be sprinklered, regardless of construction type, provided no combustibles are stored beneath them.

Balconies, such as those on multistory apartment buildings and that are under 4 ft (1.2 m) in width, do not require sprinkler protection. Balconies more than 4 ft (1.2 m) in width are required to be sprinklered, unless the requirements of 8.15.7.1 are met.

8.15.7.2* Sprinklers shall be permitted to be omitted where the exterior canopies, roofs, porte-cocheres, balconies, decks, and similar projections are constructed with materials that are noncombustible, limited-combustible, or fire retardant-treated wood as defined in NFPA 703, or where the projections are constructed utilizing a noncombustible frame, limited-combustibles, or fire retardant-treated wood with an inherently flame-resistant fabric overlay as demonstrated by Test Method 2 in accordance with NFPA 701.

Sprinklers can be omitted if the canopy construction assembly is composed entirely of noncombustible, limited-combustible, or fire-retardant materials and the area underneath is essentially restricted to pedestrian use. The reference to noncombustible and limited-combustible construction applies to the entire canopy assembly and not just to the exposed surface. Cases where the exterior roof or canopy is surfaced with noncombustible, limited-combustible, or fire retardant-treated materials normally require sprinklers, but sprinklers may be omitted if the requirements of 8.15.7.2 are met.

ected using an automatic sprinkler system or an alternative gaseous suppression agent system or a combination of these systems. The intent of Condition 2 is to consider whether or not the contents would react adversely to the application of water. It is important to note that the fire code official must approve the use of this item. Note also that with respect to computer rooms, NFPA 75—(*Protection of Information Technology Equipment*) (not a referenced standard) recognizes automatic sprinklers as the primary fire protection system for computer rooms.

Condition 3 recognizes the low fuel load and low occupancy hazards associated with generator and transformer rooms and, therefore, allows the omission of sprinkler protection if the rooms are separated from adjacent areas by 2-hour fire-resistance-rated construction. This condition assumes the room is not used for any combustible storage. This condition is similar to Section 8.15.10.3 of NFPA 13, which exempts electrical equipment rooms from sprinkler protection, provided the room is dedicated to the use of dry-type electrical equipment, is constructed as a 2-hour fire-resistance-rated enclosure and is not used for combustible storage.

Condition 4 requires the construction of the room or area, as well as the contents, to be noncombustible. An example would be an area in an unprotected steel frame building (Type IIB construction) used for steel or concrete block storage. Neither involves any significant combustible packaging or sources of ignition, and few combustibles are present (see Figure 903.3.1).

Condition 5 addresses the concern for elevator machine rooms and machinery spaces associated with fire service access elevators as required for buildings with occupied floors greater than 120 feet (36.58 m) from the lowest level of fire department access by Sections 403.6.1 and 3007. These elevators need to work during fire situations and their operation cannot be threatened by the activation of a sprinkler in a machine room or space that may affect the operation of the elevator. Fire service access elevators are required to be continuously monitored at the fire command center in accordance with Section 3007.6.

Condition 6, similar to Condition 5, exempts sprinklers from the machine rooms and machinery spaces for occupant evacuation elevators. Like fire service access elevators, these elevators need to work during fire situations and their operation cannot be threatened by the activation of a sprinkler in a machine room or machinery spaces. Such elevators are required to be monitored at the fire command center in accordance with Section 3008.8.

[F] 903.3.1.2 NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories in height shall be permitted to be installed throughout in accordance with NFPA 13R.

❖ NFPA 13R contains design and installation requirements for a sprinkler system to aid in the detection and control of fires in low-rise (four stories or less) residential occupancies.

Sprinkler systems designed in accordance with NFPA 13R are intended to prevent flashover (total involvement) in the room of fire origin and to improve the chance for occupants to escape or be evacuated. The design criteria in NFPA 13R are similar to those in NFPA 13 except that sprinklers may be omitted from areas in which fatal fires in residential occupancies do not typically originate (bathrooms, closets, attics, porches, garages and concealed spaces).

A common question is whether a mixed occupancy building which contains a Group R occupancy could still use NFPA 13R for the design. If one of the mixed use occupancies would require a sprinkler system throughout the building in accordance with NFPA 13, then a 13R system would not be allowed. If, however, the only reason a sprinkler system is being installed is because there is a Group R fire area within the building, then an NFPA 13R system would be an appropriate design choice. The areas that are not classified as Group R would require protection in accordance with NFPA 13.

It must be noted that although the building would be considered sprinklered throughout in accordance with NFPA 13R, not all of the code sprinkler alternatives could be applied. Any alternative that requires the installation of an NFPA 13 system would not be applicable if a portion of the building utilizes an NFPA 13R system.

The code provisions that allow for an increase in building height according to Section 504.2 do not compound this section. NFPA 13R is applicable to buildings that are up to four stories in height. If the design of a residential building intends to take advantage of the sprinkler height increase so that the building is five stories or more, the sprinkler system must be an NFPA 13 system. Because this section limits the height to four stories, that is the maximum height for a building that can utilize an NFPA 13R system. This is consistent with the scoping provisions in the NFPA 13R standard.

The limitation of four stories in height is to be measured with respect to the established grade plane, which is consistent with IFC Interpretation No. 43-03. As such, a basement would not be considered a story above grade for purposes of determining the applicability of this section.

[F] 903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

❖ Balconies, decks and patios in buildings of Type V construction and used for Group R occupancies are required to have sprinkler protection when there is a roof or deck above. This is in addition to the require-

ments of NFPA 13R, which primarily addresses the life safety of occupants and not property protection. The intent is to address hazards such as grilling and similar activities. Since NFPA 13R does not require such coverage, there is potential that a fire on a balcony could grow much too large for the system within the building to handle. The concern is that a potential exterior balcony fire could spread to unprotected floor/ceiling assemblies and attic spaces and result in major property damage. Section 308.1.4 of the IFC specifically addresses restrictions on open flame cooking devices used on combustible balconies. Note that sprinklers are not intended to be provided in closets found on such balconies.

Regardless of whether the exterior walking surface is attached to the building and called a balcony or is a freestanding structure such as a deck or patio the concern for fire ignition in the area adjacent to the exterior wall is the same. Sidewall sprinklers should be selected based on the area of coverage and climate. If the potential for freezing exists, a dry sidewall sprinkler should be used. Where the overhanging deck or balcony is extensive, an extended coverage sprinkler should be selected.

903.3.1.3 NFPA 13D sprinkler systems. *Automatic sprinkler systems* installed in one- and two-family dwellings, Group R-3 and R-4 congregate residences and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D.

NFPA 13D contains design and installation requirements for a sprinkler system to aid in the detection and control of fires in one- and two-family dwellings, mobile homes and townhouses. This section also specifically allows the use of an NFPA 13D system in small congregate living facilities (Groups R-4 and R-3, respectively). This is consistent with the NFPA 13D requirements and is also consistent with FHA court cases based on nondiscrimination for group homes.

Similar to NFPA 13R, sprinkler systems designed in accordance with NFPA 13D are intended to prevent flashover (total involvement) in the room of fire origin and to improve the chance for occupants to escape or be evacuated. Although the allowable emission of sprinklers in certain areas of the dwelling unit in NFPA 13D is similar to that in NFPA 13R, the water supply requirements are less restrictive. NFPA 13D uses a two-head sprinkler design with a 10-minute duration requirement, while NFPA 13R uses a four-head sprinkler design with a 30-minute duration requirement. The decreased water supply requirement emphasizes the main intent of NFPA 13D to control the fire and maintain tenability during evacuation of the residence.

Since the fire code official has the authority to approve the type of sprinkler system, this Section may be used to prevent the use of a specific type of sprinkler system that may be inappropriate for a particular type of occupancy.

[F] 903.3.2 Quick-response and residential sprinklers.

Where *automatic sprinkler systems* are required by this code, quick-response or residential automatic sprinklers shall be installed in the following areas in accordance with Section 903.3.1 and their listings:

1. Throughout all spaces within a smoke compartment containing care recipient *sleeping units* in Group I-2 in accordance with this code.
2. Throughout all spaces within a smoke compartment containing treatment rooms in ambulatory care facilities.
3. *Dwelling units* and *sleeping units* in Group I-1 and R occupancies.
4. Light-hazard occupancies as defined in NFPA 13.

❖ This section requires the use of either listed quick-response or residential automatic sprinklers, depending on the type of sprinkler system required to achieve faster and more effective suppression in certain areas. Residential sprinklers are required in all types of residential buildings that would permit the use of an NFPA 13R or 13D sprinkler system.

Quick-response and residential sprinklers are similar in nature. They use a lighter material for the operating mechanism, thus reducing the heat lag in the element. The faster the heat can be absorbed, the sooner the sprinkler will begin to discharge water. Quick-response sprinklers have shown that they operate up to 25 percent faster than traditional sprinklers and create conditions in the room of origin that significantly increase the tenability of the environment. In tests performed by Factory Mutual (FM) for the Federal Emergency Management Agency (FEMA), the gas temperature in the room of origin was 550°F (288°C) with quick-response sprinklers, while it was 1,470°F (799°C) for conventional sprinklers at the time of sprinkler activation. More importantly, while the carbon monoxide (CO) level was 1,860 ppm for conventional sprinklers, the CO level when tested with quick-response sprinklers was only around 350 ppm. Comparatively, the National Institute of Occupational Safety and Health (NIOSH) considers the IDLH (immediately dangerous to life and health) level of CO to be 1,200 ppm. Thus, quick-response sprinklers have been shown to add significantly to the life safety effects of standard sprinkler systems.

Condition 1 requires the use of approved quick-response or residential sprinklers in smoke compartments containing care recipient sleeping units in Group I-2 occupancies. Even though properly operating standard sprinklers are effective, the extent of fire growth and smoke production that can occur before sprinkler activation creates the need for early warning to enable faster response by care providers and initiation of egress that is critical in occupancies containing persons incapable of self-preservation. The faster response time associated with quick-response or residential sprinklers increases the probability that the

1- 4 No changes.

5. Class I manual wet standpipes are allowed in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, where the highest floor is located not more than 75' (22 860 mm) above the lowest level of fire department vehicle access.

Reason: The purpose of this amendment are to improve fire protection of mid-rise buildings, increase the cost efficiency of construction, and coordinate requirements for automatic sprinkler systems and standpipe systems. The threshold for the installation of automatic sprinkler systems, installed in conformance with NFPA 13 or NFPA 13R, would be lowered from 55 feet to 30 feet. The threshold for automatic water supplies for standpipe systems would be raised from 30 feet to 75 feet. It is also needed in light of the difficulties volunteer fire department experience in recruiting and retaining members, and the increased costs to municipalities that maintain full-time fire departments. This amendment will benefit all parties involved by improving life safety for occupants and emergency responders, reducing construction costs and limiting municipal expenditures for fire protection services.

The current provisions of section 903.2.10.12 would generally be applicable to buildings six or more stories in height, based on a 12 foot floor-to-floor height. For example, a sprinkler system would not be required in a building of Group B occupancy and Type IIA construction, having a gross area of 112,500 square feet and a height of five stories, provided that the building does not exceed 65 feet in height. [See IBC, Section 503 & Table 503.] Based on the floor area allowances of Table 1003.2.2.2, such a building could have an occupant load of over 1,100 persons. It is our view that such a building is too large and may have too many occupants to provide a reasonable degree to safety to occupants unless an automatic fire-suppression system is installed.

The current provisions of Section 905.3.1 would require the installation of a Class III standpipe system where the floor level of the highest story is more than 30 feet above the lowest level of fire department vehicle access. As provided in NFPA 14-2000 section 3-3.3, a Class III standpipe system "...shall provide 1 1/2 inch hose stations to supply water for use by building occupants ..." Section 7-1.1 provides, "Manual standpipe systems shall have an approved water supply accessible to a fire department pumper." It follows that a Class III standpipe system **must** have an automatic water supply in order to be useable by building occupants prior to the arrival of fire department forces. While it is not strictly necessary to add the description of a Class III system as having an automatic water supply, it clarifies the intention of the Code and its referenced standard. If it is held that Class III standpipe systems required under this section are not required to have an automatic water supply, the construction of high rise buildings would be permitted without any requirement for an automatic water supply, regardless of building height.

The proposed amendments improve fire protection by requiring the installation of automatic sprinkler systems in buildings where the IFC does not currently required them. Where properly installed and maintained, such systems have been shown to consistently protect persons not intimate with fire development, and extend the period of time in which tenable conditions for egress are maintained. In that many fire departments hold the view that the use of 1 1/2 inch hose by untrained occupants may endanger their safety by encouraging closer contact with fires and/or extending egress time, Class III standpipe systems can be viewed as not contributing to life safety

A manual Class I standpipe system would provide equivalent levels of property protection.

Cost:

The cost impact of the proposed amendments cannot be accurately predicted for all potential conditions. However, the cost of an automatic sprinkler system will always be lower than the cost of an automatic wet standpipe system. The cost differential is predicated on water pressure and flow requirements for the respective systems, and the resulting costs of additional required components.

For Class I and III standpipe systems, NFPA 14 requires a minimum residual pressure of 100 psi and a minimum flow rate of 500 gpm for the hydraulically most remote standpipe and 250 gpm for each additional standpipe, not to exceed 1250 gpm [sections 5-7 & 5-9.1.1]. For light hazard occupancies, NFPA 13-1999 requires a minimum residual pressure of 15 psi and a minimum flow rate of 500 to 750 gpm, by pipe schedule method; pressure and flow under hydraulic calculation method are to be sufficient for four sprinkler heads operating. Water supply for both systems is required to be sufficient to provide for system demand for 30 minutes. In locations with water supply systems, automatic wet standpipes will typically require a fire pump; in most cases, a fire pump would not be required for a sprinkler system. Even where a fire pump is required for the sprinkler system, the required size and consequent cost would be substantially reduce.

It should be noted that flow and pressure in public water supply systems tends to be greater in more densely developed areas within cities or towns, in order to supply water for normal sanitary and convenience use. In localities having small populations, buildings having a height greater than four stories, with floor plates occupied by thirty or more persons, are less likely to be found. Thus, the proposed amendment will be unlikely to have substantial cost impacts in smaller localities.

For a typical four story 20,000 square foot office building, the additional costs for an automatic water supply for the standpipe system are:

fire pump	\$20,000	
controller	\$20,000	
electrical	\$50 - 60,000	(Generator and appurtenances per NFPA 20 & 70)
TOTAL \$90 - 100,000		

The cost of a sprinkler system for a similar building would be approximately \$30,000 (20,000 sf @ \$1.50/sf).

While the cost advantages are most striking for small buildings, there are substantial savings available for larger structures as well. Using the example of the five story office building cited above, the cost of a sprinkler system would be approximately \$175,000; the cost of an automatic water supply for the standpipe system would be approximately \$125,000. However, Section 504.2 of the IBC would now permit the building to be of Type IIB construction, rather than IIA, although with a somewhat smaller building area. For the protection of corrugated decking alone, excluding beams, columns and accessories, 1 inch thick sprayed cementitious fireproofing costs approximately \$1.60/sf, about the same cost as the sprinkler system.

Public Hearing: Committee: AS AM D
Assembly: ASF DF

F93-02
903.3.1.2.1 (New) (IBC 903.3.1.2.1 [New])

Proponent: Marshall A. Klein, Marshall A. Klein & Associates, Inc.; representing National Multi Housing Council (NMHC)

Assembly: ASF DF

Add new text as follows:

903.3.1.2.1 Balconies. Sprinkler protection shall be provided for exterior balconies of dwelling units.

Reason: According to the latest NFPA Fire Date (1993 - 1997), property damage in sprinklered apartments is small (\$23.2 million/yr) compared to property damage in non-sprinklered apartments (\$687.9 million/yr.). The following information was taken from the NFPA Fire data on sprinklered apartments:

Area of Origin	#Fire s	%Fire s	Property Loss	%Propert y Loss
Attic or ceiling roof assembly or concealed space	19	0.4%	\$300,000	1.3%
Ceiling/floor assembly or concealed space	12	0.2%	\$300,000	1.1%
Exterior stairway	6	0.1%	\$100,000	0.3%
Exterior balconies or open porch	23	0.4%	\$2,600,000	11.3%

As can be noted from the above figures in the Table, compared to the other non-sprinklered areas in an apartment building protected by an NFPA #13R sprinkler system, the exterior balcony fire is many times more damaging from a property loss standpoint.

Most of these fires on exterior balconies are caused by residents using barbeque grills, clearly in violation of the Fire Code, Section 307.5 that states:

Section 307.5: Open-flame cooking devices.
Charcoal burners and other open-flame cooking devices shall not be operated on combustible balconies or within 10 feet (3048 mm) of combustible construction.

- Exceptions:
2. One- and two-family dwellings.
 3. Where buildings and decks are protected by an automatic sprinkler system.

It is far more economical and safety conscience to add a dry horizontal sprinkler head to the exterior balconies during construction (see IFC Section 307.5 Exception #2), along with the existing reasonable sprinkler compensatory features permitted by the Code (such as IBC Section 1406.4 Exception), than to have an exterior balcony fire that has the potential to spread to the attic space and create major property damage.

Public Hearing: Committee: AS AM D

F94-02
904.11 (IBC 904.11)

Proponent: Edwin M. Berkel, Mehlville Fire Protection District

Revise as follows:

904.11(Supp) Type of system. The automatic fire suppression system for commercial cooking system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Pre-engineered automatic dry- and wet-chemical fire suppression system shall be tested in accordance with UL 300. Automatic fire suppression systems, including pre-engineered and engineered dry- and wet-chemical fire-suppression systems, shall be listed and labeled for the specific use as protection for commercial cooking operations and shall be installed in accordance with Section 304.1 of the *International Mechanical Code*®. Automatic fire suppression systems of the following types shall be installed in accordance with ~~NFPA 96~~ and the referenced standard indicated:

1. Carbon-dioxide extinguishing systems, NFPA 12.
2. Automatic sprinkler system NFPA 13.
3. Foam-water sprinkler system or foam-water spray systems, NFPA 16.
4. Dry-chemical extinguishing systems, NFPA 17.
5. Wet-chemical extinguishing systems, NFPA 17A.

Reason: To delete an unnecessary referenced standard. The IFC and the referenced extinguishing system standards provide adequate regulations, therefore the reference is not needed.

Public Hearing: Committee: AS AM D
Assembly: ASF DF

F95-02
904.11.1 (IBC 904.11.1)

Proponent: Walter "Butch" Simmons, SBCCI IBC Fire Safety Code Action Committee; representing SBCCI IBC Fire Safety Code Action Committee

Revise as follows:

904.11.1 Manual system operation. A manual actuation device shall be located at or near a means of egress from the cooking area, minimum of 10 feet (3048 mm) and a maximum of 20 feet (6096 mm) from the kitchen exhaust

Assembly Action: **No Motion**

F88-02

Committee Action: **Disapproved**

Committee Reason: The code change was disapproved consistent with previous membership actions of F45-00 and F39-01 and is considered a life safety issue.

Assembly Action: **No Motion**

F89-02

Committee Action: **Disapproved**

Committee Reason: The code change was disapproved to be consistent with previous membership actions in F45-00 and F39-01 and is considered a life safety issue.

Assembly Action: **No Motion**

F90-02

Committee Action: **Disapproved**

Committee Reason: The code change was disapproved to be consistent with previous membership actions in F45-00 and F39-01 and is considered a life safety issue.

Assembly Action: **No Motion**

F91-02

Committee Action: **Disapproved**

Committee Reason: The code change was disapproved to be consistent with previous membership actions in F45-00 and F39-01 and is considered a life safety issue.

Assembly Action: **No Motion**

F92-02

Committee Action: **Disapproved**

Committee Reason: The code change did not provide sufficient documentation to support the need for the change.

Assembly Action: **No Motion**

F93-02

Committee Action: **Approved as Modified**

Modify proposal as follows:

903.3.1.2.1 **Balconies.** Sprinkler protection shall be provided for
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exterior balconies and ground floor patios of dwelling units where the building is of Type V construction. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1" to 6" below the structural members, and a maximum distance of 14" below the deck of the exterior balconies that are constructed of open wood joist construction.

Committee Reason: The code change provides for provisions that need to be addressed and is appropriate.

Assembly Action: **No Motion**

F94-02

Committee Action: **Approved as Submitted**

Committee Reason: The code change removes a reference that is not needed in this location.

Assembly Action: **No Motion**

F95-02

Committee Action: **Disapproved**

Committee Reason: The code change, as proposed, would be too restrictive.

Assembly Action: **No Motion**

F96-02

Committee Action: **Approved as Submitted**

Committee Reason: The code change brings the location of the device to a level meeting the needs of disabled individuals.

Assembly Action: **No Motion**

F97-02

Committee Action: **Disapproved**

Committee Reason: The code change proposed did not add to or improve the code.

Assembly Action: **No Motion**

F98-02

Committee Action: **Disapproved**

Committee Reason: The current text provides a reasonable exception based on the published analysis.

Assembly Action: **Approved as Submitted - Failed**

F96-06/07**903.3.1.2.1 (IBC [F]903.3.1.2.1)**

Proponent: Kevin Kelly, National Fire Sprinkler Association

Revise as follows:

903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

Reason: This will clarify that these exterior sprinklers are to be installed below a roof or deck above. For the sprinkler to operate correctly they must have a roof to collect the heat and fuse the sprinkler open, otherwise the sprinkler would be of limited value and could potentially decrease the reliability of the interior sprinkler system. This appears to be the intent of this section since it provides sprinkler installation procedures below structural members and decks.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

F97-06/07**903.3.1.3 (IBC [F] 903.3.1.3)**

Proponent: Ron Nickson, National Multi Housing Council/National Apartment Association

Revise as follows:

903.3.1.3 NFPA 13D sprinkler systems. Where allowed, automatic sprinkler systems installed in one and two-family dwellings and congregate residences of Group R-3 and R-4 shall be installed throughout in accordance with NFPA 13D.

Reason: The code is not clear on when 13D sprinkler systems can be used in congregate residences and group homes. Congregate residence of Groups R-3 and R-4 are limited to 16 occupants maximum. This is consistent with the requirements in NFPA 13D. The code should be revised to reflect this.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

F98-06/07**903.3.5.2 (IBC [F] 903.3.5.2)**

Proponent: John C. Neal, Design Strategies, LLC

Revise as follows:

903.3.5.2 Secondary water supply. A secondary on-site water supply equal to the hydraulically calculated sprinkler demand, using the Density/Area Curves found in NFPA 13; and including the combined inside and outside hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the *International Building Code*. The secondary water supply shall have a duration of not less than 30 minutes as determined ~~by the occupancy hazard classification in accordance with NFPA 13.~~

Exception: Existing buildings.

Reason: This change is needed to clarify the purpose of section 903.3.5.2.

If the intent of the code is to provide a water supply of at least 30 minute duration, the above proposed changes will accomplish that. Sprinkler demand in gallons per minute (gpm) can be determined by using the Density / Area Curves from NFPA 13. Then the combined outside and inside hose stream can be added in and multiplied by 30 to obtain a 30 minute duration. By specifically mentioning the combined hose stream, you remove any confusion whether to use the inside or outside hose stream.

As far as the water supply goes, typically most buildings that fall into the category of needing a secondary water supply, are going to have to install a water storage tank.

Justin Feters

From: Kevin Kelly <Kevin.Kelly@victaulic.com>
Sent: Wednesday, October 03, 2018 4:28 PM
To: Mark Riffey
Subject: Re: NFSA Code Change Proposal [EXT]

Mark

The original intent of this code change was to only require a sprinkler on a exterior balcony if there was a roof or deck around the balcony. The exterior sprinkler would not be required if there was only an overhang.

Kevin

Sent from my iPhone

On Oct 3, 2018, at 8:52 AM, Mark Riffey <mriffey@ryanfp.com> wrote:

Hello Kevin, we are conducting research regarding a code change that was made section 903.3.1.2.1. of the International Building Code and International Fire Code. It appears from the attached proposed code change F96-06/07 that you are listed as the Proponent representing the National Fire Sprinkler Association. Can you tell me if the intent of the code change was to require sprinklers only when there was a roof or deck above the balcony that encompassed the entire balcony below? I look forward to your reply.

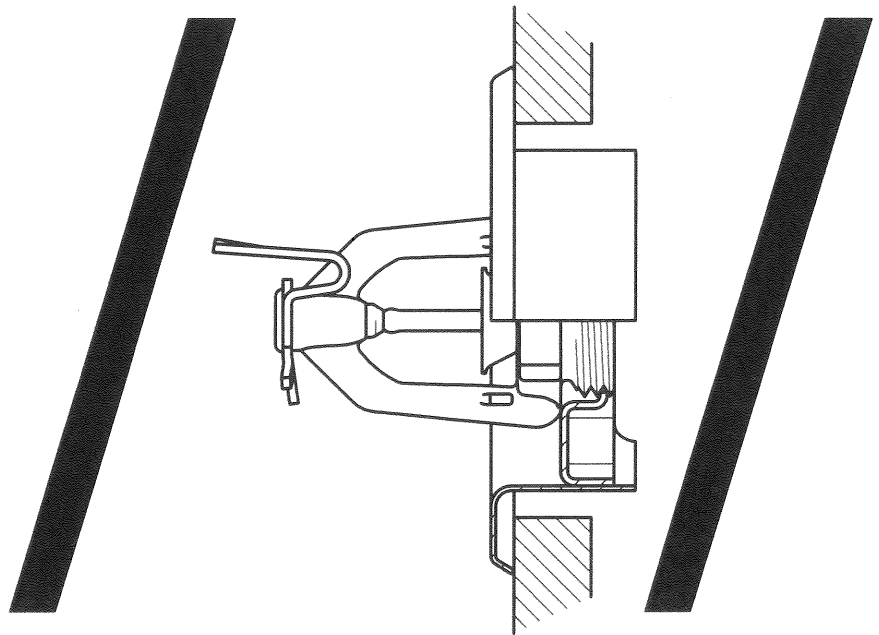
Mark Riffey, SET
Executive Vice President

<image001.jpg>

O: 800-409-7606 | D: 317-557-2556

<nfsacodechangeproposalF96 Roof or Deck Above.pdf>

Residential Balcony Testing with Horizontal Sidewall Sprinklers



*Melissa Avila,
Manager, Sustaining
Engineering Group*

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Introduction

This engineering white paper documents the results of a preliminary evaluation to determine the potential benefits and limitations of sidewall sprinklers used to protect residential balconies. The sidewall sprinkler was found to limit vertical fire propagation for all scenarios evaluated, indicating that such a sprinkler would be beneficial in stopping fire spread to additional balconies above the fire. Sprinklers were less effective when the fire was located directly adjacent to the “open” end of the balcony due to insufficient heat collecting beneath the balcony to activate the sprinkler thermal element. Further refinement of the preliminary study utilizing realistic wall assemblies is recommended. While this evaluation does not provide a complete analysis of all possible scenarios, the results clearly demonstrate that, in the majority of fire scenarios, residential sprinklers are likely to operate and control a balcony fire. As a result, it is recommended that these exterior areas continue to be protected by sidewall sprinklers.

The use of sidewall sprinklers to protect residential balconies of combustible (Type V) construction is a common practice. However, very little data exists to demonstrate the efficacy of these installations. There is a clear need for protecting these spaces due to the potential for a fire initiated on a balcony to spread upwards on the exterior of the building to other balconies and ultimately into attic spaces. Another fire scenario envisions the fire burning through the exterior cladding material, leading to rapid vertical fire propagation within the wall cavity.

Challenges associated with the use of sprinklers for the protection of residential balconies include the need to address the range of environmental conditions these nominally “outdoor” sprinklers are exposed to, and the impact of these environmental conditions on the thermal sensitivity of these devices. Further, the common methods of construction for residential balconies, including the use of exposed floor joists and large open areas, will impact thermal sensitivity and spray distribution.

The purpose of this program is to conduct a limited number of tests to develop a basic understanding of the performance and limitation of sidewall sprinklers used to protect residential balconies. It is not the intention of this preliminary program to evaluate the performance of these devices in all environmental and installation conditions.

History

In 2003, section 903.3.1.2.1 was inserted into the International Building Code (IBC) stating:

Sprinkler protection shall be provided for exterior balconies and ground floor patios of dwelling units where the building is of Type V construction. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 to 6 inches below the structural members, and a maximum distance of 14 inches below the deck of the exterior balconies that are constructed of open wood joist construction.

The section was inserted in response to NFPA fire data showing that over 11% of the property damage losses from sprinklered apartments were from fires on exterior balconies (Ref. 2003 International Building Code Update Resource Handbook). At the time, it was stated that the ignition source for most of these fires was gas or charcoal style barbecue grills.

There have been questions associated with the ability of a sprinkler to operate and control a fire when installed under a residential balcony, due to the potential for the fire to spread into open wood joists above the water discharge pattern. An uncontrolled fire on a residential balcony could potentially lead to very rapid vertical fire propagation, either within the wall cavity between the balcony and dwelling units, or on the exterior surface of the structure.

Test Setup

A mock-up of a typical corner apartment balcony, open on the front as well as one side, was constructed of 3/8 inch plywood. The balcony measured 11 feet high by 10 feet wide by 4 feet deep with trade size 2 x 12 rafters spaced 18 inches apart, representing wood joist construction on the ceiling. An additional piece of plywood, measuring 3 feet high by 10 feet wide, was attached vertically to the top of the structure to represent the area above the balcony that leads to the next level. After the first test, it was determined that the 3/8 inch plywood did not burn effectively and 1/4 inch Douglas Fir plywood (the same type of plywood used in the standard UL1626 tests) was placed around the fire location. Ten thermocouples were placed in the space to record throughout the test. Figure 1 illustrates the test setup.

The fire was created using a propane burner and was designed to represent a worst case (i.e. large) steady state barbecue grill fire. The flame height from the burner was in the range of 1 to 1.5 feet. The fire location was changed from test to test but is shown in the back right corner in the figure. The left hand side of the structure was open (i.e. no plywood) for most tests. The sprinkler location was modified in some of the tests (i.e. it was a test variable) but it was typically placed between two rafters in the approximate center of the back wall and 2 inches below the bottom of the rafters, as shown in Figure 1. Note that the joists were capped along the outside edge using a simulated rim joist constructed of a piece of plywood as shown in Figure 1. As a result, each joist channel was a sealed "pocket".

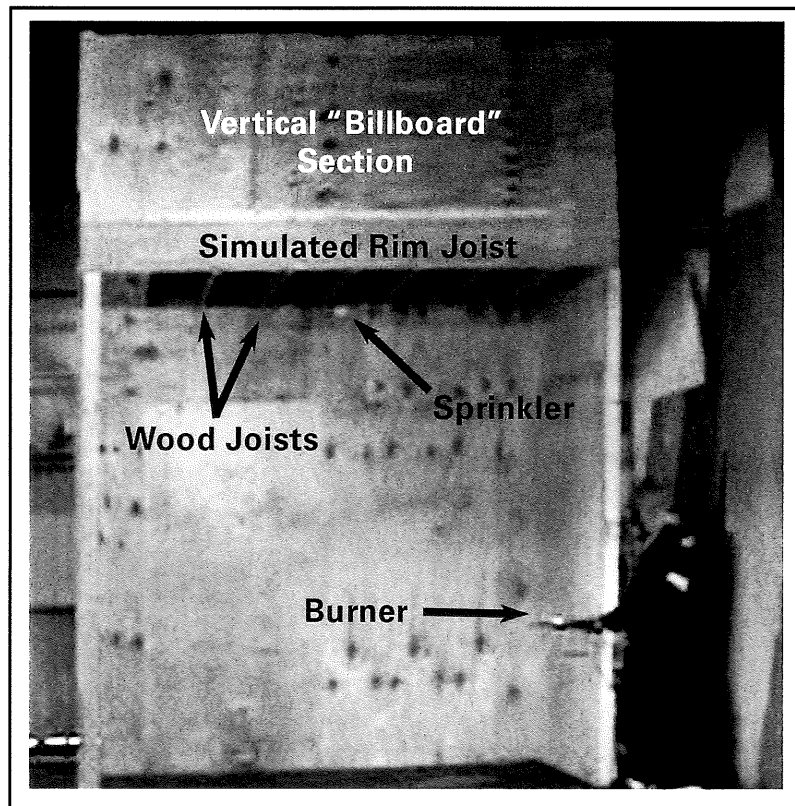


Figure 1- Residential Balcony Test Setup

Instrumentation included 10 thermocouples located throughout the structure as shown in the two views below (indicated by the black or red symbol: \oplus). The view on the left is from the front of the balcony while the view on the right is a side view. As can be seen from the drawing below (as well as Figure 1), there is a plywood strip running perpendicular to the joists and of an equal height to simulate the effect of a rim joist on heat flow and fire growth. The actual wood joists are not shown in the drawing below to eliminate confusion. The location of the burner is also not shown in the diagram since it varied from test to test.

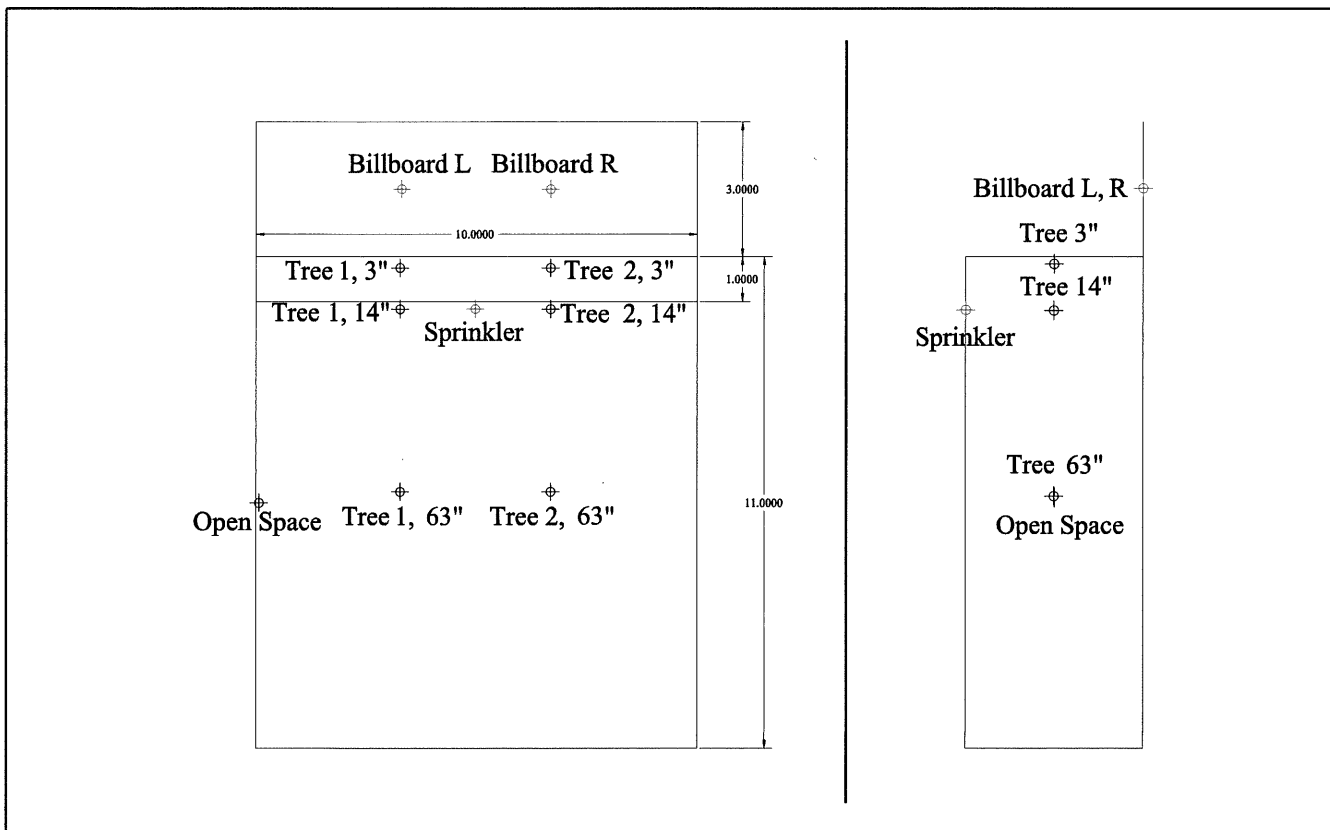


Figure 2- View of Balcony from Front (Left Side of Figure) and Side (Right Side of Figure) showing Thermocouple Placement. Compare views to picture of balcony setup in Figure 1 for reference.

The sprinklers marked in red in the diagram are at different depths in the structure than those in black (i.e. those in black are located at center depth while the red locations are at the front or back of the structure, see side view). The two thermocouple trees, with measuring points located 3 and 14 inches from the ceiling as well as 63 inches from the ground, were located at center depth and at 1/3 and 2/3 of the length of the structure. The “Sprinkler” thermocouple was located on the back wall next to the sprinkler while the “Open Space” thermocouple is located in the center of the open space on the left side. The “Billboard L” and “Billboard R” thermocouples are located on the “billboard” section of the structure which represents the area above the space which leads to the next balcony level. The same names for the thermocouples are used in the temperature graphs in the results section in Table 1.

Testing Matrix

In order to determine controlling factors in the response of the sprinkler to the fire, a limited parametric study was conducted. The factors evaluated were the depth of the rafters, the location of the fire, the combustibility of the ceiling above the rafters, the type of sprinkler and the placement of the sprinkler.

Test Number	Sprinkler	Rafter Depth Inches	Fire Location	Sprinkler Location	Ceiling Combustible	Notes
1	LFII HSW	12	Right Side Wall	Center, 2" Under 1	no	No 1/4" plywood Used
2	LFII HSW	12	Right Corner	Center, 2" Between 2	no	
3	LFII HSW	12	Right Side Wall	Center, 2" Between 2	no	
4	LFII HSW	12	Left Side of Back Wall	Center, 2" Between 2	no	
5	LFII HSW	12	Left Side of Back Wall	Center, 2" Between 2	yes	
6	LFII HSW	12	Right Corner	Center, 2" Between 2	yes	
7	TY-FRB HSW	12	Right Corner	Center, 2" Between 2	yes	
8	LFII HSW	12	Right Corner	Center, 2" Between 2	yes	Structure made 3- Sided
9	LFII HSW	8	Right Corner	Center, 6" Between 2	yes	
10	LFII HSW	8	Left Side of Back Wall	Center, 2" Between 2	yes	

Table 1- Test Matrix with Variables Listed

All sprinklers were tested at a discharge pressure of 30 psi, which equates to 23.0 gpm for the 4.2K LFII HSW (TY1334, manufactured in 2004) and 30.7 gpm for the 5.6K TY-FR HSW (TY3331, manufactured in 2007). Both sprinklers were tested with a 155°F quick response bulb. The location of the sprinkler was changed to determine the effect on response time. In the first test, the sprinkler was located directly under a rafter. This position allowed hot air to flow quickly past the sprinkler in a short time period from the start of the test and resulted in very quick activation. Therefore, the sprinkler was located between two rafters (where the flow past the sprinkler was slower and the heat tended to collect above the sprinkler) for the rest of the tests to provide a more challenging scenario. When the rafter depth was changed in the last two tests from 12 to 8 inches, the sprinkler was placed 6 inches below the rafters for the least challenging fire scenario (right corner) since this is the maximum distance allowed. For the more challenging fire (left side of back wall), the sprinkler was moved up to be 2 inches below the rafters.

The fire location was varied to determine the effects of heat buildup in the rafters, loss of heat out of the space and radiant feedback contribution to fire growth. The propane burner was located on the front side of the right wall, in the back right corner (as seen in the figure above) or the left side of the back wall, next to the open space.

In the initial test, a noncombustible ceiling of drywall was used above the wood joists. However, in later tests pieces of plywood were placed above the wood joists to simulate a combustible ceiling and provide a more challenging fire scenario and possibly aid travel to the vertical billboard section of the structure. In one test, the left side of the balcony was covered with plywood to simulate a 3 sided balcony (i.e. interior apartment balcony) instead of the 2 sided balcony simulated in the rest of the tests (i.e. corner apartment balcony).

Results

In order for a test to be considered a success in this program, the fire needed to be quickly controlled to a manageable level, prevent any additional fire spread after sprinkler activation and allow no burning on the billboard before or after sprinkler activation. If there was burning on the billboard, this would indicate that fire could possibly spread upwards toward the next level of balconies and create a very hazardous situation. In order to qualitatively evaluate the results of the tests, the measures of success shown in the table below are: whether the fire was quickly controlled, whether the fire engulfed the rafters or affected the billboard, and whether the fire burned through the plywood walls. Quantitative markers of success include maximum temperature overall and maximum billboard temperature.

Test Number	Activation (s)	Controlled ?	Rafters ?	Billboard ?	Burn Through ?	Maximum Temperature °F	Maximum Billboard °F
1	160.5	Yes	No	No	No	198°	141°
2	219.5	Yes	Yes	No	No	417°	251°
3	329	Yes	No	No	No	191°	136°
4	N/A	N/A	No	No	Yes	717°	229°
5	DNO	N/A	Yes	Yes	Yes	885°	486°
6	N/A	Yes	Yes	Yes	No	352°	162°
7	313	Yes	Yes	No	No	458°	213°
8	329.5	Yes	Yes	Yes	No	691°	295°
9	677.5	Yes	Yes	No	No	705°	272°
10	885	Yes	Yes	Yes	Yes	850°	207°

Table 2- Quantitative and Qualitative Measurements from Test Series

None of the fire scenarios fully ignited the billboard, but some scenarios allowed fire spread up to the billboard, including some significant fire spread to that area in the last test in the series. Fire engulfed a few of the rafter spaces in all of the combustible ceiling tests, as well as one non-combustible ceiling test. Also, in some of the tests performed with the fire on the left side of the back wall, the fire burned through the plywood wall near the fire location and started climbing up the back of the enclosure.

In test 4, the sprinkler activated at some point during the test but there was an issue with the water pump and no water arrived at the sprinkler. However, when the same test was completed with a combustible ceiling (test 5), the sprinkler did not activate during the test. In test 6, the propane was set to the wrong level and was very high at the start of the test which caused the sprinkler to activate prematurely. However, the sprinkler was later turned off so that the fire could develop in the rafters to pose a challenging fire scenario for the sprinkler. In tests 9 and 10, the flow of propane had to be increased late in the test since the plywood on the wall was resisting ignition.

The location of the propane burner had a large effect on the temperature distribution in the room and, consequently, the response and activation time of the sprinkler. Representative tests from each of the three different burner locations are shown in Figures 3-5.

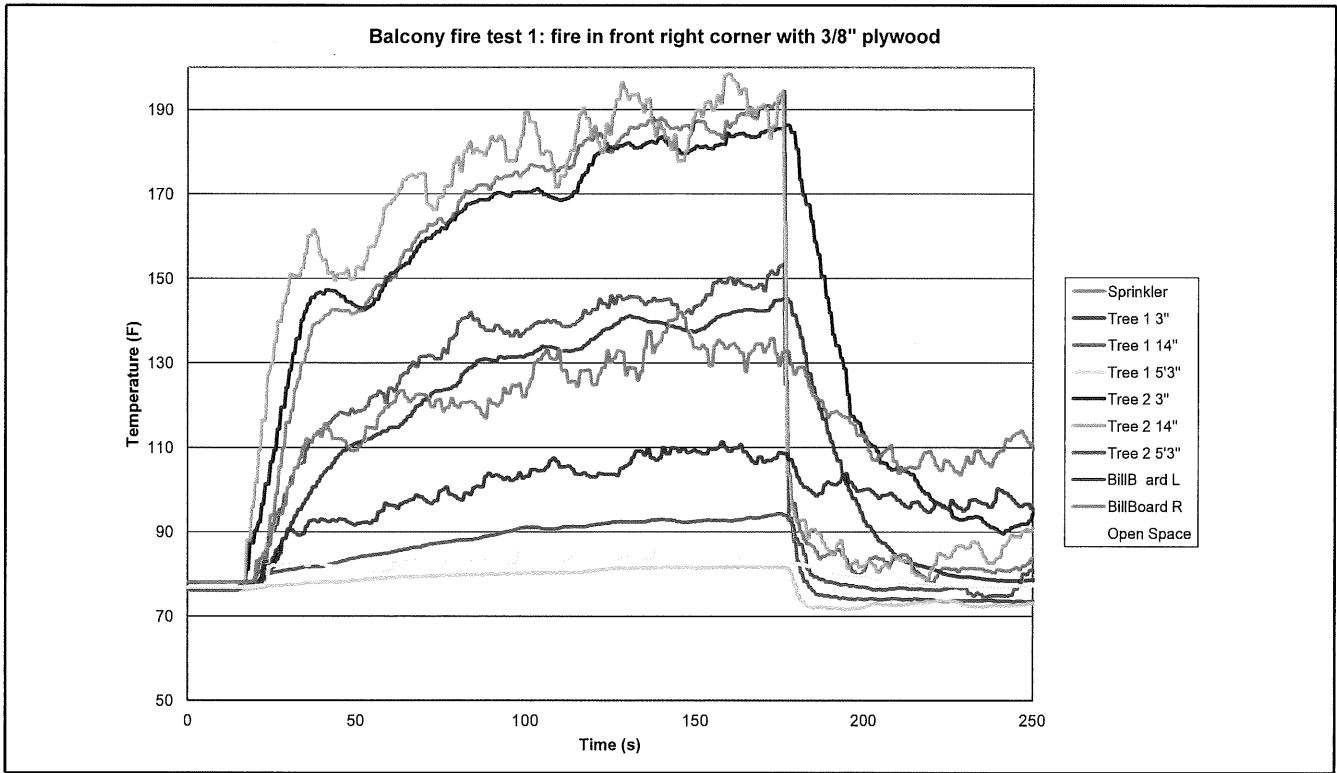


Figure 3- Fire in Front Right Corner Location

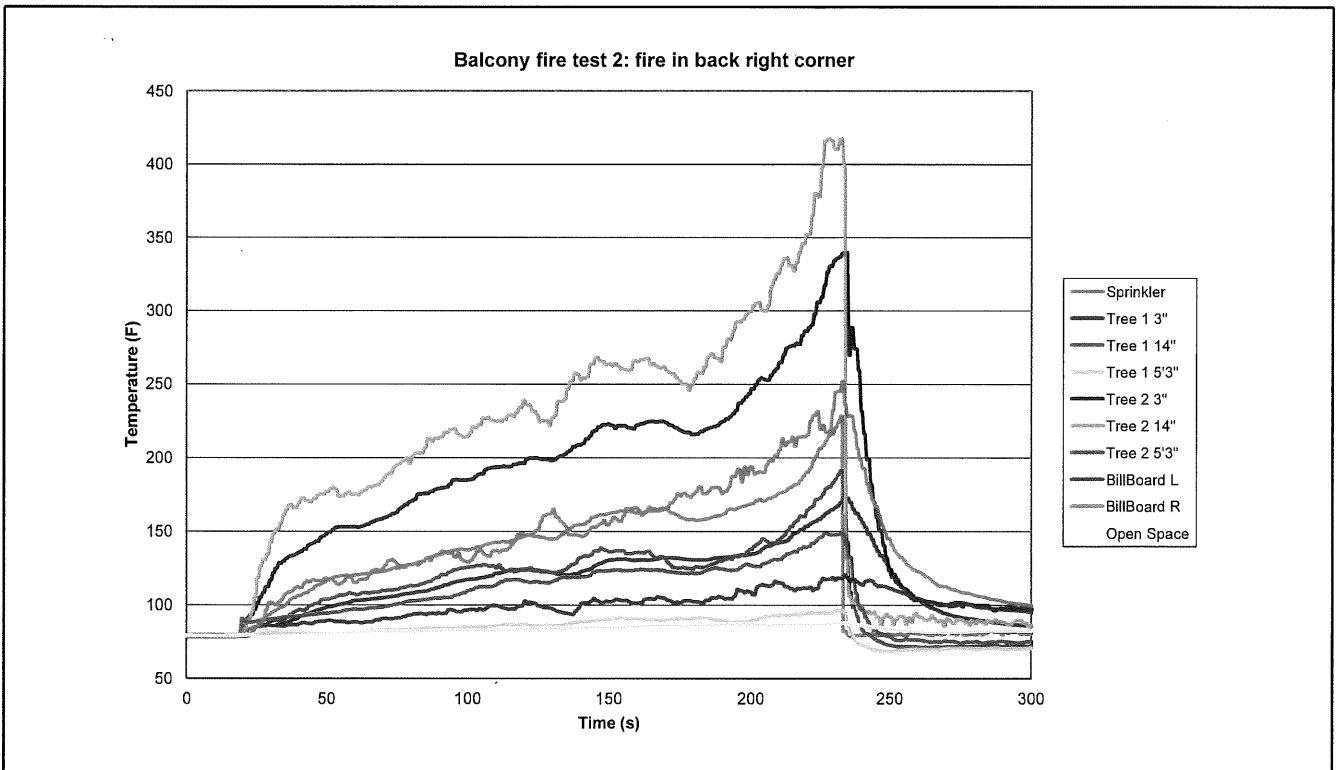


Figure 4- Fire in Back Right Corner Location

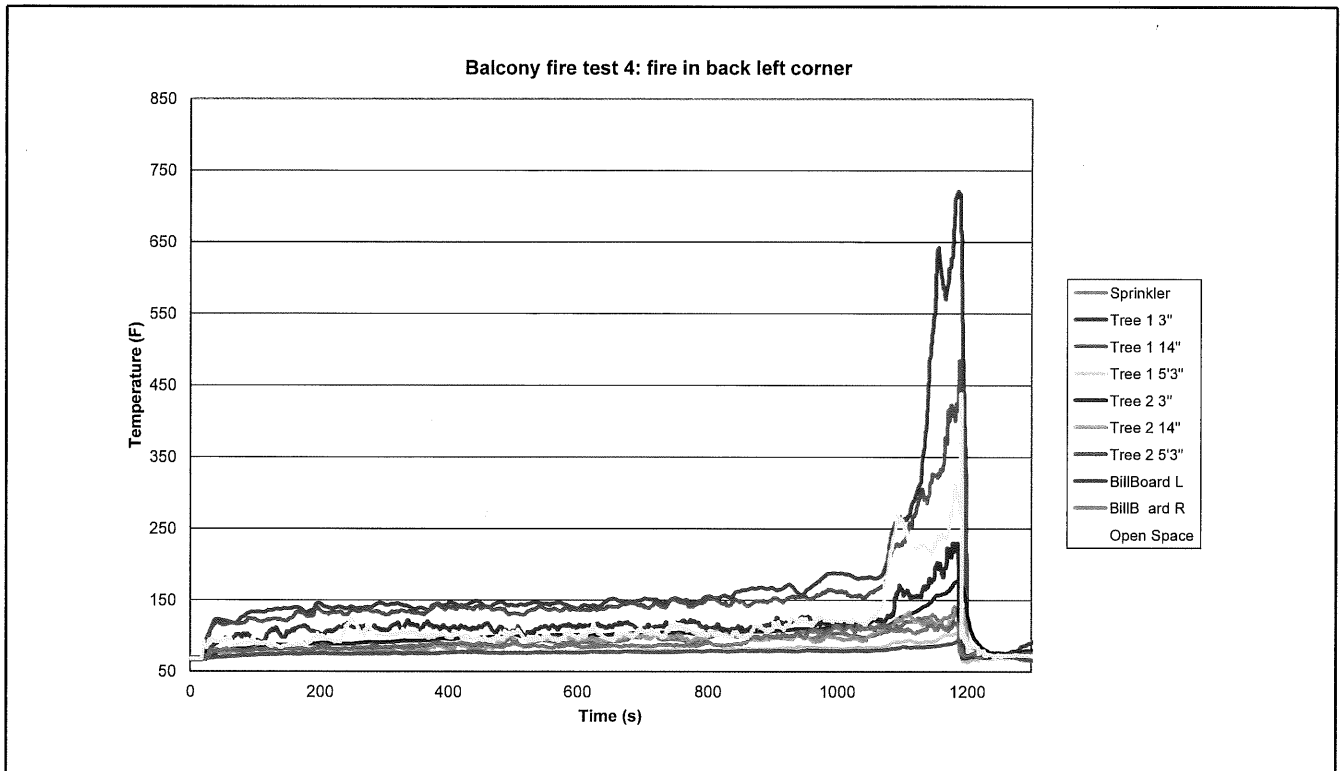


Figure 5- Fire in Back Left Corner Location (next to open space)

Due to the amount of heat radiated out of the open space when the burner was located in the back left corner (Figure 5), the temperatures in some parts of the space became very high but the sprinkler did not activate since the heat was not properly channeled over to that area of the balcony. When the burner was placed on the right side, the test balcony experienced much lower temperatures before activation of the sprinkler. Note that the sprinkler in the test shown in Figure 3 was located under one rafter; however, an identical test with the sprinkler between two rafters demonstrated a similar temperature distribution in the room but slower sprinkler activation due to the sprinkler location (compare activation times for test 1 and 3 in Table 2).

All of the data shown in Figures 3-5 are from tests with non-combustible ceiling. Figure 6 shows a repeat of the test shown in Figure 4 with a combustible ceiling. The sprinkler used was also different in Figure 6 but it did not have an effect on the fire (i.e. quick control of the fire after activation was still maintained).

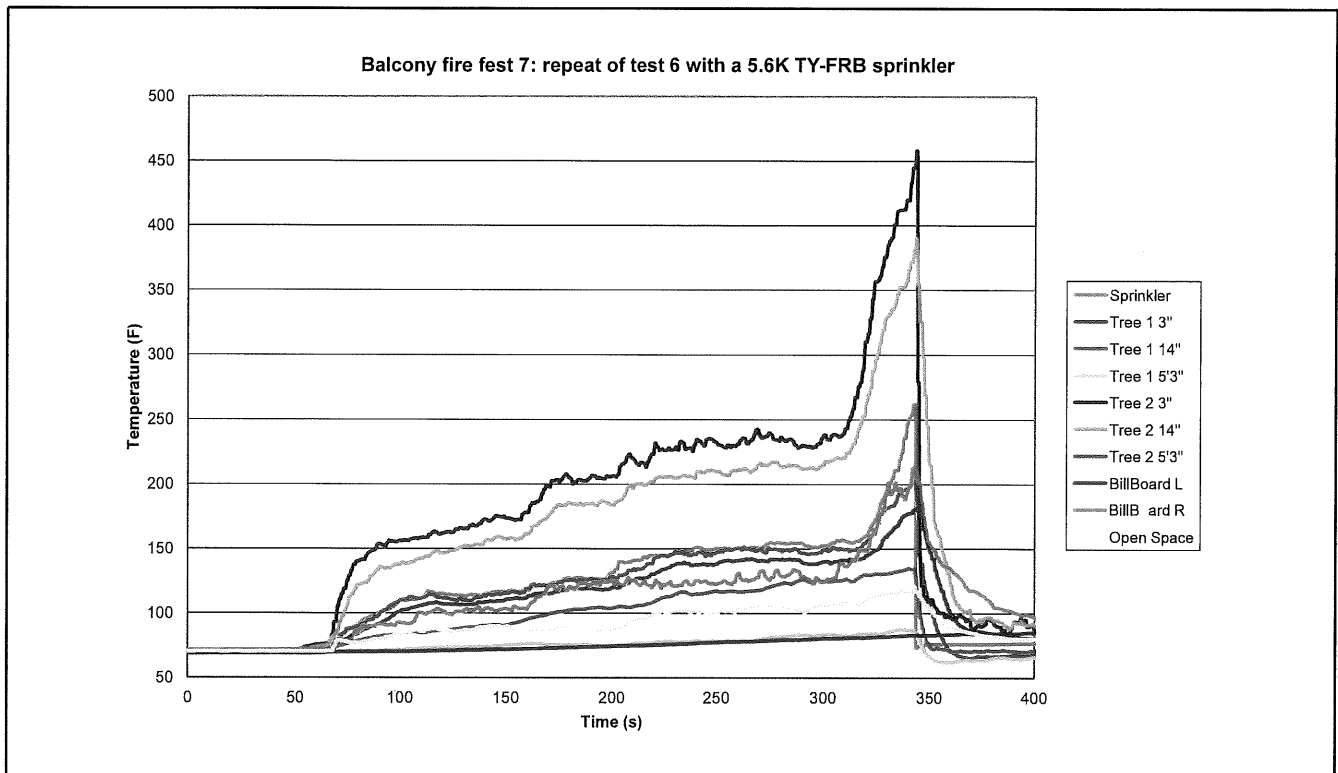


Figure 6- Repeat of Test shown in Figure 4 with a Combustible Ceiling

As can be seen from comparing Figures 4 and 6, the combustible ceiling did not have an effect on the ability of the sprinkler to control the fire quickly and had limited effect on fire growth. The temperatures in the room rose more quickly when the fire approached the ceiling in the test with the combustible ceiling due to the added heat of the plywood burning between the wood joists.

Decreasing the depth of the rafters had little effect, except for the more severe fire on the left hand side of the wall. In that scenario, the temperatures observed were not significantly different, but there was little control of the fire and potential for fire spread to the billboard based on visual observations. During the test with 8 inch rafters (versus 12 inch rafters), the size of the fire had to be increased significantly to ignite the plywood wall, which may have contributed to the difficulty with control; more testing is needed to understand the impact of rafters of varying depths.

Conclusions

In the residential balcony test scenarios studied, horizontal sidewall sprinklers almost immediately controlled the fire and stopped fire spread to the vertical billboard section in all but one of the tests. Even in the test in which the fire was not controlled immediately, the sprinkler significantly slowed fire spread to the billboard portion of the structure, indicating that vertical fire spread to balconies on upper levels would have been at least slowed by the activation of the sprinkler. It was found that the most significant variable in the tests was the fire location. For fires located in an area where significant heat loss from the open space was possible, the sprinkler had difficulty with activation and the fire tended to burn through the plywood and travel up the back of the structure.

It would be beneficial to conduct additional tests with wall assemblies and exterior cladding materials typical of apartment buildings, such as vinyl siding, to evaluate the impact of realistic fuel loads as well as better understand the relationship between the time at which a fire will penetrate into a wall cavity compared to the time at which a sprinkler is expected to operate.

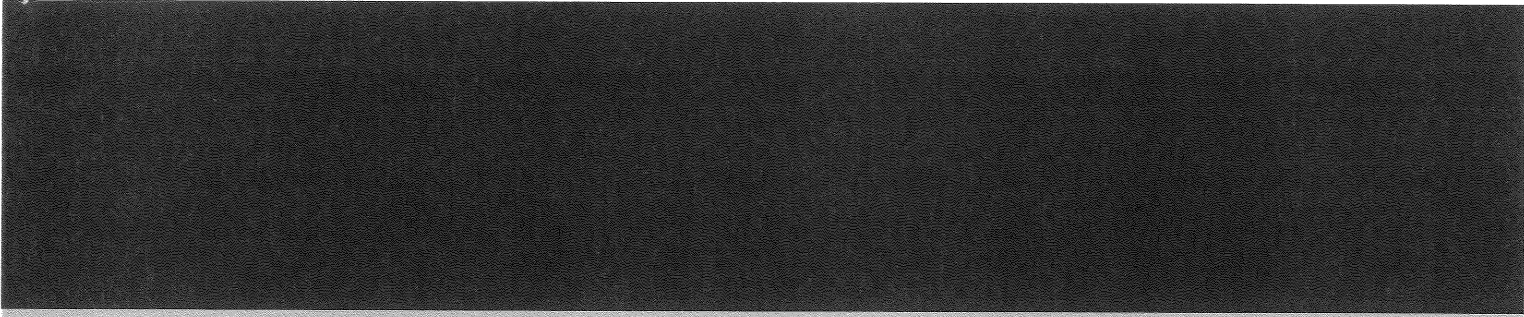
While this program does not provide a complete analysis of all possible scenarios, these preliminary results demonstrate that, in the majority of fire scenarios, residential sprinklers are likely to operate and control a balcony fire, significantly slowing vertical propagation and potentially eliminating penetration of the fire into the wall cavity. As a result, it is recommended that these exterior areas continue to be protected with sidewall sprinklers.

About the Author

Melissa Avila

Manager, Sustaining Engineering Group

Melissa Avila is the Engineering Manager in the sustaining engineering group in Cranston, RI. As a graduate of Worcester Polytechnic Institute's Mechanical and Fire Protection Engineering programs, Melissa completed a Master's thesis on the study of the behavior of composites in small scale fire environments. She has represented Tyco, including presenting on various subjects, at a number of different conferences and symposiums. Melissa is a registered Professional Engineer and represents Tyco on a National Fire Protection Research Foundation technical panel for cloud ceilings and as an alternate for the UL / FM / NFSA and USTAG committees. During the 6 years Melissa has been at Tyco, she has been involved in a wide range of projects both in sustaining engineering and new technology.



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Table A-1-2 Fires and Associated Deaths and Injuries in Apartments by Area of Origin; Annual Average of 1986-1990 Structure Fires Reported to U.S. Fire Departments

Area of Origin	Civilian Deaths	Civilian Percent	Fires	Percent	Injuries	Percent
Bedroom	309	33.9	17,960	15.8	1,714	27.2
Living room, family room, or den	308	33.8	10,500	9.3	1,272	20.2
Kitchen	114	12.5	46,900	41.4	1,973	31.2
Interior stairway	29	3.2	1,040	0.9	91	1.4
Hallway or corridor	23	2.6	3,130	2.8	165	2.6
Exterior balcony or open porch	17	1.8	1,880	1.7	69	1.1
Dining room	10	1.1	800	0.7	69	1.1
Closet	9	1.0	2,120	1.9	116	1.8
Multiple areas	9	1.0	780	0.7	38	0.6
Tool room or other supply storage room or area	8	0.9	1,250	1.1	53	0.8
Unclassified area	8	0.9	480	0.4	29	0.5
Exterior stairway	8	0.8	870	0.8	22	0.4
Bathroom	7	0.7	2,510	2.2	101	1.6
Heating equipment room or area	6	0.6	2,510	2.2	75	1.2
Exterior wall surface	5	0.5	2,150	1.9	26	0.4
Laundry room or area	4	0.4	3,380	3.0	89	1.4
Crawl space or substructure space	4	0.4	1,490	1.3	62	1.0
Wall assembly or concealed space	3	0.4	1,020	0.9	21	0.3
Attic or ceiling/roof assembly or concealed space	3	0.3	1,100	1.0	18	0.3
Ceiling/floor assembly or concealed space	3	0.3	560	0.5	18	0.3
Garage or carport*	3	0.3	1,290	1.1	36	0.6
Lobby or entrance way	3	0.3	670	0.6	31	0.5
Unclassified structural area	3	0.3	520	0.5	32	0.5
Unclassified storage area	3	0.3	430	0.4	22	0.3
Unclassified function area	3	0.3	250	0.2	13	0.2
Laboratory	2	0.3	80	0.1	3	0.0
Elevator or dumbwaiter	1	0.2	220	0.2	4	0.1
Sales or showroom area	1	0.2	110	0.1	3	0.1
Exterior roof surface	1	0.1	1,040	0.9	15	0.2
Unclassified means of egress	1	0.1	180	0.2	6	0.1
Office	1	0.1	120	0.1	4	0.1
Chimney	1	0.1	980	0.9	2	0.0
Personal service area	1	0.1	40	0.0	4	0.1
Library	1	0.1	10	0.0	0	0.0
Other known area	2	0.2	5,000	4.4	115	1.8
Total	912	100.0	113,390	100.0	6,313	100.0

Note: Fires are estimated to the nearest 10; civilian deaths and injuries are estimated to the nearest 1.

*Does not include dwelling garages coded as a separate property.

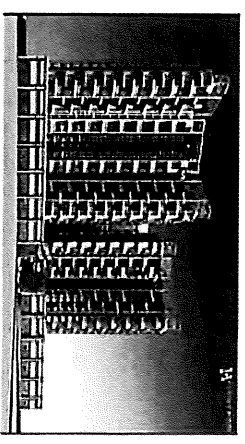
Source: 1986-1990 NFIRS and NFPA survey.

Residential Fire Sprinkler Timeline

1973 and Prior
 No Residential Fire Sprinkler Regulations

1973
 America Burning
 13,000 live lost annually
 Goal Reduce Fatalities by 1/2

1974
 America Burning
 Fire safety act
 Goal Reduce Fatalities by 1/2



1979
 Residential Threshold
 NONE over 150 ft.ok

1980 Sprinklers
 Testing begins to dev.
 Or. Life safety Sprinkler

NFPA 13R

1981
 First Residential Sprinkler
 Listed UL 1626
 QR & Life Safety
 Prevent Flashover

1985
 Residential Threshold
 150 Feet in height

Studied 113,390 fires
 Number of balcony fires 1.7%
 Loss of Life and casualties not a factor
 TO Date no loss of life on Balconies
 Having NFPA 13R systems

1988
 Residential Threshold
 3 or more stories
 No widespread adoption

1988 No Regulations
 UBC 38-1 or UBC 38-2 standard
 No Regulations For Mid Rise Residential
 Florida Affordable Residential Sprinkler Regulation

1991

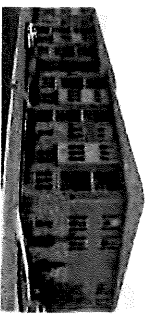
Residential Threshold
 3 or more stories
 Widespread Adoption

1997

Residential Threshold
 2 Stories

2003

Sprinkler all Apartments



1989 NFPA 13R sprinkler omissions

Small closets 24 sq.ft, least dim 3 ft.

Small bathrooms

Balconies

Porches

Corridors

Carports

Stairs

Attics

Penthouses

Elevator machine rooms

Crawl spaces

Concealed spaces between floors

Exterior Closets on Balconies regardless of size without unprotected openings into Apartments