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SPRING 2022 QUARTERLY REVIEW

 BUILDING PLAN REVIEW

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PRESIDENT'S MESSAGE

An FSCI update from Keith Frangiamore, FSCI President

A New Year, Even Better Service

As we look back at 2021, specifically spring of 2021, we were coming out of a long COVID winter and there was thought of returning to some semblance of "normal." As we know it didn't turn out that way as the situation again worsened. But this spring things feel different, as we learn to better treat and live with the virus. This spring FSCI will begin offering a great new service.

Last month we began a phased rollout of electronic plan review (EPR) service for our clients and customers. This EPR, cloud-based process will provide more efficient and timelier plan reviews, communication and allow our clients and customers to access the status of their projects online 24 hours a day 7 days a week. We hope to offer this service to all existing FSCI clients and customers by the end of June 2022.

Growing From Within

FSCI is committed to continued growth and service for our clients and customers. So, I'm proud to announce the promotion of three key staff members.

FSCI has created three new positions and promoted Matt Davis to Fire Protection Plan Review and EPR Supervisor, Mike Carnduff to Field Services Supervisor and Natalie McBride to Administrative EPR Supervisor. If you talk to Matt, Mike or Natalie please congratulate them on their their new responsibilities.

Please stay safe, support each other, and we'll all move toward a healthy future!



SIGNIFICANT CHANGES TO THE 2021 EDITION OF THE INTERNATIONAL MECHANICAL CODE

*Raoul Johnston, Senior Building and Life Safety Consultant
ICC Certified Mechanical Code Official, Certified Mechanical Code Specialist*

The International Mechanical Code (IMC) provides the minimum requirements for the prescriptive and performance-based provisions of mechanical systems. The purpose of this code is to provide the minimum satisfactory level of safety and to protect life and property from the potential dangers included with the installation and operation of mechanical systems. The IMC is updated on three-year cycles after a review of proposed changes from authorities having jurisdiction, industry representatives, design professionals and other concerned parties. This article will go through the relevant changes in each chapter from the 2021 edition of the International Mechanical Code.

Chapter 1 – Scope and Administration

There were no significant changes in Chapter 1. However, there were several minor changes or section realignments within this chapter. Section 109 Fees was created to have all references to permit fees located within one section to provide for clarity in the fee structure/requirements. Section 112 Service Utilities was created to have all references for utility services requirements including the authority of the building official to have service utilities disconnected for safety reasons. Section 113 Stop Work Order was created to provide additional authority in the issuance and enforcement of a stop work order.

Chapter 3 – General Regulations

Section 307.2.1.1 Condensate Discharge was modified to clarify the code of acceptable points of disposal of condensate discharge. This code section expressly prohibits the connection of condensate drains directly to drain, waste and vent piping and prohibits condensate from discharging into plumbing fixtures other than those listed. The intent is to prevent unsanitary conditions and potential health hazards. This section also clarifies that connections to lavatory tailpieces and bathtub overflow pipes are acceptable, as this has been a common practice in some localities.

Chapter 4 – Ventilation

Sections 401.2 Ventilation required has been revised for clarification. Dwelling units complying with the air leakage requirements of the International Energy Conservation Code or ASHRAE 90.1 shall be ventilated by mechanical means in accordance with Section 403. The IMC regulates R-2 multiple-family buildings, and the intent of this code section is now evident regarding R-2 buildings, that is, dwelling units under the scope of the IMC must be mechanically ventilated if such units comply with the air leakage requirements of the applicable energy code. The requirement for mechanical ventila-

tion in R-2 dwelling units is no longer tied to a residential blower door testing requirement. This eliminates the distinction between commercial and residential R-2 buildings as defined in the IECC.

Section 403.1 Ventilation system has been revised for clarification as well. The previous reference to the testing required by Section R402.4.1.2 of the International Energy Conservation Code (IECC) had caused varying interpretations as to whether the testing applied only to R-2 buildings of 3 stories or less or if it applied to all R-2 buildings. The revision makes no distinction between R-2 buildings of 3 stories or less and R-2 buildings over 3 stories, thereby eliminating multiple interpretations.

Section 401.4 Intake opening location and Section 501.3.1 Location of exhaust outlets have been modified to accommodate the new type of factory-built combination exhaust and intake air fitting that does not require separation between the two openings. Such fittings are designed to severely limit the amount of exhaust air that can be entrained in the intake airflow. Also, combination termination fittings allow a single exterior wall penetration as opposed to two separate exhaust and intake penetrations.

Table 403.3.1.1 Minimum Ventilation Rates, “note g”, was rewritten to lessen the negative impact of recirculated exhaust air from spaces such as bath and toilet rooms, shower rooms, locker rooms and certain classrooms, shops and labs. The intent of “note g” was to prevent air from those designated spaces from being circulated to other spaces, except for the small volume of air that leaks across the heat exchanger (cross-leakage) in an energy recovery ventilation (ERV) unit. The revised code clarifies the original intent, which was to allow only a small amount of air to leak from the exhaust airstream of a wheel type ERV into the outdoor airstream of that ERV. The intent of this section is now consistent with ASHRAE 62.1, which is the basis for Table 403.3.1.1.

Section 403.1.3 System operation was modified to clarify that demand control ventilation schemes cannot eliminate all ventilation in a space while that space is expected to be occupied. Demand control ventilation means that the ventilation rate can be adjusted up or down as the number of occupants in a space increase or decrease. The section might be misinterpreted that the ventilation rate could reduce to zero if the number of occupants was zero. However, when the occupant load is zero, the minimum required ventilation rate is deter-

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LITTLE KNOWN FACTS

NFPA 13 and 291, Waterflow Test Season

With the weather warming up, it's soon to be waterflow test season. It is always recommended that waterflow tests be conducted when the temperature is over 40°F so freezing does not occur in the underground piping. One of the purposes of waterflow testing is to determine the available water flow and pressure for fire suppression systems. Upgrades to the underground system or deterioration that occurs over time can change the results of a waterflow test. That's why section 4.5.1.1 of the 2022 edition of the NFPA 13 requires that when a waterflow test is used for the purpose of system design, the test must be conducted within 1 year of the submittal.

When conducting a waterflow test, the pressure shown at the static/residual fire hydrant should drop enough when the flowing fire hydrant is opened to show a significant curve on a bar graph. Having this curve allows for the designer of a sprinkler system to easily determine the water pressure available based on the amount of gpm's being used for that specific suppression system. NFPA 291 editions 2019 and older required for at least a 25% drop in pressure at the static/residual fire hydrant for the test to be considered adequate. A drop of 25% is very hard to achieve, especially when you have larger sized underground mains. This could result in the need to flow up to 8 fire hydrants.

The 2022 edition of NFPA 291 now allows for only a 10% drop in pressure at the static/residual fire hydrant. This new requirement can be found in section 4.4.6. Now, even when dealing with larger underground mains, only 1 or 2 fire hydrants will need to be flowing to achieve a 10% drop. The 10% drop in pressure will still allow for a significant curve on a bar graph. With this change the amount of time to conduct a waterflow test will be greatly reduced. This will also allow for less landscaping that will be disturbed due to the flowing water.

-Mike Carnduff, Field Services Supervisor

NFPA 17A – 2021 Edition

Recently, I received a phone call from a client asking what type of piping and fittings are allowed for a kitchen hood wet chemical extinguishing system. This appeared to be a simple question as the requirements for this type of system has not changed very much in recent editions. Then they went on to ask specifically if copper tubing and "ProPress" fittings could be used. I laughed thinking that I have never been asked if copper could be used for a kitchen hood system. I answered with a simple "No copper can not be used." The client said that is what they thought and asked me to send the code sections that state that. Not a problem, I thought. I was wrong.

Chapter 4 of the 2021 Edition of NFPA 17A states "Pipe and associated fittings shall be of noncombustible material having physical and chemical characteristics compatible with the wet chemical solution." It goes on to say that Galvanized piping and fittings can not be used unless specifically listed, and the piping and fittings shall meet the maximum expected pressure rating of the system. NFPA 17A then says that the piping and fittings shall be "in accordance with the system manufacturer's design, installation, and maintenance manual."

NFPA 17A no longer lists the type of piping and fittings that can be used on a system. This was a bit of an eye opener for myself, so I called the client back to let them know that it is possible that copper could be used and asked for more details on the system to be installed. The client had already reached out to the manufacturer and received a copy of the U.L. listing for the system. The CaptiveAire TANK system is specifically listed to have copper piping with "ProPress" fittings used as the distribution piping located above the hood. The drops located under the hood are still required to be steel or stainless steel. If you run across something that you have not seen with a kitchen hood suppression system, check with the installation manual to see what the system has been listed to use.

- Matt Davis, Fire Protection Plan Review and EPR Supervisor

NFPA 72, Secondary Power

With springtime upon us, severe storms will be on the horizon, causing power outages. It is critical that fire alarm systems are designed to handle A/C outages with proper secondary power back up. Since the 2002 edition, NFPA 72 has made it a requirement that secondary power calculations include at a minimum 24 hours of standby time to mimic nonalarm conditions for central and remote stations. An additional 5 minutes of alarm condition shall be added for a non-voice emergency evacuation and 15 minutes for a voice/alarm communication system. A significant change to the 2022 edition, chapter 10 of fundamentals has increased the minimum safety margin from 20% to 25% to accommodate for the aging of the batteries to meet the demands of the system. Batteries used for secondary power shall be marked with the month and year of manufacture in the month / year format. All primary and secondary power supplies shall be monitored for the presence of voltage at the point of connection to the system. Failure of either shall result in a trouble signal. When essential system operation equipment ie. (Booster panels, radios, cellular communicator) is located away from the fire alarm control unit, it shall also produce a trouble signal at the monitoring station and at the Fire alarm control unit via a visual and audible signal.

-Ryan Case, Fire Protection Consultant



SEMINAR INFORMATION

Keep you and your staff up to date on the latest Fire, Building and Life Safety code changes and equipment by attending one of our seminars. Fire Safety Consultants, Inc. is teaching seminars throughout the United States, led by our experienced staff of Matt Davis, Keith Frangiamore, Brent Gooden & Warren Olsen. Whether you are a Contractor, Architect, Technician, Engineer or an Authority Having Jurisdiction, each seminar is full of practical insight and first-hand experiences to help you comply with applicable codes and standards. Fire Safety Consultants, Inc. can also provide custom seminars at your location. Be sure to check out our [website](#) to view our listing of available seminars or to check the schedule to see what we are teaching next! Contact us to learn more by emailing info@firesafetyfsci.com or by calling our corporate office at (847) 697-1300.



EMPLOYEE SPOTLIGHT

Ryan Case

Ryan joined Fire Safety Consultants, Inc. in August 2018. Ryan is one of the plan reviewers in our corporate office. Ryan came to FSCI with 16 years of experience in the fire service. He performs plan reviews and inspections of fire alarm systems and kitchen wet chemical extinguishing systems. Ryan has been involved in a lot of large fire alarm projects within industrial, storage, business and residential occupancies. Ryan spends a lot of time in the codes and is usually the go to person for fire alarm system questions. Ryan currently holds NICET Level 2

certification for Fire Alarm Systems and NICET Level 1 for Inspection and Testing of Fire Alarm Systems.

After a long day of work Ryan comes home to his wife, 3 kids, 2 cats and a dog. In his off time, Ryan enjoys fishing and going on walks with their dog.



EMPLOYEE SPOTLIGHT NEWS

We would like to congratulate several of our employees on some great achievements since our last newsletter! Michael Carnduff received his NICET Level 2 certificate for Fire Alarm Systems on March 9th. On March 18th we announced three new supervisor position here at FSCI. Please join us in congratulating Natalie McBride, in her new role as Administrative EPR Supervisor, Matt Davis, in his new role as Fire Protection Plan Review and EPR Supervisor, and Mike Carnduff, in his new role as Field Services Supervisor.



WE'RE LISTENING!

Tell us what you are interested in learning about!
Email us at: info@firesafetyfsci.com