WINTER 2019 QUARTERLY REVIEW

BUILDING PLAN REVIEW | FIRE SAFETY PLAN REVIEW | CONSULTING SERVICES

FSCI

IN THIS ISSUE

OUR GOAL IS TO COMPLETE ALL PLAN REVIEWS WITHIN 10 BUSINESS DAYS

PRESIDENT'S MESSAGE

An FSCI update from Keith Frangiamore, FSCI President

Looking Back and Looking Ahead

2018

At the close of every year, the Fire Safety Consultants, Inc. (FSCI) team looks back at our accomplishments and our challenges. We listened to our client and customer requests and discuss enhancements to the quality services we already provide. FSCI completed our very successful first-year as an independently operating division of PSI.

We believe budget planning is a benefit which allows us to identify challenges and identify opportunities to improve services and tools. While it may be primarily about anticipating expenses, the real driver is characterizing needs and opportunities to provide exceptional service to our clients and customers.

During 2018, 30 potential clients requested and were provided FSCI information (electronic packet) regarding our plan review services. These inquiries are in addition to the many more customer inquiries regarding consulting services and seminar information. Our staff continued to develop and present seminars in many states across the country.

Additionally, we added several new staff positions and are approaching 40 employees working diligently to provide the best quality services to our clients and customers. Everyday our staff receive on-going training based on their current knowledge and experience level through the FSCI education and mentoring program.

FSCI continued to support many associations and organizations through donations as well as staff support.

2019

After reflecting on 2018 accomplishments, we look forward to new challenges and opportunities in 2019. One of our major initiatives is creating an integrated, seamless office environment with all staff in all offices working as a single team. We are procuring a cloud-based telephone system that will allow us to connect our clients and customers to the exact staff member. We are also going to upgrade our in-house training facility and begin work on a fully functional electronic plan review process to be rolled out to our clients and customers in 2020.

MARIJUANA GROWING AND PROCESSING FACILITIES – YOU SHOULD BE CONCERNED

Keith S Frangiamore, CFPS

Marijuana Industry

An exploding industry is coming to your town or a town near you soon! The marijuana (cannabis) industry is growing exponentially across North America. Canada recently legalized marijuana for medical and recreational use, and in the United States, 33 states have legalized marijuana for medical use and 17 of those same states have legalized it for recreational use. There are currently 18 states where recreational marijuana use is specifically prohibited.

Although these marijuana processing facilities may look like laboratories, the hazardous processes and amount of production would require that they be classified as a specific use group dependent on the hazards present. The ICC use group could be either factory (F-1) or high hazard (H-2 or H-3). The use group is dependent upon the operations including the classification, use and storage arrangement of the hazardous materials, as well as the equipment and processes used to extract the oils.

From a fire safety standpoint, we should be very interested in this industry due to its rapid growth, the economic impact this growth creates, and the safety concerns in protecting these facilities from fire. A major concern is the use of hazardous materials and their storage in the processing (extraction) of the essential oils (cannabinoids and terpenes) of the marijuana plant material. The resulting highly purified oils collected through the extraction process can be used for many Marijuana Infused Products (MIP), including such things as candy, oils, pills, drinks, gummies and cookies.

Growth

The fire safety industry should be concerned with the rapid growth of this industry since processes and processing equipment are evolving as fast as the industry, with a great amount of financial interests at stake.

North American cannabis sales topped $10 billion in 2017, which was a 33% increase over 2016. As of June 2017, there were an estimated 165,000 to 230,000 cannabis industry jobs.

How big will the cannabis industry get? A recent market research report, released at the beginning of 2018, estimated that the overall economic impact of the cannabis industry could increase to $40 billion by 2021, with the U.S. cannabis market expected to surpass $24 billion by 2025.

Economic Impact

The report also found the following:

- California's cannabis industry will create nearly 99,000 jobs in the state by 2021
- Sales taxes from the legal cannabis industry will top $2.8 billion by 2021
- California, Colorado, Massachusetts, Nevada, Oregon, and Washington will account for more than 60% of total economic output for the industry in 2021

One cannabis industry study estimated that cannabis production and sales could create over a million jobs by 2025. The same study found that $131.8 billion, cumulatively, could be added to the US Treasury by the year 2025.

The economic opportunities related to the increase of cannabis production has increased the use of often untested and possibly unsafe marijuana processing equipment and production methods.

Fire Safety Concerns

There are two aspects to marijuana production, growing and processing, with each having specific fire safety concerns. This article will discuss only the extraction process and the related hazardous materials and processes.

The most critical safety concerns are the numerous hazardous materials used in the extraction process including liquefied flammable gases (typically butane); flammable liquids (such as ethanol); acids (such as sulfuric); and cryogenics (primarily carbon dioxide). All this is happening while codes and standards are lagging as the industry evolves at breakneck speed. Currently, NFPA 1, Fire Code 2018, is the only national fire code that specifically addresses issues related to the marijuana manufacturing industry. NFPA 1, if adopted, applies to new and existing facilities. In addition to the requirements found in NFPA 1, other NFPA codes and standards may apply:

- NFPA 30 – Flammable and Combustible Liquids Code
- NFPA 58 – Liquefied Petroleum Gas
- NFPA 70 – National Electrical Code
- NFPA 90A – Standard for A/C and Ventilating Systems

One extraction process involves the use of butane or propane gas which is required by NFPA 1, to be completed in a safe envi-

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EMPLOYEE SPOTLIGHT

Kyle Harding

Kyle started with FSCI in August of last year. He believes that being in the graphic design industry for the last 15 years, helped him develop the skills to pay attention to the small details. This is a skill that he now uses daily as a Plan Reviewer, working with designers on revisions and corrections to their fire protection drawings.

Kyle is working to complete the first phase of training here at FSCI and is currently working on sprinkler and wet chemical plan reviews. He is also attending weekly training so he can expand the types of reviews he works on in the future. When Kyle has some free time outside of work, he enjoys playing volleyball, watching Ohio State and Chicago Bears football and spending time with his new wife, Jenna.

EMPLOYEE SPOTLIGHT NEWS

Congratulations to Scott McBride for achieving his Fire Inspector II and Advanced Fire Prevention Officer certifications from the Office of the Illinois State Fire Marshal.

MARIJUANA GROWING AND PROCESSING FACILITIES

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ronment. Butane hash oil (BHO) is obtained by combining cannabis with liquid butane and subsequently recovering the butane from the THC oil solution in a closed system. Although the processing equipment in use today may have relatively small amounts in the process (less than 20 gallons), future equipment will have much greater capacities and complexities. Currently, 95% of the solvent is recovered after each run and the remainder of the solvent is purged in vacuum ovens. The resultant product is cannabinoid and terpene rich oil that has less than 10 parts per million (ppm) of residual solvent.

Some specific code requirements for the processing area would include a closed processing system, proper electrical classification of the area, proper detection, proper ventilation, and the proper fire rated separation from the remainder of the building. Safety for personnel would include doors in the area that must swing in the direction of egress travel, be provided with a self-closing or automatic closing device, and be equipped with panic or fire exit hardware. Detection systems or devices are required in the processing areas based on the hazardous product(s) used in the process, such as butane or carbon dioxide. Other processing equipment may include extraction vacuum ovens, refrigerators, freezers, and distillation cooling equipment. All equipment, if not listed for the specific use, must be certified by a third party engineer working for the public agency at the expense of the owner.

Although the processing equipment may be a closed system, the use and storage of the hazardous materials used in this process can also be a major concern. Use and storage of hazardous materials must comply with the appropriate building and fire code as well as numerous referenced NFPA standards.

In Closing

A fire official in Colorado was recently asked to reflect on the current state of the marijuana industry. He stated he was comfortable with where we're at now, but then if you asked him six years ago, he might have said the same then. The reality is, that every few months there are new developments in the marijuana industry where new fire and life safety concerns need to be addressed. The fire service needs to remain aware and adaptive of changes in the marijuana industry as it relates to fire and life safety concerns, utilizing the resources provided by published codes and standards.

SEMINAR INFORMATION

Stay up to date on the latest Fire, Building and Life Safety code changes and equipment by attending one of our seminars. FSCI 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. FSCI can also provide custom seminars at your location. Be sure to check out our schedule of upcoming seminars on our website. Contact us to learn more by emailing info@firesafetyfsci.com or by calling our office at (847) 697-1300.

Click here for the latest seminar information

LITTLE KNOWN FACTS

Ansul Distribution Piping Requirements

Ansul systems must be installed following several guidelines and requirements. Pages 4-63 through page 4-70 of the Ansul manual describes the requirements for distribution piping. Ansul only allows for 3/8 inch, Schedule 40, black iron, chrome-plated, or stainless steel to be used for piping. Hot dipped galvanized pipe is not allowed. Ansul also requires the minimum piping length from the tank outlet to any nozzle protecting a range, fryer, or wok to be 6 feet.

The Ansul manual divides piping into four categories: 1) Supply line, which is defined as the length of pipe which runs from the agent tank outlet to the last branch line; 2) Duct line, which is defined as the length of pipe which runs from the supply line to the duct nozzles; 3) Plenum branch line, which is defined as the length of pipe which runs from the supply line to the plenum nozzles; and 4) Appliance branch line, which is defined as the length of pipe which runs from the supply line to the appliance nozzles.

Ansul has more specific distribution piping requirements depending on the size of the tank being used. The guidelines for maximum pipe length, maximum number of tees, and the maximum number of flow points can be found on pages 4-66 through 4-68.

Michael Carnduff – Fire Protection Consultant

Non- Required System Detection

Our office frequently receives many questions regarding smoke and heat detection systems. A recent question received in our office asked if non-required smoke detection could be added to rooms and areas in a sprinklered building as requested by the building owner. The answer is yes. Chapter 17 of NFPA 72 deals with detector coverage (heat and smoke sensing). Section 17.5.3.3 addresses non-required coverage. Detectors, installed for the reason of achieving the specific fire safety objectives of a building owner, are permitted so long as they meet the requirements of NFPA 72 with the exception of prescriptive spacing criteria found in Chapter 17. Note that the presence of sprinklers is not a requirement of applying this section. Common areas seen protected with non-required detection are rooms that house communication and computer equipment, file and record rooms and other rooms or areas the owner or tenant might deem important or valuable.

Section 17.5.3.3.2 makes it clear that additional detectors, not necessary to meet the fire safety objective, are not required. Therefore, if a single smoke detector is used over (or within 21 feet) computer server equipment in a room of 4,000 square feet in area, no additional detectors would be required if the owner's objective were to simply protect the server. This would apply even though it would typically require additional detectors to adequately protect the entire room.

Scott Kunzie, Fire Protection Consultant

Getting your Documentation Ducks in a Row
A Deeper Look at NFPA 72, Chapter 7

Documentation is a giant part of the fire alarm system design and could make or break the chance of having your fire alarm review approved on the first try.

The 2010 edition of NFPA 72 (10.18.2.3), included four requirements: 1) Manufacturers' published instructions; 2) Drawings/floor plan layout: 3) Site-specific software; and 4) A sequence-of-operation. Additional information could be found in Annex A. In 2013, all documentation requirements were relocated into the new Chapter 7. Existing, and many new, specific documentation requirements were placed into Chapter 7 including a scope of work, riser diagrams, battery calculations and voltage drop calculations to name a few.

The 2016 edition has been expanded to require all of the above, and a bit more information. A typical floor plan layout shall show the location of all devices, appliances and control equipment. Additional requirements included in Section 7.2 require information on the supervising station transmitting equipment, shared communications equipment, where it exists, along with each sheet containing a point of compass, a graphic representation of the scale used, room use designation and building features that will affect the placement of initiating devices and notification appliances such as ceiling heights and construction details.

Other, new requirements include: mounting heights for wall-mounted devices and appliances, sound pressure levels that must be produced by the audible notification appliances, and pathway diagrams between the control unit, the supervising station and shared communications equipment.

Suzie Gardner - Fire Protection Consultant

WE'RE LISTENING!

Tell us what you are interested in learning about!

Email us at: info@firesafetyfsci.com