

# CITY OF SPRINGFIELD FIRE DEPARTMENT

## Requirements Related to Operation of Medical Marijuana Facilities

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## **Scope:**

The scope of this document is to provide reference for applicable Code requirements of the City of Springfield and industry best practices for cultivation, extraction processes and other businesses related to medical marijuana. This document was developed by a task group who reviewed applicable requirements in the 2018 International Fire Code and other applicable Codes and standards applicable to the marijuana industry. This document is not intended to identify or provide guidance for every requirement of all adopted Codes and standards due to the uniqueness of facility design, building construction, equipment and processes. Applicants are required to follow all adopted Codes and standards of the City of Springfield. This document serves as a companion document to Title 19 of the Missouri Code of State Regulation, Division 30, Chapter 95, Rules of Department of Health and Senior Services, (State of Missouri, 2020).

The City of Springfield has adopted the 2018 International Fire Code (IFC) to include adopted amendments. Chapter 39 of the IFC details the requirements of Processing and Extraction Facilities, Chapter 26 details the requirements when Fumigation or Insecticidal Fogging occurs in these facilities and Chapter 50 details Hazardous Materials storage. Each of these chapters refers to other chapters within the IFC and to various NFPA standards.

## **Purpose:**

The purpose of this document is to provide reference for the development community for facilities associated with the marijuana industry, addressing requirements for life safety and property protection from associated hazards.

The information provided is solely for the guidance of the reader and is not intended to be used as an exclusive or adopted “enforcement” document or supersede the IFC as adopted.

## **Applicability:**

This document applies to the processes for the cultivation and/or processing of medical marijuana and may also be applied to the cultivation and/or processing of hemp.

## Administration and Definition:

These definitions are for the items discussed within this document. Local or state variations in terms or definitions may be different. Locally or state defined terms should be used as applicable.

**Water-Based Medical Marijuana Concentrate:** A Medical Marijuana Concentrate that was produced by extracting cannabinoids from Medical Marijuana through the use of only water, ice or dry ice.

**THCA:** Tetrahydrocannabinolic acid.

**THC:** Tetrahydrocannabinol.

**Standardized Serving of Marijuana:** A standardized single serving of active THC.

**Public Way:** A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which as a clear width and height of not less than 10 feet.

**Professional Engineer:** An individual who is licensed by a State, as a professional engineer.

**Occupancy Classification:** The Occupancy Classification of Marijuana Facilities may be found in Chapter 3 of the International Building Code (IBC) and the International Fire Code (IFC). Typical occupancies are summarized as follows:

1. **Cultivation Facility**, aka, "Grow Facilities". Considered factory industrial occupancy.
2. **Infused Products Manufacturing Facility**. Considered high-hazard or factory industrial occupancy, depending on quantities and extraction method used.
3. **Testing Facility**. Considered business occupancy.
4. **Dispensary Facility**. Considered mercantile occupancy or business occupancy depending on patient care or other similar activities.
5. **Transportation Facility**. Considered business occupancy.

## **Alternative Methods or Materials (Research Report and Tests, Approved Materials and Equipment, Technical Assistance)**

Fire code officials have the authority to require an owner to provide a technical report from an approved design professional, qualified specialist, laboratory or fire safety specialty organization as detailed in IFC 3904.3. The report must demonstrate that the equipment, devices, systems, products, technologies, materials and uses attending the design, operation and use of a building/premise comply with all applicable local and state building codes, fire codes, electrical codes and other laws. The City of Springfield accepts equipment that is listed for the intended use; however, much of the developing equipment and processes, are not listed and therefore require approval by the fire code official before use. Therefore, this technical report becomes critical to ensure safe operating compliance based on established criteria.

If nationally recognized testing laboratory (NRTL) listing of a submitted or proposed appliance(s)/equipment is not available, a third-party technical report or certification may be an acceptable alternative. The AHJ may obtain a detailed report examining and evaluating a given piece of extraction equipment, device or appliance for compliance with the building code, fire code, recognized standard or best practices. This report should be prepared by an approved third party agency. Common examples include solvent extraction devices which use flammable gases, liquefied petroleum gases and high-pressure carbon dioxide systems.

Any “approval” for equipment or a 3rd party agency as discussed above comes from the fire code official. The fire code official “approves” various devices, processes or people. Additional justification may be required in order to substantiate an approval; justification will be detailed by the jurisdiction. Design code analysis, process hazard analysis or consequence analysis reports should be compiled for the proposed facility/process. This may be a narrative evaluation of the existing occupancy and its proposed use, including change of occupancy evaluation, related to, in this situation, marijuana concentrate extraction. The report should cite all applicable building and fire codes/standards and identify compliance and/or noncompliance facility issues with corrections or recommendations listed for final inspection. These documents are useful as design and inspection tools.

## Operational Permits

As with any specific hazard operation, the fire code official may require facilities to obtain operational permits. The Springfield Fire Department currently does not have any operational permits that will typically affect these types of occupancies.

## Construction Permits

As with any specific installation or system, the Building Development Services (BDS) require construction permits. The Springfield Fire Department currently does not require construction permits that will typically affect these types of occupancies. As part of the building permit process, there are FIS (Sprinkler) inspections that encompass any required fire protection and water supply systems. Prior to permits being granted, plan review or proposals will occur. These systems typically involve any sprinkler, standpipe, fire pump, associated water supply and hood/duct systems as required. Fire Alarm system requirements and inspections are included under BDS Low Voltage electrical permits.

## General Safety Provisions

When storing or using any type of hazardous materials, IFC Section 407 should be followed and the required paperwork made accessible to the fire code official. Additionally, IFC Sections: 5001.3 - 5001.6.3 should be consulted.

Section 407 of the IFC gives responders the information on the hazardous chemicals that are on the property.

- Material Safety Data Sheets (MSDS) shall be on property and easily accessible.
- Containers and/or packages related to hazardous materials shall be properly labeled and warning signage shall be properly displayed and easily visible. NFPA 704 placarding must be in place when required.
- Employees shall be trained on the emergency procedures in the event of an emergency involving hazardous material on the property. Training shall be documented and maintained on-site. Documentation shall be made available to the fire code official upon request.
- When required by the fire code official, a permit and authorized paperwork should be submitted to the AHJ.
- When hazardous materials are used or stored on site, a facility closure plan may need to be submitted to the fire code official and other organizations before the facility can be closed or relocated.

# Building and Equipment Design Features

## **Fire Protection:** IFC Chapter 9, Fire Protection and Life Safety Systems

Plant cultivation operations in commercial buildings are typically classified as F-1 occupancy. There are several common triggers for plant cultivation operations that require the installation of a fire sprinkler system. Section 1.1.4 of the IFC specifically addresses F-1 sprinkler requirements with the most common trigger being a fire area exceeding 12,000 square feet. Another common trigger is the desire for these businesses to have a sealed limited access building that leads to the creation of a story without openings (Section 903). An additional consideration would be a building that exceeds height and/or above grade area limitations. Per Section 903.2.5 of the IFC, Marijuana facilities that fall under a Group H occupancy classification require further consideration for a fire sprinkler system.

## **Interior Finishes:** IFC Chapter 8, Interior Finish, Decorative Materials and Furnishings

It is common in marijuana grow facilities to use a Visqueen® or Mylar® type plastic/polyethylene or polyester sheeting to cover walls and ceilings. Any use of plastic to enclose rooms or cover walls and/or ceilings must be installed in accordance with requirements in the IFC and IBC. Interior finishes must comply with flame spread ratings in accordance with Table 803.3 of the IFC.

\*Hanging plastic from ceilings or suspended overhead structures to create wall dividers is prohibited by the adopted code in the City of Springfield.

## **Exits and Exit Signage, Egress:** IFC Chapter 10, Means of Egress

Security measures are often extreme in marijuana facilities. The desire for security in no way overrides the minimum requirements for exiting and egress found in Chapter 10 of the IFC. Common issues associated with exits and egresses are as follows:

- Number of exits shall be in accordance with Table 1006.2.1 and Table 1006.3.2(2) and Section 1017.2 of the IFC. Additional exiting requirements may be required in extraction rooms where LP-gas or CO2 extraction methods are used.
- Means of egress cannot be diminished or concealed in any way.
- Exit doors and their function cannot be eliminated without prior approval, see Section 504.2 of the IFC.
- Exterior doors that have been rendered non-functional and that retain a functional door appearance are required to have a sign affixed to the exterior of the door with the words THIS DOOR BLOCKED; reference Section 504.2 of the IFC.
- Where 2 or more exits are required, egress doors are required to swing in the direction of egress travel.
- Where more than one exit is required, illuminated exit signs are to be provided that must be readily visible from any direction of egress travel.
- Intermediary exit signs may also be required per Section 1013 of the IFC.
- H occupancies require specific considerations for exiting.

## **Locks and Key Box:** IFC Chapter 5, Fire Service Features

Where security and life safety objectives conflict, alternative measures may be required or permitted by the AHJ. See IFC Section 506 for detailed requirements for access.

## **Locks:** IFC Chapter 5, Fire Service Features

Due to the increased security measures required, and the potential hazards associated with marijuana facilities, the AHJ is authorized to require the installation of “approved” locks on any and all gates or similar barriers, which will permit timely access to all areas of the facility’s property in the event of an emergency. If the facility has electronic access controls, the AHJ requires an access code or electronic access card be provided in the key box.

## **Key Boxes:** IFC Chapter 5, Fire Service Features

Due to the increased security measures required, and the potential hazards associated with marijuana facilities, the AHJ is authorized to require the installation of a key box in an approved location, which will permit timely access to the facility in the event of an emergency.

**Security Gates:** IFC Chapter 5, Fire Service Features

Due to the increased security measures typically required, and the potential hazards associated with marijuana facilities, the AHJ is authorized by amended IFC 506.1 and 506.1.1 to require that any security gate installed across a fire apparatus road be approved before installation and include Knox padlocks or key operated switch.

**Bolts, bars, locks and latches:** IFC Chapter 10, Means of Egress

Egress doors are required to open easily when exiting without the need for a key, without using extra effort and/or without having special knowledge in order to operate the installed hardware. Door handles, pulls, latches, locks and other operating devices should be free of tight grasping, tight pinching or twisting of the wrist to operate. Slide bolts, dead bolts, thumb latches and similar hardware items are prohibited from being installed on emergency egress doors. Security bars are allowed but must meet requirements of the amended and adopted IFC Section 1010.1.4.6.

**Alternative Locking Devices:** IFC Chapter 10, Means of Egress

Delayed egress locks and electromagnetic locks are permitted for use in other occupancy types but must be approved for use by the AHJ.

**Aisles:**

Clear aisles are necessary to facilitate rapid evacuation of occupants and provide emergency egress in the event of an emergency. When considering product, equipment and fixture placement within a space, keep in mind that persons working in the area should be able to quickly stand and walk to an emergency exit door without having to twist or contort their body in order to avoid protruding objects from either side or above. Aisles require a clear width ranging from 28" to 44" or greater, depending on the occupancy load of a space. The AHJ may need to make a determination in this area with respect to the required widths based on obstruction and required responder egress.

**Ventilation:**

Marijuana facilities must implement and maintain appropriate ventilation and filtration systems to satisfy unwholesome or noxious odor nuisance standards that may be in place within the local jurisdiction. Generally, the AHJ may require that the odor of marijuana must not be perceptible at the exterior of the building, at the licensed premises or at any adjoining use of the property.

The AHJ may or may not mandate particular equipment specifications with regard to filtration; however, all marijuana establishments are strongly encouraged to adopt best management practices with regard to implementing state-of-the-art technologies in mitigating marijuana odor, such as air scrubbers and charcoal filtration systems.

Marijuana product manufacturing facilities and testing facilities must implement appropriate exhaust ventilation systems to mitigate noxious gasses or other fumes used or created as part of any production process. Exhaust ventilation equipment is required to be appropriate for the hazard involved and must comply with local fire and mechanical codes.

**Portable Fire Extinguishers:** IFC Chapter 9, Fire Protection and Life Safety Systems

Approved portable fire extinguishers are required to give the occupants the means to suppress a fire during its initial or incipient stage. A readily available portable fire extinguisher can contribute to the protection of the occupants.

Each occupancy type is considered unique in design, intended use of spaces, and types of materials within each space. Portable fire extinguishers are classified according to the types of fire (A, B, C & D) for which they are intended to extinguish. Class A and B extinguishers are also rated according to performance capability, which is represented by a number.

The size, classification, total number, and distribution of portable fire extinguishers required for occupancy type will be determined by the AHJ based on fire code requirements. The installation requirements for portable fire



extinguishers vary according to size, weight and type of specific hazard. The AHJ will ensure that all portable fire extinguishers are located where they are readily visible and accessible at all times.

Proper maintenance of the installed portable fire extinguishers is the responsibility of the occupant or property owner.

**Electrical: Wiring, Extension Cords, Appliance, Lighting, Extraction Equipment, Kitchen:** IFC Chapter 6, Building Services and Systems

Electrical systems are a common cause of ignition for fires. In 2011, an estimated 64,100 structure fires across the United States were reportedly caused by some type of electrical failure or malfunction. When firefighters are working to extinguish a fire in a building, they need to be able to turn the electricity off so they can operate more safely. For these reasons, there are several considerations that must be taken by marijuana facilities in order to ensure that electrical systems are installed and maintained safely.

General electrical requirements for all facilities follow Section 604 of the IFC:

1. Doors into electrical control panel rooms are required to be marked with a sign stating ELECTRICAL ROOM. The means for turning off electrical power to each electrical service and each individual electrical circuit must be clearly and legibly marked.
2. Electrical panels and electrical disconnect switches must be accessible at all times. A clearance of 30 inches wide (wider for panels and equipment that exceeds 30 inches in width), 36 inches deep, and 78 inches high is required to be maintained free from storage.
3. Electrical systems must be maintained in good repair without exposed wiring, open junction boxes, or damaged equipment that could present an electrical shock or fire hazard.
4. Power strips with built-in overcurrent protection (“circuit breakers”) are allowed, provided they are plugged directly into a permanent electrical receptacle. Power strips may not be plugged into additional power strips (daisy chaining). A power strip’s cord may not be run through walls, above ceilings, or under doors or floor coverings. If power strips show evidence of physical damage, they must be replaced.
5. Extension cords may only be used to provide temporary power to portable electric appliances. Extension cords may not be used as a substitute for permanent wiring, and may not be affixed to structures, extended through walls, ceilings or floors, or under doors or floor coverings. Multi-outlet extension cords that do not have built-in overcurrent protection (“circuit breakers”) are not allowed. If extension cords show evidence of physical damage, they must be replaced immediately.

# Special Requirements for Cultivation and Extraction

The amount of electricity needed for a cultivation operation can easily exceed that of other types of businesses. If the cultivation business/facility moves into an existing building, there is a strong likelihood that the electrical panel and the wiring inside the building will require upgrading in order to accommodate the required power needed to cultivate plants utilizing grow lamps and ventilation equipment. It is not uncommon to have the electrical utility provider upgrade the amount of electricity feeding the building from the transformer outside.

Flammable gases and liquids often used for marijuana oil extraction have the potential to create an explosive environment for which the electrical system can be an ignition source. Rooms or areas where extraction equipment utilizes these materials are subject to special wiring and equipment requirements to minimize this risk. These requirements keep the electrical system isolated from the remainder of the space in a way that typical electrical systems do not.

## **Premise Identification:** IFC Chapter 5, Fire Service Features

Most cultivation and extraction operations try to remain discrete. This is often part of their overall security method and not wanting to draw a lot of attention to what they are doing. It is not unusual for the businesses to remove all markings from the building. All buildings are required to be provided with address identification. This address must be visible from the street or road fronting the property, on the rear of the property and contrasting with the background of the building by locally amended Section 505.1 of the IFC. Hazard signage should be addressed using NFPA 704 placards. Signage that identifies the name of the business is not regulated by fire code but may be regulated by other local city government.

## **Security:** IFC Chapter 10, Means of Egress

While it is understood that security is very important to marijuana facilities, this security cannot create risks to employees, the general public, and emergency responders. Not only do occupants need to be able to exit the facility in an emergency, but firefighters must be able gain access. There are several factors that must be considered when balancing security with fire code compliance:

1. Egress doors are required to be readily openable from the egress side without the use of a key or special knowledge or effort, and cannot have hardware that requires tight grasping, tight pinching, or twisting of the wrist to operate. This means that double-cylinder deadbolts that allow the door to be locked with a key from either side are generally prohibited. Also prohibited are many styles of doorknobs and deadbolts that are often marketed for residential use. Door bars, surface bolts, and other security devices which require more knowledge or effort than the typical operation of a door latch are prohibited. (Section 1010)
2. The unlatching of an egress door cannot require more than one operation. This means that adding several locking devices to a door for increased security is prohibited. For example: the installation of a deadbolt to a door that has an existing locking door latch is prohibited. Again, if it takes any more effort than the typical operation of a door latch, the device is most likely not permitted on an egress door. (Section 1010)
3. The installation of security features designed to disable, injure, maim or kill intruders is prohibited.

## **Appliances: Extractor, Still, Vacuum Oven, Kitchen, CO2 Generator, Sulfur Evaporator:** IFC Chapter 1, Scope and Administration, and IFC Chapter 39, Processing and Extraction Facilities

If required by the AHJ, a code analysis regarding compliance with the IFC in the use of all processing phases can be required to be provided by a third party per Section 104. The code analysis should cite all applicable building code, fire code/standards and identify compliance and/or non-compliance. Operational processes involving compressed gases should be documented in the analysis including annual LPG use and storage amounts; annual CO2 enrichment system process and storage amounts – including natural gas generators and for any system containing more than 100 lbs. of CO2; annual compressed gas use and storage (required for 6,000 cu/ft. or more of an inert – 1 lb. of CO2 = 8.74 cu/ft).

The AHJ should provide a list of requirements prior to the construction of a medical infused products (MIP) facility or processing room using the above listed appliances in the extraction, cultivation or processing of marijuana. Areas of interests include atmospheric monitoring, ventilation, posted proper emergency procedures, loading and offloading of compressed gases, storage of compressed gases and proper placarding on the building.

The AHJ is to confirm the recommendations made by the third-party peer review that the room or space of use is in compliance with their recommendations before issuing a certificate of occupancy. Once the Engineer and the AHJ have both signed off on the proper setup of the room and all state regulations, such as proper licensing, has been completed the owner will then be granted permission to use the space as designed. Any alterations to the room of appliance will require a second review following the same requirements listed above.

**Fire Department Access:** IFC Chapter 5, Fire Service Features

Buildings/facilities must have at least one all-weather road that is wide enough and strong enough to support the size and weight of fire department apparatus. Roads must extend close enough to buildings to allow for firefighting operations. Roads may have special requirements for “fire lane” signage to disallow parking. A means for turning fire department apparatus around may be required for roads that contain dead ends or no outlet. Gates or barricades that obstruct roads must be approved by the fire department. See the locally adopted IFC Section 503 for further.

All required exterior doors must remain operable for emergency access by firefighters. Eliminating the function of any exterior doors requires prior approval that cannot be granted in every circumstance, and where allowed, the door must be marked with a sign stating THIS DOOR BLOCKED.

Certain equipment rooms contained within a building may require identifying signage to aid firefighters.

1. Rooms containing fire protection equipment (fire alarm panels, fire sprinkler valves, etc.)
2. Rooms containing controls for air-conditioning equipment
3. Rooms containing utility equipment for gas or electrical service
4. Rooms containing hazardous materials or environments

# Special Occupancies and Operations

## **Combustible Fibers:** IFC Chapter 37, Combustible Fibers

Within most cultivation operations combustible fibers will rarely be a consideration but should also not be forgotten. The Hemp industry may have a processing operation that combustible fibers may need to be mitigated.

## **Fumigation and Insecticidal Fogging:** IFC Chapter 26, Fumigation and Insecticidal Fogging

In marijuana facilities, fumigation and insecticidal fogging may be used to kill insects, rodents, other vermin, plant parasites, weed seeds, and fungi that adversely affect growth. Some fumigants are flammable under certain circumstances, and all fumigants are poisonous or toxic. Definitions of “fumigation” and “insecticidal fogging” should be looked at closely to determine if these processes are being utilized. To protect the public and firefighters, there are several requirements that must be followed when performing these operations:

1. Fire departments may require notification, at least 48 hours in advance, of performing these operations, including specific information about the location within the building, the products being used, and contact information for those conducting the operation.
2. Written notice must be given to building occupants with enough notice to allow evacuation and must include information about the duration of the operation and all hazards associated with the operation. Only those directly conducting the operation are allowed to remain in the building.
3. Sources of ignition must be secured before these operations commence and must remain secure until after the space has been ventilated. Sources of ignition include electricity, portable electronic devices (such as cell phones), telephone lines, and any other sources of spark or flame. Certain types of electrical appliances deemed safe for hazardous atmospheres may be allowed when approved by the fire department.
4. Materials used to seal the affected structure or space must comply with flame propagation performance standards and may be approved by the fire department prior to installation.
5. Every access point to the affected structure or space must have both a warning sign and watch personnel to protect against unauthorized entry. Personnel engaged in these operations must have proper respiratory protection available.
6. At the end of the operation, the affected structure or space must be safely and properly ventilated, and all fumigation or fogging product containers, residues, debris, and other materials must be properly disposed of.

Sulfur burners used to burn sulfur pills is a form of fumigation and must be treated as such. This method is typically utilized to treat powdery mildew on the plants.

## **Rack Storage:** IFC Chapter 32, High-Piled Combustible Storage

Rack storage systems present unique challenges for firefighting operations. They allow a larger volume of combustible material than would be present if only the floor was being used, and they place that combustible material in a vertical orientation that increases the potential for fire spread. For these reasons, rack storage systems are very heavily regulated by fire and building codes. There are provisions for structural stability of the racks, aisle widths, exterior access doors for firefighters, special types of fire protection systems, and building features to control the spread and ventilation of smoke. IFC Chapter 32 determines requirements for high rack storage. A qualified design professional will be required to analyze your space and submit documentation for rack storage to the local AHJ.

# Hazardous Materials

## **Hazardous Materials:** IFC Chapter 50, Hazardous Materials – General Provisions

Marijuana manufacturing processes utilize various hazardous materials subject to the activity. The AHJ should require a detailed chemical inventory in accordance with the fire code to determine the hazards and classifications of the materials used within any cultivation, infused product manufacturing, and concentrate extraction occupancy facility.

Marijuana cultivation or grow operations include similar materials to that of other indoor botanical or greenhouse operations. They may employ the use of pesticides, insecticidal fumigation or fogging techniques, in addition to nutrients and fertilizers. The materials can range from benign to toxic. Each state's Department of Agriculture may have regulations and defined enforcement related to hazardous materials and should be consulted as a resource.

Carbon dioxide (CO<sub>2</sub>), an asphyxiant gas, is also commonly used in marijuana grow operations. Growing in a greenhouse or indoors, the CO<sub>2</sub> levels can be reduced as the plants use CO<sub>2</sub> during photosynthesis. Enriching the air with CO<sub>2</sub> supports plant growth and development. Carbon dioxide may be stored in mini-bulk cryogenic liquid cylinders that are vacuum jacketed, in steel or aluminum cylinders as liquefied compressed gas or be produced by carbon dioxide generators. Supply gases for CO<sub>2</sub> generators are often natural gas and/or propane.

Infused product manufacturing and concentrate extraction processes, also known as hash oil extraction, may utilize flammable and combustible liquids, flammable gases (LP Gas), and asphyxiant gases. Water-based marijuana, food-based marijuana, and solvent-based marijuana are typical marijuana concentrates.

Each concentrate requires different processes, as well as the use of different materials to extract the product from the plant. Processing may employ the use of closed-loop solvent extraction, pressurized equipment, steam distillation, heat, ice, water or other methods that do not require solvents.

Processing types include, but or not limited to:

1. Water-based marijuana concentrates extract cannabinoids through the use of water, ice or a solid form of carbon dioxide, better known as dry ice. Materials in this category are typically non-hazardous.
2. Food-based marijuana concentrates extract cannabinoids through the use of food products such as propylene glycol, glycerin, butter, olive oil or other typical cooking fats. Materials in this category may be hazard classified as physical hazards or combustible liquids.
3. Solvent-based marijuana concentrates extract cannabinoids through the use of pressurized closed loop systems and non-closed loop systems. Materials in this category may be classified as physical hazards using flammable liquids (hexane, isopropanol, ethanol, grain alcohol); flammable liquefied gas - LP Gases, butane, n-butane, propane; and health hazards, such as, high pressure carbon dioxide gas systems. Note that most of these are not 'closed systems' as they have to be opened at some time to get product and waste out, thereby releasing volatile gases.

## **Compressed Gases:** IFC Chapter 53, Compressed Gases

Compressed gases of varying materials may be used in multiple processes in cultivation or extraction and are typically governed by Chapter 50 and Chapter 53 of the IFC. Listed below are highlighted sections and only refer to common requirements surrounding compressed gases in marijuana facilities. This list is not all-inclusive. Examples of these gases include, but are not limited to, butane, propane, and carbon dioxide.

A code analysis regarding compliance with these chapters in the related processing phases shall be provided by a third party, State Certified Professional Engineer or Fire Protection Engineer. The code analysis should cite all applicable building and fire codes/standards and identify compliance and/or non-compliance. Operational processes involving compressed gases that should be documented in the analysis should include annual LPG use & storage amounts; annual CO<sub>2</sub> enrichment system process and storage amounts – including natural gas generators and for any system containing more than 100 lbs. of CO<sub>2</sub>; annual compressed gas use & storage (required for 6,000 cu/ft. or more of an inert – 1 lb. of CO<sub>2</sub> = 8.74 cu/ft).

## **Flammable Gases:** IFC Chapter 58, Flammable Gases and Cryogenic Fluids

Flammable gases of varying materials may be used in multiple processes in cultivation or extraction and are typically governed by Chapter 50, Chapter 58 and Chapter 61 of the IFC. Other referenced standards and/or documents from the IFC include, NFPA 58, Appendix B of NFPA 58, NFPA 70 and the International Fuel Gas Code. Sections listed below are highlighted sections of each, only refer to common code issues surrounding flammable gases in Marijuana Facilities and are not inclusive of all requirements. Some examples of these gases include but are not limited to butane and propane.

A code analysis regarding compliance with these chapters in the related processing phases shall be provided by a third party, State Certified Professional Engineer, or Fire Protection Engineer. The code analysis should cite all applicable building codes and fire codes/standards, as well as identify compliance and/or non-compliance. Operational processes involving flammable gases that should be documented in the analysis should include annual flammable gas usage and storage amounts.

## **Pesticides and Fertilizers:**

Cultivation and extraction operations generally contain hazardous materials regulated by fire code, such as fertilizers, pesticides, and flammable gases and liquids. There are several factors that need to be considered to remain compliant with the storage and use of these materials:

1. All hazardous materials must be classified in accordance with the categories and definitions provided in fire code. This can be a complicated process and may require professional assistance.
2. Once hazardous materials have been classified, there is a maximum allowable quantity that can be stored in a facility. It is possible, and even likely, that different products share a classification and must be counted together towards the maximum allowable quantity. There are options to increase the maximum allowable quantity in a facility, such as use of special hazmat cabinets, building rooms with fire-resistive construction to create control areas, and installation of fire sprinkler systems.
3. Facilities where hazardous materials are stored in certain quantities must have special signage installed outside to make firefighters aware of what is located in the building.

## **Gas Detection and Alarms:** IFC Chapter 50, Hazardous Materials – General Provisions, and IFC Chapter 53, Compressed Gases

Detection of gas or vapor release is typically not required unless the MAQ of hazardous materials are exceeded. However, Chapter 50 of the IFC states, if the release of hazardous material can cause immediate harm to a person or property a means to mitigate the release shall be provided. This could include the need of a gas detection system.

When using a flammable gas or flammable liquid, processes that are extracting oil from the marijuana plant will typically have some type of leak or gas detection.

Carbon Dioxide is a very common gas used within the marijuana cultivation operation and can also be used to remove the oil from the plant as discussed within the Hazardous Material section. Carbon Dioxide enrichment systems shall meet the requirements set forth in Section 5307.4-5307.4.

When a gas detection system is required, the meter is required to be listed and labeled in accordance with UL 2075. Mechanical interlocks that shut down the flow of gas to the unit when gas is detected are required in any facility that is not constantly attended. If personnel are constantly attending the process in which gas is being used and can physically shut off the gas supply, the interlock is not required. In either case, atmospheric monitoring must give an audible alarm indicating the presence of gas in the air has reached its permissible exposure limit (PEL). Shutdown procedures must be followed by the manufactures recommendations and the room must be vacated until all alarms read normal. All equipment used in the detection of flammable and/or toxic gases must be approved by the AHJ and may require construction and mechanical permits. Emergency plans for administrative controls and shutdown should be reviewed and approved by the AHJ

## **Liquefied Petroleum Gases (LPG), Indoor and Outdoor:** IFC Chapter 61, Liquefied Petroleum Gases

Sites that have LPG such as propane and butane are regulated under Chapter 61 of the IFC and NFPA 58. Although LPG is flammable it is not regulated by IFC-Chapter 58 Flammable gas code. LPG gases are heavier than air and seek low lying areas. LPG has an extremely high expansive ratio, meaning amounts of LPG can lead to dangerously explosive levels quickly.

### **LPG Requirements:**

- Allowed locations if LPG containers within a building are found in NFPA 58 and subject to the approval of the fire code official.
- Compliance for portable containers is determined by NFPA 58 and IFC Section 6103.
- Use of LPG in basements, pits or similar locations is prohibited in areas where heavier than- air- gas can collect.
- Within F occupancies, where manifolded, the water capacity of containers can reach 735 pounds per manifold.
- Because of the physical properties of LPG, special consideration should be given as to the location of LPG. The locations allowed are regulated by NFPA 58 as well as the approval of the fire code official.
- LPG needs to be used with approved equipment for LPG.
- LPG can only be released to atmosphere with accordance to NFPA 58 Section 7.3.
- No Smoking signs, as required by the fire code official, need to be present, as well as combustible material must to be maintained a distance of 10 feet from containers. If containers, regulators and piping are subject to vehicle traffic then protection is required in accordance with NFPA 58.
- Locations for extinguishers need to be in compliance with IFC Section 906 and placed according to NFPA 58.
- LPG containers cannot be stored near a means of egress.
- No more than 200 lbs. of the 2.5 lb. containers may be stored within buildings accessible to the public.

## **Flammable and Combustible Liquids:** IFC Chapter 57, Flammable and Combustible Liquids

Flammable and combustible liquids are used for solvent based extraction of marijuana concentrated products. Hazards involved are the release of the solvent and low-level ignition sources. Often these liquids are under pressure and a release could easily result in an explosion.

Classified locations are for areas where flammable liquids are stored, handled, dispensed and or mixed. The locations are held to the requirements of IFC Table 5703.1.1

Piping systems for flammable and combustible liquids need to be in accordance with IFC Sections 5703.6.1 through 5703.6.11 and the design of such systems need to be in accordance with NFPA 30 Chapter 27.

### **Ventilation:**

Flammable/combustible liquids and compressed gases used in extraction or processing in Marijuana Facilities are required to be vented in accordance with IFC Chapters 50 and 53 and portions of the International Mechanical Code. This ventilation may include systems for gas rooms, exhausted enclosures, gas cabinets, indoor storage areas and storage buildings. Listed below are highlighted sections of the IFC that refer only to common code issues surrounding ventilation of flammable/combustible liquid vapors and compressed gases in Marijuana Facilities and are not inclusive of all requirements.

A code analysis regarding compliance with these chapters in the related processing phases may need to be provided by a third party, State Certified Professional Engineer or Fire Protection Engineer. The code analysis should cite all applicable building codes and fire codes/standards and identify compliance and/or non-compliance.

# Referenced Standards

## CURRENT EDITIONS OF THE FOLLOWING STANDARDS:

- NFPA 13: Standard for the Installation of Sprinkler Systems
- NFPA 1: Chapter 38- Marijuana Grow & Extraction Facilities
- NFPA 30: Flammable and Combustible Liquids Code
- NFPA 55: Compressed Gases and Cryogenic Fluids Code
- NFPA 58: Liquefied Petroleum Gas Code
- NFPA 70: National Electrical Code®
- NFPA 497: Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

## Referenced International Codes

- International Building Code
- International Existing Building Code
- International Mechanical Code
- International Fuel Gas Code
- International Plumbing Code
- International Fire Code



# Considerations for other Regulatory Departments

## BUILDING DEVELOPMENT SERVICES:

### Construction:

Cultivation/grow facilities should comply with the AHJ adopted fire and building codes for Use and Occupancy for a Factory (F-1), moderate hazard occupancy, primarily due to unconventional electrical systems, fumigation, carbon dioxide enrichment, maze like rooms, and the usual close proximity to other occupancies.

Dispensaries should meet AHJ adopted fire code and building code for the use and occupancy for Mercantile (M) occupancy.

Many times, other MJ industry centered facilities will be based on a use and occupancy classification of a Mercantile Occupancy, “M” International Building Code (IBC 309.1) or possibly a “B” if there is patient care and similar.

“Use of a building and or structure or portion thereof, for the display and sale of merchandise and involves stocks of good, wares or merchandise incidental to such purposes and accessible to the public.”

When a building department determines a structure or portion thereof to be a “classified” occupancy, the designer of record may be required to demonstrate “declassification” through ventilation designs or other methods.

### Electrical:

Apart from being a demanding electrical consumer, most cultivation facilities are no different to the electrical reviewer than any other F1 occupancy; however, when dealing with a hazardous process the location will be classified according to NFPA 70, Article 500.

### Mechanical:

City of Springfield will require that the MIPP operation be located in a designated room and most AHJs require a hazardous exhaust system installed to capture any potential release of flammable gas.

Many AHJs require a system be installed to ensure that the odor from such locations cannot be detected at the exterior of the facility. Confirm with Uniform Mechanical Code (UMC) for confirmation of air changes required.

### Technical Assistance:

The Fire Code Official is authorized to require the owner or agent to provide, without charge to the jurisdiction, a technical opinion or report by a third party.

In MJ cases, a qualified professional can provide engineer certification to a piece of equipment for compliance with fire code, standards or best practices. The professional can also provide an Occupancy Evaluation Report that evaluates the occupancy and identifies facility compliance with the fire and building codes specific to the MJ operation.

## PLANNING AND ZONING:

A medical marijuana cultivation facility is a facility licensed by the State of Missouri to acquire, cultivate, process, store, transport, and sell marijuana to a medical marijuana dispensary facility, medical marijuana testing facility, or to a medical marijuana-infused products manufacturing facility. This use is permitted in the Highway Commercial, Commercial Service and all Industrial zoning districts (RI, Restricted Industrial, LI, Light Industrial, GM, General Manufacturing, HM, Heavy Manufacturing and IC, Industrial Commercial Districts). A 1,000-foot separation from schools, child day cares and churches as recommended by the State is required. The City is concerned about the effects of odor from these types of facilities and requires a Conditional Use Permit (CUP) if located adjacent to or across the street from any residential zoning district. The CUP process will provide residents notification if they are within 500 feet of the property and the ability to protest the establishment of the use if within 185 feet of the property. The CUP must be reviewed and approved by Planning and Zoning Commission and City Council.

The following general standards shall apply to all medical marijuana facilities:

1. A business license shall be obtained annually, and the medical marijuana license issued by the State of Missouri shall be displayed in an open and conspicuous place on the premises.
2. Facilities must develop, implement, and maintain an odor control plan, which shall address odor mitigation practices including, but not limited to, engineering controls, such as system design and operational processes, which shall be reviewed and certified by a professional engineer or a certified industrial hygienist as sufficient to effectively mitigate odors for all odor sources. No use shall emit an odor that creates a nuisance in violation of City Code.
3. No medical marijuana business shall be located in a building that contains a residence.
4. All medical marijuana businesses shall be closed to the public between the hours of 10:00 P.M. and 6:00 A.M.; no persons not employed by the business shall be on the premises, and no sales or distribution of marijuana shall occur upon the premises during that time.
5. No marijuana may be smoked, ingested, or otherwise consumed on the premises of a medical marijuana establishment.
6. All operations and all storage of materials, products, or equipment shall be within a fully enclosed building. No outdoor operations or storage shall be permitted.
7. If multiple licenses are issued for one location, then restrictions for the highest intensity use shall apply.
8. All other City Codes shall apply.

**BUSINESS LICENSING:**

Medical marijuana facilities located inside the city limits of Springfield will require a City of Springfield business license. The type of license required will be based on the type of services and sales being conducted by the applicant. A State of Missouri medical marijuana facility license and State of Missouri retail sales tax license, including a current no tax due statement will be required. All applications will be subject to Planning and Zoning approval. Licenses are obtained annually and must be renewed by January 31st to avoid penalty and/or enforcement activity.